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1 INTER SPORT TRANSFER: EXPERIENCES OF HIGH PERFORMING AUSTRALIAN
2 ADOLESCENT ATHLETES

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1 **Abstract**

2 A recent strategy by national sport governing bodies to maximise success at global levels has
3 been through talent transfer (TT) programmes. TT occurs when a high performing athlete's
4 involvement in a sport, which they have invested substantial time, effort and resources comes
5 to an end and transfer this experience to a new sport. Surprisingly, limited research explores
6 the facilitators and barriers to successful TT in elite sport. This is particularly the case for
7 high performing adolescent athletes. Very little is known about when, why and at what stages
8 of their careers do they choose to transfer from one sport to another and their consequent
9 experiences of doing so. Through semi-structured interviews, this study explored motives for
10 why eight, high performing Australian adolescent athletes transferred sports and identified
11 factors which facilitated or hindered the ensuing successful inter-sport transfer. Based on our
12 findings, we propose the Adolescent Sport Talent Transfer Stage model (ASTT- four stage
13 model). The model conceptualises how talent transfer may occur, and focuses on explaining
14 the process of how to become a successful youth and adult elite athlete in another sport : (1)
15 Primary Sport Rejection Stage; (2) Transfer Sport Susceptibility Stage; (3) Transfer Sport
16 Acknowledgement Stage; (4) Internalization and Acceptance of Transfer Sport Stage.
17 Practical implications, further research avenues and limitations are presented.

18

19 **Keywords:** Adolescent Athlete; High Performing; Inter Sport Transfer; Transitions.

20

1 **Introduction**

2 As standards and competition levels on the international stage continue to increase,
3 policy makers, coaches and athletes involved in high performance sport are continually
4 searching for more effective methods to aid in detecting, selecting and developing talent
5 (Collins, Collins, MacNamara & Jones, 2014; MacNamara & Collins, 2015; Seifert, Papet,
6 Strafford, Coughlan, & Davids, 2019). A recent strategy employed by national sport
7 governing bodies to maximise global level success has been through formal talent transfer
8 (TT) programmes (Collins et al., 2014).

9 TT is a recently formalised process used to identify, select then capitalise on the
10 abilities of talented athletes who have already succeeded in one sport and transfer them to
11 another in which they may excel and achieve elite success (Collins et al., 2014; MacNamara
12 & Collins, 2015). TT occurs when a high performing athlete's involvement in a sport, which
13 they have invested significant effort and resources over substantial periods of time comes to
14 an end and they try to transfer their experiences to a new sport (Rea & Lavallee, 2015). TT
15 most commonly occurs informally with athletes themselves initiating the switch between
16 sports which generally have comparable physiological requirements, tactical components and
17 movement patterns (MacNamara & Collins, 2015).

18 In an era where governments set globally demanding sporting success targets (e.g.,
19 World Championships and Olympic Games), many nations now allocate financial investment
20 and resources towards high performance TT programs (Collins et al., 2014). To illustrate, UK
21 Sport and several national governing bodies including GB Taekwondo, British Basketball,
22 GB Rowing and GB Canoeing have worked in partnership since 2007 to develop, implement
23 and finance several TT initiatives. These include Sporting Giants, Fighting Chance,
24 Girls4Gold, Pitch2 Podium and Tall and Talented. Of the 7000 applicants, 100 athletes have

1 successfully progressed into the World Class system in their new sports with significant
2 success rates at major international events (MacNamara & Collins, 2015).

3 It is well recognized how multiple physical and psychological attributes are critical
4 for achieving elite international level of sport performance (Baker, Wattie & Schorer, 2019;
5 Bjørndal & Ronglan, 2018; MacNamara, Button, & Collins, 2010a; Morgan, Fletcher &
6 Mustafa, 2017; Taylor & Collins, 2019; Tedesquia & Young, 2018). Whilst previous research
7 identified the importance of physical factors in TT success (e.g., Collins et al., 2014), the
8 psychosocial and environmental factors which contribute to the transfer process must not be
9 undervalued (MacNamara & Collins, 2015). MacNamara, Button and Collins (2010b) and
10 MacNamara et al. (2010a) further argued that a senior athlete's potential to perform at an elite
11 level goes beyond physical attributes alone and is also heavily reliant on psychological
12 attributes including perseverance, commitment, conscientiousness and determination.

13 Presently, there are few published TT specific studies within the talent development
14 literature. Collins et al., (2014) provided some insight into the mechanisms and processes
15 influencing successful transition in athletes representing 2010 and 2012 GB, Canada, USA
16 and Australia Olympic teams. The study explored opinions of sport science support
17 specialists with working experience within applied TT settings into what they considered
18 either hindered and facilitated successful transfer. Several themes participants felt were
19 important in TT processes were derived, including skill transfer, psychosocial assets,
20 previous experiences, and physical mechanisms (i.e., physical assets and incorrect
21 recruitment principles).

22 Bullock et al., (2009) captured the sport transfer journeys of several senior female
23 Australian athletes who, with the sole aim of competing at the 2006 Winter Olympic Games,
24 transferred from their primary sports into the skeleton discipline. After successfully
25 completing an initial selection camp, ten athletes were invited to enrol upon an intensified

1 skeleton training programme. The single athlete who went onto represent Australia at the
2 Games, finishing in sixth place, did so after a 14-month period of intensive skeleton specific
3 training. This finding lends strong support to targeted TT approaches which identify
4 successful senior athletes (>18 years) from sports that have similar attributes believed
5 important in the sport that the athletes are transferring to.

6 In contrast to the findings of Collins et al., (2014), MacNamara and Collins (2015)
7 identified a range of psycho-social and environmental factors that were key to a successful
8 transfer of seven elite athletes from one sport to another achieving international success. They
9 specifically discussed how a positive learning environment (e.g., individual attention,
10 encouragement and an unstructured pathway), suitable TT process timeframe (e.g., provided
11 with sufficient time and resources to adjust to the transfer sport and lack of early pressure for
12 results), previous sporting experiences (e.g., understanding demands of elite competition plus
13 the ability to learn and reflect on past experiences), physical and physiological characteristics
14 (e.g., athletic ability), and psychological factors (e.g., coping skills, discipline, goal setting
15 and realistic performance evaluation) was key to the TT success. These findings further
16 support the theory that deliberate practice and training and learning skills in a sport context
17 may be an alternative pathway to of transferring expertise (Baker, 2007; Coleman, 2007;
18 Runco, 2007).

19 A key finding from the limited TT literature tells us how sport transfer tends to be
20 self-instigated and stimulated by one or a combination of reasons, including persistent
21 injuries in their primary sports, plateau in performance, decline in motivation, retirement or
22 wishing to experience, try and to compete at the equivalent level or higher in a new sport
23 (Bullock et al., 2009; Rea & Lavallee, 2015). Unfortunately, little empirical evidence is
24 currently available to best explain specific facilitators and barriers to successful TT of high
25 performing adolescent athletes. Little is also known about when, why and at what stages of

1 their careers do adolescents choose to transfer from one sport to another and their consequent
2 experiences of doing so. Extending the work of Collins et al., (2014) and MacNamara and
3 Collins (2015), the primary aims of this exploratory study were too (1) determine motives for
4 why high performing Australian adolescent athletes transferred sports and (2) identify factors
5 which facilitated or hindered the ensuing successful inter-sport transfer.

6 The study is justified because identifying how to best select, develop and retain the
7 next generation of world class adolescent athletes is a strategic priority for national sport
8 governing bodies worldwide. The study findings will make timely contributions to the
9 existing TT literature. Primarily, it will provide high performance coaches, sport scientists
10 and talent developers with practical implications to best promote optimal physical,
11 psychological and social development of talented adolescent athletes when they transfer
12 between sports.

13 **Methodology**

14 *Participants*

15 There were 8 (male = 4, female = 4) high performing Australian adolescent athletes
16 (mean age = 15.8 years) in this study, who were all full-time secondary education students
17 based at a sports academy school in Victoria, Australia. Experts have been defined within the
18 extant literature as those who compete at international levels (e.g., Helsen, Starkes & Hodges,
19 1998). In this study, the term ‘high performing adolescent athlete’ was used to categorise
20 participants aged between 13 and 16 years who all had greater than six months experience of
21 competing internationally for Australian Junior representative sports teams at a global level
22 across various disciplines and age classifications (e.g., under 15’s, 16’s, 17’s and 18’s).
23 Although developed for older athletes, our sample was classified as competitive elite as
24 defined by Swann et al., (2015) in their respective sport. Within 12 months of data collection,

1 all participants had successfully transferred from their primary sport to the equivalent level in
2 their transfer sport (see Table 1).

3 In all cases, participants encountered a diversified introduction to several sports
4 during early and late childhood within a non-competitive, autonomy supportive learning
5 climate which could be explained by Deliberate Play Theory (Côté, 1999). All had
6 specialised in their primary sport by age 11 and competed regularly across a range of
7 standards up to their transfer (e.g., regional, national and international competition levels).
8 Participants sporting histories were verified by the school Head of Sport who interviewed
9 them and their parents on two separate occasions as part of the recruitment and enrolment
10 process. Table 1. provides an overview of participant demographic information.

11 **Table 1:** Participant Information¹
12

Participant	Primary Sport	Transfer Sport	Age of Transfer
1	Team Based Ball	Individual Power	15
2	Track and Field Sport	Individual Power	15
3	Team Based Ball	Water Based	16
4	Water Based	Team Based Ball	14
5	Team Based Ball	Water Based	16
6	Team Based Ball	Team Based Ball	15
7	Acrobatic	Ariel	13
8	Team Based Ball	Track and Field	15

13
14 ¹ Gender withheld to protect anonymity.

1 *Procedure*

2 Following approval by the school's Principal, the research team were granted
3 permission to send a letter to prospective participants and their parents. This provided a brief
4 overview of the study aims and objectives. Specifically, it explained how the research team
5 were wishing to interview pupils who had competed for Australian junior representative
6 sports teams in the past 12 months but had transferred and were now competing at the same
7 level but in another sport about their inter sport transfer experiences. We used purposeful
8 sampling to ensure that the athletes could be classified as semi-elite or competitive elite
9 according to the framework developed by Swann et al., (2015). Higher levels of achievement
10 are difficult to obtain for adolescent athletes who have engaged in sport transfer in this
11 model. Ethical approval was granted from a local University and Department of Education of
12 Victoria, Australia to enable participant recruitment.

13 All consenting participants were provided with further verbal and written information
14 on the procedure to be followed, told they could withdraw from the study at any point should
15 they wish to do so and assigned a numerical pseudonym to protect anonymity. All
16 participants were aged under 18, so parental consent permitting their child's involvement was
17 obtained in all instances prior to any data collection commencing. Interviews were
18 undertaken at a convenient time, date and location for each participant. In each case, this was
19 within a safe, private and comfortable room within the grounds of a School Sports Academy
20 in Victoria, Australia.

21 When undertaking qualitative research, it is important that the interviewer builds
22 rapport and trust with the interviewee and to make them feel as comfortable and relaxed as
23 possible. The lead author was previously an elite junior athlete. This meant he possessed
24 contextual knowledge concerned with the demands and terminology used in such settings
25 which he used to aid the process of establishing a positive and empathetic bond with

1 participants (Patton, 2002). The proposed interview schedule was pilot tested by an
2 adolescent athlete with experience of successful inter sport transfer at state level. This
3 confirmed duration of approximately 45 minutes and strengthened the lead authors
4 interviewing skills and techniques.

5 Eight face to face, semi-structured qualitative interviews lasting between 35 and 50
6 minutes were undertaken by the first author and audio recorded. Participants were guided
7 through a series of questions which probed their reasons for transferring sports and
8 consequent experiences. To ensure participants felt at ease to share personalised and sensitive
9 information, each interview started with an informal discussion on how they first became
10 involved in their primary sport (Rapley, 2004). At all stages, the lead author undertook the
11 role of ‘active listener’ to assist participants in telling their unique stories in their own way.

12 The interview guide was based on the previous work of MacNamara and colleagues
13 (2010a; 2010b & 2015) which has identified barriers and facilitators to talent transfer albeit in
14 adult athletes as well as the research teams experience in working and conducting research
15 with adolescent athletes. During stage one of the interviews, questioning focussed on
16 identifying what were the participants’ primary reasons and motivations for transferring
17 between sports. In stage two, the interviewer focused on exploring the specific challenges
18 participants encountered during the successful transfer. Example questions included ‘were
19 there any significant barriers you faced in your new sport’ and ‘what did you do to try and
20 reduce this problem’. To elicit richer data, supplementary probing was used, such as ‘what
21 alternatives did you have at this time’, ‘what was the reason for doing that’, ‘can you describe
22 further what that incident made you feel like’, ‘why did this specifically hinder your
23 progression’ and ‘why do you think you behaved in this way’. This flexible questioning
24 approach ensured participant centeredness, making it possible to follow up conversations
25 where appropriate (Lincoln & Gubba, 1985). Every attempt was made to follow participants’

1 stories and to understand their exclusive experiences and accounts of their inter sport transfer
2 rather than following a standardized list of questions.

3 *Data analysis*

4 Each interview was transcribed verbatim and subjected to similar thematic analysis
5 guidelines published by Braun and Clarke (2006). All eight transcripts were read multiple
6 times by the first and last author with notes reflecting theme statements and their meanings
7 placed within margins. The same authors then independently annotated each interview
8 transcript with their personalised thoughts and interpretations of the data. Thematic coding
9 employed an inductive approach to allow for lower order themes to be derived. There were
10 several minor differences between the two separate coding results, with discrepancies
11 discussed and agreed. Primary associations and connections based on similarities and patterns
12 between derived themes were made, resulting in the development of four main themes. When
13 finalised, interview extracts representing each theme were selected. The final analysis stage
14 involved developing written accounts from identified themes. These were reviewed and
15 redrafted several times.

16 *Trustworthiness and validity*

17 To ensure qualitative rigour (Smith & McGannon, 2018) we used member checking
18 and critical friend procedure. In terms of member checking, three weeks post-interview, six
19 participants undertook a brief (approximately ten minutes) face-to-face member-checking
20 conversation with the first author to establish if they were satisfied that the findings to
21 emerge were accurate reflections of their inter sport transfer experiences (Lincoln & Gubba,
22 1985). In all cases, each participant corroborated their personal journey within the wider
23 context of the finalised data set, confirming the research team's effectiveness in successfully
24 establishing participants inter-sport transfer experiences. The third author acted as a critical
25 friend to the first author. After presenting findings to the third author, they provided

1 reflections and challenged interpretations through critical feedback. This was an iterative
2 process and resulted in relocation of codes and minor changes in categorisation.

3 **Results**

4 Findings are presented under four key themes which reflect the experiences and views
5 of the study sample. Participant numbers are presented in parentheses (e.g., P1, reflects
6 participant 1).

7 ***Primary Sport Rejection***

8 Early childhood sport experiences were found to be fun and pleasurable with all
9 participating in several school and grassroots teams. During this period of their sports careers,
10 all participants displayed high sporting ability levels, across multiple activities. When probed
11 further, it was clear how all had decided to stop participating in their primary sport during the
12 early-mid teenage years because it failed to satisfy their needs and ambitions. Sport became
13 no longer about enjoyment and camaraderie with peers but instead a strategic manoeuvre
14 towards a sport they believed was the most possible to immediately make the grade as a high-
15 performance athlete and become a full-time professional senior athlete. The following quotes
16 emphasise these points further:

17 *'I was not improving anymore in swimming and if I had not quit and changed*
18 *sports then I am certain I would have remained unhappy because I am very*
19 *competitive and like to beat people and I was not doing this in swimming*
20 *anymore, so things had to change' (P4)*

21 *'well, I know that acrobatics is not an Olympic sport but my new sport is so I just*
22 *hope by changing sports will help me to go onto competing internationally as a*
23 *senior and ultimately get paid for doing so' (P7)*

24 All participants were highly motivated, goal orientated, impatient for sporting success
25 and placed heavy emphasis on being successful at an international level in their sport and the

1 need to feel competent. From early age, it seems they displayed a determination to get to the
2 top in sport. As such, we argue most participants went through a systematic and strategic
3 reconsideration process of how best to achieve sporting success on the international stage.
4 The majority had now realised that achieving this life goal was highly unlikely unless they
5 redeveloped their sport career road map and transferred sports immediately. They needed
6 another pathway to reach the top. The nature of the sport seemed not to matter anymore so
7 long they went on to 'make it' and could represent Australia. Then they were happy to close
8 the door on their primary sports. The passages below illustrate the essence of such comments
9 further:

10 *'I always wanted to be a professional athlete and figured out that that I did not*
11 *have to choose my most favourite sport to do so but the one I stood out the most*
12 *chance in' (P3)*

13 *'I was about 14 when I started thinking seriously about changing sports. It was*
14 *hard for me at the time both physically and mentally because I was going from*
15 *netball training to hockey training on the same night and it was just getting*
16 *hectic. I had two sports that were both competing for my time so at the end of that*
17 *year I started to think about what I really wanted to do in my life and decided*
18 *hockey because I thought I had more chance of making a professional career out*
19 *of it than netball' (P6)*

20 *'when I was younger, I competed in athletics sometimes and then I received first*
21 *place in some competitions we had with other schools and that sort of in the back*
22 *of my mind told me that that I should pursue athletics instead of basketball so I*
23 *decided to go with that and give it a real go' (P8)*

24 For most, it was noticeable how their primary sport performance levels either
25 deteriorated or plateaued during the early teenage years. For example, several discussed how

1 they could no longer rely on their previous performances to win and outperform fellow
2 teammates and opposition. The passages below elaborate on this point:

3 *'I was fast for my age and had this fitness and tenacious element to just win. So, I*
4 *think that is what initially helped me to shine on the pitch but I did not have the*
5 *technical skills that everyone else had and when I was 12 or 13 and when the*
6 *others caught me up physically my lack of skills really started to show' (P1)*

7 *'As time progressed playing football, things kind of evened out and it started to*
8 *take more effort to become better and I would say that my improvement then only*
9 *started to become gradual (sighs) so that is when I started to think seriously*
10 *about what other sports was I more likely to be able to excel in' (P3)*

11 *'When playing basketball as a kid, I had always found it easy because I was more*
12 *athletic during that time compared to the other players and I dominated games by*
13 *myself but this kind of evened itself out and it became much harder to stand out*
14 *anymore in my training and matches' (P8)*

15 For some participants, another contributing factor to transfer was because of the
16 difficulties they encountered in maintaining regular fitness and performance levels following
17 a long-term injury. The following narrative by participant six reinforces this attitudinal
18 change:

19 *'The four months I had off with a long term illness played a real factor in my*
20 *decision to swap between sports, as with being out of action for so long it felt like*
21 *I was playing catch up and having to work much harder than ever before just to*
22 *maintain and reach the levels where I used to be at' (P6)*

23 ***Transfer Sport Susceptibility***

24 It was apparent how all participants initially resisted the transfer their coach and school
25 has suggested based on their observed and measured skills. They wanted to compete for

1 Australia, but they struggled connecting with their new sport. The majority experienced
2 immediate reservations, uncertainties and a fear of letting go. They found the transition to be
3 problematic, encountering consequent identity issues. Their passion for their new chosen
4 pursuit was initially very low as reflected by their limited early buy-in and engagement. The
5 below quotes highlight how they initially struggled adjusting to their new sport and had yet to
6 fully internalise the consequences of their decisions and actions:

7 *'I only committed a few hours towards to my training because it was boring and*
8 *my early performances in competitions were so awful' (P1)*

9 *'I definitely missed the bigger team in AFL (Australian Rules Football) because*
10 *with rowing it is very individual, and I did miss the sense of the game and*
11 *everyone being there and working together and the banter' (P3)*

12 *'The constant repetition was hard, and I soon started getting tired of doing the*
13 *same things over and over again. With staring at that black line as you keep*
14 *swimming up and down doing, the long boring sets were so tedious' (P5)*

15 Interviews further revealed that the process of inter-sport transfer for a competent elite
16 adolescent athlete seemed overwhelming. Some felt underprepared, demotivated and
17 generally not sure whether they had made the right choice or not. Most participants chose to
18 transfer to another sport in the first place, based purely on their own free will. However, some
19 started to question and regret their decisions. Participants also discussed how the transition
20 was even more challenging since they and their families had invested substantial resources
21 over a sustained time period into their primary sports. It is where their collective enjoyment
22 and passion lied, deeply rooted, and firmly established, despite realising that they will not
23 make a successful transition at an international level to adult elite sport. They decided to
24 change for achieving their goal of representing Australia in the new sport. The following
25 quote by participant four explains parental displeasure in transferring sports:

1 *'Well my mum did not speak to me for like two weeks after leaving swimming*
 2 *(smiles and giggles) and she just said that I had just wasted all my time and it*
 3 *was pointless changing sports. So, yes, she was not happy about it (transfer from*
 4 *swimming to lacrosse) but I think she is sort of over it now' (P4)*

5 For most participants, there was a reluctance to let the dream go of achieving world
 6 class status in their primary sport despite knowing that they are very unlikely to be able to do
 7 it. This created further tension, turmoil and confusion which is highlighted in the following
 8 quotes:

9 *'I was a footie player at the end of the day (AFL). That was me and who everyone*
 10 *viewed me as and I could not get to grips with the new regime and really missed*
 11 *the banter with my old teammates' (P1)*

12 *'There were periods in the early days of my transfer where I wanted so much to*
 13 *just to get back on the footie pitch' (AFL) (P5)*

14 *'there were times in some early days of my new sport when I thought to myself*
 15 *what have I done' (P7)*

16 When probed further, several discussed only transferring because they thought it may
 17 benefit long term performance in their primary sports. Some participants who had a strong
 18 sport identity in their primary sport had difficulties in rationalising their choice to themselves:

19 *'I only really participated in weightlifting (transferred sport) at the start to aid*
 20 *my football (primary sport)' (P1)*

21 *'The training was far tougher than what I was used to, but I could see signs I was*
 22 *getting stronger again and thought how maybe I could return to track and see*
 23 *how I got on' (P2)*

24 Several participants openly explained how their decision to change sports was
 25 based purely on extrinsically motivated factors and the increased likelihood of

1 achieving future sporting success. This significant finding was clearly the case for
2 participants three and six, who said:

3 *'I was doing some good performances and improving each year in AFL but the*
4 *rowing offers so much like the Olympics route and competitions overseas so*
5 *that's why I went with it' (P3)*

6 *'for me, it came down to the point where I had to choose which sport I was most*
7 *likely to make it in otherwise things were going to start colliding and I did think I*
8 *had made the wrong decision in the first few months after switching' (P6)*

9 ***Transfer Sport Adoption***

10 Participants found adapting to their new sports to be a very solitary and demanding
11 experience at first. But as time passed, they started displaying gradual signs of transfer
12 acceptance, attraction and affinity which helped support the transition and played a key role
13 in nurturing a developing sense of connection with their new sports.

14 Participants enjoyed a newfound sense of adventure and independence, began engaging
15 more proactively and enthusiastically and became intrinsically motivated towards their new
16 sports. As their skills sets grew, participants started displaying excitement again for
17 competition and particularly liked testing themselves against peers in their transfer sport. The
18 comments below highlight how the new sports careers provided participants with greater
19 opportunities for experiencing high levels of autonomy, competence and relatedness again
20 within their lives.

21 *'I realised that I was getting pretty good at it (new sport) and kind of starting to*
22 *like it more because of that. I can remember thinking I could really use this sport*
23 *to get somewhere in my life. I compared it to closing one door and then going*
24 *through another' (P1)*

25 *'I began to realise that I was not going to make it in track because I did not really*

1 *have the right body for long distance running but for weightlifting it was much*
2 *better suited to my muscular frame so was logical to pursue and after some early*
3 *settling in issues I never looked back' (P2)*

4 This improved general engagement fostered a growing sense of restored sport
5 belonging and identity. Participants were quickly acclimatised to their new sports, becoming
6 progressively more responsive and accepting towards the transfer which impacted positively
7 on their self-esteem. These following quotes emphasise this point:

8 *'It (new sport) was so different from athletics because you would be doing*
9 *distance and repetitions all the time, whereas with weightlifting you just lift then*
10 *sit down and it was just simple and easy to see what you had achieved' (P2)*

11 *'It became all about the recognition and getting selected on international teams*
12 *and I thought so what if I am getting success in a less popular sport' (P8)*

13 Some study participants achieved almost immediate national level success with limited
14 effort in their new sport. For example, participant two set a new age specific state record
15 within three months of switching sports.

16 *'I was asked by the coach if I wanted to do a weightlifting competition and I said*
17 *oh well why not because some others who used to be in the athletics team had*
18 *tried it out a couple of months before and they said it was really fun so I said I*
19 *would go and I did it and I broke the state youth record for the under 15's weight*
20 *category and everyone was saying that is so cool' (P2)*

21 Initially, adolescent elite athletes in this study saw transferring to a new sport as a
22 rational choice that would assist them achieve their life goal of becoming an adult elite sport
23 performer. However, within six months most participants genuinely thrived in their transfer
24 sports. Several discussed enjoying the attention they received as an emerging talented athlete
25 in their transfer sport when competing at national level. They also loved winning again. The

1 following passages provide further insights into these experiences:

2 *'I actually really liked the simplicity of rowing. First across the line wins. You*
 3 *cannot hide. It is competitive in the way that you always know who exactly wins.*
 4 *You know who was 1st, 2nd and 3rd which for me is the most important thing' (P3)*

5 *'I pretty soon just stopped missing swimming. Well, I did really miss the people*
 6 *pretty much but nothing about the sport itself, nothing at all and I just got over it,*
 7 *moved on and was soon competing in lacrosse at a higher level that I had ever*
 8 *done in swimming' (P4)*

9 *'after taking up swimming, I quickly progressed from competing in local*
 10 *competitions to making national age finals where I was up against all the best*
 11 *across Australia' (P5)*

12 *'It was tough. It was a hard decision because from a young age I had such*
 13 *passion for both sports, but I suppose netball for me was the one that I really*
 14 *thought I could make the grade in at the highest levels and I had no time to waste*
 15 *anymore so decided I had to fully buy in and start getting used to the day to day*
 16 *training and competition protocols' (P6)*

17 ***Internalization and Acceptance of Transfer Sport***

18 Every participant had now successfully navigated their 'career crossroads' and
 19 committed fully to their transfer sport. They had made the decision to fully invest in their
 20 transfer sports and no longer were persisting with their primary sports. They perceived
 21 themselves to be once again a happy, satisfied and contented athlete. All were again highly
 22 intrinsically motivated, single minded and fully engaged in securing sporting excellence in
 23 their new sports. Their transition from their primary to the transfer sport was now complete
 24 and they each had strategic plans in place to accomplish their vision and ambitions. For
 25 example, participant eight could see a clear path to achieving elite adult sport status:

1 *'I have the very best coaches and teammates to work with and push me to reach*
 2 *my dream and how to best use them to help me reach my goals are very much at*
 3 *the front of my plans' (P8)*

4 Another important finding was that the transfer sport was fully endorsed and
 5 encouraged by the participants' inner circle of family and close friends. This strong sense of
 6 support helped them considerably with the transitioning into their new sports:

7 *'Well most of my family think it is funny so yes they make jokes about how big my*
 8 *legs are and oh you are so strong and oh let's get the weightlifter to do it and so*
 9 *it is kind of a joke in my family but I just laugh it off' (P1)*

10 *'well mum and dad are proud of me and they keep spreading the word about how*
 11 *well I have done and they tell my family overseas and they say well your cousin is*
 12 *doing weightlifting really well now and I get embarrassed by the fuss' (P2)*

13 *'Lacrosse is the perfect type of sport for me as it is high intensity, it is high work*
 14 *rate, it is in the team environment, so I think that well matches the type of person*
 15 *I am. I am happy and so are my family and friends' (P4)*

16 The significance of quick success to adolescent elite sport status and being selected for
 17 national and international competitions in the new sport was motivational for all participants.
 18 It was clear how such opportunities played a leading role in participants' final decisions to
 19 ultimately transfer:

20 *'thinking purely in terms of making international teams and going on and*
 21 *competing in global competitions, then I totally made the right decision to switch*
 22 *from footie (AFL) to swimming' (P5)*

23 *'my sole aim and motivation is now to represent my country in high jump at the*
 24 *Commonwealth and Olympic Games. The feeling that I would get in representing*
 25 *Australia at this level would be quite something' (P8)*

1 **Discussion**

2 To our knowledge, this is the first study to specifically focus on high performing
3 adolescent athletes who had successfully navigated through the TT process as teenagers.
4 Secondly, this study went beyond providing purely descriptive accounts of what participants
5 perceived to be facilitators and barriers to their transfer success. In addition, the study
6 extended current knowledge by specifically focussing on capturing rich and detailed accounts
7 into their underlying motivations for transferring. It carefully considered and told
8 personalised stories of international adolescent athletes who successfully transitioned from
9 elite status in one sport to another.

10 All participants encountered early adolescent success in their primary sports, yet this
11 early potential and national level success soon plateaued (Ford, De Ste Croix, Lloyd, Meyers,
12 Moosavi, Oliver et al., 2011). In this study, we were able to highlight how several
13 participants were early developers who had relied heavily on their physical maturity and
14 attributes to outperform opponents. They peaked early but their peers soon caught up by the
15 early teenage years (Viru, Loko, Harro, Volver, Laaneots & Viru, 1999). The majority
16 struggled with this transformation with consequent dips in motivation, performance and
17 confidence levels (Brady, 2004).

18 For all, there came a time for realisation in that securing elite senior level sporting
19 status may be more likely accomplished by transferring into another sport. It was noticeable
20 how participants at all stages of their early sports careers were outcome focused and who
21 especially savoured success and winning (Gaudreau, Amiot & Vallarand, 2009). It was as
22 young teenagers that their approach to sport became progressively strategic and considered
23 (Hayman, Polman, Taylor, Hemmings & Borkoles, 2019). With the full support of close
24 family and friends, they ceased participation in their primary sports for purely extrinsically
25 motivated reasons of wanting to make a successful transition into elite international sport

1 performers. In this study all participants had deep-rooted extrinsic motives to compete at the
2 highest possible levels in sport. Their collective efforts were now focused towards achieving
3 immediate success in their new sport.

4 Transferring to a new sport was initially challenging for all, with several struggling to
5 find their identities in their new sport. A key finding was that the internalisation process took
6 some time and that they felt unskilled and no longer sure whether they had made the right
7 choice. However, early competition performance improvements and positive feedback about
8 their sporting potentials from significant others helped the transfer process to their new sport,
9 even though in their narratives their athletic identity was still associated with their primary
10 sport. We argue that this was so because they could see that it was now again possible to
11 achieve their life sporting goals of representing Australia at international competitions.

12 Although initially their motivation to participate in the new sport was externally
13 driven, rapid skill learning and competition successes led to perceptions of higher levels of
14 self-efficacy. Such a finding is similar to the educational literature in which higher levels of
15 self-efficacy are associated with increased intrinsic motivation. This enhanced intrinsic
16 motivation in turn was shown to have increased task engagement and learning (Bandura,
17 1993).

18 Although participants reported increased enjoyment in their new sport, their
19 motivation in this period could be characterised as introjected or identified extrinsic
20 motivation (Vallerand & Ratelle, 2002). Vansteenkiste and Deci (2003) showed that
21 introjected motivation can result in high levels of persistence and commitment akin to
22 intrinsically motivated individuals. Identified extrinsic motivation in the present context
23 refers to the acceptance and valuing of sport duties and responsibilities. This would include
24 the acceptance of long training hours and monotonous repetition of motor movements. It
25 became clear that the participants were prepared to do this because of the realization that this

1 would lead to achieving their life goal of successful transition to adult elite sport performer
2 with the associated social status and recognition. To date it is unclear whether such
3 motivational orientation is developmentally appropriate and whether affinity for the sport is
4 required for its long-term engagement.

5 Most TT studies have been exploratory and a-theoretical in nature. The findings of the
6 present study on TT in adolescents suggest that several existing theories might be useful in
7 explaining the TT process. This includes Self-Determination Theory (e.g., Ryan & Deci,
8 2007) and Social Cognitive Theory (Bandura, 1997). Hence, participants' motivational
9 orientation appears to determine whether they chose to transfer to another sport in early
10 adolescents and also their continued motivation in the transfer sport. In this study, adolescent
11 elite athletes' motivation for sport participation appeared to be influenced by extrinsic reward
12 of winning and approval by significant others. Particularly, early success and perception of
13 physical self-efficacy were likely to be a determinant to engage in significant training in
14 terms of volume and effort in the transfer sport.

15 We considered the above theoretical assumptions and based on those considerations
16 and our findings we propose The Adolescent Sport Talent Transfer stage model (ASTT-stage
17 model; see Figure 1), which describes the transfer processes of adolescent elite athletes from
18 their primary sport to another. This four-stage model is framed by adolescents elite athletes'
19 overarching long-term goal of becoming a successful adult sport performer with a desire to
20 represent their country (Australia).

21 The first stage is called *Primary Sport Rejection Stage*. In this study, most participants
22 were successful early on in their career in their primary sport due mainly to being an early
23 developer. The maturation of other competitors and peers resulted in decreased sporting
24 success. Together with repeated sport injuries, adolescents in this stage realised that their life
25 goal of becoming a successful athlete will be thwarted. This made them susceptible to

1 transfer to another sport.

2 The second stage, the *Transfer Sport Susceptibility Stage*, will help researchers to
3 identify what factors makes adolescent elite athletes to consider transfer. In this unstable
4 state, significant others (e.g., coaches, parents) propose to the athletes to transfer to a
5 different sport. This advice appears to be based on significant others' view of the skills set
6 and physical capabilities of the adolescents, which proposers see as a relatively easy transfer
7 to the new sport. This advice by significant others in many instances was provided without
8 concern for the athletes' potential liking of the new sport. However, such advice aligned with
9 the athletes' long-term goal of being a successful adult elite sport performer.

10 The *Transfer Sport Adoption Stage* is characterised by early successes in the newly
11 adopted sport, such as winning key competitions and receiving feedback about their sporting
12 potentials from significant others. Success was achieved despite the athletes' perceptions that
13 they put relatively little effort into the new sport and that their perceived skill levels were
14 still relatively basic. However, winning and doing well in the adopted sport in this study elite
15 adolescent athletes realised that they can be successful in the transfer sport and achieve their
16 long-term life goal of transferring to adult elite athlete state. This enhanced their motivation
17 to increase training volume and raise their efforts in their new sport.

18 The *Internalization and Acceptance of Transfer Sport Stage* was characterised by
19 continued successful experiences, including selection for national and international
20 representative teams. Participants in this study in this stage started to acknowledge that the
21 transfer sport was now more important to their sporting identity than the primary sport.

22 *****PLEASE INSERT FIGURE 1 HERE*** (see appendix - page 27)**

23 The ASTT-stage model will have some important implications for those working with
24 adolescent athletes, as it provides a testable model for understanding of elite adolescent
25 athletes' journey when they transfer to a new sport at this important developmental stage in

1 their lives. In the Transfer Sport Susceptibility stage of the model, future research should
2 study the social support and sources of motivation from significant others. In the Transfer
3 Sport Adoption stage, successful experiences need to be further understood, in particular
4 what kind of success exactly are motivating athletes to persevere with the transfer sport. How
5 does their athletic identity alter across this change in particular but also through the transfer
6 process?

7 This study is not without limitations. Although only a short recall period, we relied on
8 retrospective recall, to explore the transfer process. Validation of participants' accounts with
9 those of coaches, peers and parents would have further strengthened the study. That said, the
10 TT for the adolescent athletes occurred relatively recent to the commencement of the
11 interviews for this study, potentially resulting in less forgetfulness and bias. However, there is
12 a need for longitudinal studies to investigate TT. In addition, we only interviewed a small
13 number of athletes who made a successful transition, making generalisations difficult.

14 In conclusion, the study findings provide new information on TT in adolescent elite
15 athletes. We believe that the ASTT Stage model could be used by researchers to understand
16 sport transfer in adolescent elite athletes. Future longitudinal studies of adolescent elite
17 athletes' who transfer should be conducted. In addition, the model has potential practical
18 implications and could help coaches to successfully guide high performing adolescent
19 athletes through the TT process.

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24

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Figure 1: Adolescent Sport Talent Transfer model (ASTT-model): The four transitions talented adolescent athletes travel from their primary to transfer sport.

