

Pathways to the Paralympic Games:
Exploring the Sporting Journeys of High Performance
Para athletes with a Limb Deficiency

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Abstract

Characteristics associated with sport expertise have been well researched for able-bodied athletes, however, little has been documented for Para athletes. It is important to understand the sporting journeys of successful Paralympians to better support the development of future elite Para athletes. This 'Pathways to the Paralympic Games' research explores the sporting experiences of New Zealand Paralympians and focuses on sport expertise development in Para athletes with a limb deficiency. In-depth, semi-structured interviews were conducted with nine recent Paralympians with a limb deficiency to understand their sporting pathway, as well as any perceived influences on participation and sporting success for this population.

Three key influences on the sporting pathway emerged: *Sport influences*, the extrinsic motivations for involvement in sport (both able-bodied and Para sport); *psychological influences*, the intrinsic factors that have influenced involvement; and *impairment influences*, the Paralympians thoughts and feelings about limb deficiency and sport. Feelings of support from coaches, parents and peers were considered to be particularly important to the Paralympians, who stated that people contributed to the positive vibe and successful culture surrounding their Para sport environment. Perceptions of sporting competence were increased and influenced through the Paralympian's ability to apply mental skills training though techniques such as visualisation and positive self-talk. Feelings surrounding impairment were often that of frustration. This was due to both society creating pre-conceived ideas of what people living with a limb deficiency should be able to accomplish and prosthetic technology not being accessible or meeting the requirements for the level of training necessary for the Paralympian to achieve, what they perceived to be, their optimal performance.

The main findings of this study suggest Paralympians have additional requirements to able-bodied high performance athletes and that having strong support networks and the ability to access appropriate resources are critical to influencing successful sporting pathways to elite Para sport. The results from this study present an evidence-base which can give insight to New Zealand's Para sport sector on potential areas to improve future talent identification and development of emerging Para athletes.

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Notes on Terminology

In line with the World Health Organisation (WHO), the International Paralympic Committee (IPC) is progressing away from using the word 'disability' as it suggests an interaction between characteristics of an individual's body and features of society, and normally infers the individual is unable to do a task. When describing a loss in body function or activity restriction, the word 'impairment' is now preferred. This changes the focus towards a Para athlete's abilities. The future aspiration is that it will not be required to use either word. With the aspiration of the IPC (2017, p. 29) being "those who participate in Paralympic sport are quite simply athletes."

Preferred words and phrases

The following is the preferred terminology to use when referring to Para athletes and Paralympians as suggested by the IPC (International Paralympic Committee, 2017):

- When referring to sports people with impairment, call them an athlete, or where a distinction needs to be made between able bodied and Para, the preferred term is Para athlete. Position the individual first rather than referring to their impairment (e.g., Paralympian with limb deficiency).
- Able-bodied athletes, or where possible Olympic athletes. Identifying able-bodied athletes as 'normal athletes' is disrespectful to Para athletes and individuals with impairment.

Usage of Para and Paralympic

Paralympic, Paralympics and Paralympian can only be used with reference to the Paralympic Games. For all sport outside of that, the word Para can be used (capitalised and followed by a space, e.g., Para swimming), provided that the sport's international federation is a member of, or recognised by the IPC (International Paralympic Committee, 2017).

- **Para athlete:** This is a general term for athletes with an impairment who participate in a Para sport. Specifically, it can be used for athletes who have not yet competed at a Paralympic Games, or for amateur athletes. The International Federation (IF) of the sport must be recognised by the IPC.
- **Paralympian:** A Para athlete who has taken part in Paralympic Games.

Eligible Impairments

The Paralympic Movement offers Para sport for Para athletes with one or more of ten eligible impairment types (International Paralympic Committee, 2017):

- **Impaired muscle power:** Reduced force generated by muscles or muscle groups, such as muscles of one limb or the lower half of the body (e.g., spinal cord injuries, spina bifida or polio).
- **Impaired passive range of movement:** Range of movement in one or more joints is reduced permanently (e.g., due to arthrogryposis).
- **Limb deficiency:** Total or partial absence of bones or joints as a consequence of trauma (e.g., car accident), illness (e.g., bone cancer) or congenital limb deficiency (e.g., paraxial fibula hemimelia).
- **Leg length difference:** Bone shortening in one leg due to congenital deficiency or trauma.
- **Short stature:** Reduced standing height due to abnormal dimensions of bones of upper and lower limbs or trunk (e.g., due to growth hormone dysfunction).
- **Hypertonia:** Abnormal increase in muscle tension and a reduced ability of a muscle to stretch, due to a neurological condition (e.g., cerebral palsy, brain injury or multiple sclerosis).
- **Ataxia:** Lack of co-ordination of muscle movements due to a neurological condition (e.g., cerebral palsy, brain injury or multiple sclerosis).
- **Athetosis:** Generally characterised by unbalanced, involuntary movements and a difficulty in maintaining a symmetrical posture, due to a neurological condition (e.g., cerebral palsy, brain injury or multiple sclerosis).
- **Visual impairment:** Vision is impacted by either an impairment of the eye structure, optical nerves or optical pathways, or the visual cortex.
- **Intellectual Impairment:** A limitation in intellectual functioning and adaptive behaviour as expressed in conceptual, social and practical adaptive skills, which originates before the age of eighteen.

This thesis is in line with the Paralympic Movement and has accepted the above definitions for the ten eligible impairment types as defined in the World Health Organization

International Classification of Functioning, Disability and Health (ICF) document (World Health Organization, 2017).

Important definitions and acronyms

- **ACC** – Accident Compensation Corporation. Everyone in New Zealand is covered by ACCs no-fault scheme if they are injured in an accident. The cover provided helps pay for the costs of recovery (e.g., physiotherapy, surgery or prosthetic costs) (New Zealand Government, 2018).
- **Athlete** – For the use within this study, used in the generic sense to mean all sports people.
- **Autonomy** – Freedom from external control; independence (Cambridge University Press, 2018).
- **Barrier** - For use within this study, the operational definition of a barrier is anything that prevents or hinders participation in sport (McLoughlin, Weisman Fecske, Castaneda, Gwin, & Graber, 2017).
- **Blade** - A prosthetic lower limb designed for Para athletes, consisting of a flattened length of carbon fibre with a long, curved section at the base (Cambridge University Press, 2018).
- **CDT** - Critical Disability Theory. CDT grew out of several other theoretical interdisciplinary fields such as Feminism and Ethnic studies to examine the social construction of impairment (Saxton, 2018).
- **Competence** – The ability to do something successfully or efficiently (Cambridge University Press, 2018).
- **Crowd funding** – Defined as funding a project or venture by raising money from a large number of people who each contribute a relatively small amount, typically via the Internet (Cones, 2013).
- **Early specialisation** - Suggested as relating to children twelve years or under, early specialisation is defined as a focus on a specific sport, as well as being measured in hours of practice an individual dedicates to that sport. This dedication usually requires intense training (duration/ frequency/ intensity) in the chosen sport whilst all excluding other sports (Sluder, Fuller, Griffin, & McCray, 2017).

- **Elite Athlete** – A person who is currently or has previously competed (individual or team) as a professional athlete or a national or international level athlete (Cambridge University Press, 2018).
- **Extrinsic** – Defined as coming from outside, or not related to something (Cambridge University Press, 2018).
- **Humanistic, athlete-centred coaching** - Is about offering a supportive learning environment to help athletes' growth and development, which requires thinking holistically about the athlete (Kidman, 2010).
- **Intrinsic** – Being an extremely important basic characteristic of a person or thing (Cambridge University Press, 2018).
- **IPC** – International Paralympic Committee. The IPC is an international non-profit organisation and the global governing body for the Paralympic Movement. The IPC organises the Paralympic Games and functions as the International Federation (IF) for ten sports.
- **LTAD** – Long Term Athlete Development framework. LTAD framework is a physiological framework proposed to manage the focus, volume and type of training applied to athletes as they develop through adolescence into adulthood. LTAD framework is also a sport system framework for sport delivery (Balyi, Way, & Higgs, 2013).
- **NSO** – National Sporting Organisation. NSOs are sporting governing bodies in the development of sound sport practice in sport delivery, policy development, governance, business and strategic planning, equality and workforce development for their particular sport within New Zealand (e.g., Athletics New Zealand).
- **NZALS** – New Zealand Artificial Limb Service. NZALS is a specialist healthcare provider that manufactures high technology medical devices, mainly artificial limbs, for individual patients and offers an integrated rehabilitation and coordination of care service (New Zealand Artificial Limb Service, 2018).
- **ParaFeds** - Paraplegic and Physically Disabled Federations. ParaFeds are regional organisations that provide opportunities and encourage people with physical impairment to participate in sport and recreation. New Zealand has eleven ParaFeds operating around the country.

- **Paraxial fibular hemimelia** - Partial or total absence of fibula. It is the most common long bone deficiency and skeletal deformity in the leg. Most often it is unilateral. Although congenital absence of fibula is evident, this condition is actually a total limb involvement, with males being affected twice as often as females (Wheeless, 2017).
- **PEGs** – Performance Enhancement Grants. The aim of the Performance Enhancement Grants (PEGs) programme is to provide New Zealand targeted athletes (able-bodied and Para athletes) and teams with direct financial support to enable them to train fulltime, in order to maximise their international performance (Sport New Zealand, 2018).
- **PNZ** – Paralympics New Zealand. PNZ is the National Paralympic Committee (NPC) for New Zealand.
- **Relatedness** – Being connected; connectedness (Cambridge University Press, 2018).
- **Sampling** – In sampling, children play a number of sports. The theory being that they develop a diverse range of skills, which are transferred across sports (Côté, Horton, MacDonald, & Wilkes, 2009).
- **SCT** – Social Cognitive Theory. SCT suggests learning occurs in a social context with a dynamic and reciprocal interaction of the individual, environment, and behaviour. SCT considers the unique way in which individuals acquire and maintain behaviour, while also considering the social environment in which individuals perform the behaviour. The theory takes into account an individual's past experiences, which factor into whether behavioural action will occur (Martin & Mushett, 1996).
- **SDT** – Self-determination Theory. This theory concerns human motivation, personality, and optimal functioning. Rather than just the amount of motivation, SDT focuses on different types of motivation (Ryan & Deci, 2000).
- **Sport** – A game competition or activity needing physical effort and skill that is played or done according to rules, for enjoyment and/or as a job (Cambridge University Press, 2018). For the purpose of this thesis the word sport refers to the participants being involved in able-bodied activities, teams and sports; Para sport refers solely to participating in sports with other Para athletes.

- **SRM** – Social Relational Model of impairment. The SRM of impairment is a conceptually progressive model that explains the concepts of impairment and disability are manifestations of social relationships, produced as people engage in social structure (order) and social agency (action) (Haslett, Fitzpatrick, & Breslin, 2017).
- **Syme amputation** - The preferred method of treatment for Paraxial fibular hemimelia is early removal of foot by ankle disarticulation of Syme type, producing a sturdy end-bearing stump. The amputation is usually done at about ten months to two years of age. Syme amputation allows for application of a highly functional below the knee prosthesis (Wheeless, 2017).
- **TPB** – Theory of Planned Behaviour. TPB suggests that behaviour is determined by intentions, attitudes (beliefs about a behaviour), and subjective norms (beliefs about others' attitudes toward a behaviour); wherein perceived behavioural control (beliefs about one's ability to perform a behaviour) and behavioural intentions predict behaviour (Ajzen, 1985).
- **WHO** – World Health Organization. WHO is a specialised agency of the United Nations that is concerned with international public health (World Health Organization, 2018).

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

A handwritten signature in cursive script, appearing to read 'L. Hogg'.

Loretta Hogg

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Ethical Approval

The application for ethical approval to the Auckland University of Technology Ethics Committee (AUTEC) was received in April 2017. Ethical approval was granted on May 7, 2017, by AUTEC. Reference: 17/112 (Appendix A).

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Chapter 1 Introduction

There was no doubt. I just knew it, and I had no idea what sport I was going to do. I was just like, I'm going to be a Paralympian! And yeah, so that's where it started (Paralympian 1).

Sport is known to provide powerful physical and psychological benefits for individuals with impairment (Pepper & Willick, 2009). In fact, the Paralympic Movement began as a rehabilitation pathway for injured servicemen and women in the 1940s (Bragaru, Dekker, Dijkstra, Geertzen, & van der Sluis, 2015). At the Rio 2016 Paralympic Games, New Zealand sent a team of thirty-one Para athletes across six different sports. Sixty-eight events were contested, fifty-seven finals were reached and ninety eight percent of the team finished in the top eight in at least one event. New Zealand came away with twenty-one medals, nine of them gold; eleven Paralympic records and three world records. New Zealand finished thirteenth overall on the medal table and were first in the world for medals per capita. New Zealand is a small country with a small Paralympic team but is an incredibly strong team with high performance expectations.

Despite all of this success, participation rates for Para sport in New Zealand are low and development of Para sport pathways are just beginning to be considered by the New Zealand Paralympic Committee, Paralympics New Zealand (PNZ). With PNZ looking to develop Para sport pathways and opportunities, it is important to understand the sporting journeys of some of New Zealand's most successful Paralympians to see what can be learnt about optimising Para athlete development. As part of that exploration, this research will focus on the influences on sport participation and success, in particular for Paralympians with a congenital or early acquired limb deficiency.

Limb deficiency was specifically chosen as the participant population because approximately half of the Para athletes selected to represent New Zealand at the Rio 2016 Paralympic Games had a limb deficiency, and nearly one-hundred additional individuals with a limb deficiency are registered on the PNZ Para athlete database (Para Sport High Performance Athlete Development Manager, personal communication, January 24, 2017). The information unearthed in this study will be used to inform best practice for recruitment, development, and support of Para athletes with limb deficiency in sport programmes nationwide.

At the time of writing, limited research had specifically addressed the sporting journeys of Para athletes with limb deficiency who develop to the elite level. It is expected that Para athletes

may have to overcome unique constraints to succeed in sport, therefore, a holistic approach to understanding Para athlete development was of particular interest. As such, research that comprehensively explores the talent development process in Para sport would provide a valuable insight into the critical factors that influence Para sport expertise.

When investigating reasons for sport involvement, studies examining the sporting development of able-bodied children have revealed children acquire gratification from intrinsic and extrinsic sources (McCarthy & Jones, 2007). Recognising the sources of sporting satisfaction for people with impairment is essential to educate parents and coaches on how to increase participation and skill acquisition in youth Para sport. Furthermore, there are frameworks available in able-bodied literature that address how to best achieve long-term development and success in sport. One of these frameworks, the Long Term Athlete Development (LTAD) framework (Balyi et al., 2013), highlights the vital role of the coach, but in spite of this, research investigations on Para athletes have stressed that many have to coach themselves due to various reasons (Martin & Mushett, 1996). Investigating whether Paralympians have similar needs to able-bodied athletes, follow similar pathways, or had access to vital resources throughout their sporting journey is important for the future development of Para sport in New Zealand and globally.

The mind-set of the Paralympian is also a under-researched area (Pensgaard, Roberts, & Ursin, 1999), which is surprising, given that Para sport has grown drastically in recent years (Brittain & Beacom, 2016). Past research has largely centred around quantitative studies exploring Para athletes' physiological limitations (Macdougall, O'Halloran, Sherry, & Shields, 2016; Macdougall, O'Halloran, Shields, & Sherry, 2015). In addition to the above factors, Paralympians with a limb deficiency often require the use of sport or exercise-specific prosthetic technology (Diaper, 2012). Para sport participation can be obstructed for people living with impairment by issues relating to access to such technologies, such as inability to afford a suitable prosthetic. Given these barriers relate to everyday sport participation, the pathway to becoming an elite Para athlete could be more challenging. Whilst much of the available research into Para sport has used a quantitative approach to understand the biomechanics of Paralympians, this thesis focused on achieving a deeper understanding of the influences that shape the pathway to becoming a successful Paralympian. The aim of this study was to identify influences on development of New Zealand Paralympians with a limb deficiency. Interviews were conducted with nine New Zealand Paralympians from a variety of individual Paralympic sports. All

participants' impairments were either congenital or acquired prior to age three, meaning they have lived all or most of their life with their impairment. Participants had a diverse range of sporting backgrounds and all had been active sports participants from an early age. Each participant was individually interviewed, providing retrospective information concerning their journey as a Para athlete.

1.1 The Research Question and Purpose

The research question of primary interest was: What are the influences on the sporting journey to becoming a Paralympian? (For example, influences on participation, development, and/or success).

The specific aims of the research were:

- To outline the sporting journeys of New Zealand Paralympians with a limb deficiency.
- To highlight progressions, challenges and setbacks encountered; and determine how the Paralympians' addressed these progressions, challenges and setbacks in order to eliminate or enhance these for future Para athletes.
- To identify the key influences the Paralympians perceived as most important to their success.

The purpose of this post-positivist, qualitative descriptive study was to gain a deeper understanding of the influences (either facilitators and/or barriers) on participation and development to Para sport success for people from this population.

1.2 Overview of the Thesis

Following this introduction, Chapter Two presents a literature review related to Para athlete development. The review begins by broadly reviewing previous research on able-bodied sport participation and development, and then progresses into the current available research on Para sport. A section follows covering past theories and models that have been applied to Para and adaptive sport research before exploring the role and influence of the Para sport coach. This is followed by the importance of positive psychological influences for people with impairment and how mental-emotional factors can influence continued sport involvement and facilitate success. Relevant studies are also reviewed that address the concept of mental skills training, and how this impacts performance. To conclude, the literature review addresses the impact of impairment

terminology used by the media and society; limb deficiency in children and any complications resulting from this; and the importance of technological advancements in relation to the Para athlete. The relevance to the elite Para sport pathway is integrated within each section.

Chapter Three presents the methodology that was applied to this study. The chapter begins by evaluating the methodological framework and explaining the rationale and philosophical underpinning that was applied. The chapter then examines the details of the study design; outlining procedures followed, including participant recruitment, participant description, data collection, and analysis. To conclude this chapter, consideration is given to the ethical principles used to minimise potential risks and issues concerning validity and rigour.

Chapter Four displays the results and progresses through the three dominant themes with verbatim quotes to demonstrate findings. This chapter is illustrated by three main themes: *Sport influences*, *psychological influences* and *impairment influences*. These themes are presented in relation to whether the Paralympians perceived these influences to be a barrier and/or facilitator at any point on their journey to Paralympic success.

Chapter Five is the discussion of key findings. This critical analysis employs relevant literature to support the findings, as well as examine new ideas unearthed in this research.

Chapter Six brings the study to a close by stating the overall conclusions. Recommendations, practical implications, future areas for Para sport research and limitations of the study are reflected upon.

Chapter 2 Literature Review

2.1 Introduction

This chapter explores the literature regarding potential influences on the sporting journeys of Paralympians with a limb deficiency. Particular attention is paid to previous studies that have examined influences on participation in sport (able-bodied or Para sport) for people living with impairment (e.g., individuals with limb deficiency). This literature review also includes key concepts and theories from sport literature, including psychological influences in Para sport, and the various influences that result from living with impairment, specifically limb deficiency. An exploration of general viewpoints surrounding influences on physical activity and sport for people with impairment start the impairment literature in this review, before narrowing down to the specific literature about limb deficiency and influences on Paralympians. This review begins by looking at development foundations applied in able-bodied sport, in order to capture a more conceptual base, as it has been acknowledged that there are significant gaps within the Para sport literature in regard to these frameworks.

In order to map out the current intellectual landscape, it is important to acknowledge the search engines and phrases used, as a form of validation for why certain literature has been chosen for this review. The process began by using the search engines Web of Science and SPORT Discus with full text (EBSCO), specifically searching for variations of 'Paralympian/s with/and limb deficiency'. These search terms within the chosen databases unfortunately generated no results. As a review cannot be written on speculation, the search terms were widened using the key phrases 'disability sport', 'impairment sport', 'Paralympics', 'Paralympians', 'Para athletes', 'prosthetics', 'amputees and sport', 'barriers to sport participation for people with impairment' and 'facilitators to sport participation for people with impairment'. The words 'disability' and 'impairment' were used interchangeably in the search, as 'disability' was the more commonly used word in older research. Using these terms began to generate literature on participation in recreation and physical activity for people living with impairment, as well as some articles on Paralympians. Yet, when all search areas relating to Para sport were exhausted, there were still considerable gaps relating to the development of Para sport expertise. Therefore, able-bodied sport literature was drawn upon to fill in the gaps for youth development frameworks, theories and concepts. Some of this material is quite removed from the specific area of limb deficiency but aimed to develop insight and connection.

This literature review also researched the methodologies applied to the available Para sport studies. It was found that there were gaps relating to in-depth retrospective studies conducted on Paralympians. Therefore, in-depth retrospective studies on elite able-bodied athletes were sought, but this search also delivered minimal results. Broadening the search terms to 'retrospective studies on elite athletes', as well as 'qualitative studies on elite athletes', resulted in elite able-bodied athlete retrospective studies using quantitative research methods, such as the Developmental History of Athletes' Questionnaire (DHAQ) (Hopwood, 2013); and, qualitative inquiries using either focus groups (Oliver, Hardy, & Markland, 2010), or individual interviews with athletes (Macquet & Stanton, 2014), parents (Connaughton, Wadey, Hanton, & Jones, 2008), and/or coaches (Wolfenden & Holt, 2005). The method used to identify and analyse the selected literature was a critical appraisal tool by Letts et al. (2007), called the Critical Review Form for Qualitative Studies.

2.1.1 Able-bodied sport literature.

To begin answering the research question, 'what are the influences on the sporting journey to becoming a Paralympian?' concepts currently applied in able-bodied sport development were considered. Recently, there has been increasing investment into early talent identification and the use of athlete development frameworks by able-bodied sport organisations to promote successful skill acquisition to assist youth athletes in reaching elite status (e.g., Abbott, Button, Pepping, & Collins, 2005; Balyi et al., 2013; Cameron & Porter, 2017). A number of these studies have examined factors which influence how able-bodied athletes navigate their sporting journey toward becoming elite. Influences identified as having an impact on sport development included parents (Black & Holt, 2009), the coach-athlete relationship (Rhind & Jowett, 2010), athlete motivation (Girod, 2015), psychosocial factors (Allen & Laborde, 2014), sporting experiences that impact on participation (Bragaru et al., 2013), success (Huxley, O'Connor, & Larkin, 2017), withdrawal (Blagrove, Bruinvels, & Read, 2017), and talent transfer (R. Collins, Collins, MacNamara, & Jones, 2014).

One common theory that has been applied to able-bodied athlete studies is the Self Determination Theory (SDT). The SDT is not a specific sporting theory, rather it is an approach to human motivation and the factors that nurture its development (Ryan & Deci, 2000). Ryan and Deci (2000) identified these factors as competence, autonomy and relatedness; with all three needing to be met in order for the individual to experience satisfaction. The SDT approaches

motivation, through questioning what type of motivation individuals are demonstrating at any given time. Ryan and Deci (2017) explain individuals can be motivated in various ways, through either personally valuing an activity or through strong external coercion. This is because although intrinsic motivation is a significant motivation, it is not the only type of motivation. To explain the various types of motivation the SDT places motivation on a continuum ranging from amotivation (e.g., not willing to participate) to intrinsic motivation (e.g., participation because of inherent interest in the activity) (Ryan & Deci, 2000). In between the levels of amotivation and intrinsic motivation are numerous types of extrinsic motivation, which portray how various individuals participate in an activity in order to satisfy an external requirement or to obtain external rewards that are deemed important to them. Intrinsic motivation is said to be the most self-determined motivation type and has been shown to make individuals exhibit greater persistence, more effort exerted during practices and competition, higher enjoyment, less boredom, and less drop-out from able-bodied sport (Banack, Sabiston, & Bloom, 2011; Ryan & Deci, 2000, 2017). Most researchers agree intrinsic motivation is more beneficial than extrinsic motivation, as it serves as a more effective and maintainable source of motivation (Health et al., 2010). Accumulated research in psychology and sport now suggests that the commitment and validity reflected in intrinsic motivation and integrated extrinsic motivation are more likely to be apparent when athletes experience support for the conditions of competence, autonomy, and relatedness.

Two contrasting concepts that can influence able-bodied athlete development are early specialisation and sampling. These concepts were of interest as it was hoped the current study would produce results that show some similarities to either of these concepts. Early specialisation has been defined as, “an athlete participating in a single main sport on a year-round basis (greater than 8 months per year) and/or quitting all other sports to focus on a single sport,” (Torres, 2015, p. 305); with the definition of ‘early’ varying in the literature from twelve and under, to fifteen years of age (Blagrove et al., 2017; Sluder et al., 2017; Torres, 2015). A significant amount of research demonstrated growing pressure from numerous influences for youth able-bodied athletes to specialise in one specific sport from an early age (Pereira et al., 2016; Picucci & Chen, 2017; Siekańska, 2012; Sluder et al., 2017; Torres, 2015; Werner, 2015). This pressure to specialise in one sport was due to common misconceptions from coaches, parents and the youth athlete themselves, that the earlier the athlete prioritises a single sport, the higher their chance of success. Multiple reasons exist for early sport specialisation, with the most widespread reasons

being parental expectation, to develop expertise, pressure from coaches, and the athlete's personal aspirations to excel (Sluder et al., 2017). Contrary to this approach are numerous studies indicating early specialisation unfortunately increases risks such as overuse injuries and burnout (Gould & Carson, 2011; Molinero, Salguero, Tuero, Alvarez, & Márquez, 2006). In addition, youth able-bodied athletes who have gone through an early specialisation pathway have been shown to experience psychological stress, depression, emotional and physical withdrawal from their sport and social isolation from peers, especially during adolescence (Sluder et al., 2017).

A contrasting concept to early specialisation is sampling, which is what is applied in the LTAD framework (Balyi et al., 2013). The LTAD framework recognises numerous fundamental components that ought to be prioritised in able-bodied youth sport including: Skill acquisition suitable to the developmental stage of the athlete; presence of supportive coaches; emphasis on sport-specific skill development; individual enhancement related to gaining transferrable life skills (e.g., team work); and, control of behaviours and emotions (Clark, Camiré, Wade, & Cairney, 2015). Based on the identified literature, the suggestion is that children should be encouraged to 'sample' or participate in a variety of sports, as studies have revealed elite athletes who participated in a variety of sports in their youth had enhanced development of motor skills that translated to their specialised sport. These elite athletes typically did not start specialisation within a sport until approximately the age of fifteen (Sluder et al., 2017). One application of the LTAD framework found to be utilised to Para sport was in Canada, where the government established a program called 'Sport for Life.' This Sport for Life initiative encompassed somewhat different initial stages of the LTAD framework for Para athletes. The key differences were the addition of a sport awareness stage, developed to enhance the need to inform individuals with impairment and local communities of the sport and physical activity opportunities available; and a first contact stage, intended to notify sport organisations and coaches of the importance of providing positive, encouraging initial experiences to these new Para athletes (Balyi, Way, Higgs, Norris, & Cardinal, 2016). With these additional initial stages being added to the Sport For Life version of the LTAD framework to reduce participation barriers, as it has been demonstrated in previous research that people with impairment are generally less involved in sport and recreation activities in their communities due to a variety of reasons related to their type and level of impairment (Ahmed et al., 2018; Bragaru et al., 2015; Bragaru et al., 2013; Jaarsma, Dijkstra, Geertzen, & Dekker, 2014). Some barriers to sport entry identified in the Sport for Life government initiative

were the limited amount of localised Para sport opportunities making it difficult for children with impairment to undertake sampling of various sports and lack of community knowledge of the available opportunities (Balyi et al., 2016).

The final theme from the able-bodied literature is the concept of talent transfer; this involves the transfer and accelerated development of selected individuals from one sport into medal targeted programs (e.g., surf lifesaving to kayaking). Talent transfer is thought to increase the likelihood of discovering athletes with the capabilities to compete at the highest level. The goal of talent transfer initiatives is to capitalise on the developmental investment made by the athlete in their previous sport (known as a feeder sport), then advance their talents to become equally, or more successful in their new sport (R. Collins et al., 2014). Typically for the talent transfer process, organisations screen athletes based on performance (for example, sporting background) and body mass variables before requesting the preferred athletes attend a testing day, normally consisting of a range of testing batteries. In an attempt to ascertain athletes' thoughts on what makes talent transfer successful, R. Collins et al. (2014) interviewed seven Australian talent transferred athletes that had successfully reached international level in their transfer sport. The participant responses revealed that athletes believed their success to have come from aspects of behaviour that have psychological significance (e.g., grit, see study by Tedesqui & Young, 2018) and environmental factors, as opposed to any systematic measurements of physical properties, such as their height or body shape, or technical skills that they may have been scouted for. In contrast to R. Collins et al. (2014) findings, Wilkinson's (1996) research identified that all motor skills have similar fundamental movements, and that the similarity between these movements will influence the degree of transfer. Therefore, the higher the similarity between the functional elements of two sports, a larger volume of positive transfer is anticipated. In addition, Bullock et al.'s (2009) retrospective analysis of Australian senior national athletes indicated that one third of athletes attained elite level status within four years of commencing a new sport. Bullock et al.'s (2009) study suggests talent identification and talent transfer initiatives were expected to be more successful in sports where the qualification criterion and international depth of competition is lower than in other sports. Although no research could be found for this review on the concept of talent transfer for Para sport, the idea of talent transfer is speculated to be successfully applied throughout Para sport due to the large number of impairment classifications and sport classes available.

2.1.2 Impairment-based literature.

It is important to acknowledge that the rest of the literature discussed in this chapter is predominantly referencing the growing area of research surrounding physical activity and sport involvement for people with impairment (e.g., limb deficiency). Therefore, to introduce Para sport literature, an overview of impairment and Para sport terminology is provided. The term Para athlete is the general phrase used for athletes with an impairment that play sport, and the term Para can only be used for sports that are recognised by the IPC (International Paralympic Committee, 2017). Sports and disciplines are always in lower case and 'Para' should always be capitalised followed by a space (e.g., Para cycling). The IPC has moved away from using the word disability, therefore when referring to a loss in body function or structure, the term 'impairment' is preferred (International Paralympic Committee, 2017). The sporting journey refers to the Paralympians entire continuum of athletic development, from the initiation of fundamental movement and participation in physical activities through to lifelong engagement and proficiency at elite international level (Cameron & Porter, 2017).

A unique element of Para sport is impairment classification. This is when Para athletes are compared and matched with competitors of similar functional ability. Classification is done in order to attempt to make competition fair by avoiding competing against Para athletes with less severe impairments (Martin & Whalen, 2014). There is an expansive range of impairment types, although the IPC classify ten explicit categories of impairment that are eligible for competition in Para sport. These are impaired muscle power, impaired passive range of movement, limb deficiency, leg length difference, short stature, hypertonia, ataxia, athetosis, vision impairment, and intellectual impairment (Jefferies, Gallagher, & Dunne, 2012). Classification systems vary from Para sport to Para sport, and have been created by each Para sport's IF (e.g., International Wheelchair Rugby Federation). These IFs also make the decision about what impairment types their sport will cater for. The IF also determines how severe an impairment has to be in order for a Para athlete to be eligible to compete in their sport. Since different Para sports require various functional abilities, each Para sport requires a separate classification system. For example, an upper limb deficiency can affect performance in a land based event (e.g., running) to a lesser extent than in a water performance (e.g., swimming) (International Paralympic Committee, 2018b). As a consequence of this, within classification is sport class. Sport class groups Para athletes on how extensively their impairment influences their performance in their Para sport.

Therefore, one sport class does not consist of only one impairment type. Sport class can be Para athletes with various impairments that affect their functioning in a sport to a similar extent. For example, Para athletes with paraplegia and above the knee bilateral lower limb deficiency will compete in the same class in IPC Athletics, as their impairment types have an equivalent effect on their abilities to race wheelchairs (International Paralympic Committee, 2018b).

To begin the impairment based literature, particular studies have investigated impairment from various perspectives, such as the wider view of impairment from society (Haslett et al., 2017), or from the perspective of the person living with the impairment (Jaarsma, Dijkstra, et al., 2014). These identified impairment studies have applied various models, theories and/or concepts in attempt to explain these phenomenon.

One concept applied to physical activity and impairment studies is the Social Relational Model of impairment (SRM) (Thomas, 2004). This model looked at how impairment is viewed broadly by society and attempted to assist with understanding societal influences and how they impact people with impairment (Thomas, 2004). Martin's (2013) study applied the SRM to sport and identified potential barriers for this demographic could result from the immediate everyday physical and social influence of having an impairment (e.g., not participating in sporting situations because of persistent pain from having a limb amputated). Barriers could also result from negative encounters of social constructions of impairment (e.g. having to deal with negative societal attitudes and discourse, such as being perceived as unfortunate). Furthermore, barriers could arise indirectly from the experience of discrimination against individuals with impairments, such as, being excluded from opportunities and services (e.g. the anger and frustration of not being able to participate in sport due to lack of access to appropriate sporting prosthetics, adaptive sporting equipment or inadequate facilities). Haslett et al.'s (2017) research reinforced the findings from Martin (2013), with some barriers to sport participation also being described as self-inflicted if the individual's psychological wellbeing was unstable. Individuals who experienced repetitive exposure to these situations within the social setting, applied limits on what they were capable of doing and achieving (Haslett et al., 2017).

Another concept that has been applied to research investigating the barriers to sport participation for people with impairment is Critical Disability Theory (CDT) (Pfeiffer, 2002). Meekosha and Shuttleworth's (2009) application of the CDT recognised that sport is not the only area of exclusion from society and that other areas, such as employment and educational

opportunities, and numerous psychological and logistical barriers can also impact daily lives of individuals with impairment. Meekosha and Shuttleworth (2009) explain that barriers to physical activity can appear more overwhelming than in other areas of life (e.g., employment), as barriers to sport and physical activity can exaggerate the reasons for exclusion. Saxton (2018) stated that these factors could be challenging for individuals not to take personally, as body image is a challenging subject even for those not living with impairment. Studies of the CDT identified inhibitors to physical activity for people with impairment must be addressed with creative, innovative and supportive approaches, to assist people with impairment to participate, develop and excel in their chosen activity (Saxton, 2018). Yet, these studies involving the CDT did not explain where to source these creative Para sport resources.

Narrowing the focus from a societal perspective of impairment to personal relationships is Bandura's (1989) Social Cognitive Theory (SCT). The SCT was implemented in Martin and Mushett's (1996) study that examined the relationships between social support, self-efficacy and athletic satisfaction amongst Para swimmers. This study explored the psychological coping strategies from the perspective of the Para athlete and found Para athletes rated both sport related, and non-sport related social support as important motivators for athletic achievement and relied heavily on their family and friends for this. Highlighting the fact that barriers placed on Para athletes by society, as stated in the studies involving SRM and CDT, can potentially be overcome by social support from influential people in the Para athlete's lives, such as coaches, friends and family.

The final theoretical concept discussed in this review, focuses on the perspectives of Paralympians and relates these perspectives to the Theory of Planned Behaviour (TPB) (Ajzen, 1985). The TPB states that attitudes toward behaviour, subjective norms, and perceived behavioural control, when used simultaneously, form an individual's behavioural intentions and actions. Jaarsma, Geertzen, de Jong, Dijkstra, and Dekker (2014) claimed people with impairment who participated in sport perceived more benefits (e.g., fun), than barriers (e.g., pain), compared to people with impairment who were not involved in sport. These findings were important, as they demonstrated that intrinsic motivations (e.g., enjoyment) could override external barriers (e.g., societal views) to participation.

To conclude this section, these theories and models that have previously been applied to physical activity and sport research for people living with impairment may offer some insight

into the potential barriers to sport participation faced by individuals and/or Paralympians with limb deficiency.

2.1.3 Psychological influences.

The next section of this review is concerned with literature examining the psychological influences affecting why individuals with an impairment withdraw from, persist with and/or excel at Para sport. As this review has captured a much broader conceptual base, some literature applies to participation, but will be used to the extent that it can offer insight towards Para sport involvement. Other literature in this section has drawn upon studies conducted on Olympians and how they have psychologically coped with performance pressures in an attempt to create a complete depiction of the sporting journey landscape. This section concludes by looking at the terminology society uses when referring to people with impairment and how this can influence sport involvement.

Psychological influences are thought to be a significant part of an individual's Para sport journey, as nearly all qualitative studies identified within this review investigated a combination of physiological and psychological attributes that contribute to participation and/or performance (e.g., Allen & Laborde, 2014). There is abundant evidence in able-bodied studies that the concepts of mind and body are highly interrelated, as has been articulated in psychology research fields (Friesen & Orlick, 2010), and is now being applied in able-bodied sport through holistic and humanistic coaching approaches and athlete centred learning (Connolly, 2016; Headley-Cooper, 2011; Potrac, Brewer, Jones, Armour, & Hoff, 2000). One study considering how sport increases positive psychological factors for people with impairment is Pepper and Willick's (2009) quantitative research, which found recreational and competitive sports were a significant part of both the psychological and physiological rehabilitation of individuals who acquired a limb deficiency. These results indicated sport provided such advantages as a more positive outlook on community reintegration, independent living, increased chances of employment, and greater levels of social interactions. Involvement in sports and other recreational activities for individuals with impairment have also been found to improve self-esteem, quality of life, overall health, self-efficacy, feelings of empowerment, and motivation for continued sport participation (Giacobbi, Stancil, Hardin, & Bryant, 2008; Pepper & Willick, 2009). Indicating that Pepper and Willick's (2009) findings are likely influences on why Paralympians with a limb deficiency have commenced and continued their sport involvement to the elite level.

2.1.3.1 Identified gaps in Para sport research relating to psychological needs.

It has been acknowledged that there is a gap in the research surrounding the development of Para athletes, including any psychological factors that could impact on development. Therefore, this review turns to literature on elite able-bodied performers and their ability to use psychological influences to cope with key career transitions (e.g., development to elite, or first international win to maintaining winning performances). The available research suggested that the ability to make key transitions (e.g., from development to elite), was facilitated by individuals being able to develop and apply a range of psychological learning strategies, for example goal setting and imagery (Abbot, 2006). Studies involving Olympians who had continual success, examined how these athletes were able to sustain high levels of performance throughout successive competitions. Responses from Olympians varied, but all revolved around psychological influences such as having a strategy (e.g., goal setting), staying focused on the task, keeping things in perspective, enjoying the sport and new challenges, accompanied by a resilient psychological wellbeing (Kreiner-Phillips & Orlick, 1993). A key learning was, if athletes did not obtain some level of positive control over the mentioned psychological influences, something would suffer; this would either be the quality of their training, their rest, their focus, and/or ultimately, their performance. These findings from elite able-bodied athletes highlight that studies examining Paralympians use of support people, tools and strategies are needed in order to investigate if Paralympians have similar psychological requirements to facilitate, produce and reproduce winning performances.

As not all psychological influences are positive, some studies have questioned how negative psychological behaviours affect elite able-bodied athletes and their performance. Rice et al.'s (2016) systematic review examined the elite athlete's psychological wellbeing, with athletes reporting that they experienced high expectations of performance, external obligations and a feeling of being chased. These negative experiences made athletes vulnerable to a range of psychological and physical health problems, such as anxiety and substance misuse. Similarly, Gouttebauge et al. (2017) found athletes who were trying to maintain their world class status felt psychological pressures that were not apparent when they were striving to achieve world class status (e.g., pressure to repeat a winning performance or break a record). These findings on elite able-bodied performers are significant to the current study, as the ability to identify and attempt to eliminate performance pressures is assumed to be important to create and maintain Paralympic

champions. It is speculated that some of the identified pressures (e.g., anxiety) on psychological influences have the potential to be magnified due to the added constraint of impairment.

Although psychological attributes that create successful elite able-bodied athletes may still be considered relevant to Para sport, it has to be acknowledged that there are potentially significantly more psychological barriers for Para athletes to overcome (Blumenstein & Orbach, 2015; Cox & Davis, 1992; de Bressy de Guast, Golby, Van Wersch, & d'Arripe-Longueville, 2013). Previous impairment and physical activity studies have demonstrated potential barriers could be located simultaneously: In the individual (e.g., I am not physically capable), the social (access to the right organisations is unavailable), or the environmental (the prosthetic is of poor design) (Barrett, 2014; Bragaru et al., 2013; Martin, 2013). From the review it was found although Para athletes had achieved sporting success they experienced additional barriers such as individuals with impairment are more likely to be unemployed, Para athletes that could not drive often relied on family to get them to sport trainings and games, and some Para athletes training and competition relied on the presence of their carers/guides (Martin, 2013).

2.1.3.2 The Para athlete's perceptions of athletic identity and terminology used by society and mainstream media.

Societal views of impairment have the ability to psychologically impact individuals with impairment, including their perceptions of their own athletic identity, with previous studies identifying a Para athlete's psychologically constructed view of their world played a huge role in whether they obtained sporting success (Banack et al., 2011; Blumenstein & Orbach, 2015; Covassin & Pero, 2004). In Jefferies et al.'s (2012) systematic review, athletic identity was shown to be highly valued by Para athletes, as an athletic identity gave Para athletes justification to be perceived by able-bodied people as an 'athlete', rather than primarily an individual with impairment, with numerous participants stating they felt able-bodied when immersed in sport. In addition to Jefferies et al. (2012) review, Wheeler et al. (1999) indicated that many Para athletes commenced sport as a method to psychologically manage their impairment and the judgements of others, and through competing in sport they could demonstrate their physical competence to themselves. This led to improvements in self-esteem and confidence as their skills progressed. Further psychological motivations for sport participation were the acceptance of participants' families and the feelings of pride that were established through participants' demonstrating their capability and as a result, their perceived worth as a member of the community also increased

(Jefferies et al., 2012). Given that being a professional sports person has been cited as a central part of a Paralympian's identity (Kenttä & Corban, 2014; Tamari, 2017; Wolbring, 2012), further research into this area would be highly beneficial.

An additional aspect of psychological influences is the societal use of impairment terminology and the effects on individuals with impairment. Terms previously used by media and society to avoid the negative association with the word 'disabled' have been said to imply a connection to sport, such as 'physically challenged', which may be interpreted by the general public that individuals with impairment exceed the physical limits of their impairments through athleticism (Peers, Spencer-Cavaliere, & Eales, 2014). This language gives the perception that society does not expect individuals with impairment to be able to complete able-bodied athletic activities (Saxton, 2018). A study by Saxton (2018) explained societal opinions have the potential to make individuals avoid Para sport in their youth due to the public viewing them as 'super human' or 'heroes'. This use of language is in great contrast to the phrasing Para athletes in Martin's (2013) study experienced, as they repeatedly described how demeaning and ignorant remarks from people in the community put individuals off sport (e.g., handicap athlete). Martin's (2013) participants also spoke of the perceived annoying and unwanted 'sympathy card' placed upon them when they wished to participate in able-bodied sport. These views and use of terminology were said to be related to able-bodied individuals in society assuming impairment was the challenge to sport participation and limiting understanding of the environmental and psychological barriers these Para athletes are also faced with.

2.1.4 Limb deficiency.

Having explored the potential psychological influences on involvement in Para sport, the review now brings attention to the impact of limb deficiency. As mentioned previously in this review, in Para sport, Para athletes are classified by their degree of activity limitation from their impairment. The Paralympic Movement offers opportunities for Para athletes with an impairment to be classified under one of the ten eligible impairment types identified in the 'Policy on Eligible Impairments in the Paralympic Movement,' which can be found in the IPC handbook (International Paralympic Committee, 2018a). Limb deficiency is recognised as one of these ten eligible impairment types by the IPC (International Paralympic Committee, 2018b). The reason behind focusing specifically on Paralympians with a limb deficiency for this thesis is limb deficiency was one of the most common impairment types of New Zealand Paralympians at the London 2012

and Rio 2016 Paralympic Games. Limb deficiency is also one of the most common impairment types of the registered pool of New Zealand Para athletes in the national Para sport pathway (Para Sport High Performance Athlete Development Manager, personal communication, January, 30, 2018).

As was brought to attention by previous articles in this review, Para athletes deal with additional stressors to that of their able-bodied peers. Para athletes with limb deficiency not only deal with sport-related injuries, but also potentially being in pain or injured due to factors unrelated to sport (e.g., pressure sores from everyday use of prosthetics), which can affect their training and competition (Webborn, Willick, & Reeser, 2006). A common problem for youth Para athletes with a limb deficiency is having secondary complications after amputation. Secondary complication can involve repeated surgeries at various stages throughout the Para athlete's development due to problems resulting from the initial amputation. These secondary complications have the ability to influence the functional status of the affected limb (Fedorak et al., 2015). The use of prostheses, functional abilities and secondary complications was studied by Boonstra, Rijnders, Groothoff, and Eisma (2000) among Dutch children who had a congenital deficiency or an acquired amputation. This study found overgrowth of the bone in the amputated limb was one of the most frequent reasons for additional surgeries. Limb deficiencies in Boonstra et al.'s (2000) study were congenital or due to amputation resulting from a trauma. In the case of a congenital impairment, amputation may have been required for better quality of life or prosthesis fit (e.g., paraxial fibula hemimelia, requiring Syme amputation). The limitation of Boonstra et al.'s (2000) study was that it was a questionnaire, with the information being provided by participants' parents. There is a need for in-depth studies into complications surrounding the development of youth with limb deficiency.

An interesting consideration from the available literature was almost all children with limb deficiencies were given prosthesis to enhance their everyday activity levels (Fedorak et al., 2015). With the mean life span of a prosthetic limb in Boonstra et al.'s (2000) study being six and a half months in the children under ten years old, and eleven and a half months in youth over the age of ten due to growth rates, this indicates the frequency that children need their prosthetic updated for correct function and fit. These studies explicate to able-bodied people that using a prosthetic is time consuming and requires frequent visits to a national limb centre. In Boonstra et al.'s (2000) study, such appointments took place on average nine times a year. Therefore, it is not unexpected

that in rural regions gaining correct prosthetic fit may become difficult; and as most children use their prosthetic limbs for all activities on a daily basis, resulting complications such as skin problems and further surgeries (Boonstra et al., 2000). The ongoing prosthetic corrections have the potential to affect sport participation for youth with limb deficiency, as in some cases the individual may be without their limb for extended periods of time if major corrections need to be made; if these are the difficulties experienced for every day limb fit, gaining a sport prosthetic for youth could prove even more challenging.

Having looked at some of the influences on limb deficiency and every day prosthetics in children, another interesting attribute of limb deficiency is the difference in the available prosthesis (e.g., every day versus sport specific). In order for the general population to understand the difference in prosthetic limbs, a brief overview of prosthesis is provided. A standard lower limb prosthetic is tailored toward ensuring safe and efficient standing, walking and daily manoeuvring, such as walking up and down stairs and ramps or getting in and out of a car (Laferrier & Gailey, 2010); most prosthetics work as an unreceptive system that cannot replicate able-bodied muscle function (Laferrier & Gailey, 2010). In the same way, the goal of using upper-limb prostheses is to enable the individual to achieve daily tasks, such as eating or driving a car. Many individuals with limb deficiency find their standard prosthesis suitable for undertaking general recreational activities. However, in some cases, such as Paralympians, participation in sport or physical exercise can be enhanced by using an activity-specific prosthesis (The Australian Orthotic Prosthetic Association, 2016).

An activity-specific prosthesis enhances performance in specific sport or recreational activities due to specifications in componentry and design. For example, a Para athlete with upper limb deficiency can use a specific attachment (called a terminal device) to connect their prosthetic directly to a chin up bar in the gym for improved grip and power generation; or a Para athlete with a lower limb deficiency could use a prosthetic leg designed for running (a blade) to enhance speed, efficiency and reduce impact (The Australian Orthotic Prosthetic Association, 2016).

It must be stressed that the majority of the sport specific prosthetic limb technology serves a different purpose to the majority of the limb deficient population. As it is not about daily functioning, it is about enabling excellence and elite performance; many Paralympians with a limb deficiency are unable to function autonomously in their Para sport from the technology they utilise (Hughes-Jones, n.d.). Therefore, prosthetists have a significant role in the life of an elite Para

athlete with limb deficiency, as sporting prosthetics are exclusively developed for the individual, often at extremely high cost (Laferrier & Gailey, 2010; Nolan, 2008; Zevala, 2017). These sporting prosthetics are not universally available or automatically prescribed, and Para athletes are required to be motivated to apply to for grants or self-fund to be able to afford them (De Luigi & Cooper, 2014). Even though able-bodied scientists, prosthetists and engineers are applying their knowledge, the progression of prosthetic technology is said to rely on the individual Para athlete's feedback for optimal performance improvement (D. A. Baker, 2014). Yet, this process can be easily hindered by issues such as access to funding and the inability of the Paralympian to participate in the trial and error process of available prosthetic variations due to manufacturing costs (Webster et al., 2012). De Luigi and Cooper (2014) explain that a Para athlete who can convey a clear message about what they want and need the technology to achieve is essential to create the most successful end product. Additionally, educating the prosthetist around the psychological influences of the Para athlete (e.g., what the Para athlete's sporting aims and motives are), can influence biomechanical or physiological traits that can help the prosthetist best match the technology to the Para athlete, thus facilitating greater performance and increasing the Para athlete's feelings of self-efficacy (Jefferies et al., 2012).

Although the available research is very informative in the area of sporting prosthetics for lower limb deficiency, this review was unable to obtain sufficient references addressing technological advancements in sporting prosthesis for upper limb deficiency. This is an issue, because elite Para athletes with upper limb deficiency require prosthetic limbs and/or terminal devices with the appropriate attachments in order to participate in training and be able to complete every day elite able-bodied training exercises, such as Olympic lifts and erg rowing.

As discussed previously in this review, there was a distinct lack of literature pertaining to Para athlete development. Therefore, this part of the review has focussed on the available research on Paralympians. The majority of studies unearthed in the search for Paralympians concentrated on the Paralympic coach, the coach's absence, ability to influence and coach responsibilities.

The able-bodied literature on sampling and the LTAD framework predominantly addresses how important the role of the coach is for positive athlete development, yet studies into Para sport have highlighted that many Para athletes have had to coach themselves for various reasons. For example, in a study conducted by Sherrill et al. (1990), it was found that a quarter

of competitors in the United States Association for Blind Athletes Games did not have a coach, and of those Para athletes who did, almost half did not have their coach present during regular sport practice. While some Para athletes may prefer not to have coaches, many are still self-coached out of necessity (Martin & Mushett, 1996). This coaching dynamic was of interest because to date in New Zealand, there is little public information surrounding how Paralympic coaching is applied. Therefore, it could be assumed that some New Zealand Paralympians are currently self-coached or do not have their coach regularly present at practice which has potential to impact on skill acquisition, development and motivation. Another aspect that must be highlighted is the age of the literature, with these coaching studies into Para athletes being conducted over twenty years ago, with such a vast change in the available technologies there is a need for more research that investigates how the Para coaching system is being applied (e.g., through mobile apps and monitoring) and if it is successful.

Other Para athletes have reported to receive sub-optimal coaching, given that the majority of Para sport coaches may not have suitable sport science or adaptive sport experience. This need for improved Para sport coaching quality has been recognised by national sport organisations (NSOs) in countries such as the United States (Banack et al., 2011) and fortunately, it is becoming increasingly more common for elite Para athletes from developed countries to be supported by their governments and have access to the same coaching as elite able-bodied athletes. An example of this is Canadian Paralympic swimmers, who have access to the same coaches as the elite able-bodied swim team, but this does not necessarily mean these elite coaches know how to coach all impairment types to an elite level (Martin & Whalen, 2014). On the other hand, Paralympians from countries without financial support are more prone to being denied any professional coaching support (Martin & Whalen, 2014). The strengths and similarities of Banack et al. (2011) and Martin and Whalen's (2014) studies are the attention they have brought to the problems Para athletes face in obtaining a coach, and issues around finding coaches with the right skills for the Para athlete's impairment. Yet, identified weaknesses from these studies consisted of suggestions for future improvements, being that 'future research is needed around determinants of effective Para sport coaching,' instead of providing any insight into how to increase Para sport coaching numbers or how to get able-bodied coaches educated and involved in Para sport. These studies also interviewed coaches and did not consider the

insights of the Para athletes who were receiving the coaching. This emphasises the need for in-depth studies, such as the current study, to be conducted on this group.

The LTAD framework specifically mentions that coaches comprise a fundamental part of youth experience of sport (Black & Holt, 2009; Connaughton et al., 2008; de Bressy de Guast et al., 2013; Galatti et al., 2016; Girod, 2015). Consequently, the relationship between sport involvement, psychological factors and social influences, hinge on the quality of the experience of sport that is being delivered by the coach (Clark et al., 2015). From the limited resources available on Para sport coaching practices, it is suggested that when coaches are present, they have the ability to have a sizable influence on their Para athletes' psychological states, for example: Enjoyment, motivation and competence (Martin & Whalen, 2014). In a study by Banack et al. (2011), Para athletes who viewed the coach as supporting their autonomy, conveyed a greater awareness around their level of engagement and had stronger positive bonds with their teammates. Similarly, Para athletes who regarded their coaches as supporting their need for independence, displayed greater quantities of intrinsic motivation compared to Para athletes who identified their coaches as less understanding (Martin & Whalen, 2014). Banack et al.'s (2011) study was conducted with Canadian Paralympic athletes using a quantitative questionnaire. For future studies a more in-depth approach could be utilised in order to acquire a more detailed understanding of the Para athlete-coach relationship.

Para sport coaches were also said to be influential in the crucial competitive psychological mindsets of their Para athletes; specifically, facilitating feelings of confidence or introducing feelings of anxiety, which contributed greatly to the outcome of sport performances (Banack et al., 2011). These findings were reinforced in Campbell and Jones (2002) study on able-bodied athletes, where athletes viewed negative coaching behaviour as one of the greatest anxiety-inducing sport stressors they had to contend with. Multiple studies concur that coaches who simultaneously encourage and challenge their athletes in the training environment are more likely to develop confident performers (Banack et al., 2011; Campbell & Jones, 2002a, 2002b; Martin & Whalen, 2014). Therefore, while there are large comparisons between coaching elite able-bodied and Para athletes, there are distinctive dissimilarities that warrant the need for research that specifically examines the influence the coach can have, and how coaching situations are interpreted from the perspective of Para athletes of various impairment types (Banack et al., 2011). It was identified that most of the Para sport coaches in Martin and Whalen's

(2014) study only had previous experience coaching able-bodied athletes and due to the majority of coaches lacking life experience of living with an impairment, they were not able to establish a great deal of relatedness with their Para athletes. These findings reinforce the need to produce Para sport-specific coaching literature, recommendations and guidelines that could be used to drive policy and practice; as a common criticism from the interviewed coaches was the challenge in finding, or having access to, quality Para sport coaching references.

The literature indicates that Para sport coaches are placed in a position that has either the ability to hinder, or support the development Para athletes. Researchers in able-bodied sport have investigated the coach's understandings of the effects of psychological skills training and the significance of sport psychologists. Yet, there have been limited studies that have investigated similar questions in Para sport. In one study investigating elite Para sport coaches, Bastos and colleagues (2014) determined two significant issues associated with Para sport psychology. Firstly, the coaches considered psychological preparation as significant and psychological skills training was an important tool in assisting Para athletes to become prepared for competition. Secondly, while all coaches deemed sport psychologists to be an important part of the Para sport support team, only one coach was involved with a team that utilised a sport psychologist at the time of the study. Conclusively, coaches in Bastos et al.'s (2014) study considered that having a shortage of time, funding, and Para athlete enthusiasm were the major obstacles to having sport psychologists involved. Bastos et al.'s (2014) study demonstrates the large gap between understanding and resources available from being an elite able-bodied athlete to that which is available for Para sport support services, with the need for more research to be conducted in this area. It is speculated that the influences (or lack of) of the coach and various support staff may be of greater consequence than for the elite able-bodied performer. One benefit of Bastos et al.'s (2014) study was it was an in-depth study looking into elite Para sport. Yet, this study only considered the influence of the coach and did not speak to the individuals receiving the coaching. This draws attention to the need for studies interviewing Paralympians to gain a richer perspective of the Para sport landscape.

2.2 Summary

This literature review has taken the small circle of available limb deficiency and Paralympic research and has broadened it to the area of able-bodied sport, in an attempt to offer insight for the current research project's question of: What are the influences on the Paralympic

sporting journey? It was recognised that some of the material was quite removed from elite Para sport involvement but aimed for insight and connection. Theoretical concepts and frameworks of able-bodied sport were introduced to fill the gaps that exist within Para sport development and expertise literature. The review's overview of Para sport introduced the reader to the world of Paralympic classifications and class, providing the setting for the remainder of this thesis. The impairment-based literature was then introduced, presenting models and theories that had previously been applied to impairment studies regarding physical activity and sport involvement. The psychological influences literature investigated why individuals with impairment withdraw from, persist with or excel at sport. This section also had to draw upon able-bodied literature due to the search engines that were utilised in this study generating no results, highlighting the urgency for more Para sport research. Psychological influences literature also looked at how Para athletes valued their athletic identity and how society's use of words (e.g., disabled athlete) could impact their self-esteem and motivations towards wanting to be involved in sport.

The subsequent literature related to limb deficiency. This literature addressed why limb deficiency was chosen for this thesis and complications that could arise throughout youth development due to amputation and the life span of a child's prosthesis; with both these factors having the potential to influence sport involvement. The review then turned to the differences between every day and sport specific prosthesis as to inform the reader, emphasising the importance of sport prosthesis design and fit, and the impact on a Para athlete's performance. The review concluded by examining previous studies concerning Paralympians and discovered that the majority of research was coach-centred.

Very little is known about the Paralympian and Para athlete development, which has been emphasised throughout this review. The studies conducted on Paralympians underlined the limited types of methodologies that had previously been applied to Paralympic research. With a large body of the available research being of quantitative nature and focussing heavily on biomechanics and the Para athlete's physiological performance, this was purposefully not reviewed for this study. Other available studies have offered minimal insight into a Para athlete's perspective of what personally influences their sport involvement. This limited insight is due to gathering data through the method of administering questionnaires which cannot fully capture the opinions, emotional responses or the feelings of the participants. Without these subtleties, useful data could go unnoticed. Although some of the available Paralympic literature has implemented

in-depth qualitative study methods, it has failed to focus solely on the opinions and views of the Paralympian. Instead this literature has chosen to concentrate on the impact and role of the Para sport coach. Emphasising the need for the current study, which is specifically focusing on the individual perspectives of the chosen Paralympians and is employing qualitative descriptive design.

Chapter 3 Methodology

Chapter Three will examine the methodological approach applied to this thesis and explain the reasoning behind the chosen qualitative approach and its philosophical underpinning. This chapter will also offer an explanation of the research design, outlining the methods used throughout. This explanation includes the reasoning behind participant selection, a profile of the nine participants, the data collection process and the data analysis technique. Considerations are also given for valid ethical principles, and strategies are outlined to reduce or eliminate any potential risks, as well as disclosing any concerns and sensitivities relating to the Treaty of Waitangi. Finally, matters relating to the diligence and accuracy of this thesis will be discussed; specifically, the credibility, transferability, dependability and trustworthiness.

This thesis utilised a qualitative methodology which is an approach that is considered suitable when investigating a new field of study or to determine and theorise a renowned issue (Chamberlain, 2014). Qualitative studies are inquiries undertaken in the natural setting, meaning they explore an individual's lived experiences and everyday life (Magilvy & Thomas, 2009). Qualitative methodology can refer to several theoretical perspectives that all have similar characteristics. These theoretical perspectives include: Exploring the journeys of individuals and how they make sense of their experiences; undertaking research in the everyday setting; displaying research findings in the form of verbatim quotes; and, the researcher being immersed in the research process (Carpenter, 1997). The current study aligned with the above factors because it was exploring the sporting journeys of New Zealand Paralympians from the perspective of the Paralympians. As a result, qualitative inquiry was considered the most suitable process to understand how New Zealand Paralympians with a limb deficiency achieved their sporting pathway to the Paralympic Games.

The principle guidelines of qualitative studies are summarised in the six steps set out in Figure 1 below:

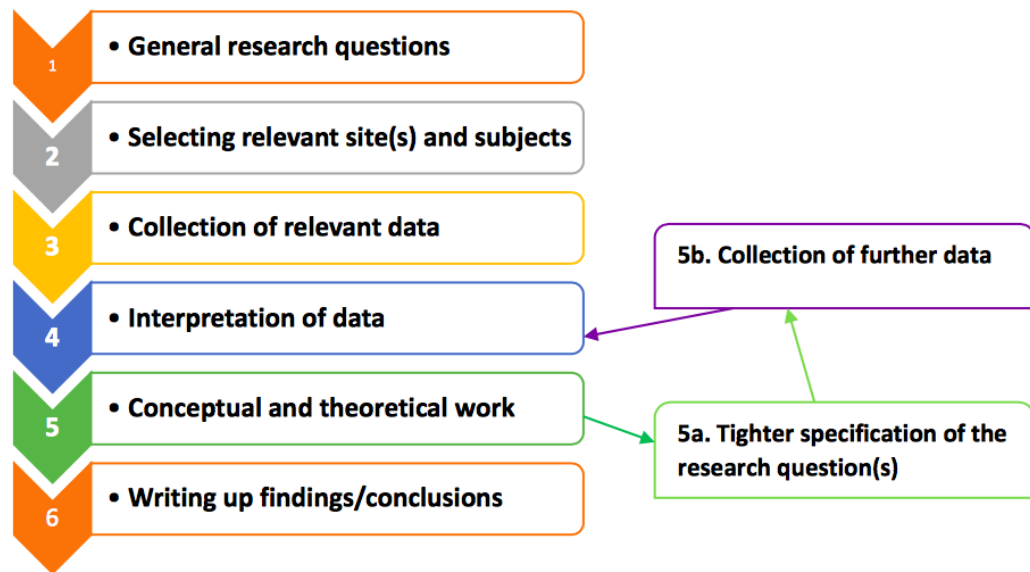


Figure 1. An outline of the main steps of qualitative research (Bryman & Bell, 2011, p. 390).

Bryman and Bell (2011) present the common steps of qualitative research. Yet, every qualitative study is different, as studies vary in topic, research hypothesis/question, participant viewpoints, influences of the researcher and influences of the environment. The qualitative approach's purpose is to go beyond statistics and measurable data and investigate dialogue to explore experiences, thoughts and feelings (Carpenter, 1997). For the purpose of this study qualitative research was thought to be more informative than a quantitative study.

3.1 Research Paradigm

The purpose of this study was to produce a comprehensive understanding of the Paralympians' perceptions of their sporting experiences (both able-bodied and Para sport). This research was positioned within a post-positivist paradigm. In contrast to a positivist view, post-positivism recognises outcomes as a result of a multitude of factors that interact with one another (Giddings & Grant, 2006), although post-positivists have retained the positivist belief of reductionism (e.g., the experiences of the Paralympians can be condensed to a set of ideas, concepts or codes can be defined or analysed). This study aligned with this viewpoint; this is because the research could not be unequivocally certain about the claims made within the data when studying the (retrospective) journeys of others (the Paralympians) (Creswell & Creswell,

2017). This was because from a post-positivist standpoint, individuals can experience comparable events, but interpret them differently.

Ritchie, Lewis, Lewis, Nicholls, and Ormston (2013) state a post-positivist perspective acknowledges that multiple truths exist, and an individual's perspective of their environment is formed by their personal views and observations. The methods utilised in this research were designed to conform to this post-positivist standpoint, thereby allowing the freedom for each Paralympian to share their individual journey and experiences of sport. The philosophical background of this study placed emphasis on the importance of understanding how Paralympians with limb deficiency perceived certain influences to have affected their personal sporting success. In efforts to capture the lived experiences and sporting journeys of the nine Paralympians that agreed to this study, a qualitative descriptive research strategy was utilised (Sandelowski, 2000).

3.2 Research Position

The ontological position, otherwise known as an individual's view of the world, has an important effect on qualitative studies (Giddings & Grant, 2006). How an individual perceives the significance of certain parts of their reality is shaped by their viewpoint, with each individual capable of having multiple views (Murphy, Alexander, Greene, & Hennessey, 2012). These various views can influence how an individual experiences events along their (sporting) journey (Lincoln, Lynham, & Guba, 2011). The ontological position of this study is informed by subtle realism, as this is an attempt to depict the subjects as truthfully as possible without interpretation. Through reflecting on the phenomenological perspective underpinning this study, it was confirmed analysis would be established firmly from the Paralympians own accounts of their journeys, rather than the researcher's assumptions surrounding the topic of 'influences'.

This study used a thematic analysis approach called Template Analysis (King, 2012). Recognising that phenomenological enquiry involves having an open approach towards the data, this study opted for some broad priori themes as outlined in the process of Template Analysis (King, 2012). Creating a list of potential priori themes to apply to the data was done prior to conducting the interviews in order to avoid overlooking key concerns or ideas from PNZ, or previous disability and/or able-bodied research. These priori themes were: Paralympians development would mimic that of elite high performance athletes; deterrents to participation would be embarrassment of limb deficiency and/or lack of organised Para sport programs; lastly,

perceived pressure to perform and ability to perform to an expected standard would be of influence on these Paralympians' sporting journeys. The process of identifying priori themes allows for redefinition and refining of themes once the initial template has been applied to the first, and subsequent data sets. The refining of the template was done in order to stay sensitive to these thematic areas, whilst simultaneously allowing for new themes to emerge and maintaining an open phenomenological stance (Brooks, McCluskey, Turley, & King, 2015).

A qualitative study is also determined by an epistemological position. Applying the qualitative methods for data collection and analysis allowed for connection with the Paralympians as the interviewer, investigating the Paralympians' journeys through the participants expressing their experiences, thoughts and feelings in detail. The understanding and insight generated by participants was the catalyst for developing themes for the Template Analysis (King, 2012).

3.3 Qualitative Research

This study's qualitative descriptive approach drew upon naturalistic enquiry with minimal interpretation. This research did not look to apply a theory or interpret the data. Instead it looked to identify priori themes from existing ideas and literature, as well as emerging dominant themes from the participant interviews. The intention was to illustrate the Paralympians' journeys in their own language (Spencer, Krefting, & Mattingly, 1993).

3.3.1 Researcher background.

In research, predominantly in studies using qualitative methodology, the researcher has a fundamental role in the process. Therefore, it is important to maintain a level of transparency to remain neutral and objective (Lincoln & Guba, 1985). It is important at this stage to introduce the researcher in relation to this study, since the researcher's experiences had the potential to influence the way this study was approached and analysed. This is also an opportunity to acknowledge the researcher's background and viewpoint, especially in relation to Paralympians and Para sport.

3.3.2 The primary researcher's background and viewpoint.

The technique of self-reflection was utilised in order to remain receptive to the participants stories and make an effort to remove themselves from any personal views or assumptions about the Paralympians and their experiences. Through applying the practice of critical self-reflection,

the researcher was able to identify, clarify and reflect upon their own views and opinions of the Paralympians and details of their journeys.

The primary researcher is a Bachelor of Sport and Recreation graduate from AUT and has an interest in aiding the development of the sport and recreation industry within New Zealand; and since gaining a scholarship through PNZ, on behalf of the NZALS, has developed a great passion for Para sport. The primary researcher had not undertaken a significant qualitative study before and acknowledged she needed assistance and guidance throughout this study. A second AUT supervisor was requested, who has conducted a large amount of qualitative work; it was believed this collaboration would aid in increasing knowledge and expertise in the area of qualitative research. The primary researcher did not have any prior experience working with Paralympic or Para athletes and acknowledged the prospective of limited understanding and knowledge of working with Para athletes. Therefore, a third supervisor from PNZ was acquired with experience in the area of Para sport development.

The primary researcher has over 10 years' experience working with athletes and youth athletes and has an undergraduate major in Sports Coaching. Through having a solid coaching background, the researcher felt they had an adequate foundation on which they could increase their expertise of Paralympic sport. The primary researcher's role was to obtain a comprehensive understanding of the sporting journeys of Paralympians with limb deficiency to gain insight into their experiences of participation, development and success within the current New Zealand Para sport framework. The researcher was interested in exploring the subsequent effect of key barriers and facilitators that were impacting on the Paralympians development and success pathway.

To help develop knowledge in the areas of qualitative research and Para sport a handwritten notebook was kept (Lincoln & Guba, 1985). In this notebook methodological concepts and decisions and the reasons for them were recorded. Along with the handwritten notebook, the study included regular meetings with academic supervisors, these meetings were audio recorded and kept in an electronic diary (Microsoft OneNote program). The supervisor meetings encouraged discussions which led to the advancements in understanding surrounding the topic of this study and aided in providing an environment in which the researcher's beliefs, values, perspectives and assumptions could be questioned, challenged and discussed. As a result, a purposeful attempt was made to be impartial throughout the course of this study.

3.3.3 Assumptions of the research.

In qualitative studies it is recognised the assumptions of the researcher have potential to influence the research, therefore presumptions will be acknowledged to restrict the effect of bias (Palinkas et al., 2015). The assumptions that the researcher brought to this study were:

- The topics of the interview guide questions (Appendix B) were important to Para sport development.
- A leading influence on sport choice would be parents, due to parents dealing with logistics of training and competition when the Paralympian was participating in youth sport.
- A main influence on continued sporting involvement would be whether the Paralympian experienced feelings of enjoyment and success within their chosen sport.
- A contributing influence on sport commencement and continued involvement would be whether the sport, and any adaptive equipment needed to participate in the sport, was affordable and/or accessible (e.g., sporting prosthetics) to the Paralympian.

3.4 Methods

This qualitative descriptive study captured the experiences of New Zealand Paralympians with limb deficiency. Full ethical approval was received (Appendix A) and interview data was gathered through semi-structured interviews.

3.4.1 Tools.

To acquire a comprehensive understanding of sensitive phenomena, quality communication is necessary when interviewing vulnerable populations, such as Paralympians with a limb deficiency. One way to establish connection and trust was the collaborative process of creating a visual timeline (Appendix B) (Adriansen, 2012). Although the interviewer's ability to convey understanding and create a relationship was essential to building good rapport with interview subjects, having the timeline tool present during individual interviews further enhanced the communication and ability to receive information (Rimkeviciene, O'Gorman, Hawgood, & De Leo, 2016). Two timeline tools ('places of residence' and 'sport participation' A3 timeline tools [Appendix B]) were created and utilised within each Paralympian's interview.

3.4.2 Pilot study.

Prior to the Paralympians' interviews, an interview guide was designed (Appendix B). The design of the interview guide was informed by previous retrospective studies on elite able-bodied athletes (e.g., Côté, Ericsson, & Law, 2005) and utilised aspects of the DHAQ (Hopwood, 2013). The initial draft used open ended questions, using such techniques as grand tour questions (e.g., Leech, 2003), these questions ask respondents to give a verbal tour of something they know well (e.g., their Paralympic sporting journey). The initial interview protocol also contained numerous prompts. These prompts were used for clarification and probing for further information (Leech, 2002). The pilot interviews were approximately sixty minutes in duration and utilised a combination of validated sport expertise development instruments (e.g. DHAQ [Hopwood, 2013]) to provide a framework to inform the design of the research interview guide.

A pilot study was performed as a test of the methods and procedures that would be applied to the Paralympians' interviews (Carpenter, 1997). The fundamental purpose of conducting a pilot study was to examine if the interview guide questions generated significant data surrounding the sporting journey of Para athletes and to familiarise the researcher with the process of interviewing participants, as this was a new skill. The interview guide was verified in the pilot study, using two participants who were Para athletes with a limb deficiency, but not Paralympians because their chosen sports were not recognised as Paralympic sports by the IPC, therefore they did not meet the research criteria. The pilot study participants' interviews were not included in the final study.

The pilot interviews were completed approximately one month prior to data collection. This was useful to practice using the Dictaphone, interview techniques, how to download the interview audio files, and initial data exploration which involved working through the interview content and identifying the best thematic analysis technique to be used for the true data collection (Leon, Davis, & Kraemer, 2011).

These two pilot interviews provided the opportunity to evaluate the value of the interview questions and time efficiency of the interview process. Key learning experiences in the piloting process included listening back to the pilot interviews, which identified where prompting questions could have been introduced and facilitated further understanding of how to use the specially formulated timeline A3 timeline tools (Appendix B) in the best possible way to get Para athlete buy-in describing their sporting journey (Schamber, 2000). The pilot participants also provided

constructive feedback in relation to what were the most influential questions and any suggestions regarding how to improve the Paralympians' interview experience.

3.4.3 Interview guide.

As a result of conducting the pilot study, it was established that a time period of approximately sixty minutes was needed per interview, comprising of a six-stage structure interview guide (Appendix B). The process of using Template Analysis involved the interview guide evolving over the course of the nine interviews, in order to collect the richest data possible from the Paralympians. Questions included, 'At what ages did you progress through the levels of competition for your various sports (club/ regional/ national/ international)?' 'At what ages did you progress through development or high performance programs (development squads/ NSO's/ HPSNZ carding/ PNZ)?' 'Were there any points in your development that you found particularly difficult?' and 'How did you overcome these challenges?' Participants took part in interviews at the closest High Performance Sport New Zealand (HPSNZ) facility. Data collection commenced on June 16, 2017 and was completed on October 14, 2017. Any questions that were subsequently added to the interview guide over the course of the nine interviews were emailed to the prior participants and answered over a voice recorded phone interview.

Stage 1: Researcher Introduction. The researcher explained what types of questions would be asked in the interview, gave the interviewee the consent form to sign and asked if the interviewee had any further questions before the interview commenced and reminded the interviewee that they could withdraw from the study at any time.

Stage 2: Family. Questions relating to the Paralympian's parents and siblings, their family's levels of education, their family's sporting involvement and whether any of their family had done sport at a representative level (regionally, nationally or internationally). These questions were drawn from a validated quantitative study, the DHAQ (Hopwood, 2013). These questions were used, as it has been shown in able-bodied athlete research that an athlete's demographic, family dynamic and siblings sporting background could contribute to whether (or not) the individual would become a successful (Para) athlete (Hopwood, 2013). It was also an opportunity to use these questions as an icebreaker to help the participant feel more comfortable with the interview environment before asking questions specifically about the interviewee and their personal sporting journey.

Stage 3: Places of Residence. The interviewee was asked to talk through all the different regions they had lived in and the reasons behind moving, what schools they had attended and any jobs that they had up to present date. These questions were asked because residential factors have also been shown to have influence on able-bodied athlete success (Hopwood, 2013). The interview guide was used in conjunction with the A3 'places of residence' timeline tool (Appendix B) developed for this study. The A3 timeline tool was formulated to give the interviewee a visual prompt for the grand tour questions and to use as a referral, in case they remembered a specific event at a later stage of the interview (Schamber, 2000).

Stage 4: Impairment. The interviewees were asked to talk about their impairment (e.g., whether their limb deficiency was congenital or acquired). As the interviews progressed, more questions were added, and subsequent Paralympians were asked how many and what surgeries they had on the affected limb/s and their experiences of growing up with prosthetics. The Paralympians who were not asked these questions in the initial interview, did so over the phone in an audio recorded follow-up interview. These questions were asked in order to gain an understanding of what classification the Paralympian competed in, and whether they were required to have any significant amounts of time off sport and recreation in their development due to their impairment.

Stage 5: The Paralympic Sporting Journey. The interviewee was asked to talk through their sporting journey from their earliest memory of sport. The Paralympians were asked reasons for starting a sport, reasons for continued involvement and if they stopped a being involved with a sport, reasons for exit. This section of the interview also had an A3 timeline tool (Appendix B) to aid as a visual prompt. The sporting journey questions were asked to gain a deeper insight into reasons why the interviewee chose their Para sport and whether their journey to becoming a Paralympian was similar to an Olympian's.

Stage 6: Sporting career. This section focused on asking the interviewee if there were any specific areas or people that influenced their journey in either a positive or negative way, why they felt they gained Paralympic success over others and if they had any advice for up and coming Para athletes. These questions were asked to find out who the people were who influenced their success, why and how. The Paralympian was also asked for suggestions on how they would improve the current New Zealand Para sport system and any advice they had for up and coming Para athletes.

The interview guide was developed to grasp the rationale of how the interviewee became a successful Paralympian: Through what organisations, the people involved, and motivations got them to where they are. Through finding out this information it was hoped the information would help identify barriers and facilitators to future sporting success for individuals of the limb deficient population and that recommendations could be made to the National Governing Body, PNZ, in order to create more successful New Zealand Para athletes on the world stage.

3.4.4 Participants.

3.4.4.1 Inclusion criteria.

The inclusion criteria for this research required Para athletes to be New Zealand Paralympians who competed at either the Sochi 2014 Winter Paralympic Games or the Rio 2016 Summer Paralympic Games. Limb deficiency was chosen as the eligible impairment type because approximately half of all Paralympians who represented New Zealand at the Rio 2016 Paralympic Games had a limb deficiency. These participants were either born with a congenital deficiency or became amputees before the age of three. The reasoning behind purposeful sampling of early acquired and congenital deficiency was to ensure consistency in the responses of the Paralympians, as the selected Paralympians entire sporting journeys have been undertaken with their impairment, compared to some Para athletes who have experienced competing as able-bodied and Para athletes due to acquiring their deficiency later in life. Participants were required to be over the age of eighteen and represent a variety of Paralympic sports. The sample size was chosen due to the number of recent Paralympians with limb deficiency that meet the above criteria and who are available; which in New Zealand is currently approximately eleven.

To recruit the Paralympians, the study purpose was first discussed with the PNZ Para sport High Performance Development Manager. The PNZ High Performance Director was then required to email any Paralympians that met the inclusion criteria an invitation to participate in the research (Appendix B), with a research information poster attached (Appendix B). Initially eleven Paralympians with congenital or early acquired limb deficiency were sent information about the study. The information poster outlined the nature of the research and invited the Paralympians to contact the researcher by phone or email to express their interest, or if they had questions and wanted to discuss the nature of the research further. Paralympians who made contact with the researcher received a consent form and in-depth information sheet (Appendix B), which notified

them of the participant requirements. From the eleven contacted, nine agreed to be a part of this study (see Table 1).

Table 1. Paralympian information

Pseudonym	Gender	Age	Impairment type	Sport	Classification	Paralympics attended	Major results
Paralympian 1	M	32	Lower leg amputation at age 3	Para athletics	F44	Rio 2016	1 Bronze
Paralympian 2	M	24	Bilateral Paraxial fibular hemimelia: Syme amputation on both legs	Para athletics	T43	Rio 2016	2 Golds, 1 Silver
Paralympian 3	M	27	Paraxial fibula hemimelia: Syme amputation on right leg	Para cycling	C4	Rio 2016	10th
Paralympian 4	M	23	Congenital birth defect, right leg deficiency above the knee	Para swimming	S9, SB8, SM9	Rio 2016	7th
Paralympian 5	M	28	Congenital birth defect, bilateral deficiency from above the knee, left forearm deficiency and fingers absent from right hand (thumb only)	Para swimming	S5, SB3, SM4	Beijing 2008 London 2012 Rio 2016	1 Gold (WR) 1 Gold (WR) 1 Gold (WR)
Paralympian 6	M	39	Paraxial fibula hemimelia: Syme amputation of right foot	Para snowboard	SB LL2	Sochi 2014 PyeongChang 2018	4th 4th
Paralympian 7	F	20	Birth defect, hand bones fused, finger bones absent and short forearm	Para athletics	T47	Rio 2016	1 Gold
Paralympian 8	F	43	Paraxial fibula hemimelia: Syme amputation of left leg	Para athletics	T44	Athens 2004 Beijing 2008 Rio 2016	7th 1 Silver 4th
				Para cycling	C4		
Paralympian 9	F	18	Bilateral upper limb deficiency below both elbows	Para swimming	S7, SB8	London 2012 Rio 2016	6th 1 Gold

3.4.5 Data collection.

Semi-structured interviews were chosen as the interview method, as this style allowed for a more profound understanding of the Paralympians' thoughts and feelings compared to quantitative methods (e.g., questionnaires). To achieve an in-depth understanding, questions asked were open ended, using such techniques as 'grand tour' questions (e.g., Leech, 2003). Semi-structured interviews are described as purposeful conversation as they involve broad, open-ended questions (Carpenter, 1997).

The individual interviews were scheduled to run for approximately one hour. Most research papers suggest semi-structured interviews should run from thirty minutes to several hours, depending on the context (Dicicco-Bloom & Crabtree, 2006). The one hour timeframe was determined by the number of predetermined questions in the semi-structured interview guide and was gauged off the average time it took to complete the two pilot studies. There were two instances where the interview extended beyond the one hour timeframe that was outlined in the participant information sheet, on these occasions the Paralympian was asked if they were comfortable to continue until all questions in the interview guide were answered, which both participants were. Each Paralympian was unique in the way they interacted with the researcher and all were eager to share their experiences of their Paralympic journey. Key ideas were noted down as the Paralympians spoke, and the Paralympians' defining life and sporting moments were also recorded on A3 timeline tools (Appendix B) over the course of each interview.

The nine interviews were audio recorded on a Sony 4GB Digital Voice Recorder (model: ICDPX470) and were electronically transcribed into Microsoft Word documents at a later date. During participant interviews a predetermined introductory statement was read, along with participant rights and the declaration of confidentiality, which in this case involved AUTECH approving that the Paralympians identities were able to be revealed in the research and any associated content for this study (e.g., presentations or published journal articles). The decision for participants to be named was due to their unique stories and niche demographic, which would make it near impossible for them to remain anonymous, even with pseudonyms. In some interviews, the order of the interview guide varied in accordance to the Paralympian's story to create flow. This allowed the Paralympians to feel comfortable and express themselves in their own manner, whilst still staying true to the data collection method of semi-structured interviews (Patton, 2002).

Participants were introduced to the 'places of residence' and 'sport participation' A3 timeline tools (Appendix B) in their interview briefing and were explained that the timeline tools were to assist in gaining a more in-depth understanding of the Paralympian's journey (Adriansen, 2012). The A3 timeline tools serve as 'collective memories' in which the Paralympian's journey can be seen by both the participant and the researcher, enabling both parties to return to spoken points and link them to subsequent events. It has been confirmed with timeline interviews that the participant becomes engaged in how their journey unfolds on the paper (Kolar, Ahmad, Chan, & Erickson, 2015).

3.4.6 Data analysis.

Fundamental to the Template Analysis process is the construction of an initial coding template. This template is constructed from priori themes gathered from ideas imbedded in previous research (e.g., through conducting a literature review). This initial coding template is then applied to a subset of the data, revised and refined, then applied to further data. Unlike other styles of thematic analysis, Template Analysis does not suggest a set arrangement for coding levels, allowing for the researcher to create themes where they believe the interview content is the most insightful in relation to the research question (Brooks et al., 2015). To assist with the coding process NVivo software was used. NVivo is a qualitative data analysis computer software produced by QSR International. NVivo is designed for qualitative researchers using rich text-based and/or multimedia information, where meaningful analysis on data are required (McNiff, 2016). The key steps for how Template Analysis was applied to the Paralympians' interview data are outlined in Table 2 (See Appendix C).

Template Analysis is similar to Braun and Clark's (2006) approach, allowing for flexibility when developing the hierarchical coding structure. Yet, there are three main differences to Template Analysis. Firstly, in Template Analysis, it is standard to construct an initial coding template from the interview data. Secondly, the researcher generates theme definitions at the initial template stage, to influence additional coding development. Thirdly, Template Analysis generally uses multiple coding levels to encapsulate the richest characteristics of the data (Appendix C).

Through numerous adjustments of the template, the researcher endeavoured to uphold an open attitude toward emerging themes, ensuring the construction of the coding template did not become predetermined too early in the data analysis. With repeated inspection of the

interview data, and regular meetings with the supervisory team, the Template Analysis coding considerably increased in richness and understanding, demonstrating greater accuracy of understanding and transparency when discussing and describing the data and codes between members of the supervisory team.

3.5 Ethical Considerations

AUTEC granted ethical approval for this study on May 4, 2017 (Appendix A). The following section outlines important ethical considerations applied to this research.

3.5.1 Consultation.

Para athletes and Paralympians could be considered a niche and vulnerable population. This statement implied they are a minority group of society, and required the researcher to thoroughly disclose what would be asked within the interviews and give the Paralympians the option of withdrawing from the research at any time (e.g., because of the nature of who they are, they have the potential to be identified and therefore will be named throughout this research) (Shivayogi, 2013). Discussing the Paralympians' sporting journey was understood to be a study of 'low risk.' In the event that a participant speaking about their journey proved to be distressing, access to the Paralympics New Zealand Sport Psychologist was available.

Consultation determined that the location of the Paralympian interviews was to be conducted within a venue well known to the Paralympian. Through conducting the interviews in a familiar venue to the participants, it was hoped they would be more comfortable, therefore interviews were conducted at the closest HPSNZ facility.

3.5.2 Informed and voluntary consent.

Participation in any study is a voluntary obligation and is centred around adequate participant understanding of what is required of them. It was vital for the researcher to supply adequate information that enabled the potential participants sufficient understanding surrounding what participation would require (Wiles, Heath, Crow, & Charles, 2005). The Paralympians were first made aware of this research project through an information poster sent via email from the PNZ High Performance Director. The potential Paralympians were requested to email their expression of interest to the researcher. Once the expressions of interest were received, all available Paralympians were emailed an information sheet and consent form (Appendix B)

outlining what their involvement would require. Participation was completely voluntary, and the Paralympians could withdraw from the research at any time.

3.5.3 Confidentiality and anonymity.

As these Paralympians belong to a niche group and each Para athlete's journey is one-of-a-kind, it was agreed with AUTECH that participant information would be acknowledged through identifying these Paralympians and publishing the Paralympians' names and stories in journal articles, through Paralympics New Zealand Forums and through presenting at conferences.

The protection of research data was carried out under the AUTECH policy. The AUTECH policy declares researchers are accountable for keeping their information confidential and secure. This policy information was summarised on the participant information sheet (Appendix B), and the Paralympians were reminded of their rights at the beginning of their interviews.

3.5.4 Minimisation of risk.

One hour of the participant's time was required for this research. It was up to the Paralympian if they were willing to spend more time talking about their sporting journey. Interviewing can, at times, raise past negative emotions and experiences. Participants were advised they only had to answer questions they felt comfortable answering and could leave the interview at any time. All Paralympians had the right to withdraw their data and from the research at any time and were reminded of this at the commencement of their interview. Paralympians were made aware that they could access to the sport psychology service offered by PNZ, this was put in place to minimise any risk factors.

3.5.5 Prevention of conflict of interest.

The Paralympians were advised their participation would not affect their involvement in any future high performance programmes or Paralympic selection (Appendix B). No research or participant information was passed to the PNZ High Performance Director after the initial expression of interest email was sent. The primary supervisor had closely monitored the researcher's work and confirmed a compelling, ethically sound, valid and dependable Master's thesis had been implemented.

3.5.6 Treaty of Waitangi.

When conducting studies within in New Zealand, it is required to respect the significance of the Treaty of Waitangi. The Treaty addresses the process of relationship building, ethical

concerns and rights for indigenous populations and minority groups. Durie (as cited in Renwick, 1990) refers to the Treaty of Waitangi principles as: Partnership, participation and protection. These principles were considered and AUTEK accepted the ethical rigour of the study.

3.5.6.1 Partnership.

Partnership was applied throughout by recognising that the Paralympians were partners, and indeed 'experts' in this study. The aim of this research was for participants and the researcher to work together in a reciprocal nature, where the participants 'expert' knowledge would be used to further enhance the study of Para athlete sporting journeys. Through the Paralympians providing this information, it was hoped their stories would benefit and improve current and future Para sport programs, coaching and Para athlete experiences within New Zealand. The information, knowledge and cooperation of the Paralympians has been acknowledged throughout any research outputs.

3.5.6.2 Participation.

This research has given Paralympians with a limb deficiency a voice. The stories of their journeys will be used to improve the experiences of future Para athletes participating in Para sport. The Paralympians were given the opportunity to verify their interview transcripts via email. This verification process allowed the Paralympians to validate that the transcripts truthfully reflected their journey and ensured they felt satisfied for any of their comments and quotes to be published.

3.5.6.3 Protection.

The course of action for confidentiality, publicity of Paralympian names, stories and platforms for possible publication were summarised on the information sheet and consent form (Appendix B). The Paralympians were reminded that they would be named in this research prior to their individual interviews, as the researcher's institution's ethics committee - AUTEK - recommended that participants' identity would be made known in this thesis due to the fact that they belong to a unique minority group and through their unique stories, even with pseudonyms, there was a high possibility of them being identified. Therefore, it was reinforced that involvement was completely voluntary. No parties, other than the researcher and the assigned academic supervisors, had any involvement with collection and/or analysis of data. The Paralympians were not involved in any situations that may have caused them harm. Each individual interview was performed in a meeting room at the closest HPSNZ facility, providing a safe and private space for

discussion, in a convenient location for both parties. The Paralympians only cost was the time they donated to the interview, which was approximately sixty minutes. It was ensured the time required by the Paralympians for the interviews was clearly communicated prior to signing the consent form. A koha was presented to each athlete to say thank you for their time in the form of a meal and refreshments.

3.5.7 Rigour and Trustworthiness.

Several frameworks have been developed to appraise rigour and trustworthiness of qualitative data. Guba (1981) proposes four criteria that he believes should be considered by qualitative researchers in pursuit of a trustworthy naturalistic inquiry approach. The four criteria are: Credibility, in relation to internal validity; transferability, in preference to external validity or generalisability; dependability, in preference to reliability; and, trustworthiness, in relation to objectivity (Shenton, 2004). The chosen research method ensured sufficient detail had been provided in order for the readers to assess and ensure the validity and/or credibility of the study (Carpenter, 1997). Data were collected and then analysed using the Template Analysis methods of King (2012). In attempts to validate this study, all methodological processes were followed correctly and verified by the academic supervisory team.

3.5.7.1 Credibility.

Credibility relates to the extent the data is an accurate representation of the context (Hastie & Hay, 2012). All of the Paralympians interview transcripts were emailed to the respective individuals for content verification. After the content was verified, data analysis allowed for confirmation of the Template Analysis codes and themes from the researcher's supervisory team. This conformation was established through partaking in regular meetings and discussions surrounding clarification of the data analysis and ensured the research process and findings were thoroughly cross-examined.

3.5.7.2 Transferability.

Transferability is concerned with the extent the findings of one study can be applied to other situations (Shenton, 2004). Since the findings of this qualitative study were specific to such a niche population, it was almost impossible to demonstrate that results and conclusions could be applicable to other situations and populations. Yet, the researcher attempted to apply transferability, as it was expected that even though the current study was conducted with New

Zealand Paralympians with a limb deficiency, Para athletes from all countries and of all impairment classifications could also benefit from these findings.

3.5.7.3 Dependability.

Dependability indicates the reliability of the interview data. In addressing the issue of reliability, this study has described and employed the techniques outlined in Chapter Three, to show that if this study was repeated, in the same context, with the same methods and with the same participants, similar results would be obtained (Shenton, 2004). In order to sustain a level of interview uniformity, an interview guide (Appendix B) was implemented and all interviews were conducted by the same researcher to reduce inter-interview bias.

3.5.7.4 Trustworthiness.

Trustworthiness describes the extent to which the study results can be verified by others (Hastie & Hay, 2012). Trustworthiness was determined through participant feedback. The participant feedback was obtained through emailing the transcripts to the Paralympians to confirm they were a true representation of what they had conversed in their interviews and that the transcript adequately represented their sporting journeys. In the review process the participants had the option of adding any additional information they thought may benefit the study and their story. All Paralympians confirmed they were satisfied with their statements.

3.6 Summary

Chapter Three has outlined the qualitative descriptive approach that has been applied to this study. This chapter has examined the application of the post-positivist paradigm and research position that has underpinned the research. A detailed description of the method applied to Paralympian recruitment, the semi-structured interviews, and data analysis processes were explained, as well as how and why a pilot study was first conducted. Ethical considerations and the ability of this study to uphold rigor and trustworthiness have also been discussed. In summary, this study has attempted to stay true to recommendations of Guba (1981), Sandelowski (2000) and Shenton (2004) for qualitative descriptive studies, specifically, naturalistic inquiry.

Chapter 4 Results

A number of characteristics were consistently identified as being particularly influential on the sporting journeys of the Paralympians interviewed. These characteristics typically related to one or more of three key themes: Sport influences, psychological influences, and impairment related influences. Figure 2 outlines dominant themes in relation to the main influences on the journey to becoming a Paralympian. This section will expand on these themes, providing context and examples of the specific influence of each factor on the Paralympic sporting journey. Throughout this section, it should be acknowledged that brief reference to relevant literature will be included where appropriate, however, the discussion chapter will compare and contrast the relevance of these findings in relation to literature in more detail.

When reflecting on their sporting journeys, a number of influences were repeatedly referred to by the Paralympians as being particularly significant to their sport participation and development. Appendix C presents key themes that were identified in the initial stages of conducting Template Analysis. Brooks et al. (2015) suggest initially displaying themes as a mind map to see interaction between codes. In order to make the results clear of the reader, King's (2012) process of Template Analysis groups themes into hierarchical form (e.g., dominant and sub-themes) (Figure 2, Figure 3, Figure 4, Figure 5). It must be noted that theme and code names have evolved with the Template Analysis process since the initial mind map was constructed. The arrows on the mind map (Appendix C) indicate if certain themes were relevant to multiple themes. The themes with the most integration are known as integrative themes (e.g., *money*) as they cannot be separated into hierarchical form and will be addressed at the end of the results section.

As seen in Figure 2, dominant themes were found to be *influences* on participation in Para sport and/or Para athlete development and could be described at the highest level as: 1) *sport influences*, 2) *psychological influences*, and 3) *impairment influences*. Interestingly, these key influences were often viewed as facilitators to involvement and progression, whilst in other situations they were viewed as barriers. Each theme is illustrated in this section by verbatim extracts from the interviews.

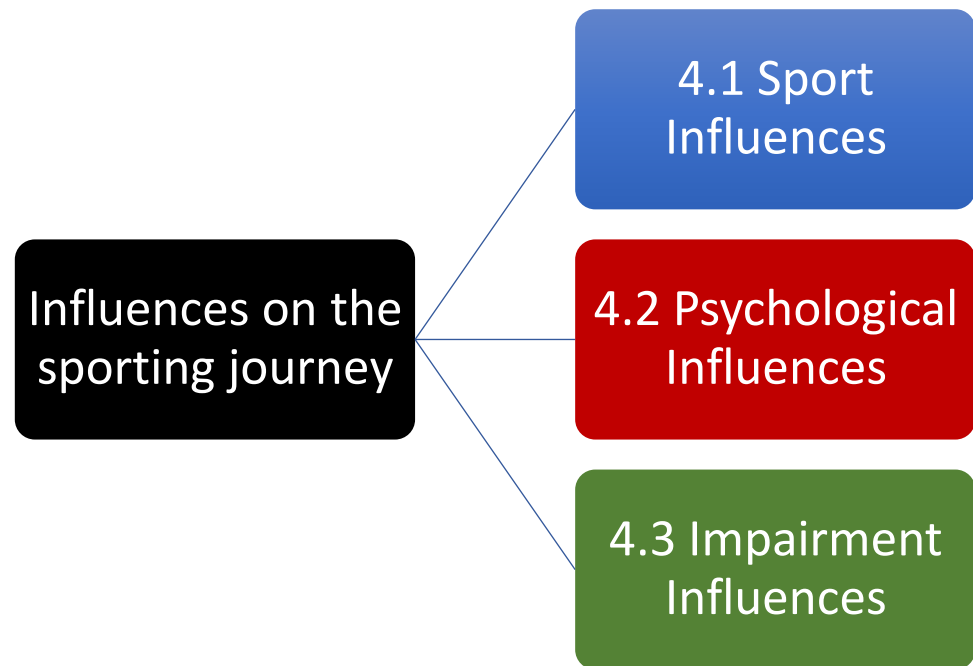


Figure 2. The three dominant themes influencing the participants' Paralympic sporting journeys.

4.1 Sport Influences

The first dominant theme is *sport influences* (Figure 2). All Paralympians perceived sport as an overall positive aspect of their lives, which was a key reason for continued involvement. Examples of specific positive sporting experiences reported included encountering welcoming clubs or teams, meeting the right people at the right time (e.g., a long-term coach), and travelling to international events, which are all findings in line with retrospective studies conducted on able-bodied athletes (Russell, 2014).

Paralympians also reported some negative experiences in sport. These experiences caused a number of the Paralympians to initiate change. Examples of negative experiences included having disagreements with influential people, withdrawing from certain sports and changing their daily training environments. These results are also in line with studies conducted on elite able-bodied athletes and are not unique to Para sport (Huxley et al., 2017; Pereira et al., 2016). Yet, even though many of these sport-related findings are similar to able-bodied athletes, they have the potential to be of greater influence on the Paralympians, as there are very limited numbers of sports, clubs and coaches that work with Para athletes within New Zealand; meaning if they encounter a negative club/ coach/ sporting experience their future Para sport options could be limited.

The dominant sub-themes *for sport influences* (level two of the hierarchy, e.g., 4.1.2) relate to experiences the Paralympians had in the sport environment and the influential people involved along their journeys.

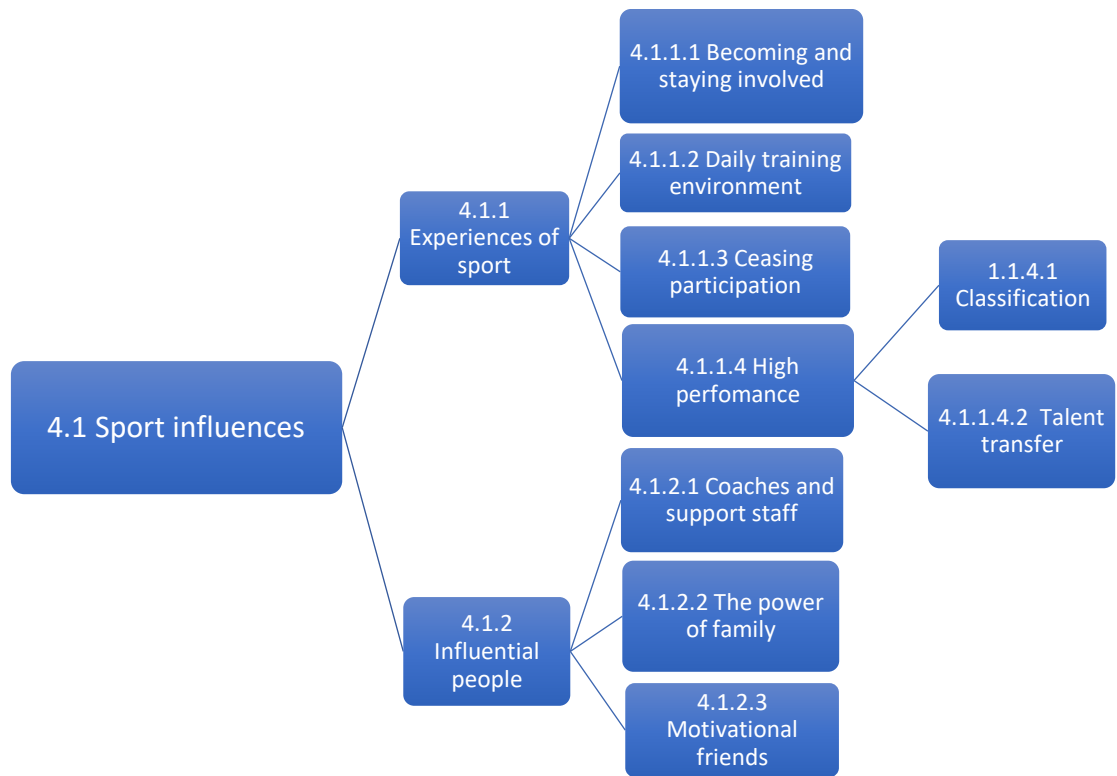


Figure 3. Sport influences levels of the sporting journey hierarchy.

4.1.1 Experiences of sport.

The first sub-theme of *sport influences* is *experiences of sport*. The Paralympians various sporting experiences have shaped what sports they have chosen to take part in, withdraw from, and persist with to the high performance level. All participants talked about wanting to be treated as ‘normal’ throughout their sporting experiences as they did not view themselves as ‘disabled’, therefore this was a major determinant for continued involvement, as Paralympian 4 explains:

I’ve never wanted to be treated differently, like all through high school with PE and all that kind of stuff, like I never wanted anyone to make anything easier for me or take sympathy or anything like that (Paralympian 4).

The participant sport experiences are not solely specific to Para sport but also include playing able-bodied team sports in their youth and competing as individuals in able-bodied competitions and are explored in depth throughout the 3rd level themes (e.g., 4.1.1.1).

4.1.1.1 *Becoming and staying involved.*

The participants' experiences on commencement of sport were expressed as important for them to want to get involved and continue participation. Factors that were described as being influential for participants wanting to try a new sport were: Whether friends were involved, if sporting equipment was affordable and if there was any information available about how to get involved in the sport.

The Paralympians revealed that a key barrier to commencing participation was if the sport, Para sport, sport specific prosthetic or adaptive equipment needed would incur a high cost to their families. For example, if they needed a custom made handle bar attachment for a bike for their upper-limb deficiency. Many of the Paralympians explained that they got around the sport-specific equipment cost barrier by participating in the activity with their everyday limb. The only problem that occurred from this was they proceeded to break many of their everyday prosthetic limbs through being active in sporting activities which the limbs were not designed for. These everyday prosthetics were often funded by the New Zealand Ministry of Health; therefore, their families did not need to pay for new limbs or repairs. Paralympian 4 explained that his foot would end up going rotten and breaking because of water damage from participating in water sports, and he would simply go without a leg whilst it got repaired or replaced:

[. . .] growing up I only had one [prosthetic] leg, it was just a fibre glass leg and found once I started surfing heaps that's when I got heaps of issues with it, it would rot because it was wood inside it, I would jump off a small wall and because it was so destroyed inside the foot would just snap off all the time (Paralympian 6).

Influences that facilitated involvement in sport included having the opportunity to participate in a sport with people that had similar impairments. The Paralympians who met individuals with similar impairments at a young age spoke of how they had the opportunity to have Para sport role models or mentors and compete with Para athletes of various ages, which also enabled them to play Para sport at regional representative level whilst they were still at school. Paralympian 3 explains how he became interested and involved in his first Para sport due to seeing a Paralympian in a poster at a NZALS centre with the same congenital limb deficiency as him:

I was at the limb centre getting a prosthetic fixed and I saw a poster of [Paralympian 6] on the wall, so I took down his details and one of my mates actually convinced me to message him and then I did, and it just worked out so well, and it just so happened that [Paralympian 6] was going to be at the mountain the next weekend, so I got the weekend off work and went down and met him (Paralympian 3).

4.1.1.2 Daily training environment.

Analysis of this third level theme (see Figure 3) revealed the daily training environment had a significant impact on participants' experiences of sport. With some elements identified as being similar positive influences on those in an able-bodied training environment. These influences included having people in their training squad at similar levels to themselves; having a positive relationship with their coach and getting on with other people in the training squad. Some variations from the able-bodied similarities were that participants specifically mentioned they liked training with other Para athletes with limb deficiency because they had not experienced this when they were younger:

When I was growing up I didn't meet another amputee until I was sixteen, so I had never seen anyone with a limb deficiency before, or one that was similar to mine. I was so excited afterwards like man this is cool, here was [Paralympian 2] with no legs running and [Paralympian 1] throwing a javelin and sprinting on a cool blade and I was just like man this is awesome (Paralympian 7).

What was of particular interest was if they were training in an able-bodied training squad, the Paralympians did not like being treated differently to their able-bodied peers. Some Paralympians felt it was important to highlight that they had an impairment and prove even with their impairment, they had the motivation and competence to be greater athletes than their able-bodied training peers:

Now I'm in a really epic training squad and that makes all the difference and I believe that will lead to success later on. [. . .] they're all able-bodied, but I'm the fastest. So, who's able, right? If we're measuring ourselves on athletic ability, it's not them! (Paralympian 2).

The thoughts Paralympian 2 expressed in this quote are also linked strongly to the theme of self-identity, which is explored further in the *psychological influences* section.

4.1.1.3 Ceasing participation.

Participants reported their reasons for exiting sport to be multifaceted. One reason given was due to able-bodied people publicly commenting on the Paralympian's impairment. These comments were not necessarily intended to be negative, but made the participant feel that it drew attention to the fact that the participant was 'different' to their peers. An example of this is Paralympian 8 quitting athletics due to a sport commentators lack of sensitivity surrounding publicly drawing attention to her impairment:

As a five year-old, my sister was involved in athletics and I'd go along and just do my thing. I was in this race and obviously, I was coming last as I always did, and the guy on the loud speaker said, 'now all put your hands together, here she comes, and she's only got one leg'. Mum and dad said that was the last time I ran. Obviously, I didn't think it was

relevant. Mum said I never ran again, it was all over from one comment. I was like 'how dare you point out that I am different than the other kids? I came last because I'm not fast enough, nothing to do with anything else!' (Paralympian 8).

It is evident from the quote above that this Paralympian did not view impairment as a reason to be singled out, therefore, found society commenting on her 'only having one leg' to be a deterrent to her participation. Another reason Paralympians gave for cessation included feeling as though they could no longer keep up with able-bodied peers in team sports:

I remember in about form two [age twelve], that's when my leg started to slow me down because of the technology, the players wouldn't pass it to me and it was harder for me to keep up. I remember missing out, I'd play a game, but I wasn't really involved in it (Paralympian 6).

Further reasons for no longer wanting to participate in certain sports mirrored studies looking into able-bodied athlete drop out (Molinero et al., 2006; Rottensteiner, Laakso, Pihlaja, & Kontinen, 2013). These reasons involved financial implications, their friends no longer playing the sport, pressure from parents and/or coaches to perform or withdraw in order to specialise, lack of enjoyment, injury or risk of injury, and mental health. Although there are confirmed similarities between research with able-bodied athletes and their reasons for dropping out, what emerged strongly in this study was that these participants strongly rejected society stereotyping them due to their impairment. They wanted to be treated as athletes.

4.1.1.4 High performance.

There were countless motives behind the Paralympians wanting to be involved in high performance Para sport. These motivations ranged from being intrinsic, such as a pure love and joy for their Paralympic sport, through to extrinsic motivations, for example the participant saw it as an easy way to get income.

Some interesting comments surrounding Paralympians reasons for wanting to be involved in high performance Para sport were they felt if they were able-bodied they would not have considered themselves good at sport. Others felt that if they did not have missing limbs they would not have been a successful athlete or tried to pursue sport as a career. These were not positive or negative comments, but their personal view on their sporting ability:

It was like, 'wow, Athens is the home of the Olympics,' you know, the home of the Olympics, I could go to an Olympics [Paralympics] and I could never do that with any able-bodied sport ever, this could be me (Paralympian 8).

Funding (or lack of) was also perceived to be an influence on motivation for performance and continued participation. The majority of participants felt there was a substantially large and

unfair pay gap between Olympians and Paralympians and if a Paralympian experienced one bad competitive season they would not be able to continue their Paralympic career:

Coming fourth, you're totally stuffed for funding, I went from like \$35,000 PEGs down to coming fourth. So, the year before I got \$35,000, to coming fourth that year dropped hugely down to \$5,000. Like, to be a professional athlete like I couldn't do it [. . .] there is still a big gap between able-body Olympians and Paralympians, that funding gap, it's quite huge, like first, second and third like they're all equal to Olympians but then as it progresses down to like eighth [in the world], the Paralympic side just basically drops off the face of the earth, getting one bad result can basically end someone's career (Paralympian 6).

Other participants felt they were very competent at making a living out of Para sport and that is why they chose to pursue a high performance career. With some explaining that they did not love or hate their chosen Paralympic sport, but were good at it, therefore thought they would make it their profession, as Paralympian 9 confesses:

I didn't hate it at the time which was nice. I guess I was just good at it, so I was like, 'why not make a living out of it,' you know? Like it wasn't going to kill me, so I just did it (Paralympian 9).

It should be mentioned Paralympians did state that they found it hard to get regular employment, with many of the Paralympians expressing they had never been able to gain full time employment, therefore Para sport was one of their only employment options. This displayed sound evidence that their reasons for being involved in high performance were externally driven. Some Paralympians even went as far as to say they felt like commodities due to certain organisations knowing that Para sport was one of their only employment options. Paralympians spoke of such instances as people threatening to reduce or remove their PEGs if they did not move to certain training locations or produce certain results:

In some ways I think PNZ are a little bit naughty in reminding people sometimes that, 'hey we pay you,' and I think in my mind that is naughty you should not make them feel as though they are a bloody prisoner, and that's essentially why I moved back down. So, between London and Rio in that 2014 year when I moved back down to Auckland, I was TOLD, you will move to Auckland or you will lose your PEGs and that did not sit well with me, but I did it because I wanted to win in Rio (Paralympian 5).

An unusual consideration expressed by several participants was the Para sport they have competed in at the Paralympic Games is not their sport of choice but was pursued due to a variety of factors such as what events were on offer at the Paralympic Games for their impairment type. Others only compete in their Para sport due to being told by PNZ where the organisation thought the Paralympian's strengths lie, such as Paralympian 1 who wanted to be a cyclist but was told at his trial that he was not suitable for cycling and should find another sport:

I filled out an application to Paralympics New Zealand, had to tell them what sort of sports I was into. I was like yip, I'm going to go be a Paralympic cyclist. [. . .] they [PNZ] basically said at the end of it, if you want to be a javelin thrower we can put you into the Accelerate to Excellence program, if you want to be a cyclist, maybe not London (Paralympian 1).

Once the Paralympians began to train in the Para sport program that PNZ selected for them, many did begin to shift their motivations for competing in the Para sport from being externally regulated (career opportunity) to being intrinsically motivated (for the love of sport):

I never wanted to be a sprinter it's just not my thing, but it's what's available. You get into the midst of it you become it, that is what you do. Funny, because I don't think either of those sports are ones that I have chosen, picked, wanted to do, liked (Paralympian 8).

Although the majority of the Paralympians' experiences of competing on the world stage have been positive, the national level of competition has resulted in many Paralympians having demotivating experiences due to the insufficient number of Para athletes and low level of competition within New Zealand. Paralympian 7 expressed the lack of enjoyment the small field of Para athletes had on national competition and that the feeling of winning is no longer satisfying when you are the only one in a category:

The 200m [able-bodied] women didn't pair up with the long jump Para, so I did the Para 200m, and it was awful! I won by 15 seconds. There were two other girls in the race and they both finished exactly the same time, it was ten-to-fifteen seconds behind me, so I was just running, it wasn't like 'wow this is awesome'. And to get a gold medal like that, that's not fun at all. People would be stoked my first nationals I won four golds, but I was the only one in the event [classification], I can't win anything else (Paralympian 7).

4.1.1.4.1 Classification.

A unique influence on high performance Para sport participation was whether participants felt they were in a fair classification for their impairment type. Some spoke about other competitors with impairments, such as impaired muscle power, who could perform a hard workout before classification testing, therefore would be fatigued and be perceived as weaker than they really were; resulting in these Para athletes getting put into a lower classification and having a better chance at winning. Whereas for Para athletes with a limb deficiency, it was obvious that the limb is not there, and they felt this can lead to unfair classification and impact competition results:

There are athletes that perhaps shouldn't be in my class but are and have a relatively unfair advantage and for certain events classifications are combined. So, it's interesting the neurological disorders, there's nothing really stopping them from just not giving one-hundred percent when they get tested. Like obviously, I take my leg off and they're like, 'oh you have one leg, you're a C4'. I think they do pressure tests and that sort of stuff for muscle strength, so you could just not give one-hundred percent and just pretend that you're trying as hard as you can, and you'll get classified down a grade (Paralympian 3).

4.1.1.4.2 Talent transfer.

Talent transfer is an interesting part of Para sport, as participants speak of having no previous experience and lacked initial interest in the Para sports they transferred to. Their reasons for transfer were similar to the performance motivations mentioned above, as talent transfer was often done as the Paralympian's chosen sport was not available as an IPC sport, so they were put into a program for a Para sport that was available for them to compete in at the Paralympic Games. For example, Paralympian 3, who was a mountain biker transferring to track cycling:

If you had asked me at the time like if I would be where I am now with [track] cycling I would have told you to get stuffed because I was riding mountain bikes, getting covered in mud, wearing denim, not Lycra (Paralympian 3).

Other factors motivating talent transfer included experiencing an emotional state of boredom in their current sport due to feeling as though they had achieved what they needed to achieve. Paralympian 9 explained that she had now switched to Para cycling after winning gold in Rio for Para swimming, as she felt she had completed everything she wanted to do and was now bored:

I just wanted to be the best, wanted to beat everyone, and then it came true at fourteen, fourteen yeah. First gold medal international. [. . .] everyone is like why, and I'm like I don't know I'm just feeling like I've completed what I wanted to do, and I want something new (Paralympian 9).

One participant that successfully competed in a second Para sport at Paralympic level had to undergo talent transfer due to the pain and injury acquired in their initial Paralympic sport being were so severe that it led to them no longer being able to run, but Paralympian 8 explained she still had the mental capacity and drive to compete and be competitive:

I had Osteitis-pubis, which had plagued me right through my running. It's just the shearing forces, the whole way along my career it had been an issue and it was never going to go. So, really, I realised my days were done running, but I still mentally had the drive and wanted to compete. For every issue in my life sport was my outlet and I was still, you know, fighting. So, I switched to cycling (Paralympian 8).

As stated in the above quote, many of the Paralympians employ sport as an outlet for other life issues they are dealing with, therefore they have a desire to remain involved and subsequently will transfer to a Para sport that PNZ feel the Paralympian is capable of achieving results in; in the case of Paralympian 8, transfer was due to existing injuries. Due to the successful transfer of individuals such as Paralympian 8, some participants believe that if they are not successful in their current Para sport it will be easy for them to do a talent transfer into another

Para sport. Paralympian 3 explained that if he does not make it to the international level he wants to for Para cycling, he will simply change to a different Para sport code:

I need to have a sport in my life in some form so if I can't keep cycling maybe switch to kayak or Para swimming or something else and see how I go (Paralympian 3).

Paralympian 3's quote again demonstrates the need for these Paralympians to have sport as part of their daily functioning, as all participants refer to sport as giving them a sense of freedom that they do not necessarily get to experience in other aspects of their lives due to restrictions they feel their impairment imposes upon them. This was of particular significance for the Paralympians with an impairment in more than one limb. The Paralympians with multiple limb deficiencies also reported that there was a decrease in the diversity of sports that they could participate in throughout their lives. Therefore, these Paralympians tended to specialise in their Paralympic sport from a very early age. It was found that the majority of participants who had two or more affected limbs specialised in their sport before the age of ten, this included going to international competitions, with Paralympian 9 competing in her first Paralympic Games at the age of thirteen and moving from her home town to her sport's high performance training centre at the age of sixteen. These factors lead to her reporting burnout, anxiety, depression and socialisation issues, which have all been published as results of early specialisation in youth able-bodied sport (Blagrove et al., 2017; Torres, 2015) and ultimately led to her switching Para sport codes (via talent transfer).

The Paralympians' motivations to be involved in high performance Para sport go beyond winning medals with all of them stating they needed some aspect of sport in their lives as they used it as a coping mechanism for a myriad of life issues. Some individuals used sport as an outlet to escape from abusive partners, others used it as a way to beat suicidal thoughts and many of the Paralympians utilised sport as a way to overcome anxiety surrounding their impairment; with these being the genuine motives behind the participants not objecting to competing in a Para sport that was not their ideal or chosen Paralympic sport.

4.1.2 Influential people.

The second sub-theme for *sport influences* is *influential people* (see Figure 3). Significant people were identified as a critical influence on sport participation and development, as all participants commented on how particular individuals played a part in steering them through various parts of their journey to Paralympic success. The main groups that were identified as

important by the Paralympians were: coaches and support staff, parents and family, and friends. In line with previous able-bodied research, the influence of coaches, parents, and peers - good and bad - was significant for the participants. However, what was different for these Paralympians was the support they needed went possibly over and above what is required by able bodied athletes. They potentially have bigger mountains to climb, and this was identified by Paralympian 8:

Having mentors along the way and people to talk to. You need that support network, you need those coaches, you need people that believe in you. You don't always get that from your family and friends. I think that the psychologists in sport for me have been really important to deal with some of the issues that come up and as a Para athlete generally, we've got a background and a story that is different than an able-bodied athlete and that has got to be understood (Paralympian 8).

There were some differences in the participants' descriptions and interpretations of how these people supported them. These differences related to superficial support, for example, whether someone had to physically help them achieve a task (e.g., carrying their prosthetics from one end of the pool to the other), in contrast to emotional support and encouragement. This superficial support involved parents, coaches, support staff and peers and was beyond the effort required for an able-bodied elite athlete to succeed. For example, helping the participant get in and out of their training environment (pool) or equipment (wheel chair):

They [the swim club] were really good, really welcoming, not scared off by my disability. They weren't fussed if you had to do something a little bit differently. They were happy to wait and give me time to do it [swim] and happy to have people take my legs from one end to the other (Paralympian 5).

The impact of these influential people will be discussed throughout the following section.

4.1.2.1 Coaches and support staff.

Positive experiences with coaches and support staff have been identified as a third level theme, enabling the Paralympians to transition from participating at school or club level through to competing at the high performance level. All the Paralympians mentioned how thankful they were to have access to support staff, such as the sport psychologists and physiotherapists, who had been helping them achieve their performance targets. Paralympians in this study felt a key aspect was getting regular massages from the physiotherapists to make their body feel good again, and this was something they needed when they were in development but could not afford financially. Many of the participants mentioned that their sport psychologist sessions helped them with mental skills such as practicing mindfulness and visualisation techniques, which they believed were fundamental to their emotional wellbeing and important for them to achieve results

in competition. The participants also voiced that they understood their coaches to be a holistic aspect of their support network, because they were not only working as sport coaches but as mentors. All of these reported findings surrounding the coach and support staff are similar to those found in able-bodied studies (Connaughton et al., 2008; Jowett, 2017; Prophet, Singer, Martin, & Coulter, 2017).

One of the most distinctive aspects mentioned by participants was coaches and support staff having a lack of knowledge surrounding the Paralympians' impairments, prosthetics and prosthetic services available. The participants felt coaches and support staff did not make suggestions about or were not able to assist with acquiring the correct prosthetic/attachments to improve their quality of training, for example getting the correct gym arm or attachment to make lifting weights possible. The participants felt that this was particularly applicable when referring to their strength and conditioning training because they wanted to improve on, to the best of their ability, their weaknesses and imbalances caused by their impairment. Yet, many participants continued to train with the prosthetics/equipment they had and just 'make do' when they knew they could be achieving better training results:

Our sport, it's all about being even on both sides and this [limb deficiency] is the exact reason we aren't. Technology is something that I think [NSO] should spend some time and money on. Those are where the one percent come in. It's not about making a huge difference when you're at that top end, it's about that one percent and if I'm one percent lopsided I need to know that, [. . .] if I wore, say a limb on my arm when I ran, maybe I would run one percent quicker? In Rio that would have been a bronze medal, that is so critical (Paralympian 7).

While coaches and support staff were identified as, for the best part, having a positive and beneficial impact on participants, this same group of people were also reported at times to negatively impact sport experiences. For example, some participants stopped involvement in a Para sport due to comments made by coaches and support staff, others changed training facilities to remove themselves from the negative influence, or no longer trusted the people in their support staff team with important aspects such as their health and injuries. A few Paralympians went on to say they felt support staff were more concerned about producing results for the organisation than their health or looking after them as a person. Paralympian 7 talks of how she felt support staff acted harmfully towards her by not taking her complaint about feeling injured seriously with staff treating her as a commodity, and that future trust in the support team has now been seriously damaged:

People, on our team, management and such, was [expletive]. Like really [expletive]. They thought it was all in my head. It wasn't. So, the people that had the skills and the knowledge to help me make the decision about something I knew nothing about were guaranteeing me that there was nothing wrong. [. . .] This could be, potentially, career ending. I know that that's the same with every injury, but the fact that I pushed myself because I was under the impression that nothing was wrong [. . .] I feel it's going to be a struggle in the future to trust those support people again and trust that they have my best interests at heart [. . .] since Rio I feel like I have been treated like a gold medal and not like [Paralympian 7] who dedicated the last three years of her life to win at that level I feel like they're just like, 'gold medal [Paralympian 7] I'll use you for this event,' (Paralympian 7).

4.1.2.2 The power of family.

Family members are highlighted throughout as powerful influences in the Paralympians' lives. Some participants reported they did not have close relationships with their parents, but they still consider other key members of their families as driving forces behind their success.

Parents and family were talked about as being positive influences on the participants because they were involved through introducing them to new sports, taking them to training sessions and games, helping financially support them and providing encouragement and guidance. One unique aspect of children living with impairment is highlighted by Paralympian 7, who considered her parents teaching her important fundamental movement skills as essential to ensuring she would have the best chance at sporting success:

My dad taught me how to catch and throw a ball before I started primary school, just in the back yard, I remember that was really important for him to teach me because he knew that it might not come second nature (Paralympian 7).

Conversely, some Paralympians described a lack of empathy and understanding from their family and provided some exceptionally powerful examples relating to their family not fully understanding the psychological issues and social constructs they were applying towards the Paralympian through their constant commentary of comparison between an able-bodied athlete and the participant's performance:

I did a half marathon and I ended up with a medal for it because you had to be a registered runner and I had fitted all that criteria, and I remember ringing my parents up and my mum saying, 'Oh, were they all amputees?' and I was like 'no', and then the joke, 'well, obviously, there wasn't any good runners,' (Paralympian 8).

4.1.2.3 Motivational friends.

Paralympians often referred to friends as being particularly influential on their sporting journeys. When discussing the role of their friends, many mentioned their friends were very supportive. Even if their friends were not sporty, they would give them advice and encourage the Paralympian to pursue a sporting career. Many Paralympians tried new and different sports during

the school years due to their friends and peers, and they considered this to be an important part of their development:

Friends at school, I know mountain biking definitely, I was quite influenced by people at school, and the rock climbing, [. . .] College had a climbing wall and I enjoyed doing it, so I just kept going, and then I learnt how to snowboard with a friend just as something to do and then I just happened to love it (Paralympian 3).

These findings surrounding the participants, their friends and reasons for sport enjoyment are all in line with able-bodied studies, yet it has to be emphasised that even though there are similar reasons behind Para and able-bodied athletes needing friends to encourage them to be involved in sport, the need is increased for people with an impairment because studies have shown that this demographic is less likely to initially be active, competent and autonomous and require high levels of relatedness to stimulate sporting involvement (Orr, Tamminen, Tomasone, Sweet, & Arbour-Nicitopoulos, 2018).

4.1.3 Sport influences summary.

Throughout the in-depth interviews it was evident that the participants positive experiences of sport and the people involved have been dominant influences for the participants to want to continue involvement and realise their Paralympic dreams. Positive experiences included having Para sport role models with the same impairment and having other Para athletes training in the same environment. Some participant experiences that could be considered negative included no longer being able to keep up with able-bodied peers and their available prosthetic technology. Specific Para sport findings that related to influential people included coaches and support staff having a lack of knowledge surrounding participants' impairments and prosthetics, parents teaching the participants fundamental movement skills whilst they were in development and some parents and other significant adults not understanding the emotional damage that incorrect terminology and constant able-bodied comparison could have on the participants. Participants motivations to perform were varied. Some spoke of controversy surrounding the classification system and the unfairness of putting different impairment types together, as they are not easily compared. Other participants spoke of the lack of enjoyment they experienced when competing within New Zealand, due to the small field of Para competitors. Other Paralympians felt that their motivation to perform was due to them having an impairment, as they felt if they were able-bodied they would not have the opportunity to be an elite athlete. Subsequent motivations involved having Para sport as an employment opportunity as they did

not feel there was much else available. Yet, it has to be emphasised that sport, of any kind, is a powerful and highly valued influence for these participants. It is evident that *sport influences* appear to have had a compelling effect on participants' perceptions of how they achieved their Paralympic success.

4.2 Psychological Influences

The second of the three dominant themes, *psychological influences* (Figure 2), covers a breadth of topics surrounding the internal (emotions) and external (performance) effects that psychological influences have had on the Paralympians' sporting journeys. The main subthemes presented themselves as *behaviour and motivation* and *emotions stimulated through Para sport*, with Figure 4 showing the levels of the psychological influences hierarchical themes. Questions asked during interviews aimed to discover how participants were able to overcome any challenges that they encountered and any factors they believed distinguished them from other Para athletes that did not transition to Paralympic level.

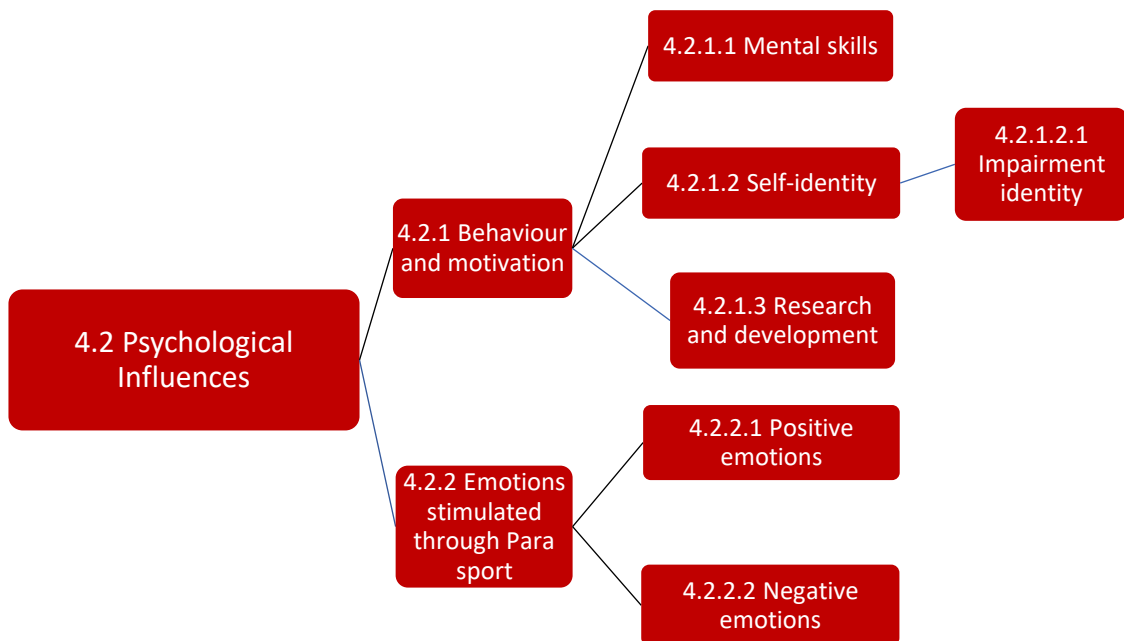


Figure 4. The psychological influences levels of the sporting journey hierarchy.

4.2.1 Behaviour and motivation.

The first sub-theme of *psychological influences* is *behaviour and motivation* (see Figure 4). Various behavioural and motivational characteristics were spoken to throughout the interviews. An example of this is Paralympian 7, who describes her feelings surrounding her impairment and athletic identity and confidence she felt when playing sport:

I was pretty lucky as a kid, I never got bullied and heaps of people from our Paralympic team got bullied to within an inch of their life and that's just awful to me so I don't know why I was so scared about it, like especially netball I never was nervous, I feel like I was like one of the better ones or more coordinated, yeah it was the best times because I didn't have to think about what I was going to do whereas subconsciously in every other situation I was thinking about how that was going to work, how I was going to keep it [limb deficiency] hidden or how I was going to explain that I had one hand to the substitute teacher or whatever, you know? (Paralympian 7).

As shown in the above quote, participants portrayed similar behavioural traits as elite able-bodied athletes and Olympians when playing sport, such as confidence (TaeHee & O'Sullivan, 2016), but of particular influence were the Paralympians use of mental skills, their perception of their own self-identity and their motivations behind wanting to do their own personal research and development.

4.2.1.1 Mental skills.

Mental skills are the internal capabilities that helped participants improve performance by learning to control their minds efficiently and methodically as they achieved their Paralympic goals. The participants found mental skills exceptionally important for their competition preparation and to deal with certain situations, such as the integrated competition environment (e.g., able-bodied athletes and Para athletes competing at the same venue concurrently). Some mental skills used to cope with such scenarios were simple 'pros and cons' lists, yet these were effective in giving participants the motivation and confidence to continue with their sport:

One hard thing for me was putting yourself out there and potentially failing in a public arena. I mean it's hard enough for young boys and girls at high school to be comfortable in their own skin, but when you've got a disability, and for me doing a sport like swimming where it's all [expletive] on show. I overcame these feelings with a pros and cons list in my head, like alright I'm doing this for this, and the only detractor is what people might think of me (Paralympian 5).

Several participants described how they used visualisation techniques to assist with competition preparation, for instance a combination of visual and mental imagery, where the participant imagined performing the activity from their own perspective:

It's just the thought stream that dictates whether you're happy, and a part of that was learning about like fixated visualisation, and experiencing an event before it actually happens right? Using your imagination, and so I would stare at photos of myself winning against the guys who were competing in London. So, cutting out photos, sticking myself in those images and then I would stare at that and then I would imagine what did Rio smell like, feel like? And did that for the 200 and the 400[metres], so it felt familiar (Paralympian 2).

Practising mental skills, such as mindfulness and the art of reiki, have also assisted many of these participants' with overcoming a range of internal struggles that were disabling them from

participating in sport; for example, addiction, negative impairment identity, anxiety and depression:

I went through this self-therapy phase where I was just accepting myself and some of the things that I had been through and also started practicing reiki which is a self-healing practice (Paralympian 1).

The way these Paralympians applied their mental skills was what differentiated them from able-bodied athletes. In some instances the use of mental skills (e.g., visualising winning a race) were used in the same way as an elite able-bodied athlete (Connaughton et al., 2008; Girod, 2015; Orlick & Partington, 1988); but in other scenarios the Paralympians have used their mental skills to overcome challenges with their impairment; such as Paralympian 2 practicing mindfulness to overcome his anxiety about people seeing his blades when he first started Para athletics training:

You can't wear pants over these blades and for the first year of going to training I would curl up in a ball before I would go because I was so anxious about people seeing my legs and it wasn't until I really went all in on mindfulness that you can just observe these emotions coming and going and then just do it, and that's when that helped. You know I still suffer from anxiety, but yeah, there is no arrival, there is no complete flip as such, you always progress. If I stopped practicing mindfulness, being ambitious, it would all just fall back to bits I'm sure (Paralympian 2).

4.2.1.2 Self-identity.

Self-identity refers to the comprehensive understanding one has of themselves. Self-Identity is composed of the individuals relatively permanent or consistent self-assessments, such as their personality attributes, knowledge of their skills and abilities, their occupation and hobbies, and awareness of physical attributes (Perrier, Smith, Strachan, & Latimer, 2014). Self-identity is not restricted to the present, it also includes their past and future.

Participants felt that being a Paralympian was a large part of their identity as their beliefs and views of themselves revolved around their sport and performance, and they took pride in the fact they have changed aspects of their lives to accommodate for their Paralympic dream:

I put my whole life into going to Rio, to me that is such a sacred thing, I'd worked so hard for it. I was like, you're going to go out there and you are going to become a Paralympian, and that was the most exciting thing. I cried in the bus on the way to long jump about becoming a Paralympian. I was like, after one jump I'm going to be a Paralympian. That's crazy! That's something people put on their Instagram bio or their CV. I'm a Paralympian! Whereas, before I was just a Para athlete that had been to world champs. I decided not to move to Christchurch because I wanted to continue it [Para sport] and make a go of it, and I changed what I wanted to do as a career (Paralympian 7).

For the participants whose entire lives and identity revolved around their Paralympic career there could be dangers for life balance, as in able-bodied studies it has been proven that

there are implications for those whose identities are wrapped up in being an athlete (Sanders & Stevinson, 2017). A few of the more seasoned Paralympians expressed how important it was for them to have a life separate to their Para sport as they were aware of the consequences of their lives being consumed by their Para sports:

I always kept my architecture stuff because it was a solid source of income and I like doing it as well and I want something outside of sport to keep me occupied otherwise you know I'd probably just go crazy if I just snowboard every day (Paralympian 6).

4.2.1.2.1 Impairment identity

Another dimension of the Paralympians' self-identity was how they perceived their impairment. Impairment identity refers to possessing a positive sense of self and feelings of connection to, or solidarity with, the community of people with impairment (Perrier et al., 2014). Yet, some of these Paralympians tried to disown their impairment identity, as they felt that society would perceive them as weak, incapable or incompetent. This resulted in some participants hiding their impairment:

I joined a running club, but I didn't want them to know I was an amputee, so I wore long pants for the first 6 months, I thought I want to do it as an able-bodied athlete I don't want them to know that I'm, you know, I have a prosthetic (Paralympian 8).

Other participants refused to wear prosthetics or partake in Para sport events in their youth because they did not view themselves as 'disabled':

You've got a number of reasons that are barriers to entry for kids with so called 'impairments' or 'disabilities' or whatever the [expletive], I don't view myself as being disabled. One is by brand, as a kid you don't want to see this, the values of the Paralympics being communicated as being participation and feel good and inspiring. You are an inspiration in some sense but it's just like, [expletive], it's just who you are, and all I saw was this feel-good story and I was like that's not me, I'll go do mountain biking and snowboarding (Paralympian 2).

The main reason for the Paralympians wanting to hide their impairment or pretend they were 'able-bodied' was because of what they considered to be societal constructs surrounding impairment; as Paralympian 2 spoke about society portraying the Paralympians as 'a feel-good story' when they wanted to be treated and portrayed simply as high performance athletes. These societal views participants felt were also reinforced by the media and inferred people with impairment should not be able to achieve what they have achieved, which Paralympian 2 explained acted as a barrier to him participating in Para sport throughout his youth. Societal constructs participants spoke about were that the word 'disabled' created this label throughout their Para athlete development and was described as having a subconscious barrier to achieving

certain tasks. Paralympian 2 describes how these constructs affected him and how the use of terminology surrounding impairment also had a psychological impact on his everyday life:

[. . .] It certainly had a profound effect on the way I viewed myself because the idea of the self is really constructed by external forces, you're not born as this person, it's constructed from the outside world, and being labelled as disabled created this bias towards an action on many things, like in school from an academic perspective when I failed my maths test, I would explain to my parents it was a result of having artificial legs, which is crazy! Even though I've never viewed myself as being disabled and anytime someone called me that would just fire me up, because I always viewed myself as being able to do something eventually, it was just a matter of time. But it was not good, it still had some unconscious effect on my own abilities. I just I hate that word, I think adaptive is a better word (Paralympian 2).

One participant powerfully and insightfully recounts the experience that changed their relationship with their impairment identity. Paralympian 8 had previously only competed in able-bodied sport and had resisted telling people about their impairment through the fear of being judged by 'disability' instead of who they were as a person:

[. . .] Seeing this sign with Paralympics New Zealand, I just thought, 'oooooh god, I've got nothing in common with you guys, like seriously this is just going to be the worst weekend, I've got to hang out with all of you disabled athletes,' [. . .] I felt almost like, dare I say it, I'm too good for this, I'm an able bodied person I just happen to be an amputee. The weekend was just life changing. [. . .] I was like, 'far out these people are awesome!' Some of them have quite severe disabilities yet they're not hiding them, they're not pretending to be anything different, they're out there doing amazing things. I always thought that people looked at people with disabilities with pity, so my concern was it's like being the five year old clapped across the line because I've only got one leg, and I realised actually I was looking at these athletes with admiration, with respect, they were inspiring me, and I was like, '[expletive] I've spent my whole god damn life hiding this,' whereas I didn't have to be, I could be out there and be proud. I came home and I'm like, 'this is my tribe man, these are my people, I'm blown away by these people!' (Paralympian 8).

The above quote shares many of the Paralympians' views surrounding impairment identity. Many participants at some point along their journey felt that society looked down or judged them as people with impairment; and for Paralympian 8 she adopted this as her own personal view by considering people living with disability could not be of a high sporting calibre or unable to achieve certain sporting tasks. These views created by Paralympian 8 were due to lack of exposure and participation in Para sporting events, therefore she never encountered other individuals of similar impairment at a young age, which manifested into a fear of being judged by the word disability. Through being able to experience sport and physical activity with other Para athletes, Paralympian 8 was able to change her perspective on Para sport, as she was able to see that Para athletes were resilient, talented people with high levels of motivation and achievement, just like herself.

Other stigmas the participants had surrounding their impairment identity came from external organisations through their use of language (e.g., continual use of the words disability and disabled); the way the media writes about impairment (e.g., ‘suffers’ from a congenital deficiency) as well as how NSOs that govern certain Para sports within New Zealand have acted towards Paralympians in comparison to Olympians. Paralympian 7 portrays how she felt she was treated as second class to the Olympians by her NSO after the Rio 2016 Games:

I felt like they [NSO] just patted me on the back and they said, well done, where as I thought like we would be treated like Eliza McCartney is [. . .] I don’t understand what more I could possibly do to be treated like Tom Walsh, Elisa McCartney, you know? I got a Paralympic gold medal, the pinnacle of my whole sport. It really annoys me, the disparity, they [NSO] took us on in their organisation but they haven’t 100% embraced it [Para sport] yet (Paralympian 7).

Other participants did not really grasp what an impairment identity was when they were in the development years, this was due to not having exposure to Para sport throughout this time and not being able to relate to it:

I remember my dad saying have you ever thought about the Paralympics? [. . .] I just had no idea what the Paralympics was and I was like why would I compete against other people with missing legs when I can just compete against my mates? (Paralympian 1).

A number of participants negative views towards their impairment identity were due to experiences they had during able-bodied sport in their youth. Some factors that were mentioned as contributing to these negative feelings included being envious of able-bodied people; not having access to sport prosthetics due to their condition being congenital and at that time the New Zealand Government was not funding sport specific limbs for children with congenital conditions; or, lack of knowledge around sport specific prosthetics that were available whilst they were in participation and development. These experiences from their formative years left powerful impressions on participants. This is clear in the sheer devastation Paralympian 2 felt about the fact that he did not have real legs and how he believed this impinged on his sporting talent:

I was always devastated because like, I would always cry and be like why can’t I have real legs, because I could see that I would be talented if I did. Because I was hard working and everything else (Paralympian 2).

Additional factors contributing to participants feelings about their impairment identity came from experiences in able-bodied sport, where participants felt the need to address their impairment and prove themselves to their community and society as being capable of playing, competing and winning against able-bodied athletes:

Usually people will judge you even if they aren’t saying anything to you, they see you with one hand and think you’re going to be average. It [sport] was one of the places where I

was keeping up with everybody when everyone thought I shouldn't be and so that was awesome (Paralympian 7).

4.2.1.3 Research and development.

Many participants recognised the importance of developing a greater understanding of their Paralympic sport throughout their sporting careers. A common theme to emerge was *research and development*. This theme involved participants improving awareness and recognising that a dedicated training ethic was vital to enhance their performance and ensure success at international level; which is on par with research conducted with able-bodied athletes (Davison, Van Someren, & Jones, 2009), but this study went beyond these able-bodied factors due to the unique and technical requirements of Para sport and limb deficiency. Several participants showed a willingness to develop their background in Para sport specific knowledge through seeking information from sport prosthetic developers and companies, as well as engaging in conversations with Para sport coaches and past Paralympians.

As successful Paralympians, some of the participants have continually searched for methods to increase their potential, such as researching about the sport specific prosthetic technologies competitors were using. Paralympian 2 described how he used his university database to research previous blade runners and teach himself about the various grades of carbon composite materials used to construct running blades. Conducting research enabled him to have a greater understanding of how his body used the available technologies and gave him a competitive advantage, as the majority of his competitors did not understand how to read numbers printed on the blades, which disclosed how their blades were constructed (e.g., stiffness), producing feelings of autonomy:

I was just doing it all myself, I mean I was using my university database to scour whatever resource I could for whatever studies had been done on Oscar [Pistorius] I tried a bunch of other ones [blades] like what Oscar ran on but you have to condition your body in a different way to run on a different pair of blades [. . .] when you get a new shape, flexibility changes and the stiffness changes, it just changes your biomechanics, like where you strike the ground, yeah everything is just different (Paralympian 2).

Other ways participants were motivated to do their own research and development included building their own sport specific limbs and/or seeking engineers to construct sport limbs to enhance their performance. One participant had seen another Para cyclist at an able-bodied event and talked to them about the cycle adaptation the competitor had made, prompting the Paralympian to go away and construct their own cycle limb to improve performance:

We made it in the garage kind of thing, it was with a seat post and a cleat on the bottom and we just used that and it was awesome. [. . .] You noticed the difference straight away! Straight away you're not losing the power, straight away you are feeling connected to the pedal, you're not losing all of this sort of feeling, you can climb hills. Yeah, straight away there was a big difference (Paralympian 8).

Furthermore, participants ensured they were continually developing and improving through taking risks in training. Paralympians spoke about their willingness to experiment with different limb attachments, training techniques and other sporting methods. Paralympian 5 discussed how he was not afraid to fail in the training environment, as he was aware that this trial and error process was what was needed to improve:

When it comes to training I think you've got to try some stuff, just don't be afraid to fail, that's all disability really. For me we do a lot of stuff in the gym with legs on. With legs off and if it's terrible, if it doesn't work we're like cool, sweet we'll just get rid of that, there's no shame in making a mistake (Paralympian 5).

4.2.2 Emotions stimulated through Para sport.

The second sub-theme of *psychological influences* is *emotions stimulated through Para sport* (see Figure 4). Emotions stimulated by Para sport refers to the participants' psychological and emotional wellbeing throughout their sporting journey. The participants spoke about positive and negative emotions being determined by a myriad of factors. In particular, Paralympians highlighted how their emotional wellbeing had been manipulated and shaped over time by such influences as society, family members, coaches and support staff, previous experiences and injuries. An example of emotions determining the Paralympians overwhelming drive to succeed over others is Paralympian 6, who explains success is more than physical talent it is also mind-set:

I think some people, they sometimes do the sport just because they are good at it, and they are lead down this path, but in their mind, I don't think they're really, really driven to actually be at the top of that, they're just sort of just there because it [the opportunity] is there. I think to be in the top you've got to really, really, want it like, actually want it more than anything almost, it just consumes your life at the end of the day (Paralympian 6).

4.2.2.1 Positive emotions.

When discussing positive emotions, the Paralympians were talking about their mental wellbeing, positive thoughts and feelings, their ability to solve problems, overcome difficulties and their understanding of their world around them.

When participants were in a positive emotional state they were able to take personal control of difficult situations and reflect on disappointing performances. Factors listed by participants as influencing change from negative emotions or giving them the ability to maintain

their positive mental state were: Positive attitude, outlook, stress control, social support, goal setting, positive self-talk and mental imagery. Many of the Paralympians began their involvement in Para sport in order to change their emotions from negative to positive. An example was how Paralympian 2 converted his feelings and experience of depression into constructive ideas, creating an end goal of Para sport involvement and ultimately a gold medal winning performance:

I started running at nineteen, after drink driving and crashing my truck off a cliff. I conducted a situational analysis, wrote success and happiness in the middle because I was super depressed, I had nothing, I'd been on the benefit, I couldn't get a job again and I was like, 'alright, how do people get successful and what makes people happy, what makes societies successful and productive?' I began brainstorming ideas on what I could do and conducted some sort of experiment upon myself and fortunately at the time I had friends encouraging me to pursue blade running. Once you measured metrics, like how would society perceive me if I was an athlete versus say a stand-up comic and it just made sense to do (Paralympian 2).

Some participants spoke of how Para sport increased their positive emotions through giving them confidence in their ability to perform. These participants stated that Para sport made them feel not as self-conscious about their impairment and made them want to promote Para sport to other people with impairment. An example of how Para sport can increase emotional wellbeing is from Paralympian 7 who described how being involved in Para sport had given her the confidence to be happy with how society viewed her:

Getting into the sport, if I hadn't of won the gold medal, this would have been a win, I've got so much more confidence, I think you can't really compare that to anything else, like gold medal is awesome but to feel good, happy, content with the way you look and how you operate is just like the best thing ever and that wouldn't have happened if I hadn't started sport. I just think that, that in its self is just awesome, and that an organisation like this [PNZ] has the chance to change people's lives (Paralympian 7).

Making sure their external environments were stress free in order to reduce negative feelings and improving focus by spending time in nature were also mentioned as helping shift negative thought patterns.

Emotions reported as having the greatest levels of effectiveness on their performance and success included feelings of confidence, enjoyment, being positive, being resourceful and being relaxed. Other factors reported as contributing to a positive state of mind included getting adequate sleep and shifting their perspective, these emotional factors have been recognised as not being unique to Para sport performance (e.g., Wang & Zhang, 2015).

Of particular significance to Para sport was participants saying that they practiced gratitude to focus on what they have instead of what they lack in terms of their impairment, and

many participants described how gratitude gets stronger with practice and that they need to do it regularly in order for it to remain effective:

I've known a few people who have had similar disabilities to me and they've kind of more just made excuses for why things can't work and how hard it would be to be an athlete with a disability or how unfair it is, I've become quite resilient to what I can and cannot change. A big thing we talked about in swimming now is you can only control the controllable (Paralympian 4).

4.2.2.2 Negative emotions.

Participants described negative emotions as associated with emotional distress when demands placed on the Paralympians exceeded their resources and coping abilities, resulting in their emotional wellbeing being negatively affected. Some of the factors that influenced negative emotions include: Levels of stress; lifestyle and health behaviours; and/or, physical trauma in the form of sports injury or injury/pain associated with their limb deficiency. In relation to negative emotions, Paralympian 9 talks about how her lead up to Rio was affected by her feeling as though she was too young for the pressures her Paralympic sport required, combined with not having the emotional support of her family and friends due to moving away from home for Paralympic training:

Going to a second Paralympics, being so young and having experienced it all before, I don't think people realised it's not easy to be an athlete at such a young age, it's actually potentially life threatening because I was real depressed once I came back from Rio. Like before it, during it and after it as well. Just pressure and everything, not having my own life, not doing my own thing, my parents forcing me to do everything and I just had no life. I know for certain that they [PNZ] screwed up my life because they wanted me to shift up to Auckland when I was 16, away from my friends and my family. I just lacked massively in social development, but I mean I did win medals for them so? (Paralympian 9).

Some Paralympians reasons for negative emotions involved physical attributes such as being constantly injured. Paralympian 1 discussed how a reoccurring injury due to weaknesses in his amputated limb led a downward spiral involving drugs, depression and a suicide attempt due to not being able to be as physically active as he wanted to be:

I had already been through so much [expletive] like depression and suicide, I'd tried to take my own life and all this [expletive] up [expletive] basically. [. . .] nothing was going well basically. I think one of the big things for me was I got injured so much, I dislocated my knee and sport was this massive release for me and it was a massive part of my identity and I considered myself as a good sportsman, I was really competitive but I dislocated my knee something like 30 times and it just, it was just so weak and like I'd do it in pathetic things [. . .] so I got into drugs at a young age. [. . .] I got quite depressed and so I think drugs were kind of like a main means for me to self-medicate and it obviously got a little out of control (Paralympian 1).

Depression is recognised as a common emotion that many sport people encounter when they are injured as their athletic identity is affected, meaning they are unable to participate in their

sport to the level they are accustomed to (Sanders & Stevinson, 2017). It is recognised in Paralympian 1's case that the reoccurring injury was situated on the amputated leg and was associated with the damage and trauma from the initial accident that cause the amputation and was not solely a sporting injury, with the site of the limb deficiency being the cause for much of the participant's pain and injury.

Other Paralympians suffered negative emotions due to an inability to cope with their success, this is also common with able-bodied athletes (Gould, Dieffenbach, & Moffett, 2002). The key difference with the Paralympians not being able to cope comes from society comparing their achievements to that of elite-able bodied athletes or Olympians. An example of this is when Paralympian 7 won gold at the Rio Games. Upon her return to New Zealand she felt she did not deserve to win due to people asking her what the distance of her winning jump was compared to the Olympic record; she believed this translated to people judging her as not talented and this converted into a lack of motivation to continue training and Para sport involvement:

I really struggled to talk about it with people, I didn't want them to find out that I jumped 5.62[m] and won gold I was like that's not very good, do I even deserve it? They talk about the post-Olympic depression and I felt like I did struggle in that sort of way. I really didn't want to get back into sport either, I really struggled with motivation which hadn't happened before. After world champ's I was so excited to get back, like as soon as I left the stadium I was like, right I want to get back into training! And this time I was uncomfortable (Paralympian 7).

Participants reported that the greatest emotional inhibitors on their competition performance were feelings of stress, anxiety, self-doubt and depression. For example, Paralympian 6 explained the self-doubt he had around his ability to perform was due to previously injuring himself in competition, which resulted in him holding back and underperforming:

I didn't get to race in [the] World Cup Circuit, I was just too rusty on the day. I couldn't get my mind-set right and there were a few other issues and yeah, ended up coming fourth, humph. So that was really, really, tough. Like mentally after building, you know, obviously I put a lot into the sport over the years building into it, so that was quite a downer (Paralympian 6).

In addition, participants explained how they shifted from an inhibiting state of mind to an effective one. Paralympians conveyed that these shifts came from acknowledging their thoughts, feelings and emotions, using mental skills training and refocusing their attention to physiological factors such as breathing exercises.

4.2.3 Psychological influences summary.

A range of psychological influences have characterised the Paralympians' journeys within this study. Some participants initiated their Para sport journey as a way to deal with their depression, suicidal thoughts or impairment identity; whilst for others, their Paralympic sport was the cause of their anxiety, depression and burnout. The participants reported their emotional stability had the ability to impact on their capacity to successfully deal with, and move on from setbacks (e.g., overcoming injury) and successes (e.g., producing a world class performance). Although the majority of these findings are similar to those found in elite able-bodied performers, there are some differences in the way that these participants apply their emotions and mental skills specifically to address their impairment (e.g., to become comfortable with their impairment identity). It is apparent from the stories of these Paralympians that key psychological behaviours can be learnt through both formal (e.g., sport psychology support) and informal experiences (e.g. self-taught coping practices, for example, Reiki) and that Para sport has provided these Paralympians an outlet to experience overall positive psychological emotions.

4.3 Impairment Influences

The third dominant theme, *impairment influences* (see Figure 2), was important as it had implications for both sport and psychological themes. When the majority of participants spoke about impairment influences their emotions were the most passionate and raw because their impairment had the biggest influence on the outcome of their daily lives due to how society perceived them, their view of themselves and how their impairment affected their ability to perform in the Para sport domain. The main sub-themes to emerge were prosthetic technology, injuries or pain participants endured specific to impairment, and organisations they were involved with due to having an impairment.

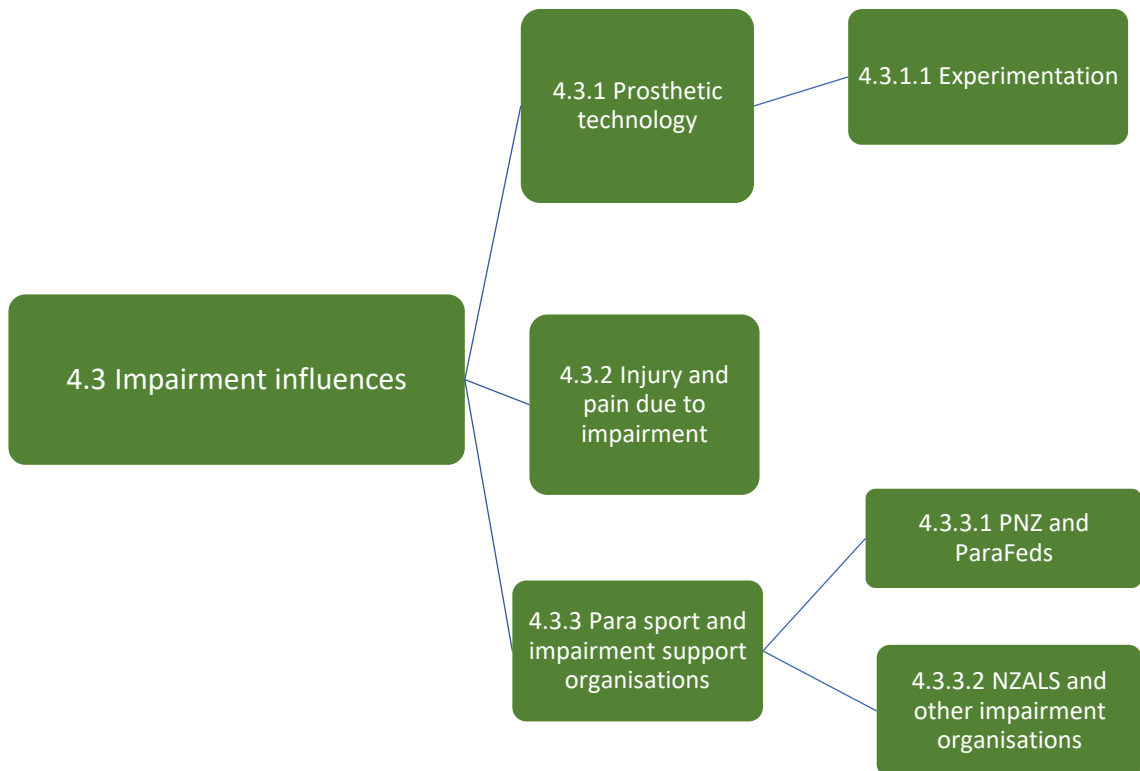


Figure 5. Impairment influences levels of the sporting journey hierarchy.

4.3.1 How prosthetic technology has affected the journey.

The first sub-theme of *impairment influences* is *prosthetic technology* (Figure 5). Prosthetic technology can be life changing, but it can also be a barrier. This is due to obstacles such as not having access to the technology the participants required due to it not being available in New Zealand, cost, or there was no one qualified or willing to build it. In contrast to this, the Paralympians expressed their realisation of how life changing their sporting prosthetics were once they had access to them. Some participants' perspectives of how they viewed technology were quite extreme. In one case, a participant who is a multiple Paralympic medal winner, did not even view himself as an athlete:

Technology, if you can win that you'll win, you'll continue to win and it will be the same for all athletes. [. . .] I don't view myself as an athlete. I am an athlete, but I see myself as an end user of technology and that is how I have approached my training from day one (Paralympian 2).

Other Paralympians reflected upon how the lack of access to technology when they were in their youth inhibited their development; and the reality of Paralympic sport today is if you have a lower limb deficiency and do not have sport specific limbs you will not be successful on the world stage:

I remember being in year nine when I first threw javelin and this teacher said to me, you're a javelin thrower, randomly now I actually am a javelin thrower, but imagine if there was an opportunity for me to have a sporting leg at school and get into athletics, I could have been a Paralympian at the age of eighteen and [expletive] not been arrested for drugs! I just think, technology is really important, it's a challenge but it is so key, you're not going to compete on the world stage unless you have the right technology, it's just not going to happen now (Paralympian 1).

4.3.1.1 Experimentation.

Certain participants were so eager to succeed in their chosen Para sport that they were not afraid to delve into the world of unregulated prosthetic development and went to such lengths as building their own sports limbs in their garages, seeking out private investors, trialling prototypes and hiring engineers to make their first sport specific limbs, which some Paralympians are still currently using:

I kind of went out on my own to get that (prosthetic) when I started cycling, like I recognised a need for an adaptor so I approached a bunch of composite workers around the country and a guy in Rotorua got back to me and said he could build me one, build me a prototype. So, I sent him a bunch of photos and angles and stuff that I needed and he came back to me with a prototype which I am still using today. [. . .] I felt results, like it just felt a lot more power being generated by my right leg from not having a fixed heel sinking beneath my pedal stroke and wasting a lot of power, just that direct fix (Paralympian 3).

Others spoke about feeling apprehensive towards trialling new prosthetics, as the trial and error process was expensive, time consuming and uncertain as to whether it would be successful. These participants reported that the process currently available in New Zealand to get prosthetic limbs and/or attachments, does not accommodate for the possibility that the prosthetic may not function as it should or to the best of ability, therefore some have avoided the expensive risk of applying to get a new one. Other concerns involved being afraid they would waste precious training time experimenting with something that might not work, even though they know their current prosthetic is not the best one for them.

Further reasons for not wanting to experiment involved the fear of getting pressure sores from new sockets which would result in time off training; and/or concern that switching to a new prosthetic type/shape once their current prosthetic had worn out might result in the participant not liking how the new prosthetic operates and potentially being stuck with the poorly functioning prosthetic due it using up their allocated funding:

ACC have been good at funding my legs but they're not there to trial and error with me, they're there just make sure I can do the things I can do, but not to the best of my ability. I can't trial a leg and a couple months later be like, 'I don't know? Let's trial this blade'. It's not quite like that. I know the Limb Centre [NZALS] were pretty good at helping me in terms of sockets, but in terms of what to stick under that socket, which is the expensive bit, you want to be able to play around with different flexes and lengths. Sometimes it can

take a lot of time with a socket and then you get to the point where you want to change the alignment, you actually have to make a new socket, that's tricky as well. It's always guess work and sometimes you end up with a dud and you're like this is horrible! But you just invested so much into this, and you go 'ok this is shit, now [expletive], what do I do?' Yeah, it's tricky. Technology is wonderful but, it's how do you make it work aye? (Paralympian 1).

4.3.2 Injury and pain due to impairment.

The second sub-theme of *impairment influences* is *injury and pain due to impairment* (see Figure 5). Injury and pain specific to impairment was a significant influence on the Paralympians' sporting journeys, as this was an issue that was separate from the sport specific injuries that able-bodied athletes also experience, with the Paralympians identifying this as something that able-bodied athletes and support staff could not relate to. Of significance was some participants' pain and injury were due to sport specific prosthetics and how they were constructed:

No one in New Zealand had built blades before. [. . .], I went through that whole learning process with the artificial limb service [NZALS]. [. . .] it's a totally different piece of technology and no one knew how to build it. And so, I worked with [prosthetist] from the [region] Limb Service, he got in contact with a bunch of people and did a bunch of research on how to build them and did a pretty good job. The sockets didn't really fit, and they made my legs bleed for like 9 months. It's because you make the carbon so thin, so you could only grind so much out before it weakened the socket and then I just had to basically let my legs toughen up (Paralympian 2).

Another significant finding surrounding pain was reported by the participants who had undergone amputation surgery. These participants experienced complications with bone growth in their amputated limb throughout their youth. This bone growth in the amputation resulted in the remaining bone growing into a point and coming through the skin, causing pain, sores, inability to weight bear and subsequent surgeries to cut off the bone growth; an outcome of this was compulsory time off sport (approximately three months on each occasion) to recover and re-desensitise their limb in order to weight bear on it again and be able to wear a prosthetic. One Paralympian reporting he had this surgery fifteen times throughout his youth:

I probably had maybe fifteen surgeries. It kept growing, yeah. The fibula would basically grow into a point and I would start to get like an ulcer, like this wound on the end of my stump. [. . .] it happened often, and I know [Paralympian X] had the exact same thing as me. [. . .] I'd be out for like three months [. . .] I couldn't wear my leg. I had to just wait for it to heal before I could walk again and then it was really hard to weight bear again, it takes time to weight bear on the stump. [. . .] it's really painful, like the stump just goes weak and my stump is just so withered because I had so many surgeries (Paralympian 1).

Other reports of acute pain and injury had resulted from growth in the participants' impaired joints throughout their childhood causing significant pain due to their limb deficiency having irregular shaped bones (e.g., wrist joints); long-term pain/injury due to the side of their

body with the limb deficiency having major bones that have not fully developed (e.g., ball and socket joint in hip not fully developed); and, blisters, sores and infections from continuous prosthetic wear and use (e.g., wearing prosthetic at the gym, straight after getting out of the pool, when they go for a long distance run, hiking, etc.). These impairment-related pain factors highlighted that these participants bear pain beyond that experienced by able-bodied athletes.

4.3.3 Para sport and impairment support organisations.

The third sub-theme of *impairment influences* is *Para sport and impairment support organisations* (see Figure 5). It was interesting listening to the perceptions and interactions Paralympians had experienced with the various organisations that deal with limb deficiency within New Zealand. There were a number of perceived deterrents or reasons to not be involved with organisations, such as the organisations were only for ‘disabled’ people, or the organisation used language that is derogatory toward people living with impairment which prevented Paralympians from getting involved (e.g., they used words such as disabled or handicap athlete). Other reasons for not wanting to be involved in Para sport included organisations making it a ‘feel good’ sport when the participants felt it should be about high performance and competition; being ignored by organisations or being made a low priority because they felt the organisation valued able-bodied athletes above them (e.g., NSO’s who have become the governing bodies for their Para sport in New Zealand). One illustration of this is Paralympian 2, who described his initial perception of the global Paralympic Movement to be ‘a bit of a circus’ and the reason he changed his mind was due to technology advancements and talk of Para athletes being able to out-perform able-bodied athletes in the near future:

Paralympics was communicated, like you had people in the twentieth century competing on like, 3000 BC medical equipment, right? Wooden prosthetics, these static chairs where they’re trying to do shot put in a static chair, which they still use, and in my view, it’s a bit of a circus, the other barrier to participation is technology. So, when I realised that there was an inception point, I’ve always been fascinated with technology, when that inception point where you have carbon fibre coming in and there was talk that you know blade runners would run faster than human beings, that was like, wow that was interesting, and the way that it was perceived by society changed. So, this introduction of technology is super important because, one, it allows these athletes to actually be incredibly athletic human beings and, two, it changes how it is perceived based on that. So, I see those as being two like massive barriers to entry and when they got solved or at least when I saw that there was progress on those, that is when I became more interested in it (Paralympian 2).

4.3.3.1 PNZ and ParaFeds.

PNZ and ParaFeds are the main organisations within New Zealand that deal with Parasport. PNZ mainly looks after our national and international representatives, whereas

ParaFeds take care of the regions. In regard to PNZ, Paralympians felt that this organisation needed to be more innovative and spend money on the research and development area, this included prosthetics, limb attachments, adaptive sporting equipment and adaptive training techniques.

There was a collective feeling that there was increased demand for talent identification camps, and that PNZ needed to spend more money on Para athletes in development to increase the profile and standard of competitive Para sport in New Zealand. The main improvements suggested for PNZ in the development area involved supplying development athletes with access to support staff such as physiotherapists, sports psychologists and sport scientists; as they felt that not having these in their development slowed their journey to success. In relation to this lack of access to support at development level, one Paralympian felt she had been thrown into the New Zealand High Performance system and struggled with the increased training load, as she was unsure of how to use the resources that were available:

I got carded quite fast and I struggled with that quite a bit. I felt like I didn't have the skills to be there and I'd just literally got access to the gym, physio and massage but I didn't know what to do with them like, I had just started, so I was doing two training sessions a week at that time and now I do like nine, so I'm like 'what am I doing? Like I don't know what I'm meant to be doing' and I didn't have the skills in nutrition or anything (Paralympian 7).

Another point spoken to was the lack of awareness of Para sport opportunities available to these Paralympians when they were in their youth. Several of the Paralympians were unaware of the organisations and Para sports available in New Zealand until they had reached adulthood, with many of them saying if they had the opportunity to compete at a younger age they would have:

I think just opportunities for younger athletes, like they have talent ID camps, but I think there should be more work focused into that introductory into Para sport, like it took me until I was eighteen-nineteen before I even realised I could be a Para athlete, but if you told me when I was fourteen I would have been straight on the band wagon (Paralympian 3).

The general consensus surrounding ParaFeds was the Paralympians did not know they existed. Many of the Paralympians made it to adulthood before they discovered Para sport, highlighting that ParaFed organisations are not well advertised and/or do a poor job of promoting themselves:

I was probably in year thirteen [age seventeen] at high school, so I had already been doing it [Para sport] for a whole year. [Paralympian X] mentioned ParaFed Canterbury one day and I was like what's that? And she's like 'oh, you know like ParaFed Otago and

Canterbury' and I was like 'what the hell is ParaFed Otago?' and she's like 'oh did you not do it?' And I was like 'no' and it was not like I was hiding, I played sport, I was active with my school (Paralympian 7).

4.3.3.2 NZALS and other impairment organisations.

Even though the participants were not asked in their interviews specifically about organisations or technology, they were asked about prosthetics or limb attachments they have utilised across their lifespan. So, naturally New Zealand's provider of artificial limbs, the NZALS, was mentioned. As prosthetics are a necessity for many of the Paralympians' activities of daily living and sport training but frequently cause discomfort, the participants offered abundant suggestions of how prosthetic items could be improved. Some participants reported feeling they were not listened to properly, messages were misinterpreted about what they really wanted, or that they were not asked for their opinion when it came to building an athletic limb for themselves or others:

Number one would be access to technology and expertise in applying that technology so it's obviously prosthetics, blades and the expertise to build those blades. Example [Para athlete name] who's a new athlete, she runs on a blade. Her blade [expletive] sucks! Why the Artificial Limb Service [NZALS] didn't bring in my blades and go 'this is how we build them', because it costs a lot, it costs thousands. Or bring me in to consult them for free on what they should do, and they haven't, just boggles my mind! So, I would focus on getting two or three people in the Artificial Limb Service around the country, invest in them becoming really, really good at making blades and don't [expletive] around with the old dudes that tinker away because they don't know what they're doing and they screw it up. [. . .] [M]y recommendation to [Para athlete name] after looking at her one, I would throw it into the ocean and say that I lost it, or it got stolen. [. . .] Technology is so important, dealing with an artificial body part, you need it to be the best (Paralympian 2).

A key suggestion from Paralympian 2 was to develop a certain number of prosthetic technicians that would specialise in sport specific limbs, to decrease the chances of producing a poorly performing prosthetic. One Paralympian felt the opposite to the previous statement for youth Para athletes, and thought prosthetists were too obsessed with getting correct socket fits as they were never comfortable anyway:

They were always uncomfortable as a kid, people get hung up on sort of socket fits and that sort of stuff but it's like, man, you're a kid growing up so fast by the time you make one socket and get it all finished you've already grown out of it. That was the story of my life with prosthetics, I was constantly growing out of them (Paralympian 5).

Another Paralympian felt that Para athletes with upper-limb deficiencies do not get the same amount of attention and care spent on them as Para athletes that use lower-limb prosthetics, as she has tried many times over the years to get an arm prosthetic or gym attachment to perform exercises in the gym and to date, has only been given a child's prosthetic out of a catalogue:

My limb is like archaic, the attachment is a fourteen year-old kids every day arm that wasn't meant to lift any reasonable weight, it was meant to pick up a drink bottle or open a door [. . .] it's at a length where I can't hold the bar[bell] evenly, so I can't fully close my fist around it because the prosthetic is too long, which isn't good because we are starting to lift some really heavy weights and this arm (prosthetic) locks on, so I'm awkwardly holding on using random muscles because I can't grip properly [. . .] we're making a lot of compromises in the gym. A lot of the time you go into the Limb Centre [NZALS] and you try and say what you want it for or how you want it to be made and all have been shut down or they've said yes and they've tried to build it but it hasn't quite turned out the way I want it, like they clearly didn't understand what I meant (Paralympian 7).

Other organisations involved in Para sport for these participants included their schools, local able-bodied sport clubs and government organisations such as ACC and the District Health Board. All participants spoke of positive experiences with their local schools and clubs, and all participant reasons for not continuing involvement with these organisations were due to the participant no longer wanting to be involved for their own personal reasons. There were no reports of external reasons such as people intently excluding the participants, purposeful discrimination or bullying for discontinued involvement.

As for the New Zealand government organisations, the relationships participants had with these organisations were for financial reasons, as they are the funders for impairment related issues within New Zealand (e.g., surgery, prosthesis and rehabilitation). Participants struggled with their relationships with the government organisations and felt that these organisations did not view the participants as important, even though what participants were receiving from these organisations had an unmeasurable effect on their quality of life:

I assumed it would be more technical because it was a technical thing that I was going to be doing. And it [prosthetic] took a long time to organise it because I'm not ACC, it's not just a simple process of applying to ACC it's applying to the Health Board with reasons why I needed it [prosthetic] and being a professional athlete it's not a real reason, that's not a thing that they would fund for, so it has to be seen more as an everyday, i.e. I'm using this because I want to even out my body for self-confidence and for general health, [. . .] but it's just really hard if it doesn't work, to have enough funding to be able to get another attachment [. . .] we had already tried another one and it didn't work and so that was the quota we got for the year. Which was a bit difficult to be honest just because it's not working how I want it to (Paralympian 7).

4.3.4 Impairment influences summary.

I guess, you don't know what you don't know. It's like a prosthetic leg you don't know what's possible until you put on this new leg that kicks arse, it's like the same thing with Para sport like if you don't know about it or if you don't know the opportunities, how are you supposed to get involved? (Paralympian 1).

The above quote summarises the Paralympians overall opinions surrounding impairment influences in this study. It highlights that technology plays a huge role in what a Para athlete with a limb deficiency is capable of achieving. This quote also shows that many participants did not

know about Para sport organisations and opportunities until they had reached adulthood and already discovered Para sport on their own accord, and it was perceived that New Zealand organisations did a poor job of promoting and delivering their services.

4.4 Integrated Themes

Throughout the Template Analysis process various themes and codes connected and intersected with the three dominant themes identified in the initial Template Analysis mind map (see Appendix C). The themes that intersected with all three dominant themes were *money* and *sport specific injury* (See Appendix C). The themes of *money* and *sport specific injury* were not dominant themes and are not part of the hierarchy but were said to have an effect and impact on the *sport, psychological and impairment influences*, as they are consistently mentioned throughout the three dominant themes. Therefore, according to King's (2012) Template analysis, they are integrated themes and should be mentioned.

4.4.1 Money.

The first integrated theme is *money*. Many Paralympians suggested that the financial demands of their sports and/or lack of funding had, at some point, held them back and stated that if their parents had not paid for them to attend their initial international competitions they would not have been able to compete, therefore would have never experienced success as Para athletes. It was also suggested that there was a lack of education surrounding how to apply for personal funding grants or how Para athletes could gain personal sponsorship deals, which the participants believed PNZ could be educating future Para athletes about on the talent identification and development camps:

Obviously, there's not unlimited money so you just can't fund everyone who seems like they have a shot, and I understand that, but even helping out with things like coaches and gym memberships and I think PNZ could do a lot more along the side of sponsorship, we're not really at all taught how to gain sponsorship or how to find it for ourselves, and also like to find the money to go on these competitions and things, my mum ended up getting really good at finding out which scholarships would take me and how to apply for them and all that kind of stuff, but I think some help along the lines of something like that would be useful, because if we don't have the money at least give us a way to find it (Paralympian 4).

Money being a barrier to participation is not a unique to Para sport, it is also an influence for success in able-bodied sport. However, there are extra costs associated with Para sport, as participants expressed that not only do they need to fund regular sporting equipment but they have to account for such expenses as purchasing a set of running blades. For example, one

Paralympian with upper limb deficiency commented on how lucky she was that she only had to purchase a pair of spikes (track running shoes) for her athletics. Others had to resort to having multiple sporting prosthetics and equipment for their different races; this also involved getting equipment altered, such as their bikes, and having to employ mechanics to do the alterations:

Also, because of the two events one being a sprint and one being the pursuit, the 3k [three kilometre] pursuit, we required different legs, so they're set up differently and then we altered the crank on the bike so I can get a little bit more aero because of the shortened femur. So, I have one long crank and one short crank, but only on my pursuit bike not on my sprint bike (Paralympian 8).

4.4.2 Sport specific injury.

The second integrated theme is *sport specific injury*. Sport specific injuries were a major concern for a majority of the Paralympians. The way sport-specific injuries ran through each of the dominant themes differed. Some participants stated injury has affected relationships with coaches and support staff, whilst others said previous injuries had been detrimental to their emotional wellbeing. Several Paralympians were extremely concerned that acquiring sports injury in the future could have the ability to impact on their impairment by either hindering their already limited limb function or could make it impossible for them to wear their prosthetics, which may result in the individual requiring the use of a wheelchair.

Internal influences described as helpful when trying to come back from injury were psychological factors such as determination, the desire to train and compete again, attitude, goal setting. External factors that were highlighted as helping return from injury were social support, surgery, rest and physiotherapy. The levels of stress the Paralympians felt also affected their attitudes towards their injury, if participants felt they had control over situations then their injury was not so much of an issue. When participants felt they did not have control over the situation (e.g., they felt pressure to compete from support staff) their stress levels became reasoning to become self-destructive changing their mindset to make their injury feel like it could be potentially 'career ending.'

One major concern surrounding sports injury was the numerous different accounts of misdiagnosis by medical support staff once Para athletes reached the elite level. Some of the Paralympians' injuries involved broken bones and others required surgeries, yet they were told to train and compete through the pain by influential people (medical support staff). In one case the Paralympian was told the injury was all in their head. What is concerning is that some of the

Paralympians resorted to taking pain and anti-inflammatory medication for a number of months to deal with their injury/pain before eventually being referred surgery:

The physios weren't too sure what it was, they were like, 'oh just walk through it you'll be fine,' 'just do your exercises,' and they [the exercises] were hurting quite a lot. 'Just try and walk through the pain,' but I physically couldn't. I just couldn't put that force through, and between World Champs and the trip to Canada my groin with the hernia was causing a lot of trouble, I couldn't bring my femur up and around the pedal stroke so I just started taking Diclofenac every day to be able to manage it and keep training (Paralympian 3).

Fear of re-injury, fear generating greater caution, planning to take preventative measures and no fears or worries at all, were the various thoughts around injury. It is also acknowledged that sport specific injuries are not unique to Para athletes with limb deficiency.

4.5 Summary

The Paralympians interviewed in this study have all experienced peaks and troughs along their sporting journeys. Although there are many similarities to elite able-bodied performers, there are also very distinct differences that are unique to Para sport and exclusive to Para athletes with limb deficiency. It is evident that sport is a dominant influence, due to its ability to positively or negatively affect how people interacted and influenced the participants, and how the Paralympians reflect on their personal performance. The second theme of *psychological influences* dictated whether the Paralympians were motivated or mentally capable of handling the stressors along their Para sport journey, such as dealing with societal constructs surrounding ideologies of impairment. In the third theme, *impairment influences*, technologies had the ability to dictate performance and results, and the type of impairment (congenital or acquired) had a large impact on the outcome of available funding and resources available to the participants. Lastly, the *integrated themes* demonstrate how money had the ability to dictate success, as all participants said if they could not have initially been able to fund their debuts on the world stage they would not have been Paralympians; and that sport injuries and their misdiagnosis from professional support staff could potentially end someone's sporting career. It is evident from the transcripts that these participants' motivations to be involved in Para sport went beyond their high performance involvement, these Paralympians have used sport as a way to cope with and overcome countless aspects of their lives.

Chapter 5 Discussion

The purpose of this study was to better understand the development pathways of Paralympians with a limb deficiency. The interviewed Paralympians highlighted a number of influences they encountered along their journey that either facilitated or potentially delayed their Para sport development. Analysis revealed three dominant influences on these Paralympians: 1) *sport influences*, 2) *psychological influences* and 3) *impairment influences* (Figure 2). Evaluation of these dominant influences presented four significant discussion points that related to all three influences, which had a significant impact on these Paralympians' journeys. The four discussion points are: Significant challenges faced by Para athletes; limited opportunities; the Paralympians sense of identity; and, limb deficiency and prosthetic technology. These four points provide the focus for this discussion and closely relate to the research question and purpose of this study; which can potentially offer valuable insights and influence improvements for the current Para sport pathways within New Zealand. Throughout this discussion, salient points will be compared and contrasted to the limited Para sport research available, as well as to any relevant impairment and able-bodied research, some of which has ideas seeded in psychology and sociology. As this is not a psychology or sociology thesis, those identified ideas will only be highlighted and not explored in depth.

5.1 Significant Challenges Faced by Para athletes

This section will focus on the significant challenges faced by Para athletes with a limb deficiency, and argue that the significant influences identified in able-bodied literature also hold true for Para athletes; but that the significance of these influences could be more extreme for Para athletes when compared to able-bodied athletes. There is a substantial body of literature surrounding able-bodied athletes' sporting journeys of participation, dropout, development and high performance involvement. Unfortunately, the same cannot be said about the literature relating to Para athletes' sporting journeys and development. It is therefore necessary to identify the relevance of able-bodied study findings to the Para athlete experience. This leads, unfortunately due to a lack of robust Para specific evidence, to assumptions that a large piece of the Paralympic journey puzzle can be filled with the knowledge drawn from these other sources. Able-bodied literature has examined in some detail the powerful influences of: Early specialisation (Blagrove et al., 2017); coaches and support staff (Davis & Jowett, 2014); family (Gavin,

McBrearty, Malo, Abravanel, & Moudrakovski, 2016); friends (McCarthy & Jones, 2007); money (Goranova & Byers, 2015); injuries (Sanders & Stevinson, 2017); and, key psychological aspects (Connaughton et al., 2008). What needs to be understood is although Paralympians are subject to the same influences, some of these influences could potentially have greater significance and importance for Para athletes, as they are living with the added constraint of impairment (J. Baker, Lemez, Van Neutegem, & Wattie, 2017). For a Para athlete in this study, their success was not only linked to their personal motivation and effort, but was highly dependent on the access and availability of appropriate resources. Resources can refer to a range of entities as identified throughout the three dominant themes (see Figure 2), such as facilities, people and technology (Cambridge University Press, 2018). Therefore, the importance and effect of having access to the right resources (e.g., people, training environment, and/or technology) for Paralympians with a limb deficiency extends beyond what is recognised in the able-bodied literature and will be addressed and explored in this discussion.

5.1.1 Access to quality resources.

All people have barriers to sport participation, but the barrier of accessing quality resources for Para athletes in this study was perceived to be beyond what able-bodied athletes experience throughout their sporting journeys; as highlighted in Chapter Four, within the *sport, psychological and impairment influences* themes. It has been identified globally that people with limb deficiency experience significant barriers to not only physical activity and sport, but numerous aspects of life (e.g., employment opportunities) (Meekosha & Shuttleworth, 2009); with studies showing that this population is less likely to engage in physical activity and sport for a variety of reasons (e.g., embarrassment) (Ahmed et al., 2018; Bragaru et al., 2015; Pepper & Willick, 2009). Therefore, it is fundamental the Para athlete is recruited into a welcoming sport environment (Rønbeck & Vikander, 2011). These findings support previous research by Martin Ginis, Evans, Mortenson, and Noreau (2017) who noted that participation should be measured in more than quantifiable entities (e.g., time spent participating in a sport), as it is also the qualitative values that matter (e.g., relatedness). This is because the meanings and satisfaction an individual derives from participating takes into account subjective experiences and perceptions which will lead to motivations for continued participation. The findings surrounding qualitative values in sport were true for all participants in this study. Many of the Paralympians spoke of welcoming clubs and able-bodied sports teams, but explained they did not get to experience Para sport in their

youth and discovered it in adulthood through their own resourcefulness. All participants in this study affirmed that if they had been properly educated about Para sport and had access to it in their youth they would have become involved. Due to lack of Para sport resources all Paralympians were integrated into able-bodied sport clubs. Paralympian 3 noted, “it took me until I was eighteen-nineteen [years old] before I even realised I could be a Para athlete, but if you told me when I was fourteen I would have been straight on the band wagon.” The importance of athletes feeling integrated is well acknowledged (e.g., Pack, Kelly, & Arvinen-Barrow, 2017), but has been identified as possibly being of even greater significance and something that also may inhibit the journey to becoming a Paralympian due to preventing/prolonging the Para athlete from realising they could be involved in Para sport.

For many participants their desire to become involved in Para sport was because of feelings of exclusion or letting their team down in an able-bodied sporting environment. As Paralympian 2 stated, “I was a liability to team success and did not want to subject myself to embarrassment week after week.” For these participants, sport performance is perceived as an individual responsibility for multiple reasons (e.g., proving themselves as ‘normal’ in the sport setting). The feelings of responsibility led to the majority of participants seeking out and ultimately competing in individual disciplines. These findings support the need to raise awareness of the availability of individual and team Para sports within New Zealand, as currently there is a perception amongst Para athletes that there are extremely limited opportunities available to them.

5.1.2 Making sure the Para athlete has positive influential people.

The significance of influential others is well documented in able-bodied athlete literature, with a number of these studies drawing upon the SDT (e.g., Li, Wang, & Pyun, 2017). The SDT is a motivational theory focused on the social-contextual conditions that facilitate the processes of self-motivation and healthy psychological development (Ryan & Deci, 2000). Specifically, influences that enhance versus undermine intrinsic motivation, self-regulation, and well-being. The powerful effect of significant others also came through as a strong central influence enabling these Paralympians to acquire the SDT’s three innate psychological needs of competence, autonomy, and relatedness through commencing sport involvement and continuing through to high performance level. The Paralympians recognised the importance of having effective people supporting them and were often proactive in recruiting and retaining their preferred support team, with participants reporting benefiting from the additional support they believe was required to

excel at the top level (e.g., support staff, such as physiotherapists and sport psychologists). Yet, due to the added constraint of limb deficiency, it was emphasised by participants that they felt they needed a largely autonomy-supportive environment to boost their initial competence levels (e.g., a positive coach-athlete relationship). These components of the SDT are consistent with the study by Banack et al. (2011) on coach autonomy support, basic need satisfaction, and intrinsic motivation of Paralympic athletes. The authors found Paralympians developed intrinsic motivation from coaches who supported their psychological needs early on in their career. Building on Banack et al.'s (2011) study, a significant finding of this current study was many Paralympians emphasised their belief that if they had earlier exposure to support staff it would have accelerated their development. The participants thought more attention needed to be given to current Para athlete development in the form of providing support staff. It was specifically mentioned that resources, such as sport psychologists were needed to teach development Para athletes the appropriate mental skills to utilise throughout their Paralympic career. This was an area that many participants said they felt they lacked, were weak in, or had to self-teach. All participants spoke about having “weak mind-sets” at various points along their sporting journey and they believed that if they had been taught mental skill training some of their low points could have been avoided or approached in better ways. Paralympian 8, explained in Chapter Four, section 4.1.2, the reason the sport psychologists are of such importance is because the Para sport journey involves issues that able-bodied athletes, family and support staff will never be able to understand.

Once again, it can be seen that aspects of able-bodied athlete development experiences identified as being important in the literature (in this situation in relation to a sense of relatedness) can be exacerbated for Para athletes. Basically, what is perceived to be important for able-bodied athletes appears to hold true but be more significant and important for Para athletes, with this being a potential area for future study.

A key finding from Chapter Four, section 4.1.2 of the *sport influences* theme related to the Paralympians' feelings surrounding the lack of their coach's education or awareness of impairment-specific sporting needs. This was not necessarily to do with the coach's knowledge of the Para sport but centred around the coach not being able to help the participant select the right adaptive training equipment or assist in selecting a new sporting limb. Helping select correct sporting prosthetics was something the Paralympians felt their coaches should be able to do, as

the coach is the one who dictates what activities are undertaken in sport practice. The participants believe the coach should have some input or collaborate with the Paralympian and the prosthetist when it comes to their sport limbs and felt this not happening due to the high performance framework and prosthetic development being something that currently does not interact very well. Similar issues have been discovered in past studies where prosthetists and patients have failed to communicate adequately about what the patient wants their prosthesis to achieve, or the prosthetist has assumed they know best (e.g., Murray, 2013). The current findings suggest that communication and collaboration surrounding this crucial piece of equipment is needed from all parties to increase the likelihood of a Para athlete progressing to Paralympic level, as well as to enable a Paralympian to perform at an optimal level.

Another factor that was identified as influential for development (both positively and negatively) was the role of parents and family (e.g., Chan, Lonsdale, & Fung, 2012). This influence was also confirmed in this study to be important for Para athletes, and these findings lend support to previous research which indicated the most significant determinants for individuals with impairment to participate in Para sport were environmental and family demographics (Pack et al., 2017). However, parents and family were not always found to be supportive, with some comments from family members affecting the participants views of impairment identity and Para sport (e.g., comparing their performance to an able-bodied athlete). This expands on previous research which found parents verbal reactions to their children's performance ranged on a continuum from supportive to more oppressing comments, such as admiration, encouragement, instruction, and derogatory remarks (Sánchez-Miguel, Leo, Sánchez-Oliva, Amado, & García-Calvo, 2013). The difference with these Paralympians being the parental comments created conflicting thoughts for the Paralympians surrounding their view of disability and their competence within the able-bodied sporting environment throughout their youth.

The current study highlighted the importance of friends, who were shown to be a positive influence on participants wanting to try new sports and commence involvement. This supports previous research which demonstrated that friends can provide encouraging and rewarding behaviour and contribute to constructive identity development for individuals with impairment (Oladunni, Lyoka, & Goon, 2015; Webster, Levy, Bryant, & Prusakowski, 2001). Participants reported many positive effects their friends support had on their enjoyment of sport, which is also consistent with previous Para sport literature (e.g., Martin & Mushett, 1996), and further

emphasises the importance of ensuring there is encouragement and a supportive environment for individuals with impairment (Ahmed et al., 2018).

A significant influence on many participants' sporting journeys to becoming Paralympians was whether other Para athletes with similar impairment were involved (e.g., someone with a limb deficiency). Through participants establishing friends through Para sport, common qualities and a sense of belonging were able to be established. An example of this is the comment by Paralympian 4, "I met [Paralympian 5] through PNZ, just through swimming, [. . .] I found all of those guys [Para swimmers] really helpful for me and if I had any questions I'd just ask [Paralympian 5]." Silverman, Molton, Smith, Jensen, and Cohen (2017) explain friends with similar impairment can offer invaluable emotional support as well as tangible help and information on how to cope with impairment-related stressors. There is a greater likelihood that a friend with similar impairment might understand the participants in a way that those without impairment cannot (Silverman et al., 2017). Whilst the Paralympians recognised the importance of having friends in their main Para sport, they understood that friends outside their daily training environment provided acknowledgement and appreciation for their athletic effort, and also contributed to the participant's needs to talk about things outside of the high performance setting:

Yip, loved it [wheelchair rugby] aye, it was a good social buzz, and especially when you're an athlete you sometimes struggle to get that social interaction because you're so sort of wrapped up in your own world you're so [expletive] from training that you don't often go out and socialise like normal people would (Paralympian 5).

It would appear for many of the participants, friends outside their high performance environment contributed to covering more complex social needs, which is supported by Rønbeck and Vikander's (2011) study examining the role of peers in the recruitment and development of able-bodied athletes. These findings surrounding Paralympians and their friends adds new knowledge to previous able-bodied research and demonstrates the importance of having strong friendships throughout all stages of the Para athlete journey.

5.1.3 Early specialisation.

Early sport specialisation has been categorised as an athlete under the age of fifteen who "participates in a single main sport on a year-round basis (greater than 8 months per year) and/or quitting all other sports to focus on a single sport," (Sluder et al., 2017, p. 9). The impact of specialising early was a concern in some of the Paralympians' sporting journeys, as they displayed adverse effects such as burnout (Torres, 2015). In this study early specialisation

seemed to be related to the number of limbs affected by limb deficiency, which dictated the types of sports participants could get involved in; with the majority of participants who had two or more affected limbs specialising early in their Para sports. Although there is a collection of research on able-bodied athlete early specialisation, there appears to be no evidence of previous research that has examined the relationship between severity of impairment/disability or number of affected limbs with early specialisation.

The Paralympians who specialised early, participated and competed at an international level at an extremely young age (e.g., Paralympian 9, first Paralympics at age thirteen). It was apparent in these cases the speed of development was facilitated by the lack of these participants' sport diversity and the low levels of competition available in their Para sport (or classification) in New Zealand, which forced these individuals to go offshore to have any chance of fair and true competition. Paralympian 9 spoke of how the effects of early specialisation led to isolation during adolescent years throughout Chapter Four, specifically in the *psychological influences* theme. Torres (2015) found that early specialisation for a child who is already being isolated (e.g., by societal constructs surrounding impairment) is setting them up for disaster. Gould and Carson (2011) further described that early specialisation had the ability to separate young (Para) athletes from peers and, in turn, interfere with normal identity development. Therefore, it is uncertain if early specialisation influences the journey to becoming a Paralympian, but according to previous studies (e.g., Sluder et al., 2017), it may have negative psychological complications.

5.1.4 Significant challenges summary.

To begin to answer the research question, concepts currently applied to able-bodied literature were considered and parallels between able-bodied and Para athletes were discovered. What differentiated these Paralympians from able-bodied athlete studies was the level of reliance and the impact these identified influences had on the Paralympians ability to successfully navigate their pathway to the Paralympic Games; demonstrating that the support needed for a Para athlete to progress to Paralympic level possibly goes above and beyond what is required for able-bodied athletes. What emerged strongly from this study was that sport was an outlet for these participants and these influences go beyond sport. These influences were related to very powerful human emotions, as demonstrated by the Paralympians recognising that the qualitative values of sport (e.g., relatedness) were important to stimulate their initial interest and involvement. The quality of relationships with influential people had the capacity to directly affect the success and continued

Para sport involvement for these participants. The Paralympians emphasised the need for their coaches to facilitate an autonomy-supportive environment and highlighted how family members of young Para athletes need to be aware of the influence negative comments could have on Para sport involvement. The Paralympians emphasised how they believed having access to support staff earlier in their journey (e.g., development stage instead of when they reach high performance) could have accelerated their development. It was also demonstrated that friends with similar impairments are important to initiate involvement in a Para sport, whilst friends outside of this environment were crucial for maintaining a feeling of normality (e.g., socialisation). Early specialisation has also been shown to have adverse effects on Para athletes, with Para athletes potentially being of higher risk of being exposed to it due to the limited number of sports they are able to sample due to the constraints of their impairment. Therefore the importance of these influences that have originated in able-bodied literature also effect the Para athlete's sporting journey to an extent that may go beyond what is described in able-bodied literature.

5.2 Limited Opportunities

The second discussion point is addressing the Paralympians feelings of limited opportunities. All Paralympians discussed how they had limited Para sport opportunities within New Zealand.

5.2.1 Sporting choices.

The Paralympians influences on sporting commencement decisions varied from that revealed by research on able-bodied athletes (e.g., Côté et al., 2009), as many participants were limited to the sports they were able to 'sample' and be involved in. This was primarily due to not having the appropriate adaptive equipment/prosthesis they required to participate, or not being able to keep up with peers due to their prosthetic not functioning in a manner that would enable them to participate at a 'normal' activity level. Many Paralympians gave up able-bodied team sports around ages of twelve to fifteen, to pursue individual sports which was the initial reason for sport opportunities becoming limited. Paralympian 3 recalls how he dropped out of team sports due to feeling left behind and being blamed for bad team results, "fifteen I lost all interest in team sports, went more to the solo sports [. . .] I got tired of being responsible and having other people rely on me, people get [expletive] off at you." Feelings of being different, as well as opportunities for working on preferred activities were also described as reasons participants withdrew from certain sports, with all Paralympians in this study currently competing in individual events. These

findings are in line with Martin's (2013) application of the SRM (see important definitions and acronyms in Notes on Terminology), which outlined structures and social relationships present themselves as the issue to participation, not the individual themselves; as these participants progressed into a Para sport that was achievable and enjoyable for them with the constraint of impairment.

Yet, a lack of available information was identified as a barrier to overcome. When participants became interested in competing in Para sport they had to source their own information on how to get involved; if a Para sport team or club even existed within New Zealand; then the final hurdle of whether the Para sport was available in their local area. These barriers existed due to low numbers of Para athletes, the limited type of team Para sports, the equipment cost associated and lack of Para sport clubs (Griggs, Goosey-Tolfrey, & Paulson, 2017; Nelson, Groom, & Potrac, 2016). The restriction of available Para sports also relates to Thomas (2004) model of the SRM and Martin's (2013) application of it, which states that barriers to sport for individuals with impairment can arise from being excluded from opportunities and services, such as not having access to a Para sport club. This lack of access to opportunities and services will influence future Para athletes sporting choices.

Other Paralympians who were lucky enough to become involved in more than one Para sport in their youth were told by their individual Para sport coaches that they were not allowed to continue participating in more than one sport due to injury risk. For example, "in wheelchair basketball I got flipped out and got my wrist run over and broken and then my swimming coach said I wasn't allowed to play anymore, so that kind of sucked," (Paralympian 4). Through having controlling influential people telling them what sports they can participate in, Paralympians felt they were further stripped of their sporting choices, as well as taking away their sense of belonging. Martin Ginis et al. (2017) describe how this can result in reduced levels of motivation, as the experience of participation and feelings of relatedness will be diminished. Creating better coach education surrounding the benefits for sport 'sampling' (Côté et al., 2009) and the LTAD framework will have advantages for future Para athlete development.

5.2.2 Opportunities to train and compete.

As noted in Chapter Four, throughout section 4.1.1 of *sport influences*, the current study has multiple examples of where New Zealand has lacked a field of suitably matched competition, with one participant explaining this problem could be reduced if Para athletes could combine male

and female divisions for racing, but unfortunately it is against international rules to compete females against males for qualifying (International Paralympic Committee, 2018d):

So, me and [Paralympian X] our classifications have such similar world records, so 36 men have real similar times and distances in long jump compared to the 47 girls it's just how it works. But since we have been trying to qualify you can't compete against a boy because it theoretically can push you on so that you can't qualify or do records with boys in the race which is really annoying (Paralympian 7).

The lack of ability to have quality competition throughout New Zealand due to low Para sport participant numbers has also impacted on Paralympians' motivations, as they have commented that it is not enjoyable to compete against themselves, "my first nationals I won four golds, but I was the only one in the event, I can't win anything else," (Paralympian 7). As competition has been shown to be inherently fun and part of a social aspect, by having no competition feelings of relatedness and opportunities to demonstrate competence are diminished, therefore the extrinsic reward (e.g., medal) lacks value (Deci, Koestner, & Ryan, 1999). Another impact of having a small field of competitors in New Zealand is participants had unrealistic expectations of their competitive ability when they attended their first senior international competitions, which could undermine feelings of competence (Ryan & Deci, 2017). This was demonstrated by Paralympian 5, whose experience resulted in him wanting to quit his Para sport due to being shocked by his poor performance:

World Champs. I got my [expletive] kicked. Cus' at these junior events I'd won gold medals and thought I was alright and then you get to a senior one and you just get pantsed [beaten]. People you look at and your like, "oh you're just a [expletive] old man I'll take you down," and I got pantsed [beaten]! My best finish was a 7th and I remember leaving that being heartbroken aye, I nearly quit swimming after that (Paralympian 5).

The effect of unrealistic outcome expectations, combined low self-efficacy, and an unmet desire for social support and accountability can all influence drop out and has been studied in the able-bodied population (Larson, McFadden, McHugh, Berry, & Rodgers, 2018). Luckily for Paralympian 5, he had a strong support network and was able to overcome this perceived challenge. This highlights the importance of a strong support network, to encourage the transition to Paralympic level.

5.2.3 Limited opportunities and high performance motivations.

From early in their development, the Paralympians reported a common desire to perform to the best of their ability. In fact, several participants suggested that their superior will or desire to succeed was what has set them apart from Para athletes that had not progressed to the

Paralympic level. One key variable throughout the Paralympians' stories is their motivations behind why they are involved in Paralympic sport. All Paralympians began playing and enjoying sport for intrinsic reasons, but as their development progressed many of their motivations for competing in Paralympic sports came from extrinsic sources (e.g., they saw it as a form of income). It has previously been identified that motivation is critical to performance, yet currently there is little research focused on the factors influencing motivation amongst elite Para athletes. One question concerning these Paralympians non-intrinsically motivated practices was why they persisted with their Para sport for extrinsic reasons, how they acquired the motivation to carry out winning performances and how this type of motivation affected ongoing persistence, attitude, and sense of well-being.

Many Paralympians said the Paralympic sport they were training for and competing in was not their sport of choice but was what was available to them. This was due to a few key reasons. Either, their chosen sport was not available for their impairment type/class at the Paralympic Games; they had wanted to compete in another Para sport but were advised by PNZ that they would not meet qualification criteria; they had to undergo talent transfer due to injury; or they were pushed into the Para sport by influential people in their lives. It would appear from the results that extrinsic motivations such as the opportunity to represent their country, financial incentives and completing successful, medal winning performances boosted self-esteem and self-efficacy and acted as strong enough motives for wanting to continue involvement in high performance Para sport. These findings are consistent with Kokun and Shamykh's (2016) study on the psychological characteristics of Paralympian's self-realisation.

Yet, although participants spoke about financial incentives, many of the Paralympians expressed Para sport was one of their only employment opportunities due to society pre-judging their ability to complete work tasks to an able-bodied standard. This led to feelings from some of the Paralympians that their only motivations to continue sport involvement were externally driven because they felt it was one aspect of their life where people viewed them as competent. An example of this is Paralympian 9 who saw Para sport as an easy form of income, "I guess I was just good at it so I was like, "why not make a living out of it," you know?" Ryan and Deci (2017) explain that the relative internalisation of extrinsically motivated activities is also a function of perceived competence. People are more likely to adopt activities when they feel successful (e.g., winning international titles) with respect to those activities. According to Deci et al. (1999),

performance-contingent rewards (e.g., income or medal) can undermine free choice behaviour (e.g., the Para sport the individual is competing in), but it does not necessarily affect self-reported interest. Therefore, this suggests the Paralympians can be extrinsically driven by their high performance Para sport but have an intrinsic love of sport and physical activity.

5.2.4 The Paralympian as a commodity.

Part of the Paralympians expression surrounding limited opportunities, not only in sport but in all aspects of their lives (e.g., employment), was the fact that at times they felt they were treated as, in effect, commodities. The issues surrounding the Paralympians feelings of commodification are complex. C. Collins and Jackson (2007) explain commodification issues involve rights of ownership and are concerned with fair play (e.g., doping), commercialisation and national reputation. From this perspective, the Paralympian is an athletic body which has a defined use and subsequently value (C. Collins & Jackson, 2007); as such, the participants bodies can be considered as commodities. This was evident when Paralympians spoke about “being treated as a gold medal.” When Paralympians agree to their PEGs, from C. Collins and Jackson’s (2007) perspective, they can be considered as effectively making themselves into commodities; it is their exchange value which is contracted. As the contents of the Paralympians’ PEGs contracts are undisclosed for this thesis, it is uncertain to what the Paralympians in this study have actually agreed to and signed. However, the aspects of their contracts they refer to as being ‘unfair’ or ‘unjust’ might have been negotiated as part of their PEGs deal. Continuing with the athlete commodification idea introduced by C. Collins and Jackson (2007), through the participants agreeing to accept PEGs, the New Zealand government have paid for the Paralympians’ performance. In accepting public money, the Paralympians in turn ‘owe’ a performance. To that extent New Zealand ‘own’ their output, where C. Collins and Jackson (2007) explain their performance is exchanged for medals and medals in turn symbolise national success. This notion of athlete commodification is one that organisations need to recognise, as deeper understanding of the impact of this sense of ‘value on performance’ on a vulnerable population can ultimately enhance outcomes for all those concerned.

Some participants talked about how certain significant people had the power to make them feel like “property” with choices being made for them. For example, some felt that certain people were stopping them from leaving the Para sport or living where the Paralympian wanted

to live because these influential people saw them as a 'medal' and not as a person with a partner/family who also has needs to be met:

In that four years from Beijing to London there was a lot of time where I was pissed off with PNZ because you felt like you were their property and that you had to perform. And I remember doing some performances at World Champs and feeling like, "yeah that will keep such-and-such happy." Because there was so much pressure on you to put a performance on the board for them to then be happy with. But I guess that's what happens too is that expectation becomes a thing.

It is clear from the above quote that tangible rewards (e.g., PEGs) can be used as a technique of control. These participants offered valuable insight into what it is like to be a high performance Para athlete. If some Paralympians felt as though they were commodities, then this information could be used to inform future coach education programmes, and to educate significant influencers within the organisation. Greater awareness of individual Paralympian needs could potentially lead to enhanced outcomes for both Para athletes and organisations.

5.2.5 Limited opportunities summary.

After discussing the Paralympians reasons for why they compete in their current Para sports and what various other sports they had participated in throughout their lives, it was obvious there was limited Para sport opportunities available. As this was a retrospective study, it was recognised that the opportunities for children with impairment may have improved within New Zealand, but it was still important to highlight that the limited choices these Paralympians had, influenced what Paralympic sport they have chosen to become involved with and compete in. These Paralympians' Para sport choice was also affected by their ability to access training facilities, coaches and resources; all of which also had influence on their journeys. Motivations to be involved and perform at the high performance level were of interest, as the majority of Paralympians seemed to be extrinsically driven; with lack of employment opportunities being a significant draw card for why some of these Paralympians chose to pursue Para sport. A greater understanding of the motivation of Para athletes, and of their subsequent feelings towards commodification, should ideally be used to inform discussions that can ultimately enhance Para athlete experiences and pathways.

5.3 Paralympians' Sense of Identity

The third, and one of the most interesting discussion points to emerge from the interviews, centred around the Paralympians and their sense of identity. This sense of identity was important to these participants. Some participants were fully immersed in their athletic identity, others

stressed the importance of having a separate identity outside of their Para sport. Yet, the most prominent idea to emerge in relation to identity related to their impairment and the Paralympians ability or willingness to accept or reject it. Identity is a complex concept, and the reasons for uncertainty surrounding impairment identity appeared to stem from the participants personal assessments of societal views, organisations, the media and the terminologies used by these entities. None of the participants considered themselves 'disabled'.

One sociology concept relating to identity is theorised by Foucault. French philosopher Michel Foucault was interested in the complexity of power in society. Power is not something that is held by one group and exercised over another. It is far more complex than that, and there is a dyadic nature to power relationships. Foucault introduced the concept of technologies of power. Broadly speaking this relates to the societal and cultural influences that shape the way people behave, and brings individuals to define themselves in particular ways (Johns & Johns, 2000). There is no conclusive evidence to suggest where the modern image of the ideal body originated. Yet, in contemporary Western societies an individual's self-esteem is often linked to their physical appearance (Johns & Johns, 2000). Sport has ultimately provided a vehicle for these Paralympians to accept their impairment, establish an athletic identity, and improve body-image perceptions. Through sport, able-bodied and Para athletes are integrated in a positive context forcing them to reshape assumptions about what individuals with impairment can and cannot do (United Nations, 2018).

The notion of identity as it relates to the Paralympians has been a major part of confusion, mainly surrounding society's use of the word disability. None of the participants in this study consider themselves disabled, therefore they have never associated themselves with disability sport which may have been significant to prolonging their initial involvement in Para sport. In the majority of cases 'disabled' and Para sport are the same thing, it comes down to the terminology a particular organisation has chosen to use, or if the sports being provided are IPC sanctioned. Even now as Paralympians, there is a misunderstanding surrounding the terminology of Para sport. An example of this was the word Paralympics, which means 'parallel to the Olympics' (International Paralympic Committee, 2018c), but one Paralympian believed 'Para' to be "a word for disabled, that's what Para means like paralysis, that's where it's derived from." The above quote is a clear example of how easily the use of language can get misinterpreted into a negative context due to lack of education and knowledge. The lack of education around 'disability sport'

meant several of the participants did not participate in Para sport throughout their youth because they did not identify with the term 'disabled' and experienced the common feeling of "I'm too good for this" because the participants could not comprehend where they placed within this 'disability' sport culture. The education for organisations surrounding the use of terminology that Para athletes find acceptable, positive and inviting is something that warrants serious consideration.

Although several participants described their overall sporting experiences as positive, each experienced some degree of exclusion during able-bodied sport throughout their youth. For the most part, exclusion was not attributed to actions of peers. Instead it was feelings of restricted participation because of prosthetic constraints (e.g., not being able to keep up with peers in team sport), which led to some participants feeling their activity had less value than others. This resulted in participants internalising their exclusion and ascribing it to either personal characteristics (their impairment) or personal choice (they no longer wished to be involved in the sport), which in some stories was conflicting. For example, when describing an instance where the participant ceased able-bodied sport involvement, Paralympian 2 explained that he always found team sports "inherently boring", but in a previous comment expressed "I would always cry and be like why can't I have real legs because I could see that I would be talented if I did," when referring to playing rugby in his youth. This statement supports previous research pertaining to individuals with impairment in physical education, which suggested feelings of difference or the inability to participate could also lead to feelings of exclusion which could lead to individuals participating in individual sports (Haegele, Xihe, & Davis, 2017). Stephens, Neil and Smith (2012) argue that these unhelpful societal attitudes stem from a lack of public awareness of participation in Para sport and can lead to negative social interactions between able-bodied and individuals with impairment. For example, individuals being repeatedly identified by their impairment, having to deal with (unintended or intended) hurtful words, or being stared at by others can affect how people view themselves (e.g., feeling inferior). From a sports perspective this can potentially prevent Para athletes from getting involved in certain sports.

The findings related to participants comparing themselves to their able-bodied counterparts is supported by prior research which identified that maintaining an athletic identity during youth, including for those with impairment, can be influential to personal perceptions of sport and relationships with peers (Haegele et al., 2017). As identified in Chapter Four, section 4.1.1 *sport influences*, the Paralympians did not solely play Para sport, and all participants had

been involved in able-bodied clubs and teams. Being involved in able-bodied sport led to many of the Paralympians comparing or justifying their impairment in relation to their able-bodied peers. This justification of capability in able-bodied sport builds on previous research which recognises that able-body-to-impairment comparison is due to Para athletes considering themselves as athletes, as they have sport related goals as well as strong desires to achieve these goals and they want their peers to accept them as athletes. Paralympian 8 demonstrated these feelings of wanting to be accepted as an athlete, “I’m an amputee, but firstly I’m a good runner, secondly I’m an amputee.” These findings were supported by Pack et al. (2017), who also found Paralympians did not view themselves as disabled or that they had ‘lost something’. Perrier et al. (2014) explain thoughts that are focused on comparison are due to Para athletes considering that their commitment to sport is what defines them, regardless of their impairment. Johnstone (2004) labelled this comparison as ‘overcompensating identity’, stating that the Para athlete felt it was necessary to overcompensate in athletic ability in order to cope with their limb deficiency. These identity issues could be addressed prior to a Para athlete reaching high performance level if more sufficient education resources regarding Para sports were available to schools, clubs, parents and coaches.

In contrast to the findings surrounding some participants being able to keep up with able-bodied athletes, other participants discussed how they struggled in able-bodied team sport environments during their youth. This was also visible in a study by Haegele et al. (2017), who stated that for youth with impairment developing an athletic identity could be complicated because of limitations around opportunities to engage in sport. The participants feelings of being not included suggested although they were partaking in sports where they identified themselves as athletes, others, such as peers or the general public, may not have agreed (Valet, 2018). Therefore, an athletic identity can be hard to attain when those with impairment do not fit cultural and societal norms and beliefs related to the concept of ‘athlete’ (Pack et al., 2017). Haegele et al. (2017) offered several explanations as to why peers without impairments may view those with impairments as ‘non-athletes’, such as media coverage that portrays adaptive and Para sport as secondary to able-bodied sport, or as not ‘real’ sport. For example, Paralympian 2 explained, “the Paralympics was being communicated as being feel-good and inspiring. You are an inspiration in some sense but it’s just like, [expletive], it’s just who you are, and that’s all I saw was this feel-good story and I was like, that’s not [for] me.” In contrast to Paralympian 2’s statement, the

majority of participants believed that public focus had shifted after the London 2012 Paralympic games from seeing them as 'disabled', to viewing them as talented and having expertise in an activity, as Paralympian 7 experienced after she won gold, "they [the public] loved meeting me, seeing me in the street and saying congratulations and I started to think, obviously, it's a big deal." This positive view of the Paralympics by society is supported in multiple studies (e.g., Brittain & Beacom, 2016) and demonstrates to up and coming Para athletes that societal views are changing towards Paralympic sport.

5.3.1 Mental skills.

All Paralympians suggested that additional psychological pressures came with being a Para athlete. The participants reported using different strategies to maintain their motivation and mindfulness to sustain a positive self-identity. Perhaps the most enlightening realisation for the participants was many of the psychological attributes they recognised as being critical to their success have the ability to be developed and learnt (e.g., mindfulness though mental skills training). It was evident that the participants developed a number of mental skills throughout their journey to help cope with certain components of their sporting career, such as competing in integrated sporting arenas and experiencing injury due to their impairment. A common noted attribute was the Paralympians' resilience when faced with obstacles or setbacks (e.g., attempting a new sport with inadequate prosthetic technology). In fact, on a number of occasions the participants indicated that their attitude to potential barriers was to treat them as a challenge and overcome or adapt to them:

I've known people who have had similar disabilities to me and they've just made excuses for why things can't work and how hard it would be to be an athlete with a disability. I've become quite resilient to what I can and cannot change, a big thing we talked about in swimming now is you can only control the controllable, and there's a big problem with Para sport on fairness and how you can put certain people together but still make competition, so I have seen a lot of people get really caught up on that (Paralympian 4).

As identified in Chapter Four, Section 4.2.1 of *psychological influences*, Para athletes need coping strategies and the ability to withstand pressure exceeding in many aspects, that experienced by able-bodied athletes. These additional pressures resulted from the Paralympians not only using their mental skills to cope with competition pressures, but also applying their skills to overcome any issues surrounding impairment identity (e.g., anxiety caused by people staring at their limb deficiencies). Athlete recognition for the need to develop mental skills was supported by Scott-Hamilton, Schutte, Moyle, and Brown (2016) who explained individuals who practice

mental skills tend to cope better with stressful events by seeing them from multiple perspectives. Having this multiple perspective and awareness could provide personal acceptance of the limb deficiency because other parts of the self are seen as actually or potentially satisfying (Scott-Hamilton et al., 2016). An example of this is Paralympian 2 who explained “for the first year of going to training I would curl up in a ball before I would go because I was so anxious about people seeing my legs and it wasn’t until I really went all in on mindfulness that you can just observe these emotions coming and going.”

5.3.2 Paralympians’ identity summary.

A large part of the Paralympians’ emotions of sport revolved around their sense of self-identity and their perceptions of impairment identity. The Paralympians stated that through gaining mental skills such as mindfulness and resilience they were able to form positive relationships with their self-identity and these skills also helped with their athletic performance. The Paralympians believe it is their application of mental skills which set them apart from other Para athletes who do not transition to Paralympic level. The struggle participants had with establishing a Para athlete identity has emerged as a strong message for society to further develop sensitivity and support surrounding the use of correct terminology (e.g., using adaptive sport instead of disability sport), which if resolved, could enhance interest and performance in Para sport and provide an increased sense of wellbeing for the Para athlete. It is believed that impairment identity in itself could be a future study topic.

5.4 Limb Deficiency and Technology

The final discussion point surrounds the influence of limb deficiency and prosthetic technology on the participants’ journeys to becoming Paralympians.

5.4.1 Impairment-specific pain and injury.

Despite significant health benefits associated with being involved in sport, there are also increased risk of negative outcomes when Para athletes are training and competing at an intense elite level (e.g., due to bone density issues from not sufficiently weight bearing on their affected limbs). The strain on both physical and psychological components can result in injury (Kenttä & Corban, 2014). Injury and pain specific to impairment was a considerable influence on the Paralympians’ sporting journeys, as this was an issue that was separate from the sport specific injuries that able-bodied athletes also experience. Of significance was some participant’s pain

and injury was due to sport specific prosthetics and how they were constructed. As Paralympian 2 explained “the sockets didn’t really fit and they made my legs bleed for like nine months.” This was a result of sockets having to be constructed of thin light-weight carbon, meaning only the bare minimum could be ground out of it to make a correct fit, unlike an everyday socket which can have padding (Webster et al., 2012). Pain from incorrect fit of sporting prosthetics may influence the journey to becoming a Paralympian because the residual limbs of the Para athletes fluctuate in size and the sockets are ridged, meaning incorrect fitting can cause blisters and rubbing making it a struggle to walk, let alone run and train (Nolan, 2008). The medical problems and physical activity limitations of an ill-fitting of prosthesis can impose, is something that influential people in a Para athlete’s life could be further educated about.

Another important finding surrounding pain was reported by participants who experienced complications with bone growth, resulting in the bone growing through the skin, causing pain, sores, inability to weight bear and subsequent surgeries. An outcome of this was compulsory time off sport (approximately three months each time). With one participant reporting “I had fifteen surgeries, I couldn’t wear my leg.” This bone growth complication has been reported in studies on children as the most frequent reason for secondary surgeries for lower limb deficiency (Boonstra et al., 2000). The challenges faced by some aspiring Para athletes therefore, could be seen to far outweigh challenges faced by able-bodied athletes. Other reports of pain and injury involved blisters, sores and infections from continuous prosthetic wear and use, with similar findings being reported in other studies examining sport participation for persons with limb deficiency (e.g., Webster et al., 2001). To become ‘elite’ requires years of dedication by any athlete, but would appear to be a more challenging and painful journey that is faced by many Paralympians with prosthesis.

One aspect related to the Paralympians’ limb deficiencies that was not anticipated, was the use of drugs. Some of these Paralympians described that their Para sport involvement was often accompanied by injury and pain prompting the need to medicate. This included the need to tolerate pain caused by over use or injury from either their sport or prosthetic use. With a limb deficiency other body parts partially compensate for balance (Pepper & Willick, 2009). It has been found in previous studies that overall injury rates are the same for both able-bodied and Para athletes. However, injury patterns differ, and injuries may carry greater functional consequences for the Para athlete (e.g., not being able to wear their prosthetic legs). Such situations are

consistent with able-bodied literature indicating that the presence of multiple risk factors (e.g., limb deficiency; feelings of exclusion; pain; and/or, loss of athletic identity) increases the likelihood of the development of substance addiction (Clark et al., 2015). When dealing with challenging situations some Paralympians described leaning on their sport as the initial coping mechanism and when that failed (due to multiple reasons, e.g., injury) they turned to substances. An example of this was Paralympian 1 who explained “I think that [injury] coincided with me starting drugs and then I kind of just like gave up on sport because I’d be playing touch rugby and just twist and my knee would come out [dislocate].” Similar instances have been reported with able-bodied American football players, with sport injury causing feelings of loss of athletic identity, resulting in drug abuse (Sanders & Stevinson, 2017). The Paralympians absence of coping mechanisms at certain points along their journeys were potential reasons behind their substance abuse, this was either a lack of support network at the time (e.g., family, coaches or friends) and/or an inability to use the appropriate mental skills to deal with the issue. The Paralympians who dealt with these issues believe if development Para athletes have access to support staff (e.g., sport psychologist) that this may prevent any substance abuse issues they experienced from reoccurring.

It also seems that the expectations to produce a performance, the absence of alternative coping skills along with the Paralympian’s physical pain could cause issues with a reliance on medication. With some Paralympians reasons for taking prescription pain killers for extended periods of time being tied up with misdiagnosis of injury from support staff and not being able to sufficiently cope with training load and competition due to their pain. An example was Paralympian 3, who spoke of depending on prescription medication to get him through the pain he was experiencing in the lead up and throughout his Rio 2016 Paralympic campaign.

It must be noted that all participants who experienced drug reliance/misuse have gone through the appropriate channels (e.g., sport psychologist, mental skills training and injury rehabilitation) and resolved their issues. However, issues surrounding the use and misuse of prescription medication and drugs has the ability to impact significantly on a Para athletes sporting journey, as drugs were shown to be used as an alternative coping mechanism instead of seeking the right channels; whether those channels were rest and recovery from injury or talking to a sport psychologist to learn the appropriate mental skills to deal with underlying emotional issues (e.g., impairment identity).

5.4.2 Prosthetic technology.

It was found that the majority of Paralympians in this study did not discover Para sport until adulthood, with a main reason for this being they had not been exposed to suitable prosthetics that would allow them to demonstrate their athletic ability. Not being exposed to Para sport was also related to participants parents being uneducated as to whether a sport prosthetic was necessary or, if it was, who the appropriate contacts were to access this equipment. An example of this was Paralympian 2, whose impairment was a bilateral lower limb deficiency, this participant only experienced blade running for the first time when he was nineteen. As Paralympian 2 explained, “you get two artificial legs and the value of your life from then on out is literally derived from the interaction you have from the available technologies.” It has been reported by Boonstra et al. (2000) that children with a deficiency live a life comparable to that of their able-bodied peers, but they are restricted in several physical activities. Yet, it has been revealed in recent studies that with the current advances in sporting prosthesis these individuals do not have to be limited with their physical activity involvement (e.g., De Luigi & Cooper, 2014). The Paralympians in this study especially emphasised one key constraint they faced was access to the appropriate technologies in their development. Paralympian 1 expressed “I think specifically sports prosthetics are so key you know? And even if you’re looking at the development level, if you can spot someone with a talent, get them a leg.” Therefore, the Paralympians believe a significant influence on the Para athlete’s journey is getting access to a sporting prosthetic as early as possible. In saying this, the Paralympians felt there were, and still are, significant challenges and risks involved with getting new sporting prosthetics. These challenges and risks included the inability to perform trial and error on various prosthetic technology, fear of using new technology, costs involved, fear of being denied funds for new limbs by organisations, and pain and injuries associated with this process.

The Paralympians spoke about feeling apprehensive towards trialling new prosthetics, as the trial and error process was expensive, time consuming and uncertain as to whether it would be successful. These new prosthetics did not necessarily have to be innovative technology but could be an updated version or shape of the Paralympian’s current limb. The prosthetic manufacturing company Ottobock (2017) suggest that one way to overcome this is to ask the prosthetist for names of people who have the product they are considering, that way they can provide a realistic, first-hand account of what to expect. Yet, even this is difficult, as a prosthetic

limb is not 'off the shelf,' they are tailored to the individual. Therefore the Para athlete being clear on what they need the prosthesis to achieve with their prosthetist (and coach) is going to generate the most successful outcome (De Luigi & Cooper, 2014).

Other participant concerns involved being afraid they would waste precious training time experimenting with something that might not work, even though they knew their current prosthetic was not the best one for them. This was a major concern, as one manufacturer of prosthetics, Ottobock (2017), warned on their website that even if you stay with the same technology, it will be an adjustment, because every prosthetic system is custom-made. Being afraid of getting new prosthetics has proven to be a barrier for some Paralympians to reach their full potential, as they are refusing to upgrade because of time constraints, with some using limbs that are eight (or more) years old; meaning this could have implications for other Para athletes' journeys.

Participants reported that the process currently available in New Zealand to get prosthetic limbs and/or attachments, does not accommodate for the possibility that the prosthetic limb may not function as it should or to the best of its ability, therefore some have avoided applying to get a new one. Paralympian 1 explained "ACC have been good at funding my legs but they're not there to trial and error with me, they're there to just make sure I can do the things I can do, but not to the best of my ability." This fear of getting a new prosthetic was supported by Anwar and Alkhayer (2016) who emphasised there is a lack of evidence in the literature documenting patient satisfaction with their limbs. There is currently no system in New Zealand that allows for Para athletes to trial high-end sporting prosthetics, this is due to complications such as cost and prosthetic alignment, which are individual to each Para athlete.

5.4.3 Limb deficiency and technology summary.

Limb deficiency is an added constraint that brings with it many challenges, requiring significant resources. The pain Para athletes with a limb deficiency experience due to complications in their affected limbs and incorrect socket fits have been shown to be considerable barriers to beginning and continuing sport involvement. The information in this section has also highlighted the importance of Para athletes with limb deficiency acquiring the appropriate coping mechanisms and correct support people as to best prevent any mishaps with substance abuse or misuse. Technology plays a significant role in what a Para athlete with a limb deficiency is capable of achieving. These participants emphasised their concern surrounding applying for and receiving updated prosthetic technology. Therefore, creating a system and a pathway that has

better guidelines for how influential people can collaborate to make the prosthetic process more successful is a key influence to making the journey to becoming a Paralympian that little bit smoother.

5.5 Summary

It is evident a range of influences have characterised the Paralympians' sporting journeys within this study. The participants reported these influences both positively and negatively impacted their capacity to successfully navigate any obstacles (e.g., injury, depression or technological issues) and accomplishments (e.g., winning on the world stage) along their Paralympic pathway. It has been identified there are many similarities to able-bodied athletes, but many of these go beyond what is described in the literature. This extension on available literature is due to involvement in Para sport being highly reliant on a coach providing an autonomy-supportive environment, having other people with similar impairments already involved and having a strong support network; all of which could prove challenging for Para athletes in small-town New Zealand due to limited resources and Para sport knowledge. The Paralympians in this study recognised they had limited opportunities. These feelings of restriction were due to being excluded from activities due to their prosthetic being of poor design and feeling as though they could not keep up with their peers. Other reasons for restricted opportunities were imposed by influential people-such as the coach, equipment costs and lack of suitable competition within New Zealand. The Paralympians motives to be involved in high performance Para sport were ultimately inherent because of their love of sport, but participants could become extrinsically driven due to the sport they love not being available as an IPC sanctioned sport or lack of other employment options. Within the high performance environment some Paralympians felt they were being treated as commodities, as people in power have made them feel as though they are 'property'. Through educating organisations around these feelings, it is believed this could be resolved. All Paralympians voiced their opinions surrounding their identity. This resulted in discussions of how society perceived Para athletes and how the language used by society and the media had the ability to deter individuals from commencing involvement in Para sport. It was recognised there was a large misunderstanding around the origins and meanings of words used in Para sport, both by society and Para athletes, and that further education and promotion of this was needed. It was recognised that additional psychological pressures come with being a Para athlete, as they not only apply their use of mental skills to their competition, but also utilise them as a way to cope

with the additional activity constraints that come from having a limb deficiency, societal criticisms and impairment identity.

Some Paralympians highlighted how they believed it would be highly advantageous to get good support programs in place to ensure future Para athletes have adequate coping mechanisms and support networks to deal with impairment specific injuries and issues around impairment identity acceptance, as to reduce the chances of substance abuse and prolonged periods of taking pain medication. Impairment specific pain and injury caused many of these participants to have secondary surgeries, resulting in compulsory time off sport, which could have impacted on sport choice and their sporting development. It was also understood that ill-fitting prosthetics inflicted a large amount of pain and had the potential to deter people with limb deficiency from sport participation, as well as prevent current Para athletes from applying for new limbs due to the fear of the process. Finally, better education surrounding how life-changing receiving a sport prosthesis is, is needed. Part of this could be creating a process that enables the trial of new technologies as well as creating better communication and collaboration between the Para athlete, coaches and prosthetist to ensure the best possible sport limb is provided. In summary, the research has identified a number of interesting commonalities and differences between elite able-bodied athletes and Para athletes with limb deficiency and acknowledged the successful developmental route these participants followed to becoming a Paralympian.

Chapter 6 Conclusion

The aim of this qualitative descriptive study was to begin to understand the influences on New Zealand Para athletes' Paralympic sporting journeys. It was clear that all participants have a love for sport (able-bodied and Para sport) which acted as a catalyst for continued involvement. Factors such as having a strong support network and positive mind-set contributed to the Paralympians successful pathways to the Paralympic Games. Pressures associated with impairment identity and not being able to access the appropriate technology or having poor functioning prosthesis prolonged the participants' journeys. Accessing the stories of these Paralympians provided greater insights into the influences that contribute to successful development for future Para athletes.

Results were compared to a small amount of previous disability and Para sport literature, and connections were made to the large body of able-bodied athlete research. The stories of the participants clearly spoke of various influences, and these were broken down into three key themes (*sport influences*, *psychological influences* and *impairment influences*). The breakdown of these themes proved to be advantageous, as it enabled a rich analysis of the data. It needs to be acknowledged that this analysis was difficult as the themes presented, overlapped considerably.

A highly pleasing aspect of this study was the number of positive findings which emerged. In particular, the Paralympians appeared to have participated in youth sport for much the same reasons as their able-bodied peers, with the data suggesting that a key stimulus for sport commencement were feelings of relatedness provided by their strong support networks of influential people (coaches and support staff, family and friends). In addition to experiencing relatedness, much of the same emotions as elite able-bodied performers were drivers for the Paralympians to want to obtain success, such as autonomy and competence. Through having these strong support networks, all Paralympians were able to overcome external (e.g., societal views and constructs) and internal (e.g., negative impairment identity) influences to focus on their Paralympic pathway.

The most powerful data came from the participants referencing *psychological influences* surrounding their impairment identity and how it affected their involvement in sport. Their stories revealed that negative feelings surrounding societal views and pressures were common amongst

all participants and mainly had negative effects on their emotional wellbeing, until they learnt the appropriate mental skills to use as coping strategies.

The Paralympians in this study generated great concern when they highlighted their lack of knowledge around the Para sport organisations available in New Zealand and the limited opportunities they had to become involved in Para sport in their youth. A positive from this was all Paralympians found getting involved in able-bodied sport had never presented itself as a barrier. In addition, all participants were highly active and involved in able-bodied sports and clubs despite this absence of interactions with regional disability sport organisations (e.g., ParaFeds).

The Paralympians in this study displayed feelings of helplessness and lack of power when dealing with organisations surrounding the funding and construction of their sporting prosthesis, such as the Ministry of Health and the NZALS. The participants felt they had to be grateful about what they were receiving, even if their prosthetic limb did not perform as it should. This acted as a prominent barrier, as it meant some participants avoided applying for new prosthetics due to not wanting to waste government money and people's time. Despite these feelings, all Paralympians expressed excitement and happiness once they had access to the appropriate technologies that not only enabled them to achieve in their Para sport, but also allowed them to push their athletic boundaries. Furthermore, Paralympians strongly expressed how they wished they had access to sporting limbs in their youth. This data suggested access to technology was a key influence that needed to be met in order to nurture the initial involvement and continued participation of up and coming Para athletes with limb deficiency.

The researcher was fortunate enough to present the preliminary findings of this study at the IPC VISTA Conference 2017 in Toronto, Canada, as well as at the NZALS Annual Conference 2018. After reporting the study's findings to various New Zealand and International organisations, a number of people asked questions which went beyond the scope of what could be covered within the constraints of a Master's study. For example, it was often asked why this study had chosen to focus on early acquired and congenital deficiencies instead of other impairment types. Although many of these questions were relevant and of interest, at this point in time we have only just begun to discover what can influence the journey to success for Para athletes with limb deficiency, and do not yet know enough about the various specific influences on Para sport for the remaining nine IPC recognised impairment types. Hence, the purpose of this thesis was to

provide an evidence base related to the influences on the sporting journeys of New Zealand Paralympians with a congenital or early acquired limb deficiency.

6.1 Recommendations

This is a practical focused study seeking to understand the Paralympians' journeys, and as such it is best suited to summarise the thesis findings in a practical summary and recommendations. It is the intent of this thesis to provide the readers who are passionate about Para sport with new insight they can carry into their future practice. This study identified a number of influences that characterise the development of successful New Zealand Paralympians. In common with previous research on able-bodied athletes, each Paralympian progressed through similar developmental stages to the LTAD framework or reported similarities and effects of early specialisation. This raises a number of important implications for Para sport organisations. For example, high performance support for Para athletes from respective organisations (e.g., PNZ, NSOs or high performance agencies) is clearly important, but the nature of that support (e.g., timing and content) needs to more closely reflect the developmental needs of the Paralympians. For example, it was reported that access to sport psychologists to learn mental skills training was considered of more importance at the development stage when the participants were learning to deal with the difficulties of impairment identity and beginning involvement in the high performance framework. A potential area of future research is looking into Para athletes use of mental skills training to specifically deal with barriers presented to them by society, coaches, peers and even their family. Research that explores components of psychological skills development could potentially help Para athletes successfully transition to Paralympic level.

6.1.1 Collaboration between influential people to improve understanding and results.

It would be interesting to examine the benefits of a multidisciplinary approach toward providing Para athlete support. To name a few, co-operative involvement from parents, coaches, strength and conditioning coaches, sports psychologists, physiotherapists, prosthetists, nutritionists and most importantly, the Paralympians themselves, should be encouraged, because each influential person's field of expertise provides a unique perspective for the overall holistic wellbeing of the Paralympian. To achieve this collaboration, it is recommended that coaches and support staff become better educated on their individual Para athletes specific impairments and any complications that are likely to result from them. From speaking to the participants, support

staff did not fully understand how prosthetic sockets can cause pain and discomfort and that many of these Paralympians are living in constant pain. This has resulted, on more than one occasion, in a Paralympian approaching support staff for advice regarding experiencing a different type of pain (e.g., sport injury or pain in other limbs) which is above and beyond their everyday pain and support staff have responded by telling the participant that it is nothing “just do your exercises,” and “just try and walk through the pain.” At Paralympic level these individuals should be subject to acceptable screening protocols to avoid misdiagnoses and/or being prescribed pain medication in order for them to compete. Due to the numerous imbalances these Paralympians have (e.g., varying bone lengths between limbs; abnormalities in socket joints; problems with bone density due to not weight bearing throughout development as much as an able-bodied athlete then training with the same amount of force and load; and/or, altered muscle attachment points due to surgeries) visual assessments of pain and injury are not always adequate. One suggested remedy to some of these complaints is to have routine first assessment (e.g., bone density scan, MRI’s on major loading joints) when they sign up to Paralympic level sport and be continually compared to this, in order to avoid prolonged damage and potentially career ending injuries. What the participants stressed was able-bodied support staff need to realise these misdiagnoses could not only end someone’s Paralympic sporting career, but if the injury is affecting something as important as their stump-socket interface, it may result in the participant never being able to wear a prosthetic again (‘because it is so close to the bone you have to be a little bit careful with it,’ [Paralympian 5]); meaning a Paralympian who could previously walk, may eventually require the use of a wheelchair. Para athletes also need to be reminded that they do not need to be short term heroes and push through their pain as it can have life altering consequences for them.

6.1.2 Better collaboration between prosthetists, coaches and Para athletes.

To ensure the best sport prosthetic/attachment prescription possible, clear communication among all team members, including the prosthetist and/or coaches and the Para athlete, would be the ideal situation in order for the goals, expectations, and options for the prosthesis fitting and function to be clear. Para sport coaches, strength and conditioning coaches and prosthetists need to work together for Para athlete limb/attachment consultations and fitting sessions. It could be beneficial if the NZALS came into the high performance gym and training environment to see how their craftsmanship and work will be applied, to generate greater understanding, and to ensure that the Para athlete is getting the best equipment possible. This is

currently something that is not being done that is a very simple solution to many of the Paralympians' prosthetic complaints. When speaking to the Paralympians there was an attitude of 'use what is around and just adapt to it, don't expect someone to lay out the red carpet and make [expletive] fit for you your whole life because it's not going to happen like that' (Paralympian 5). Therefore, if the participant's gym prosthetic was not fitting or functioning as it should, the Para athlete and their coach were often doing nothing about it (some reasons for this could be financial or time related). Comments surrounding these training tools included examples such as "I have to have stuff around my elbows just to keep the weight and the lever length the same," "the arm technology didn't really work with me, it just wasn't functional.," or "I did have a gym leg, it did have movement in the ankle, but they were concerned about safety, so now I just wear my everyday leg which has no range of motion in the ankle." This means that many of the Paralympians cannot perform basic gym training movements correctly, which could have a flow on effect to their health, wellbeing and performance. These Paralympians are trying to reach the top of their Para sport or retain world champion status but feel they have to compromise due to restrictions imposed by their prosthesis. It is suggested coaches could be upskilled by an organisation such as the NZALS, on what to look for in a gym attachment in order to have clearer communication with the Para athlete and the prosthetist about what they need the gym attachment/adaptive equipment/sporting limb to achieve. As described by Paralympian 2, this could be achieved if there was a clear collaboration process and a network of dedicated sport prosthetists across the country that Para athletes and their coaches could be referred to instead of consulting with a prosthetist more skilled in building and/or fitting every day limbs:

I would focus on getting two or three people in the artificial limb service around the country, invest in them becoming really, really good at making blades [. . .] That would be my recommendation (Paralympian 2).

There does not appear to be any current literature surrounding the collaborative relationship between, coaches, support staff and prosthetists.

6.1.3 Better collaboration between organisations to improve understanding and outcome.

As suggested in the discussion, it could be beneficial for PNZ and the NZALS to work together to identify and upskill several prosthetists in sporting limbs to maximise performance for Para athletes. The current feedback from participants indicated they felt they were often involved in experimental trial and error processes, with the NZALS attempting to figure out how to build

the Paralympians sporting limbs as they had never made them before. In some cases, this resulted in the Paralympian giving up and saying that their equipment is fine because the process took too long:

We had already tried another one and it didn't work and that was the quota we got for the year. Which was difficult because we're making a lot of compromises in the gym. The last time that I saw the limb people I got annoyed because they would only order things out of catalogues and as I explained I have a really long stump, so it's got a wrist, and everything out of a catalogue has got this extra thing here and extra strength added here and it's too big, too bulky and too long. We had 3 meetings and got nowhere, and he said he couldn't help me and I would have to go somewhere else.

If and when this collaboration process between NZALS and PNZ is done well, a synergy will exist amongst the organisations as they work together to aid the Paralympian in reaching their potential. Suggestions to achieve this include: Clear communication; goals are known and shared by all parties; and, the parties believe in the value of not only their own services, but the services of the other respective collaborators as well. Working within a high performance framework is not without its challenges. Creating a shared vision, improving trust, developing an environment in which change is expected and viewed as necessary, and clarifying roles are some of the many challenges that may exist in this process (McCalla & Fitzpatrick, 2016). An additional potential benefit of this approach could be improvements in general education surrounding the various types of sport prosthesis that are available and Para sport programs available for Para athletes. This could also potentially lead to getting parents involved in Para sport coaching as they already have some knowledge of impairment.

6.1.4 Community level improvements.

Since studies have proven that individuals with impairment do not have inherent characteristics that limit their level of fitness or motor skills, it is therefore the inadequate school and community-based opportunities that account for the challenges these individuals face with physical activity (Lai, Stanish, & Stanish, 2000). Community level programs, such as regional ParaFeds and sporting clubs, need to do improve on the delivery of Para sport programs that showcase a diverse range of sports and activities youth with impairment can participate in, so as to mimic the 'sampling years' that are described as critical in the able-bodied LTAD model (Balyi et al., 2016; Greyson, Kelly, Peyrebrune, & Furniss, 2010). It is explained that if this is applied, it can increase motor skill development (Abbott et al., 2005); and could act as a preventative against all of the psychological issues mentioned as occurring from early specialisation (Blagrove et al., 2017). It is suggested that New Zealand organisations such as schools, clubs, PNZ and ParaFeds

educate parents on the importance of 'sampling' and the negative effects of early specialisation. Yet, this is hard to achieve when there are examples of successful early specialisation, such as some the individuals in this study who have demonstrated world class gold medal performances (e.g., Paralympian 9). As these participants are portraying to others (development Para athletes, organisations, sponsors, coaches) the positive outcomes of early specialisation; but what these others are not necessarily seeing is the detrimental mental health effects that the early specialisation is having on these individuals.

A further recommendation is that all organisations involved with disability sport and Para sport in New Zealand improve communication with one another and work together to promote what services and sporting opportunities are available in their local areas, not solely for limb deficiency, but for all people living with impairment. If all organisations that dealt with the ten IPC impairment types in New Zealand promoted one another it is believed there would be increased awareness and greater acceptance in society.

6.2 Limitations

There were several limitations to the present study. The first was there were a limited number of participants. However, the purpose of this qualitative study was not to generate findings that are generalisable to the wider population, rather it was to focus on the in-depth data from Paralympians with a limb deficiency. As this was a Master's thesis, nine participants were deemed to be a sufficient number to bring to light new insight into the influences on the current Paralympic sporting journey for Para athletes within New Zealand. There is potential for future research looking into the various other impairment types and the unique influences on their journeys; and as discovered by the literature review, there is a large hole in the literature surrounding Para sport development.

Qualitative research is often criticised as biased, small scale, anecdotal, and/or lacking rigor; however, when it is carried out properly it is unbiased, in depth, valid, reliable, credible and rigorous (Anderson, 2010). This study's quality is heavily dependent on the individual skills of the researcher and may be more easily influenced by the researcher's personal biases. These personal biases and depth of qualitative skill sets were eliminated and improved on respectively by having three academic supervisors, having regular meetings with these supervisors and the

supervisors giving feedback on the thesis chapters; making this thesis credible and true to the purpose of the study.

Purposeful sampling can be thought of as a limitation as it could potentially limit the diversity of participant characteristics (e.g., gender), and it has been said to be unsuitable for applying to larger groups. Yet, even within this small sample of Paralympians there were numerous types of limb deficiencies and both congenital and acquired deficiencies. This has made any of the findings difficult to apply to the wider limb deficient population as each participant in this study was unique.

One limitation was the data was self-reported by the participants and did not have a triangulation process to verify the Paralympians stories (e.g., not cross referenced with coaches or parents). Yet, this was not the purpose of the study. The purpose was to gain insights into influences on the Paralympians' sporting journeys from the perspective of the Paralympians; meaning, what they perceived to be the greatest influences for them as a Para sport participant. As such, the results of the study may not be generalisable to the wider population of Para athletes with limb deficiency.

This was a retrospective study. Hence some of the findings regarding negative influences and barriers for these Paralympians throughout their development have either already been amended or are currently in the process of being addressed (e.g., the progress that has been made in prosthetic technology). In saying this, there are also significant new findings within this thesis that will add to the limited field of Para sport research and improve the quality of the high performance pathway for future New Zealand Paralympians.

6.3 Concluding Thoughts

The present findings expand on the small, but growing body of Para sport literature and as awareness of the Paralympic Movement is increasing, we are already able to see the positive shift of limb deficiency no longer being a perceived societal barrier to achievement. Some clear examples of this are lower limb amputee, Jess Quinn, being a celebrity contestant on Three's television series *Dancing with The Stars* and one of the Paralympians from this study being on the cover of international fashion magazine *CR Men's*.

The purpose of this study developed from a need for New Zealand to find ways to better develop Para sport expertise, in order to help people living with impairment to commence and

continue Para sport involvement, ultimately leading to Paralympic success. Having positive sporting experiences through schools, clubs and with friends through the early stages of development have been shown to facilitate the journey. From this study it is hoped there will be greater coach and support staff education surrounding the specific needs of Para athletes. Rather than narrowly focussing on their set job, it is hoped the all influential people (coaches and support staff, family, friends and the NZALS) will engage in collaboration to ensure the Para athlete has the best equipment and support possible and the greatest chance of success.

Finally, the Paralympians interviewed for this study provided a source of inspiration for both able-bodied and Para athletes. These Paralympians have demonstrated a dedication to their Paralympic sport that extends beyond what is required of elite able-bodied athletes. There is something everyone can learn and apply from this study to improve the chances of future New Zealand Paralympians having a successful journey.

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Appendices

Appendix A: Ethical approval



26 April 2017

Sarah Kate Millar
 Faculty of Health and Environmental Sciences

Dear Sarah Kate

Ethics Application: 17/112 Pathways to the Paralympic Games: Exploring the sporting journeys of high performance Para athletes with a limb deficiency

Thank you for submitting your application for ethical review. I am pleased to advise that a subcommittee of the Auckland University of Technology Ethics Committee (AUTE) approved your ethics application subject to the following conditions:

1. Amendment of the follow-up email so that the statement concerning the support of PNZ is moderated by another statement that neither participation or non-participation will in any way effect the relationship with AUT or PNZ.
2. Replacement of the words 'prompt action' in the email from Paralympics Director with a timeline for the participants to respond (For example 1 week);
3. Removal of the offer of counselling from the Information Sheet (only available to Auckland based persons)
4. Inclusion of an explicit statement concerning the agreement to be identified by name in the Consent Form

Please provide me with a response to the points raised in these conditions, indicating either how you have satisfied these points or proposing an alternative approach. AUTE also requires copies of any altered documents, such as Information Sheets, surveys etc. You are not required to resubmit the application form again. Any changes to responses in the form required by the committee in their conditions may be included in a supporting memorandum.

Please note that the Committee is always willing to discuss with applicants the points that have been made. There may be information that has not been made available to the Committee, or aspects of the research may not have been fully understood.

Once your response is received and confirmed as satisfying the Committee's points, you will be notified of the full approval of your ethics application. Full approval is not effective until all the conditions have been met. Data collection may not commence until full approval has been confirmed. If these conditions are not met within six months, your application may be closed and a new application will be required if you wish to continue with this research.

To enable us to provide you with efficient service, we ask that you use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

I look forward to hearing from you,

Yours sincerely

Kate O'Connor
 Executive Secretary
 Auckland University of Technology Ethics Committee

Cc: jdw8577@aut.ac.nz; simon.walters@aut.ac.nz

Appendix B: Tools

a) Email from PNZ High Performance Director to selected Paralympians

To: All Sochi 2014 and Rio 2016 Paralympians with a congenital limb deficiency or a limb deficiency that was acquired prior to the age of 2

Subject: Research opportunity for Paralympians with a limb deficiency

Dear Paralympian,

Paralympics New Zealand (PNZ) have teamed up with the New Zealand Artificial Limb Service and Auckland University of Technology (AUT) to conduct a major research project aimed at improving our understanding the sporting journeys and experiences of people with an impairment.

The purpose of this research is to enable Para sport providers to better support Para athletes to get involved in sport, enjoy participating in sport, and reach their full sporting potential.

As one of New Zealand's most successful Para athletes, we would love to hear your voice as we look to build a stronger Para sport system and community.

As such, we would like to invite you to participate in the first phase of this research project to share your own sporting journey and experiences, and help us to understand what and who has influenced your involvement and success in Para sport.

If you would like to find out more or express your interest in becoming involved, please contact the project Primary Researcher, Loretta Hogg, on ldw8755@autuni.ac.nz, or 021 299 1048.

As you will see in the attached advertisement, the research project will involve face to face interviews with recent Paralympians with a limb deficiency. For your information, Paralympics New Zealand aims to extend the scope of this research to include other impairment types in the future.

Your participation in this research project is completely voluntary, and is not linked to your athlete agreement, Performance Enhancement Grant, or PNZ support in any way. While not mandatory, your involvement is encouraged by PNZ as we value your input to help us learn from your experiences and allow us to better support our potential Paralympians of tomorrow.

A response within the next seven days is appreciated.

Regards,

Malcolm Humm

High Performance Director, Paralympics New Zealand

b) PNZ research poster



TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

Pathways to the Paralympic Games: Exploring the sporting journeys of high performance Para athletes with a limb deficiency



An Invitation:

- My name is Loretta Hogg and I am a current AUT Master of Sport and Exercise Student. I would like to extend an invitation to you, to participate in my qualitative research study which will enable me to complete my Master's thesis. This study is kindly being funded by the New Zealand Artificial Limb Service and Paralympics New Zealand. This is completely voluntary, and whether you choose to participate or not will neither advantage nor disadvantage your relationship with Paralympics New Zealand, future funding, involvement or relationships with PNZ, high performance programmes or selections for any teams, squads or camps.



What is the purpose of this research?

- This study is designed to examine the sporting experiences of Paralympians with a limb deficiency to better understand the development of Para sport expertise.
- **What do I have to do?**
- A one-on-one interview will be conducted to gain a deeper insight into thoughts and feelings about your sporting journey, and specifically those experiences perceived to be your critical or defining moments.
- **What do I get?**
- Some delicious food, treats and beverages will be provided for you while you are in the interview. YUM!



What are the benefits?


- This research is giving Paralympic athletes a voice.
- Participants can feel like they are contributing to future Para athletes' development
- Participants can feel that they are contributing to the greater good of their Para sport and the PNZ organisation.
- Participants can feel that they have aided in the identification, development and support of key findings for the PNZ organisation, Para sport in New Zealand and potentially worldwide.



How do I get involved?

To express your interest and obtain an invitation to participate and/or further information about this study please send and email to Loretta Hogg, AUT Primary Researcher, at this address jd8755@autuni.ac.nz

c) Participant information sheet



Participant Information Sheet

Date Information Sheet Produced:
10/04/2017

Project Title
Pathways to the Paralympic Games: Exploring the sporting journeys of high performance Para athletes with a limb deficiency

An Invitation

My name is Loretta Hogg and I am a current AUT Master of Sport and Exercise Student. I would like to extend an invitation to you, to participate in my qualitative research study which will enable me to complete my Master's thesis. This study is kindly being funded by AUT and Paralympics New Zealand in the effort to gain a deeper understanding of any facilitators and barriers Para athletes with a limb deficiency have encountered throughout their sporting lives. This study is completely voluntary, and whether you choose to participate or not will neither advantage nor disadvantage your relationship with Paralympics New Zealand (PNZ), future funding, involvement or relationships with PNZ, high performance programmes or selections for any teams, squads or camps.

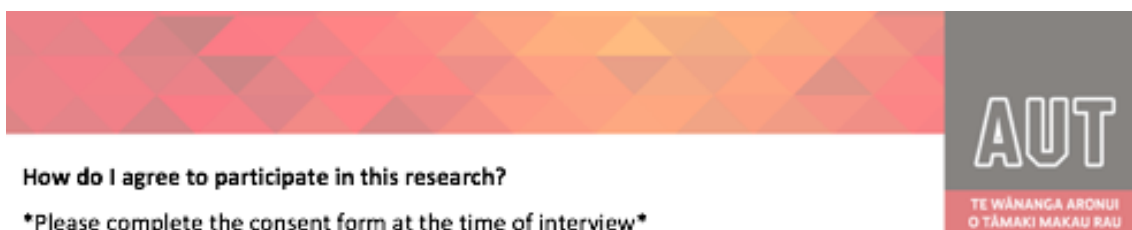
What is the purpose of this research?

This study is designed to examine the sporting experiences of Paralympians with a limb deficiency to better understand the development of Para sport expertise. Sport is known to provide powerful physical and psychological benefits for individuals with a disability. In fact, the Paralympic Movement began as a rehabilitation pathway for injured servicemen and women in the 1940's. Approximately half of the Para athletes selected to represent New Zealand at the Rio 2016 Paralympic Games had a limb deficiency, and nearly 100 additional individuals with a limb deficiency are registered on the Paralympics New Zealand Para athlete database. To date, however, there is little evidence of research that has explored the perspectives of Para athletes. This study aims to explore the experiences and sporting journeys of a sample of New Zealand high performance Para athletes with a limb deficiency, to gain a deeper understanding of the facilitators and barriers to sport participation and sporting success for people from this population.

How was I identified and why am I being invited to participate in this research?

Approximately 10 recent New Zealand Paralympians with a limb deficiency (either congenital or acquired) will be interviewed. Participants will be over the age of 18 and will represent a variety of sports. This sample size was chosen due to the number of Para athletes with limb deficiency that are available; which in New Zealand currently is approximately 10. The inclusion criteria requires Para athletes that are New Zealand Paralympians who competed at the Rio 2016 Paralympic Games, they were either born with a congenital deficiency or became amputees before the age of two.

Note: The Participant should retain a copy of this form.



How do I agree to participate in this research?

Please complete the consent form at the time of interview

Your participation in this research is voluntary (it is **your** choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

What will happen in this research?

Participants will take part in individual semi-structured interviews at the closest High Performance Sport New Zealand (HPSNZ) facility to them. Semi-structured interviews will be conducted to gain a deeper insight into these elite athletes' reflections (in particular, their thoughts and feelings) on their sporting journeys, and specifically those experiences perceived by them to be critical or defining moments. The interviews will be up to 60 minutes in duration and will be audio recorded, no video footage will be obtained.

As Paralympians with a limb deficiency you are a unique, highly identifiable group. Through conducting this study, I would like to identify and acknowledge you as a successful Para athlete and share your experience and journey through sport. Through signing the consent form you will be agreeing that your name will be published in this study but any organisations, teams or coaches will be given pseudonym names so they will not be identifiable.

What are the discomforts and risks?

A potential concern for some Para athletes may be discomfort associated with sharing any negative experiences, low periods in performance or upsetting information relating to their sporting journeys. There will be no pressure on Para athletes to answer questions that they feel uncomfortable answering, and in the introduction to the interview participants will be reminded of this.

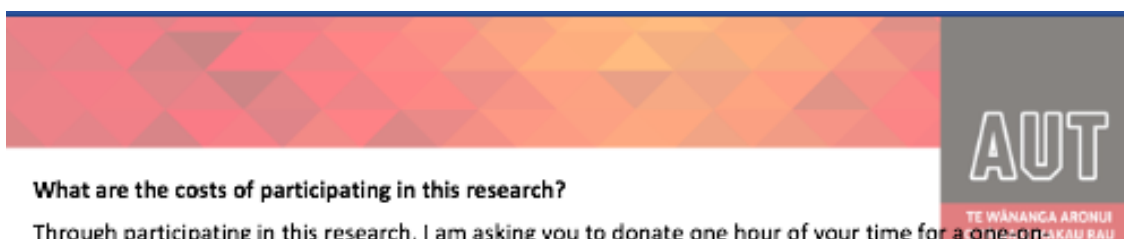
How will these discomforts and risks be alleviated?

It is highly unlikely you will experience any discomfort whilst participating in this research, but if you do please feel free to contact the following:

AUT Health Counselling and Wellbeing is able to offer three free sessions of confidential counselling support for adult participants in an AUT research project. These sessions are only available for issues that have arisen directly as a result of participation in the research, and are not for other general counselling needs. To access these services, you will need to:

- drop into our centres at WB219 or AS104 or phone 921 9992 City Campus or 921 9998 North Shore campus to make an appointment. Appointments for South Campus can be made by calling 921 9992
- let the receptionist know that you are a research participant, and provide the title of my research and my name and contact details as given in this Information Sheet

Note: The Participant should retain a copy of this form.



What are the costs of participating in this research?

Through participating in this research, I am asking you to donate one hour of your time for a one-on-one interview. If you choose to participate you will be provided with morning tea and refreshments ☺. There will also be a follow up email of your interview transcript that I would like you to approve and add any additional information that you believe is necessary.

What opportunity do I have to consider this invitation?

Please reply to the provided email address (jd8755@aut.ac.nz) with what dates and times suit you to organise an interview. It would be most beneficial to receive a reply from you within seven days of receiving this information guide.

Will I receive feedback on the results of this research?

Yes! I will provide you with a summary of preliminary results if you request this on the consent form. I also provide Industry Reports to Paralympics New Zealand throughout this study and upon completion. This information will be available to all participants.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Sarah Kate Millar, email: sarahkate.millar@aut.ac.nz, phone: 09 9219999 ext 7667.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Loretta Hogg

Email: jd8755@aut.ac.nz

Phone: 0212991048

Project Supervisor Contact Details:

Sarah Kate Millar


Email: sarahkate.millar@aut.ac.nz

Phone: 09 9219999 ext 7667

**Approved by the Auckland University of Technology Ethics Committee on May 7, 2017, AUTEK
Reference number 17/112**

Note: The Participant should retain a copy of this form.

d) Participant consent form



Paralympics New Zealand Project Participant Consent Form

Project title: *Pathways to the Paralympic Games: Exploring the sporting journeys of high performance Para athletes with a limb deficiency*

Project Supervisor: *Sarah Kate Millar*

Researcher: *Loretta Hogg*

☐ I have read and understood the information provided about this research project in the Information Sheet dated 07.05.2017.

☐ I have had an opportunity to ask questions and to have them answered.

☐ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.

☐ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.

☐ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.

☐ I agree to take part in this research.

☐ I wish to receive a summary of the research findings (please tick one): Yes ☐ No ☐

Participant's signature:

Participant's name:

Participant's Contact Details (if appropriate):

Date:

Approved by the Auckland University of Technology Ethics Committee on May 7, 2017, AUTEK Reference number 17/112

Note: The Participant should retain a copy of this form.

e) Interview guide and A3 visual timelines used interviews

Interview guide

- Tell me about you:
- Tell me about your family
- Tell me about your places of residence
- Tell me about your schooling and work.
- Tell me about your condition
- Tell me about your involvement in sport:
- What sports have you played?
- At what ages did you progress through the levels of competition for your various sports (club/ regional/ national/ international)?
- At what ages did you progress through development or high performance programs (development squads/ NSO's/ HPSNZ carding/ PNZ)?
- Tell me about your experiences in each of these sports Experiences on entry (why change/stay/ get selected etc..., how....Who or what, how did you get around/ over, probes)
- Experiences through involvement
- Experiences of exit
- Tell me about your career as a whole
- Were there any points in your development that you found particularly difficult?
- How did you overcome these challenges?
- Did you face any different challenges and facilitators when you were in development and striving to get to the top compared to trying to remain at the top?
- What factors distinguished you from those who did not get involved or sustain regular involvement in Para sport?
- What factors distinguished you from other Para athletes that did not transition to Paralympic level?
- Who/what was critical to your success as a Para athlete?
- Anything else you think is important for us to understand for us to provide better experiences for more Para athletes as we work towards improving Para sport in NZ?

About you																								
Places of residence																								
Age	0	1 to 3	3 to 5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Residence																								
Location																								
Reason for relocation																								
Education																								
Institution																								
Location																								
Details																								
Occupation																								
Job																								
FT/PT/Casual																								
Details																								

Age	0	1 to 3	3 to 5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Sport 1																							
Name/Type																							
Club																							
Competitive level																							
Programmes/ carding /other																							
Sport 2																							
Name/Type																							
Club																							
Competitive level																							
Programmes/ carding /other																							
Sport 3																							
Name/Type																							
Club																							
Competitive level																							
Programmes/ carding /other																							
Sport 4																							
Name/Type																							
Club																							
Competitive level																							
Programmes/ carding /other																							

Appendix C: Coding information

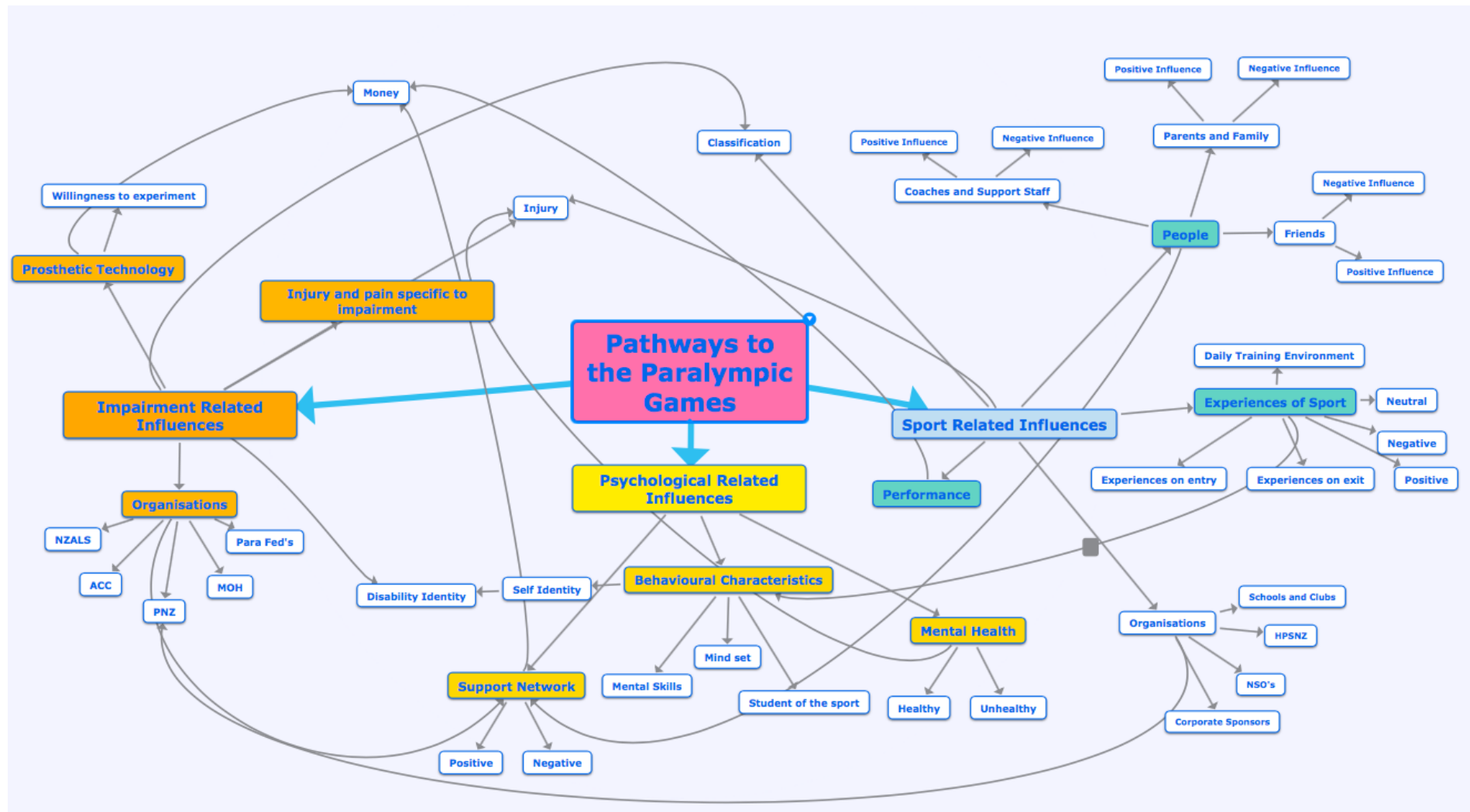
a) Template analysis process

Template analysis step	How step was executed by researcher
<p>Become familiar with the accounts to be analysed: King (2012) suggests for a relatively small study (e.g., ten or fewer hour-long interviews), to read through the data set in full at least once.</p>	<p>Through listening, typing and reading what was being said in the interviews, thoughts and themes were beginning to be formulated (Wolcott, 1994). Once each interview was completed, the audio files were transcribed into a Microsoft Word document and emailed to the participant to confirm they were an accurate account of their sporting journey. This confirmation process was done to insure rigour and comply with AUTC ethics requirements (Dicicco-Bloom & Crabtree, 2006). This prompted a reflection process following each interview and new questions which had not previously been considered were introduced for the next Paralympian's interview, this was done to increase the richness of the data being generated. Any new questions were asked to the prior Paralympians in a follow up audio recorded phone interview. Completion of transcribing marked the end of the first phase in the analysis process.</p>
<p>Carry out preliminary coding of the data: This is essentially the same process as used in most thematic approaches, where the researcher starts by highlighting anything in the text that might contribute toward his or her understanding. However, in Template Analysis, it is permissible (though not obligatory) to start with some priori themes, identified in advance, as they likely to be helpful and relevant to the analysis. These are always tentative and may be redefined or removed if they do not prove to be useful for the analysis at hand.</p>	<p>The researcher identified priori themes from previous literature. These were that the Paralympians' development would have similarities to able-bodied high performance athletes; deterrents for participation would be embarrassment of limb deficiency, insufficient training and lack of organised sports programs; lastly, perceived pressure to perform the behaviour/sport, attitudes towards the behaviour/sport and the perceived ability to carry out the behaviour/ sport would be influencing factors on the Paralympians' sporting journey's. An initial template was developed through analysis of the pilot interviews with one of the academic supervisors. Over the next four months, and in parallel with on-going data collection, the research team met at regular intervals to analyse further interviews. Once the initial phase of familiarisation was completed, the phase of initial coding began. This phase involved the production of initial codes from reading the data. The software program NVivo was used to assist with the management and analysis of data (transcribed interviews). The transcripts were individually loaded onto the programme in preparation for the first round of coding. As areas of interest were identified, a new code was created (e.g., when a Paralympians spoke about 'technology').</p>

Template analysis step	How step was executed by researcher
<p>Organise the emerging themes into meaningful clusters and begin to define how they relate to each other within and between these groupings: This includes hierarchical relationships, with narrower themes nested within broader ones. Themes which permeate several distinct clusters are referred to as integrative themes, because these aspects of experience tend to infuse much of the discussion whatever the foreground issue (King, 2012).</p>	<p>The focus of this step was to sort the different codes identified from reading the data into dominant potential themes. Essentially this step involves analysing the codes, and considering how different codes may combine to form an overarching theme (Braun & Clarke, 2006). Initially ten main codes were identified; athlete mind-set, coaches and support staff, friends, golden quotes, impairment, money, parents and family, PNZ, sport environment, and technology. On completion of the first transcript coding, a follow up meeting with one of the academic supervisors took place to discuss the analysis to date. Clarity was provided around areas of uncertainty, transcripts were then re-coded into clearer themes and a more structured hierarchy was established.</p>
<p>Define an initial coding template: It is normal in Template Analysis to develop an initial version of the coding template on the basis of a subset of the data rather than carrying out preliminary coding and clustering on all accounts before defining the thematic structure. The exact point at which it is appropriate to construct the initial template will vary from study to study and cannot be prescribed in advance, the researcher needs to be convinced that the subset selected captures a good cross-section of the issues and experiences covered in the data as a whole.</p>	<p>In contrary to King's (2012) suggestion, the researcher became increasingly concerned that using only one set of data would make it more difficult to approach the remaining transcripts with a truly open phenomenological attitude. The researcher therefore carried out preliminary coding of the entire data set (nine interviews), resulting in an initial template which is rather more comprehensive than might usually be expected. This was then refined several times to produce the dominant themes and sub themes that are seen in Chapter Four in Figures 2, 3, 4 and 5.</p>
<p>Apply the initial template and modify as necessary: This is where the researcher considers whether any of the themes defined on the initial template can be used to represent it. Where existing themes do not readily fit the new data, modification of the template may be necessary. New themes may be inserted and existing themes redefined or even deleted if they seem redundant (King, 2012). Rather than reorganising the template after every new account examined, it is common to work through several accounts noting possible revisions and then construct a new version of the template.</p>	<p>This process of adapting versions of the template continued over the analysis of the nine interviews to allow a rich and comprehensive representation of the researcher's interpretation of the data (Brooks et al., 2015). Patton (2002) suggests that data from themes should correspond meaningfully, at the same time there should be clear and identifiable distinctions between them. Therefore, a coding book defining the codes was handwritten in the researcher's journal. Regular meetings with research supervisors helped confirm emerging themes.</p>

Template analysis step	How step was executed by researcher
<p>Finalise the template and apply it to the full data set: King (2012) explains there is never a 'final' version of the template and continued engagement with the data can always suggest further refinements to coding.</p>	<p>The researcher needed to decide when the template met the needs for the study and considered the resources and time available. Some themes from the researcher's initial template have been deleted completely, whilst others have been modified by broadening or narrowing a theme, or through re-classification of the theme's hierarchical level. For example, the initial template contains the higher-order theme prosthetic technology; through development and modification of the template, this theme eventually became a lower order theme encapsulated within the higher order theme of <i>impairment influences</i>, which had itself, been modified from its initial code of impairment (Brooks et al., 2015). For each individual theme, a detailed analysis was conducted, and the 'story' that each theme told was uncovered in relation to the research question. At this stage, all themes were agreed upon by the researcher and the supervisory team. In this research, at version four of the template, and after group analysis (the researcher and three supervisors) of the nine interviews, all research team members were in agreement that the template covered all of the data adequately and was likely to require no more than minimal modifications.</p>

b) Initial Template Analysis coding mind map showing connections between themes



c) Sample of coding framework

Dominant theme	Organising theme	Code	Quote
Sport influences	Experiences of sport	Experiences on entry	I was so excited afterwards like man this is cool, like here there was [Paralympian 2] with no legs running and [Paralympian 1] throwing a javelin and sprinting on a cool blade and I was just like man this is awesome!
		Reasons for ceasing involvement	Yeah I think it just reached a point where I was just being so, like, just viewing what I was trying to do, I was probably over thinking it if anything, and I just reached a point where I stopped enjoying the training and stopped enjoying the sport, like I would be sitting on the chairlift, reach the top, check the clock to see if training was finished and I didn't really like that I had reached that point, like it had reached that I enjoyed the gym work more than actually being on the snow
		Daily environment	Now I'm in a really epic training squad and that makes all the difference and I believe that will lead to success later on. <i>L: Training squad with able bodied athletes?</i> Yeah, they're all able-bodied, but I'm the fastest. So, who's able, right? We're measuring ourselves on athletic ability, it's not them!
		High performance	I think just acknowledging the time and effort that it took to go to Rio, and this isn't necessarily a PNZ thing but it is as well because we're kind of separate but in terms of it took like everything out of me, like I was I felt like a shell when I went home, I was so tired, mentally burnt out and I had to perform at nationals 6 months later and then 4 months after that I had to perform in London and that really burnt me out, like there's no way a person can do that and not break mentally or physically and unfortunately it was physically for me
	People	Coaches and support staff	People, on our team, management and such, was...shit. Like really shit. They didn't. They didn't, they thought it was all in my head, that I wasn't. It wasn't. And it affected me so much to the point that I assumed it was in my head and that I was just so stressed out about it and I just thought you know they told me it wasn't going to be bone and it wasn't, 100% wasn't a stress fracture. So, the people that had the skills and the knowledge to help me make the decision about something I knew nothing about were guaranteeing me that there was nothing wrong and I was like really struggled because I knew there was something wrong and I'd tried to ask for help, like hundreds of times while we were away, like multiple times a day, can you test this physio can you do that, and it was just like he didn't want to help at all
		Parents and family	I was struggling on the fact that my parents were having to work really hard just to get me through it and I felt like I was being a bit of a burden on them and I know like they were struggling quite a bit financially to keep up with it and all that kind of stuff
		Friends	Probably friends at school, I know mountain biking definitely I was quite influenced by people at school, and the rock climbing [School name] College had a climbing wall and I enjoyed doing it, so I just kept going. And then learnt how to snowboard with a friend just as something to do and then I just happened to love it.