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# **Successful and unsuccessful transitions to the elite level: The youth national team pathways in Norwegian handball**

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elite sport transition; ecology of games; lifespan model; sport expertise

## **Abstract**

The aim of this study was to explore successful and unsuccessful transitions in Norwegian handball from the youth player level to the adult elite level. The nine youth players in our strategic sample were interviewed in-depth about their experiences. Five of the nine athletes had established themselves successfully at the adult elite level; four had either quit or continued to play at a lower level during the previous season. The data were first inductively analysed before the theoretical analysis was conducted. This enabled us to develop a comprehensive understanding of each athlete's developmental path and transitions, and enabled a comparison between the different outcomes. The Lifespan Model was used as a basis for understanding the individual pathways of development and the transitions made. The Ecology of Games Framework was used to contextualise the individual processes within the particular organisational context of Norwegian handball. The results show how the application of the Talent Development (TD) model used in Norwegian handball is frequently experienced as one which is exhausting for athletes. For a significant number, it may lead to injuries or burnout. Further, our findings demonstrate that there is a thin line separating two different outcomes: (a) a drop-out due to a loss of motivation and meaning, and (b) a successful transition to the elite level. We discuss how the organisational context of Norwegian handball leads to unintended consequences, both positive and negative, for athletes. Incidents and decisions beyond an athlete's immediate environment can facilitate or inhibit successful transitions to the elite level.

## Introduction

Retrospective investigations of expert performers who have already reached an elite level in sport have added little to deepening an understanding of *when* conditions are adequate or inadequate for enabling successful transitions (1). There is now an emerging interest in the particular cultural conditions that influence athlete development. In this regard, in-depth approaches to research can provide a valuable level of nuance and detail, helping to refine and redefine the broad categorisations of activity patterns that have dominated talent development research (2).

The aim of this study was to investigate the successful and unsuccessful transitions to the elite level made by youth national team athletes. Nine youth elite handball players were interviewed in-depth about their sporting development during their adolescence, their career transitions, and the processes that had inhibited or facilitated their development and the transitions they had made. Norwegian handball has experienced a long period of extraordinary success and the TD model adopted within this sport has many useful and positive characteristics. These include, for example, its facilitation of broad-based participation, the complementary influences of different activities, and the diversity of pathways leading to the elite level (3). But handball has negative consequences, too: it is a team sport characterised by repeated rapid actions, powerful changes in direction, hard body tackles, and collisions between opponents. Playing handball is associated with a high-level risk of injury (4).

Previous studies of athlete transitions from a junior to a senior level have primarily examined cohorts of junior athletes and reported on the percentage of successful transitions (1). In this study, we have applied a more in-depth approach because we wanted to provide more detailed and context-sensitive descriptions than those offered in most TD literature (5). Our intention was to contribute to a better understanding of how contextual conditions impact on individual development (6) and to widen our understanding about the transitions made by team-sport athletes. By closely comparing successful and unsuccessful pathways within the same group until the end of adolescence, our purpose was to distinguish between the necessary, sufficient and incidental processes driving transitions from the youth elite level to the adult elite sport level (7).

Our study is an innovative attempt to bridge the disconnection in athlete development research, identified by Bruner et al., between the *talent development* and *career transition* perspectives (8). The former approach has tended to focus mostly on practice activities

throughout athletes’ sport development when investigating transitional experiences and outcomes in sport. In contrast, research in the area of career transitions has recognised that athletes may have multiple identities, and that they may be involved both in sports as well as numerous other activities (9). Both perspectives are central to our understanding of athlete development in sports. Our study attempts to integrate these approaches by applying a broader, contextualised career perspective when analysing athletes who are transitioning from junior to senior elite sports.

**Theoretical framework**

The Lifespan Model described by Wylleman and Lavallee (10) provides a conceptual framework for understanding the transitions athletes make over the course of their development and uses a developmental perspective encompassing athletic, psychological, psychosocial and academic/vocational domains. This model attempts to show how the development of athletes is characterised by transitions in different domains throughout their careers – sometimes coinciding and overlapping – and how transitions in one domain may influence transitions in another. The Lifespan Model takes into account the interaction between various domains in a way that provides a holistic context for the study of development and transitions (11).

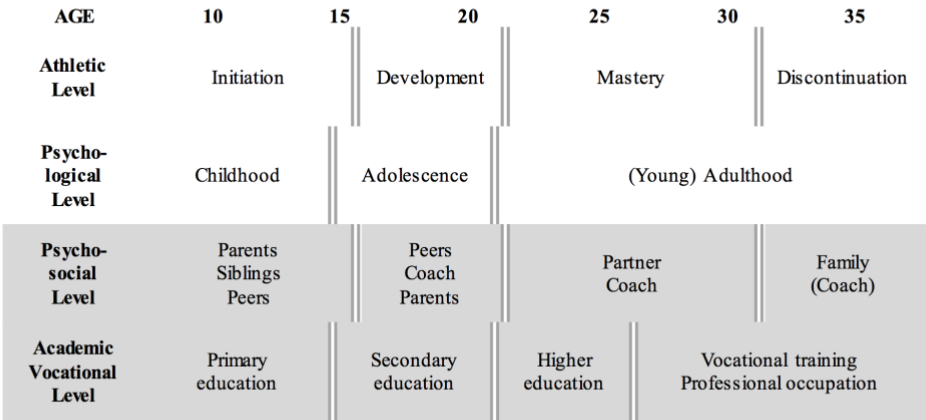


Figure 1. A developmental model on transitions faced by athletes at athletic, individual, psychosocial, and academic/vocational level (Wylleman & Lavallee, 2003).

The model differentiates between normative transitions (those that are anticipated and predictable, such as moving from a junior level to a senior level) and non-normative transitions (those that are unanticipated and are most often involuntary, such as career-threatening injuries or deselection). Athletes experience non-normative transitions as more difficult to cope with because these are difficult to predict (9). Although the model provides a general perspective for understanding the interactive nature of transitions, it does not acknowledge how an athlete's development might also follow non-linear pathways. Transitions can be affected by the interaction of many factors: some may be contextual, unintended, or even accidental (5). Nor does the model recognise the importance of the contextual conditions that may inhibit or drive development within a particular sports culture (12). For this reason, Wylleman and Reints (13) have argued that more lifespan-based research is needed in high-intensity sports to examine the occurrence of non-normative transitions, such as injuries, and how athletes cope with these.

The conceptual Ecology of Games (EG) framework (14) provides a complementary perspective to the individual focus of the Lifespan Model by contextualising the development of athletes within organisational contexts. The EG framework has been used in research into complex organisations that are heterarchical (rather than hierarchical) in structure and in which the incentives and aims within different arenas interact and drive decisions and development (15, 16). In organisations that could be described as more EG-based, individual actors can move back and forth between participation at different levels and settings, and their development can be non-linear.

The EG framework was recently used to describe the particular organisational model of TD in Norwegian handball (3). This approach was seen as appropriate because the TD model in this sport includes multiple key actors and influences, namely: local-community based sports clubs, sport school programmes, regional TD initiatives provided by the Norwegian Handball Federation (NHF), and the national team. The actions and interactions of these actors are mostly informed by their own team-based perspectives and no single actor has sole responsibility for TD. Individual athletes can participate simultaneously in activities provided by the different actors, and the athletes may therefore be exposed to very different influences over the course of their development. However, as the EG-study showed, the involvement of different organisational actors across multiple team settings also leads to an increase in the complexity of the handball system and may limit the overall organisational capacity for precise communication and coordination.

Wylleman and Lavallee's Lifespan Model is useful when describing the general and individual developmental transitions over the course of athletic careers. The EG framework provides an additional organisational perspective and helps to contextualise the wider organisational interactions and mechanisms driving individual development, and how these influence athletes' careers over time.

## **Methods**

This research was designed as a multiple case study of the transition to the adult elite level in Norwegian handball. According to Yin (17), case studies follow the logic of experiments and are well suited to investigating processes intended to lead to specific outcomes. The unit of analysis in this study is the transition process from the youth elite level to the adult elite athlete level within the context of Norwegian handball. In this study, the observational units are the individual athletes, and the focus is on their experiences of the processes and events inhibiting and/or facilitating their transitions from junior to senior sport during late adolescence.

### *Context*

Norwegian handball is rooted in the values of volunteerism, decentralisation and egalitarianism which characterise the Scandinavian sports model (18). The heterarchical organisational structure of TD in Norwegian handball includes multiple autonomous actors and activities. The player development model of the NHF is broad-based, and as many as one-third of all youth handball players in Norway participate in different TD initiatives during their early adolescence (3). The NHF's various initiatives range from the regional to the national level, and the youth national team is seen as the pinnacle of achievement. Each national team uses a two-year age category: players born in the same two-year period can play together throughout their national team careers. Although selections for the national team can be rotated, monthly five-day training camps are common and many national team players participate in all four of the international handball championships throughout the five-year lifetime of their national team. Athletes selected to the youth national team remain part of their club teams and sport school programmes, and also participate in the NHF's regional TD activities.



### *Participants and data collection*

Nine athletes were interviewed in-depth to reconstruct a detailed picture of the transition processes they had gone through. All the interviews were recorded and transcribed verbatim, and each interview lasted approximately 60 minutes. The first author conducted all the interviews. During the semi-structured interviews, the athletes were asked about: (a) their developmental experiences during late adolescence, (b) their career transitions during this time, and (c) the processes that had inhibited or facilitated their development and career transitions.

**Table 1.** The participants of the study and their backgrounds

| <b>Athlete</b> | <b>Successful/unsuccessful transition</b> | <b>Born</b> | <b>Years of playing handball</b> | <b>Region</b> | <b>School</b>             | <b>Current status</b>                    |
|----------------|---|-------------|----------------------------------|---------------|---------------------------|--|
| Kerry          | Successful                                | 1997        | 10                               | West          | Normal/ sport             | Elite player (1 year)                    |
| Melanie        | Successful                                | 1996        | 13                               | West          | Sport                     | Elite player (1 year)                    |
| Mary           | Successful                                | 1996        | 13                               | Mid           | Normal                    | Elite player (2 years)                   |
| Molly          | Successful                                | 1996        | 12                               | Mid           | Sport                     | Elite player (2 years)                   |
| Vanessa        | Successful                                | 1997        | 11                               | West          | Sport                     | Elite player (0 year)                    |
| Carrie         | Unsuccessful                              | 1996        | 12                               | Mid           | Sport                     | Quit                                     |
| Debbie         | Unsuccessful                              | 1996        | 10                               | South         | Sport/ outdoor activities | Quit                                     |
| Cathy          | Unsuccessful                              | 1996        | 13                               | South         | Sport                     | 2 <sup>nd</sup> division player (1 year) |
| Sarah          | Unsuccessful                              | 1997        | 12                               | West          | Sport                     | 2 <sup>nd</sup> division player (0 year) |

Seven of the nine athletes we interviewed had already been interviewed in-depth twice by the first author (two and three years prior to this study). All the athletes had taken part in a 4-year longitudinal study and were included in a cohort representative of all young elite Norwegian handball players. A strategic sample from this cohort was identified based on their similarity in terms of exposure to similar amounts and types of youth elite activities, and their differences in terms of the *outcome of their transition* to the adult elite level. This type of strategic sampling, based on the dependent variable, made it possible to trace and compare key elements in the processes that appeared to have led to different outcomes. Five of the nine athletes in our study had established themselves successfully at the adult elite level; the other four had either quit (n=2) or had continued to play at a lower level (n=2) during the previous season. The detailed comparisons of the successful and unsuccessful transitions made by those in our athlete cohort provided important insights about the differences between them and about the challenges they faced even when following similar pathways towards the elite level.

We established a processual picture of their individual pathways during adolescence. We also collected information on the basic variables related to their practice histories. During this earlier research, the first author spent 40 days over seven months undertaking fieldwork during the national team activities. This took place three years before the interviews for this article were undertaken and helped to establish a personal relationship with all the athletes included in the current study. Our pre-knowledge before the interviews for this study informed our questioning and formed a richer framework for interpreting the interview material.

### *Data analysis*

The analysis was empirically driven and rooted in the pragmatism of the grounded theory approach advocated by Corbin and Strauss (19). In this particular grounded theory approach, theoretical concepts are seen as useful ways to focus and inform initial research and data collection. The approach helps researchers to establish conceptual frameworks *before* they pursue further data driven analysis, enabling them to create and compare concepts that are ‘grounded’ in empirical material before further exploring the validity and relevance of the theoretical concepts.

Based on their practice histories during their adolescence, a developmental timeline was drawn up for each athlete. The complementarity of the data collected in previous research (for example, interviews, field observations and practice histories) enabled us to “characterize key steps in the process, which in turn ... [permitted a] good analysis of change and sequence” (20). We used the process-tracing technique of George and Bennett (7) to determine the chain of events over the course of each athlete’s development before comparatively analysing this with data from the other athletes.

Each interview was analysed in the sequence in which it had been conducted. In the first cycle of the coding process, we inductively identified themes in the data that were central to the research question. For example, four themes (“Improper load management”, “Injuries and trauma”, “Identities in change” and “The importance of the social environment”) were developed to characterise the unsuccessful developmental transition of one of the athletes. Similarly, we continued to inductively develop themes, one interview at a time, to descriptively depict the unique transitional experiences of each athlete. For the comparative analysis, these were then ordered in relation to each other and to a general timeline within the conceptualisation of the Lifespan Model.

We then utilised the memo-writing technique advocated by Corbin and Strauss (19) to elaborate on the common themes that were constructed through the initial data analysis. In the second cycle of the coding process, we searched for patterns among the themes by comparing the first interview with the other interviews, in sequence. We then merged any associated themes, thus adding to each category in the developing memos. Finally, we compared the successful and unsuccessful transitions with each other. Together, this process led to the establishment of the four themes that are presented in the results section. The first two themes describe the general experience of the junior to senior transition for all athletes; the last two themes capture the processes leading to the unsuccessful or successful outcome of the transitional process. As such, the results were first firmly grounded in the empirical material before we turned to discussing the relevance and applicability of the theoretical framework of the Lifespan Model and the EG framework.

## Results

All the athletes in this study had extensive experience from their youth national team activities and can therefore be described as handball players who have followed what we term *the youth national team pathway* towards the elite level. The characteristic features of athletes within this pathway were that they had been: (a) key players in their youth teams, (b) among the best in their age group during adolescence, (c) identified as talented by coaches in different team settings, (d) participated in TD initiatives at the regional and national level, (e) selected to represent the national team at an early age, and (f) were experienced at the international level. The recognition that these athletes gained from playing for the youth national team made them easily visible and attractive to senior elite teams. Table 2 shows the product of the descriptive analysis which is structured in accordance with the main elements of the Lifespan Model.

Our analysis of the transition that the athletes made in Norwegian handball to the senior elite level was informed by four main themes which were constructed through the data analysis. These are presented in the next section: (a) the national team pathway, (b) the applied model of TD in Norwegian handball (which is extensive and potentially exhausting for athletes), (c) drop-out due to a loss of motivation and meaning, and (d) successful elite sport transitions.

| AGE                              |                           | 15  | 20   |   | KERRY | MELANIE | MARY | MOLLY | VANESSA | CARRIE | DEBBIE | CATHY | SARAH |
|----------------------------------|---------------------------|---|------|---|-------|---------|------|-------|---------|--------|--------|-------|-------|
| <b>ATHLETIC LEVEL</b>            | Development               | Athletes that had experienced repeated and/or chronic injuries  | x*   |   | x*    | x       | x    | x     | x       | x      | x      | x     | x     |
|                                  |                           | Athletes that had experienced a problematic school situation in relation to either the academic or sport domain |      |   |       |         | x    |       |         | x      | x      |       |       |
|                                  |                           | Athletes that had experienced a problematic club setting  | x    |   |       | x       | x    |       |         | x      | x      | x     | x     |
|                                  |                           | Athletes that had experienced the TD model as periodically exhausting   | x    | x | x     | x       | x    | x     | x       | x      | x      | x     | x     |
| <b>PSYCHOLOGICAL LEVEL</b>       | Adolescence               | Athletes that experienced a loss of meaning and identity during periods of prolonged injuries                   |      |   |       | x       | x    | x     | x       | x      | x      | x     | x     |
|                                  |                           | Athletes that experienced a loss of meaning and identity due to sport becoming too 'serious'                    |      |   |       |         |      |       |         |        | x      |       |       |
| <b>PSYCHOSOCIAL LEVEL</b>        | Peers<br>Coach<br>Parents | Athletes that had experienced periods of a problematic coach-athlete relationship                               |      |   |       | x       | x    |       |         |        | x      | x     | x     |
|                                  |                           | Athletes that had experienced strong peer and family support  | x    | x | x     | x       | x    | x     | x       | x      | x      | x     | x     |
| <b>ACADEMIC VOCATIONAL LEVEL</b> | Secondary Education       | Athletes that had attending a sport program   |      | x |       | x       | x    | x     | x       | x      | x**    | x     | x     |
|                                  |                           | Athletes that had attended a normal academic program  | x*** |   | x     |         |      |       |         |        |        |       |       |

**Table 2. The Lifespan model applied to the study findings**

### *The national team pathway*

The athletes in our cohort were first selected to be part of the national team at the age of 15 years (SD = 0.9 years). Prior to their national team selection, all the athletes had been selected to take part in regional TD initiatives alongside their club-based competitions. The athletes, coaches, parents and teammates regarded selection as a recognition of an athlete's talent. Kerry, one of the players, noted that this selection was a strong motivational incentive: "I first started to realise that I could become an elite player when I got selected to the national team. Before that, playing handball was just for fun."

In Norwegian handball, athletes are permitted to play adult-level matches at the age of 16 years, and all athletes in this study were part of a senior team from that age. The national team can narrow down the transitional gap between the youth elite level and the adult elite handball. According to Kerry:

The performance level [in the elite team] was a bit higher than in the youth national team. If I had not had the national team experience, I do not think I would have had a successful transition to the adult elite level.

Participation in the national team seemed to be particularly important for athletes during the periods in which they received limited playing time in their senior club teams. As Mary pointed out: "To have been a national team player from the beginning was really important when I played in the 1<sup>st</sup> division and was not a key player." Melanie shared a similar experience during her interview: "I think it is fun to play national team matches and it is really quite different from playing in the elite team. There, I have not played that much and I know that [another player] is the preferred player."

The youth national team was regarded by the youth athletes as an important and prestigious arena, and it had exerted a strong influence on their lives. Some, for example, had been burdened by the weight of social expectations, both on and off the court. Sarah observed that she had felt obliged to participate in all the scheduled activities to avoid being dropped from the team:

I was told that I could forget getting back into any national team squad if I said no to any single national team activity. [...] So I did not dare because I thought I would not stand a chance otherwise.

The youth national team pathway was therefore an important influence on athletes, facilitating their development and priming them for a successful transition to the elite level. However, the needs of athletes over the course of their adolescence are dynamic and individual. These were not always fully and flexibly accommodated in the context of the national team.

#### *The applied model of TD in Norwegian handball*

The TD activities available in Norwegian handball are extensive. This is true particularly for athletes in the youth national team pathway who strive to participate in all the available team settings despite the risk of injuries, overuse, and loss of motivation. Debbie's experiences illustrated how this could become too much for some to manage:

I had to perform well in school [handball]. I had to perform well in the national team and I had to perform well in front of the club coach. There was no cooperation. [...] It really just became too much. It was demotivating.

The intensity of national team activities was especially demanding, and Kerry observed that she had been "exhausted when [she] ... got home from national team activities". Carrie compared her own training load to those of her sport school classmates:

When I told the skiers in my class about our national team activities, they were shocked about the amount of training. ... when you get back home [...] you just go straight back

into club activities. There is always a match the next day! We do not get the same time to recover as the skiers. We just keeping going full steam ahead!

It was evident that all the players had to develop their own strategies to cope with their high training loads. Notably, players who had experienced injuries were better at developing more independent, self-determined approaches to managing and adjusting their training loads. However, these choices were strongly limited by how much leeway the players were given by the different coaches in the club, school and national team settings. In our results, it was unclear whether athletes who experienced successful transitions were able to react in more autonomous ways in terms of how they managed their injuries, compared to those who had experienced unsuccessful transitions. It was also unclear whether athletes who experienced successful transitions exhibited more proactive coping strategies that helped them to adjust better to the demands of practice and competition compared to those who experienced unsuccessful transitions.

In the international youth competition schedule, the European and World Championships and the European Youth Olympic Festival are played in the middle of summer each year, and athletes on the Norwegian national team therefore have no off-season period between the regular competitive seasons. Sarah explained:

The handball season is a full year when you are a youth national team player. Whenever we have a break from club activities, the national team uses it. There is no time to recover and pause. The break you have from club activities in May coincides with the period for most of the national team activities. In addition, you have your exams at school. It is hard.

The absence of an adequate recovery period after the national team championships and before the return to club activities was physically and mentally challenging, as Mary noted:



When I started last season, thinking about handball almost made me throw up. I was so tired! Last season started with a really bad national team championship. I had not been performing well and the coach was not the type who noticed that I needed a break. I was really tired of handball but was thrown right into club training.

To manage these demands, the athletes tried deliberately to orchestrate the settings over which they had most control. Melanie, for example, decided to play only senior handball, and Vanessa stood firm in her decision not to participate in regional level TD activities. Similarly, Molly changed clubs so that she could have the same coach in both her school and team settings. Kerry's strategy was to ask to take part in a 4-year high school sport programme instead of the regular 3-year programme, and Mary chose a regular high school programme without sports training. The choice Debbie made was to change her sport programme to outdoor activities instead of her preferred handball programme. She explained her decision: "I got to practise [handball] only once a day. That was what made me continue to play handball. [...] It was so helpful to change programme because I no longer got the same amount of handball training."

The interviews revealed clearly that the TD model of Norwegian handball is both exhaustive and potentially exhausting, and places great demands on athletes. They are affected by the amount and intensity of activities, the absence of an off-season period, and the additional academic demands placed on the athletes. It should be noted, however, that those athletes who experienced this totality as being particularly exhausting were not the ones whose transitions to the elite level were unsuccessful.

#### *Drop-out due to a loss of motivation and meaning*

Repeated injuries were caused by factors such as the extensive amount of activities in the TD context, the high-risk nature of competitive handball, and because coaches were unable to mutually and sufficiently adapt to each other's constraints. These injuries negatively influenced the motivation of athletes. One of the consequences of a decline in motivation over a sustained period, as Carrie suggested, was a loss of meaning and identity:

Honestly, if I had never been injured I would never have even thought of quitting. [...] When I was injured for the first time and was through half a year of rehabilitation, I was very motivated. [...] But the next time, when I got the message I would be out for about a year... that is when those thoughts [about quitting] slowly arose.

Most of the injuries reported in our study were recurrent and/or chronic. Melanie was the only athlete in our study sample who had managed to avoid being injured during adolescence. Interestingly, the key issue of concern for the successful athletes was not whether or not they got injured or not. Instead, they were concerned primarily with not getting injured *too early* or *too often*. The risk of injuries appeared to increase if athletes were involved in more than one team setting. Debbie observed, for example: “The injuries came after I started the sport school programme, was a youth national team player, and played for the senior club team”.

Coaches and teammates impose pressure on athletes to participate, both consciously and unconsciously, and this can inhibit proper injury management. Cathy noted with frustration: “I am tired of coaches yelling at me for being injured!” At times, this perceived social pressure and lack of social support resulted in some athletes experiencing a mental and physical breakdown during practice sessions.

“It came to the point,” commented Vanessa, “where [the coaches/club] knew about [my chronic injury] and I just wished that they had told me to stop. It got to the point where I broke down in practice. I just fell to the ground and started screaming [because of the pain].”

Perceived social pressures can be subtler in form or even regarded as the product of specific sports cultures. Sarah noted: “You are told to be sensitive [i.e. to be aware of your own injuries] and sit down if it hurts. But then you feel like a huge wimp when you sit down.”

The athletes’ perceptions of the social pressures to participate illustrated the dilemmas ‘listening to players’ as way of better injury management. Athletes tend to under-report injuries, as Carrie noted, not only because they think they *have* to play but also because they *want* to play:

I should not have played in three to four teams or skipped practice to play matches. But players do not say “no” to playing a match instead of going to practice. The coaches need to be determined and pose a demand: that you actually need to practise if you are to play. I often went straight from being injured to playing matches.

Sustaining motivation and meaning through periods of prolonged injuries is not an individual process. Rather, it seemed to be a social process that was strongly influenced by an athlete’s social environment and her relationship to her coach. Carrie’s experiences clearly reflected this:

In retrospect, I realise how much the social environment meant to me. I thought that it did not matter that much where I played or with whom. But evidently it meant a lot to me. It is strange what you realise in hindsight.

Issues such as the impact of injuries, the degree of athlete motivation, and the meaning of particular events to athletes are interrelated. In the context of Norwegian handball, these issues cannot be managed in one team setting alone. Instead, they need to be managed *across* the different team settings in which athletes are involved. Sarah’s experiences reflected the dilemmas faced by athletes:

Nobody took me seriously. I said that [the injury] hurt. [The national team physiotherapist] told me to attend the training camp just so she could have a look. I was in so much pain during the first practice that [the physio] wanted to send me back home but then the pain decreased and I played the World Championship. When I got back home, we were on a pre-season training camp and there [the coach] did not take me seriously. I told him that it hurt but he commanded me to run high-intensity intervals with the rest of the team. When I came back home I was totally wrecked.

In Sarah's case, the series of incidents described above ended in a season-long injury.

Although the primary concerns of coaches *may* come into conflict with the needs of individual athletes, a lack of facilitation on the part of coaches may lead to unsustainable training environments and prolonged periods of injury. This may negatively influence player motivation and result in higher drop-out rates. Our results suggest that there is a clear connection between injuries and a failure to transition successfully. However, it should also be noted that two of the five successful transitions recorded in this study were made by athletes who had experienced some of the worst chronic injuries during their adolescence.

### *Successful elite sport transitions*

The athletes in our study were highly skilled, very dedicated, socialised into the culture of an elite sport, and had more international experience than most of their peers. This would suggest that those following the national team pathway are advantageously positioned to transition successfully to the elite level if they are not too injured to continue. Those who were successful, however, did show *different* patterns of transitions. Examples included: (a) Kerry, who had progressed directly to the elite level from the 2<sup>nd</sup> division handball team where she had *not* been a key player, and (b) Molly, who had experienced a temporary *declining* trajectory in which she had gone from finding it difficult to establish as a player in the 1<sup>st</sup> division, to a 2<sup>nd</sup> team in the 2<sup>nd</sup> division in an elite club, before moving back to the 1<sup>st</sup> team. Mary, Melanie and Vanessa exhibited more regular, linear progressions from a 1<sup>st</sup> division team to an elite team.

Interestingly, the successful transitions reported by the participants in this study were never well planned or deliberately organised. Instead, they were shaped by a series of incidents occurring outside the athletes' immediate sporting contexts – in other words, they were influenced by factors outside their control. Kerry, for instance, wanted to take part in a 4-year high school sport programme (rather than the standard 3-year programme) because doing so would have enabled her to manage both her sporting and academic careers:

I applied for school in the city. I had decided to move before finding a new club. I talked to [the national team coach who is also the coach of an elite team] to get his opinion. He

recommended that I play in the 1<sup>st</sup> division. Then he suddenly offered me a contract with his elite team.

Processes beyond Molly's control had also led to her moving to the elite team.

I was supposed to practise with the elite team but to play for the second team in the 2<sup>nd</sup> division. But then [Stephanie] got pregnant and [Ann] tore her anterior cruciate ligament. Then suddenly I was an elite player.

Events of a similarly coincidental nature changed the path of Mary's progress when her club went bankrupt just as she was about to sign for a 1<sup>st</sup> division (Level 2) team:

I was about to sign the contract when I noticed there was something wrong with my salary. [...] We were to meet the next day so that we could sign the correct contract. That same day [Sophie] tore her anterior cruciate ligament and then [Sophie's elite club] called me and asked if I could come play for them instead. It was pure chance.

The sudden changes and coincidences experienced by the participants suggest that only a thin line separates successful transitions from unsuccessful transitions. Unpredictable events affected Vanessa's choices, for example: unhappy in her 1<sup>st</sup> division team as a starting player, she had had a history of struggling with chronic injuries. As she was about to quit handball altogether, she was offered an elite team contract: "They really want me on the [elite] team and they want to give me opportunities to grow. I had to take this opportunity. I have always wanted to play at the elite level."

## **Discussion**

In TD research literature, access to TD environments is seen as one of the decisive factors determining elite sport success (21). However, the experiences of the athletes in this study

suggest that providing extensive access to TD environments can cause the applied TD model to become inefficient. At worst, doing so can negatively impact the health of athletes due to the mental and physical demands placed on them. Athletes experience new and greater demands and stresses in sport and life as they transition from a junior to a senior level (9). In this study, the experiences of athletes who had successfully made the transition to the adult elite level and those who had not were often more similar than dissimilar. This was seen when the Lifespan model was applied to the study findings. Although all the athletes had experienced many normative transitions, their initial transitions to the elite level and their transitions out of the sport were non-normative. For some, incidents and decisions made in other contexts led to offers to join an elite team. Likewise, decisions to drop out were related to periods of sustained or repeated injuries. It is reasonable to suggest therefore that keeping athletes in the national team pathway healthy and (more) free of injuries ought to be recognised as important. Doing so is likely to increase the likelihood that athletes will successfully transition to the elite level.

The EG framework highlights how processes initiated in one team setting can influence processes in other settings (15). We have shown that the level reached by athletes is influenced by multiple decisions made *across* different team and practice settings. This implies that initial transitions to the elite level cannot be easily or directly managed or planned. In the examples highlighted here, processes both in an individual's own team *and* in other teams heavily influenced the immediate setting of each individual. All instances in which the transitions had been successful were shaped by incidents and decisions in other teams. In the TD model of Norwegian handball, most coaches are responsible for a particular team. Although the coaches, through their positions, operate within a broader EG-based system, their actions and interactions are mostly based on their own interests and perspectives. Necessarily, their immediate team-based needs occupy the foreground of their decision making: the long term development of individual young athletes is just one of their many concerns (22). Conversely, the unsuccessful transitions noted in our study were a consequence of the breakdown in mutual adaption between the different team settings in which the athletes were involved. Both successful and unsuccessful transitions seemed, in part, also to be partly dependent on 'chance' factors. The role of chance is under appreciated in most literature on talent development. Chance factors can play an important role in talent development, and uncontrollable events ensure that talent development is not a predictable enterprise (23). In Norwegian handball, chance manifests itself in the more-or-less coincidental consequences and interplays of the

decisions taken in different team settings, and the ways in which these affect the opportunities of individual athletes.

The drivers creating high-risk environments for athletes are products of the collective actions of coaches across the organisational landscape. As noted, no individual stakeholder in Norwegian handball has overall organisational responsibility or ‘manoeuvrability’. Nor can they, alone, incentivise or optimise the development of individual athletes and transitions to the elite level (3). This is because athletes participate simultaneously in an extensive number of team and practice settings. The collective effect of the different objectives of different teams can overextend the potential capacity of athletes at the individual level. Across these diverse settings, the number of activities affecting athletes can be mentally and physically challenging.

Hollings, Mallett and Hume (1) demonstrated that track and field athletes who did not reach the elite level had competing demands and tensions in their social and academic life. In our study, both successful *and* unsuccessful athletes experienced periods during which they struggled with competing social and academic demands, and the pressures of their athletic activities. Sarah highlighted how an increase in the amount of national team activities had coincided with the pressures of her academic exams. Even when actions are intended to be helpful (such as enhancing players’ abilities through international competitions), Grossmann and Lames (24) argue that unintended negative consequences may still arise and overstrain young talent. Athletes with early international exposure, as Martindale and Collins (25) suggest, are at risk of burn out. As our study shows, increasing well-intentioned demands can lead to recurring and/or chronic injuries for athletes on the national team pathway in handball.

Bahr (26) has questioned whether being a talented athlete is, in itself, a threat to the well-being of athletes: talented volleyball players who jump higher and baseball pitchers who throw harder, he suggests, face a greater risk of injury by virtue of their special physical skills. Norwegian handball athletes on the national team pathway, are examples of athletes at high-risk and we would argue therefore that they should be handled with (greater) care.

Doing so appropriately is difficult because, as Hollings, Mallett and Hume (1) note, “the full impact of injury is difficult to gauge due to the complexity of the situational, interpersonal, and intrapsychic variables present”. Our findings show that the management of chronic injuries is subtle and complex, and that the processes involved are challenging for physicians, coaches, and even the athletes themselves to notice, comprehend, and manage. The data indicated that an athlete’s strong identification with handball may change over time or shift to another domain,

such as academic performance. Such shifts may initiate deeper changes at the psychosocial level or compromise an athlete's overall commitment. During periods of prolonged injury, for example, athletes may orientate themselves gradually towards friends or activities outside their sporting context. This *slower* process towards dropping out of handball (compared, for example, to the immediate impact of a major acute injury) may be much harder for coaches and athletes to recognise. Coaches should be sensitive to warning signs when dealing with athletes who are chronically injured, or at increased risk of becoming injured, particularly if the extensive involvement across several team settings inhibits adequate oversight.

Major acute or chronic injuries can inhibit successful transitions, but previous experiences of injuries and overload can also help players learn to develop their own strategies for coping with talent development. Collins and MacNamara (27) have suggested that most talent development systems attempt to maximise support for young athletes and counter the impact of naturally occurring life stressors. However, the same authors argue that the experience of overcoming even minor trauma is important for the development of athletes and can foster the development of psychological skills. The 'messiness' of the Norwegian handball system can be seen as a positive opportunity for psychological growth because it facilitates proactive coping skills at the individual level and enables athletes to become potentially more autonomous and resilient. However, the notion that talented athletes may prosper from overcoming trauma should not be equated with the idea that exposure to higher levels of trauma is necessarily better, or that the experience of major trauma is inevitably positive for those on the talent pathway (28). Our findings clearly show that high athlete training loads and differences in the amount of leeway athletes are given can constrain the development of autonomy at the individual level. The Norwegian model, if managed properly, might provide athletes more opportunities for self-leadership and psychological growth, compared to other more structured talent development systems.

## **Conclusion**

This study contributes to the existing TD literature by highlighting how the Lifespan model can be utilised as a tool for analysis and interpretation when *comparing* pathways and transitions to the adult elite level in sports. Together, the holistic Lifespan model and the EG framework, provide a powerful set of conceptual tools for investigating the reciprocal interaction effects between individual development and organisational contexts. The study has empirical value



because it expands our knowledge of the necessary, critical and decisive processes that drive successful and unsuccessful transitions in youth sports. Thus, it can contribute to the knowledge of researchers and practitioners who interpret athlete development through the lens of a broader career view.

In this study, no single set of identified factors explained why transitions to the adult elite level in Norwegian handball were either successful or unsuccessful. Previous findings (3) have shown that the particular TD system in this sport in Norway allows many athletes to develop the skills and capacities that may lead to the elite level. Ultimately, the selection from the pool of players is shaped by both an athlete's skills capacity and by chance circumstances. Inherently unpredictable events (for example, team selections and injuries) are further shaped by unintended and unplanned interaction effects across the organisational landscape. Taken *together*, these influences determine successful and unsuccessful outcomes. In team sports, injuries have a strong influence on individuals and on the other players within and outside the immediate team. Injuries can impact a team's competitiveness or negatively influence the quality of the practice environment. They may also bring unexpected positive benefits and opportunities to others within and outside the team. Several successful transitions noted in our study, for example, were prompted because other players had been injured.

Athletes in the Norwegian national team are affected by inefficient and unsustainable routines and practices and their success could therefore be described as the 'survival-of-the-fittest' or, perhaps, the 'luckiest'. Troublingly, the unpredictable and demanding reality faced by athletes seems largely to be improperly managed. We would argue that this failure runs counter to the official policies and proclaimed values of the sport. Collins, MacNamara and McCarthy (28) suggest that high achievers in sport appear to have more proactive coping approaches to challenges than their less successful counterparts. In our cohort, the adolescent athletes were *all* highly resilient in the way they coped with multiple stresses. However, the experiences of some athletes who were not successful indicated that capacities can be ground down under the pressure of social expectations and constraints.

Based on our findings, we recommend that the Norwegian national team activities should focus less on optimal preparations for international competitions, and more on facilitating and sustaining long-term athlete development. The activities should also be focused more on establishing complementary club-based activities. Athletes would benefit, too, if the National Handball Federation strengthened its guidelines on the selection of athletes to different

levels of talent development initiatives, and ensured that athletes are not exposed to too many activities. This will be a welcome change of focus away from the amount of training athletes receive, and towards discussions about the quality of training. Finally, athletes would benefit if club and school coaches were encouraged to recognise and understand that the optimal planning and training for a youth national team athlete are very different from those players who are not selected because of major differences in training load. These changes can be achieved through existing coach education programmes and by promoting these new approaches in the current discourses of Norwegian handball.

Our findings show that the value of TD models or frameworks should be questioned because they do not acknowledge that human development is a socially situated practice, or that social forces facilitate and inhibit individual development (5). As Denison (29) contends, “What may appear to be an athlete’s personal problem [of successfully reaching the elite level] might actually be related to some larger social construction of how we believe sport should function”. Future in-depth studies are needed so that the normative and general models underpinning TD in elite sport organisations can be refined. These changes can be assessed through longitudinal studies of athlete development that are designed to compare pathways and transitions. The number of athletes in this study was limited. Therefore, a natural next research step would be to conduct larger studies that will enable us to map the variability of the pathways and transitions leading to successful and unsuccessful outcomes. This study has shown the importance of a more qualitative approach towards the study of talent development. Capturing the subtler experiences of athletes can, in turn, contribute to inform policy and decision-making.

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