

# Sport Participation

Health Benefits, Injuries  
and Psychological Effects



*Anthony D. Farelli*  
Editor

SPORTS AND ATHLETICS PREPARATION, PERFORMANCE, AND PSYCHOLOGY

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# **SPORT PARTICIPATION**

## **HEALTH BENEFITS, INJURIES AND PSYCHOLOGICAL EFFECTS**



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**AND PSYCHOLOGICAL EFFECTS**

**ANTHONY D. FARELLI**  
**EDITOR**



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## **PREFACE**

In this book, the authors gather and present current research in the study of the health benefits, injuries and psychological effects of sport participation. Topics discussed include the factors that are most influential in children's decisions to drop out of organized sport; the role of injury and injury risk perceptions in sport participation and the long term impact of overuse injuries on life-long participation in sports and health status.

Chapter 1 - Sport participation is popular among millions of children in countries throughout the world. The well-documented health benefits of children's sport participation are important to help reduce childhood obesity and the burdens of other associated childhood diseases. Despite efforts to promote sport participation, unfortunately involvement for some children can be short-lived with sport dropout (or attrition) rates being relatively high, particularly during adolescence. Although research investigating the area of child sport dropout began more than 30-years ago, there is still much to learn about the issue, and correspondingly it has been identified as a major concern by both sport practitioners and researchers. Whilst previous studies have uncovered some factors that distinguish children who do and do not drop out of sport, a detailed examination of the published literature is required to characterise these issues further and to identify where knowledge gaps exist more fully.

This chapter reports the results of a systematic review of existing peer-reviewed literature related to reasons why children decide to drop out of sport. The Chapter identifies and critically reviews relevant studies and provides a summary of their findings to contribute to a clearer understanding of the factors influencing child sport dropout. In doing so, it identifies potential opportunities for preventing child sport dropout and for promoting long-term sport participation by all children.

Using specific inclusion and exclusion criteria associated with the defined systematic literature search strategies, few relevant studies were identified which addressed the issue of child sport dropout. Nonetheless, this review has identified prominent factors that contribute to child sport dropout, such as conflict of interests and time availability, the re-orienting of interests and the pursuit of participation in other activities.

An important finding of the review is the identification of a clear gap in knowledge surrounding the impact of sport injury as a contributing factor to child sport dropout. In fact, sport injury appears to be largely overlooked and/or removed from studies that seek to determine the factors that contribute to dropout in children's organised sport. In light of international public health concerns about sport injury, and global strategies to increase

participation in sport and other physical activities, it seems pertinent to obtain a better understanding of the true impact that sport injury has on the long-term retention of children in sport.

Chapter 2 - Children's involvement in sport has increased over the past decade, with the health benefits associated with regular physical activity and, more specifically sports, now well established. Sport participation makes an important contribution to children's overall physical activity levels, and reduces the risks of childhood obesity and other associated childhood diseases. Although the benefits of sport participation are known and sport injury among children has become an international public health concern, it remains unclear how sport injury impacts on children's long-term sport involvement. This chapter presents the detailed findings from a qualitative investigation of the key factors that influence children's continued sport participation, possible sport dropout and their sports choices, while exploring the potential impact that sport injury and injury risk perception has on children's organised sport behaviours.

In this study a total of 43 children, aged 9-17 years, who were involved in an organised (after school) sport, took part in one of eight focus group discussions. Children were recruited from one of six sports (Australian football, badminton, golf, netball, soccer and swimming) and all participated at a community club or sub-elite level. Each focus group consisted of 5-6 children and each separate discussion was approximately 30-minutes duration. Focus groups were conducted until saturation of themes was obtained. Questions focused on children's sport participation, reasons for their continuation/discontinuation of sport and the encouragement/discouragement they received from parents. Other key factors that were discussed included injuries that children had sustained while participating and whether sport injury or child's perception of injury risk discouraged their participation and/or impacted on their parents' support of their participation.

Overall, few children were concerned about the risk of injury while participating in sport. However, many children discussed not wanting to play contact sports such as Australian football, rugby or boxing, perceiving these sports as being too rough, and with an increased chance of injury. The main reasons the sport-active children reported for discontinuing their prior sport involvement were a lack of enjoyment and restrictions on their time. Children reported parents to be supportive of their participation in sport regardless of safety concerns. No instances of parents preventing child sport involvement were reported by children.

The results from this study can be used to inform sporting bodies and health agencies of the sport injury and safety concerns held by children and how these impact on their choice of sporting activity, while highlighting areas that can be targeted in order to retain child participants.

Chapter 3 - Overuse injuries are common in many sports and it is well known that they can negatively influence ongoing participation in sport, especially during the period when people recover and rehabilitate from these injuries. Much less is recognised about the longer-term impact of these overuse injuries, with most focus in the literature appearing to be on the outcomes of acute, traumatic injuries.

This chapter provides an overview of the available evidence that links overuse injuries to restriction of sport participation and other physical activities in both the short term and longer term, as well as the associated health issues that may be associated with this.

In particular, residual musculoskeletal deficits that might affect future joint and tendon health and injury risk are reviewed. By drawing on models describing the chronicity of

problems such as poor tendon health and osteoarthritis and the recently presenting LOAD (List of All Deficits) injury outcome framework, this chapter presents a new conceptual approach towards understanding the significant impact of overuse injuries that arise during sport on subsequent health and sports participation across the lifespan

Chapter 4 - The purpose of this chapter is to review selected psychosocial and sport medicine research on youth disability sport. I first focus on the physiological health benefits of sport participation as well as the prevalence and types of injuries. Physiologically, sport participants increase their functional abilities via enhanced cardiovascular fitness as well as muscular strength and endurance gains. Also, the energy demands of sport can help offset caloric imbalances that contribute to overweight and obesity among youth with disabilities. However, sport doesn't simply convey benefits and no risks. The risk of physical injury (e.g., overuse injuries to the shoulders of wheelchair basketball players) is often thought to be greater relative to individuals without disabilities. Lastly, I examine the psychological effects of sport participation. For instance, youth with disabilities are thought to experience enhanced self-perceptions (e.g., confidence) via sport experiences (e.g., mastery experiences). Sport is also a vehicle to develop friendships, increase social support, and reduce loneliness. However, sport is also a setting where children with disabilities may experience psychological harm as the result of exclusion and teasing from able bodied youth in sport. In summary, sport participation can lead to physical and mental health benefits and as well as some deleterious physical and emotional outcomes

Chapter 5 - Psychological models of sports participation frequently draw on the Theory of Planned Behavior (TPB) in order to predict health-behavior-related intentions. While these models commonly show high predictive power with respect to intention, they often fall short in the prediction of behavior (the 'intention-behavior gap'). Mohiyeddini and colleagues contend that integrating emotional processes into TPB can substantially improve the model's predictive power over and above traditional cognitive predictors. In a series of longitudinal studies, structural equation modeling was employed to test a traditional model (based on TPB) and an extended model including emotions associated with the intention to exercise as a mediator variable. Results confirmed a substantial increase in the explained variance of exercise frequency and in exercise duration for the extended model. Emotional appraisal of the intention to exercise thus appears to mediate the traditional intention – behavior relationship, suggesting that emotionally based interventions aimed at increasing sports participation may be helpful. It is concluded that emotion variables should be added to traditional TPB models in order to predict health behavior more fully

Chapter 6 - Self-talk includes any automatic and intentional self-focused thoughts and is considered one of the most frequent cognitive activities in human life. Athletes frequently use self-talk in an attempt to enhance their sport performance.

In this chapter the authors introduce the concept of self-talk, describe its main functions and its assessment. Furthermore the relationship between self-talk and cognitive, emotional and behavioral processes is discussed. Specifically we focus on the relationship between positive and negative self-talk and sport performance. Furthermore the potential of self-talk for the rehabilitation process following sport injuries is outlined. Finally, priorities for future research are discussed.

Chapter 7 – The word cohesion is derived from the Latin word *cohaesus*, which means, "to cleave or stick together". Group cohesion has garnered a significant amount of attention within a variety of settings. Cohesion is a multifaceted construct that delineates the tendency



for a group to remain united in the pursuit of common goals. This is a dynamic process undertaken by an assemblage of people who are linked together by a social bond that is formed by the group as a whole. In essence, the group provides a viable framework that allows individuals to engage in rewarding interactions with each other, which satisfy both the social and emotional needs of its members. In part, motivation to belong to the group may be driven by a universal human requirement, the need to belong.

Chapter 8 - Aiding equipment/devices make it possible for many handicapped subjects to participate in a variety of sports activities. In today's world, technologies are blended within almost all aspects of sports even in swimming, where it virtually seems that no technology is involved. Participation in sports and performance enhancing can only be realized with the application and improvement of new technology. Handicapped athletes pioneer in the quest to the betterment of the technology by allowing the devices to be tried on them first. Nowadays, the manufacturers are driven into the market by a number of factors such as resuming the social life following the post-amputation period of patients; that sports and recreational activities having crucial parts in amputees' lives with the customer-tailored prostheses and aiding equipment. The latest technologies improved with the intention to remove the shortcomings of the previously designed ones have proved to be much better in terms of weight and functionality. The development of new materials and cutting-edge designs as well as major advances in engineering and surgical techniques have given disabled athletes unprecedented opportunities to actively participate in sport. These trends have put sport as recreation within the reach of many individuals with a disability, but also have boosted the ranks of elite athletes with disabilities and enabled previously unimaginable sporting feats.

Short Communication- Scientific community confirms that moderate and vigorous physical activity produce positive benefits on health. Particularly cycling, is widely practiced all around the world as a competition sport, recreational activity and a locomotion method by young, middle-age and elderly. Although cycling has been described as a health beneficial activity it has been also detrimental in some conditions. Therefore it is important to know which benefits and health risk may provide this discipline from a health point of view.

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*Chapter 1*

# **A SYSTEMATIC REVIEW OF THE FACTORS WHICH ARE MOST INFLUENTIAL IN CHILDREN'S DECISIONS TO DROP OUT OF ORGANISED SPORT**

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## **ABSTRACT**

Sport participation is popular among millions of children in countries throughout the world. The well-documented health benefits of children's sport participation are important to help reduce childhood obesity and the burdens of other associated childhood diseases. Despite efforts to promote sport participation, unfortunately involvement for some children can be short-lived with sport dropout (or attrition) rates being relatively high, particularly during adolescence. Although research investigating the area of child sport dropout began more than 30-years ago, there is still much to learn about the issue, and correspondingly it has been identified as a major concern by both sport practitioners and researchers. Whilst previous studies have uncovered some factors that distinguish children who do and do not drop out of sport, a detailed examination of the published literature is required to characterise these issues further and to identify where knowledge gaps exist more fully.

This Chapter reports the results of a systematic review of existing peer-reviewed literature related to reasons why children decide to drop out of sport. The Chapter identifies and critically reviews relevant studies and provides a summary of their findings to contribute to a clearer understanding of the factors influencing child sport dropout. In doing so, it identifies potential opportunities for preventing child sport dropout and for promoting long-term sport participation by all children.

Using specific inclusion and exclusion criteria associated with the defined systematic literature search strategies, few relevant studies were identified which addressed the issue

of child sport dropout. Nonetheless, this review has identified prominent factors that contribute to child sport dropout, such as conflict of interests and time availability, the re-orienting of interests and the pursuit of participation in other activities.

An important finding of the review is the identification of a clear gap in knowledge surrounding the impact of sport injury as a contributing factor to child sport dropout. In fact, sport injury appears to be largely overlooked and/or removed from studies that seek to determine the factors that contribute to dropout in children's organised sport. In light of international public health concerns about sport injury, and global strategies to increase participation in sport and other physical activities, it seems pertinent to obtain a better understanding of the true impact that sport injury has on the long-term retention of children in sport.

## INTRODUCTION

Sport participation by children is popular, with millions involved in different types of sports in community, school and privately run clubs in both informal and organised settings all over the world [1]. The physical and psychosocial benefits of this participation are well-documented with evidence confirming that sport plays an important role in promoting good health and well-being among children [2], through increasing their overall levels of physical activity [3,4]. This is a particularly important benefit because it provides a means of helping to combat the problem of childhood obesity reaching epidemic proportions in developed countries [5,6].

Unfortunately for some children, participation in sport can be short-lived, with rates of dropout (or attrition) from sport being relatively high, particularly during adolescence [7]. This has prompted concern and interest among sport practitioners and researchers [8]. The topic of dropout was first explored by Orlick [9,10] in the early 1970s. It is somewhat surprising that even though research investigating child sport dropout began more than 30 years ago, there is still much to learn about the issue and how it could be addressed to ensure children's sport participation is continued long-term.

Some studies focusing on the child sport dropout phenomenon have highlighted descriptive factors that influence children's withdrawal from sport (e.g. [11-14]), such as low levels of enjoyment, conflicts of interest with time and wanting to do other activities. Others have undertaken more theoretical investigations to uncover predictors associated with child sport attrition (e.g. [15,16]), such as low perceptions of self-ability or when the perceived costs, or negatives/stressors, of sport participation outweigh perceived benefits, which is also associated with athlete burnout.

Smith [16] proposed a clear distinction between child sport dropout and burnout, stating that although burnout inevitably leads to sport dropout for some children, attrition due to burnout is due to a psychological, emotional and physical response to prolonged stress. In contrast, dropout occurs because of factors such as changes in priorities or the devaluing of sport participation [16]. Despite research concentrating on the theoretical underpinnings of child sport dropout and athlete burnout having facilitated the conceptualisation and increased understanding in the area to date, these theoretical concepts are not central to the focus of this review. Rather, this review focuses on empirical studies that have specifically described the reasons that children report as being factors contributing to their sport withdrawal. Therefore, subsequent sections of this review provide a detailed exploration of children's decision to

drop out of organised sport and the reasons associated with this. Nonetheless, a brief summary of the studies that have explored theoretical-based motives for children's withdrawal from organised sport is presented to provide further context and rationale for this systematic overview of the status of research in the area.

As this chapter will show, several individual studies have identified various reasons that children report to explain why they may/may not drop out of sport. A concise yet detailed summary of the existing body of literature is required to characterise these issues further and to identify more fully where knowledge gaps exist. By adopting a systematic review approach, this chapter highlights the relevant research and summarises findings to obtain a clearer understanding of key factors associated with child sport dropout. It is expected that this new level of knowledge will help identify potential opportunities for preventing child sport dropout and for promoting long-term sport participation by all children.

## METHOD

### Adopted Literature Review Search Strategy

The aim of this systematic review was to identify and summarise what is known about the factors contributing to child sport dropout. Of the literature within this area, some has focused on factors influencing children's physical activity in general and has not specifically considered factors relating to sport per se. These studies were not included in this review, given the specific focus on sport participation.

The following eleven electronic databases were systematically searched: Academic Search Premier, Ausport, Ausport Med, Health Source Consumer, Health Source Nursing, SPORTDiscus, SpringerLink, CINAHL, Medline, Web of Science and Scopus. It is acknowledged that there is an element of overlap across some databases, but as the intention was to scope the literature as broadly as possible to begin with, separate searches were undertaken and duplicates removed at a later stage.

To identify relevant studies, several combinations of 'keywords' and 'search terms' were used throughout the search process, with all terms categorised into one of three groups:

- Group 1 – 'keywords' that related to the target population and included the terms 'child', 'children', 'adolescent' and 'youth'.
- Group 2 – search terms related to sport: 'sport', 'organised/organized sport', 'out of school sport', 'competitive sport', 'team sport', 'community sport', 'youth sport', 'athlete/athletic', and 'after school sport'.
- Group 3 – search terms related to the 'outcome': 'dropout', 'attrition', 'change', 'cease/cessation', 'continue/discontinue', 'removal', 'prevent', 'terminate', 'inhibit', 'barrier', 'withdrawal' and 'determinant'.

During each separate search, a unique combination comprising one keyword and one word from each of the sport and outcome search term groups was used, totalling three terms embedded within each iteration. Each search term was combined only once with each keyword, for example, one search contained 'child' + 'sport' + 'dropout', while another

search contained 'adolescent' + 'sport' + 'dropout', and so on. Across each searched database, a total of 166 separate search iterations were undertaken.

## **Inclusion and Exclusion Criteria**

Studies were included in the final review based on the following inclusion criteria:

- 1) Published in the 31-year period between the years of 1980 to 2010, inclusive.
- 2) Original research published in the peer reviewed literature.
- 3) Focused on children's dropout from organised or 'outside'/'after' school sport.
- 4) Focused on children aged between 5-18 years. Studies that used participants whose ages fell within and/or beyond this 5-18 year age range were only included in the final review if they presented data on the desired age group separately to those beyond the reviews' age scope. For example, studies that investigated dropout of 15-18 year olds separately among a sample of 15-24 year olds would be included, while studies researching a sample of 15-24 year olds together were excluded.
- 5) Investigated either single or multiple factors influencing child sport dropout.
- 6) Data were collected directly from child participants.
- 7) Data obtained from proxy reports (e.g. collected from parents rather than the children themselves) were included only if the information provided was based on a direct report of their child's behaviour, rather than the proxy's attitudes/perceptions of the child's sport participation or dropout.

Studies were excluded if:

- 1) They were published in languages other than English.
- 2) They described dropout from school sport or general physical and/or recreational activities. It should be noted however, that studies investigating both physical activity and school sport dropout were scanned and those that also assessed organised/formal sport dropout separately from physical activities or school sport were retained. School sport dropout studies were excluded because the review was aimed to inform Australian sports participation habits and most of the formal sport participation in this country occurs outside the school setting. It is recognised that different countries have different sports delivery structures, including within schools, and so there is no generic definition of just 'school sport' that can be applied globally. For example, Australian school sport generally has little emphasis on competition and so varies markedly from that of the varsity/interscholastic sport undertaken by students in US schools, which is characteristically competitive and primarily involves only highly talented athletes. Thus, direct conclusions made about withdrawal from sport within these two very different types of school settings would not be meaningful unless a full understanding of the sporting contexts in which they occur is also presented and this was often absent from the published studies.
- 3) Studies that concentrated on the topic of child sport burnout, sport participation motivation and sport commitment. As discussed at the beginning of this chapter, child sport burnout has been described as being characteristically different to child

sport dropout [16]. Hence, studies describing athlete burnout have been excluded from this review. In the case of sport motivation and sport commitment, although studies in these areas provide some insights into factors contributing to children's continued sport participation, they are more concerned with factors resulting in the uptake or continued involvement in sport and not directly to sport dropout per se, which is the focal point of this review. There were some exceptions in the case of the sport motivation articles: studies that explored motives for both participation and withdrawal were retained but those that focused solely on participation motivation were excluded. Justification for this exclusion was because it cannot be assumed that the factors contributing to child sport dropout are the direct reversal of those reasons provided by children for why they are motivated to maintain their sport participation. For example, a child who maintains their sport participation because 'it's fun' may not necessarily dropout of sport due to a 'lack of fun'. Moreover, other reasons such as not having enough time, having homework or sustaining an injury may have perhaps led the child to dropout, despite them still having enjoyed playing the sport.

## RESULTS

Figure 1 summarises the systematic procedures undertaken in the literature search process as well as the number of articles retrieved at each stage of the selection process. The electronic search initially uncovered 14,644 potentially relevant 'hits'. As a first stage, each articles' title was screened for relevance, with all duplicates removed. Database searching and review of all relevant hits by title resulted in 64 individual articles being identified as potentially relevant.

Once the electronic search of selected databases was completed, reference lists of the 64 identified articles were then manually searched to identify any remaining literature not yet detected. This uncovered a further 60 potentially relevant articles for inclusion based on their title, resulting in 124 identified articles.

Following the completion of electronic and hand searching, the abstracts of all initially included articles ( $n = 124$ ) were then reviewed for inclusion before the articles were read in full. In cases where the abstract of an article did not provide sufficient information for either inclusion or exclusion, a scan of the article's contents was performed before a decision was reached. This process led to the exclusion of 89 articles (see Appendix 1).

The remaining 35 articles were then read in entirety to confirm their final inclusion or exclusion in the review. Whilst reading these remaining articles, it became apparent that many studies had undertaken only theory-based approaches to exploring child sport dropout ( $n = 15$ ), instead of providing descriptive information about actual reasons given by children in empirical studies. These theoretically based articles were considered not relevant to the primary focus of this review and were therefore excluded from the major review. However, in order to provide a comprehensive review of the literature these theoretical studies are summarised briefly in Table 1.

After exclusion of the theory-based articles, 20 articles were retained for the final review. Full details of these studies and their findings are discussed in the following sections.

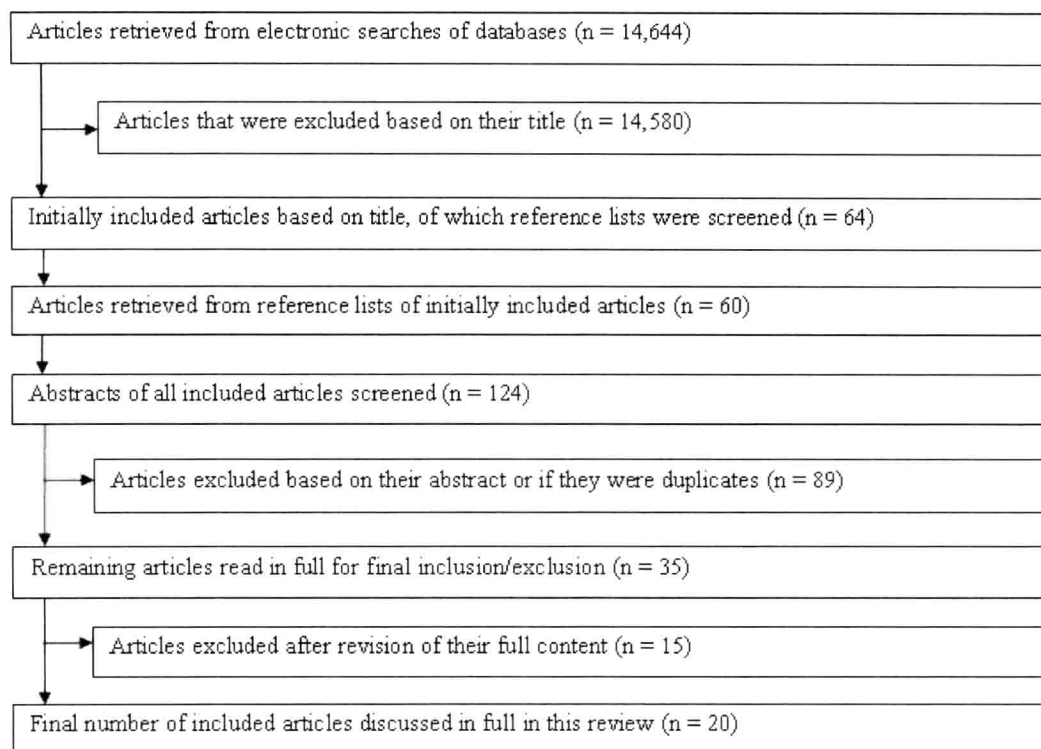


Figure 1. Flow chart of systematic search strategy and numbers of articles assessed/excluded or included at each stage.

## Literature Description

### *Theoretical Considerations in Child Sport Dropout*

Table 1 summarises the studies that only provided a theoretical consideration of child sport dropout.

The studies summarised in Table 1 all applied a theoretical approach towards explaining and predicting child sport dropout behaviour. Many of them were conducted among French and Norwegian samples of children, where dropout from handball and soccer, respectively, was of interest. Not surprisingly, these studies typically supported the constructs of the models implemented by the researchers. In general, they suggested that children may be more likely to drop out of sport if they perceive an ego-orientated climate in their sport [18,21,24,29]. That is, those who perceive importance in being better than others and/or perceive importance in winning and competition in sport drop out more readily than those who have an appreciation for learning and developing new skills from sport participation. Dropouts were also more likely to have lower perceived competence in a sport [17-19,22,25,27], place less value on the sport [17,19], show less commitment to the sport [17,22] and may enjoy the sport less [17,22,26,27] than those who continued their participation. All these factors were influential in predicting and/or explaining dropout or continued sport behaviour among children.



**Table 1. Studies of the theoretical underpinnings surrounding child sport dropout (n = 15) (ordered by most recent)**

First Author and Year	Country	Theory Used	Aim	Sample	Key Findings
Boiché, 2009 [17]	France	Components of the Sport Commitment Model, Eccles' Expectancy-Value Model, Self-Determination Theory, and Achievement Goal Theory	To simultaneously examine several potential theoretical and atheoretical determinants of sport dropout or persistence, and each determinants' place within the process leading to sport dropout.	261 adolescents (175 boys, 86 girls) participating in one of the following popular sports: soccer, basketball, handball, rugby, skiing, judo, gymnastics, horse riding, cycling, climbing, tennis and table tennis. Additionally, 106 adolescents (53 males, 53 females) who had ceased participation in these sports one year earlier.	<ul style="list-style-type: none"> <li>- Increased time spent in sports and increased travel time to sport did not predict dropout, therefore sport participants showed higher commitment to continued participation.</li> <li>- Satisfaction and commitment in sport were associated with continued participation, which was also associated with high-perceived competence in sport.</li> <li>- Participants who placed great value on participation and whose parents also valued and invested in children's sport were less likely to drop out, indicating that these were positive factors for sport persistence.</li> </ul>
Cervello, 2007 [18]	Spain	Achievement Goal Theory	To analyse sport dropout based on variables such as dispositional goal orientation. It was hypothesised that those with a low perception of competence were ego-orientated and also perceived significant others to be ego-orientated would be more likely to dropout.	134 Spanish competitive athletes who had been involved in competitive sport during the previous two years. Participants were aged between 14-18 years (90 males, 44 females).	<ul style="list-style-type: none"> <li>- Goal orientation and perception of ability predicted dropout behaviour.</li> <li>- A high ego-orientation (a child compares their performance to others) as well as a low perceived level of competence predicted dropout.</li> <li>- Children who perceived their coach or significant others as ego-orientated were also likely to adopt an ego-orientation, again increasing the likelihood of dropout.</li> </ul>