



Talent development in a longitudinal perspective: Elite female handball players within a sport school system

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Abstract

The purpose of the present longitudinal study was to explore the psychological and physical transition into (and subsequent 3 years in) a Sport Academy High School of 10 young female handball players. Psychological (coping with stress) and physical data (injuries, body composition, training volume, and sleep time) were collected. Parents (n = 5), coaches (n = 3), and a sport school manager (n = 1) were also interviewed after the final high school year, and they elaborated upon the collected data and gave their perspective on different topics. Successful athletes had resourceful parents (with sport knowledge) who helped them cope with perceived challenges—and also intervened when they found it necessary. The three athletes that had dropped out of handball did not perceive to get the same amount of support, and difficulties and injuries become career endings rather than bumps in the road which elite athletes have to learn to cope with. We did not observe any differences in physical development or prevalence of injuries between athletes who were successful and continued with handball and those who quit. However, coordination and communication between stakeholders are essential for monitoring young athletes' overall workload. Lack thereof may affect both school motivation and degree and number of injuries.

KEYWORDS

female athletes, Norway, parents, sport physiology, sport psychology, sport schools, talent development

1 | INTRODUCTION

The notion of early sport specialization is not well received in Norway. This might be due to the country's egalitarian nature and social democratic values, plus children's participation in sport is heavily regulated.¹ Thus, a more formalized talent identification by the sport federations cannot take place before the age of 13,² which also happens to be the year Norwegian students enter secondary school. In 2013, we obtained consent from six talented Norwegian handball players to follow them for a decade when entering a private

sport-specialized secondary school³ and learn about the benefits and challenges for young athletes as a consequence of this choice in the development stage.⁴

A sports career has many stages and transitions,⁵ and our initial study focused on how 13-year-olds perceived the transition from primary school to a sport-specialized secondary school (SSSS).³ The present investigation is built on the previous one, but here the focus is on the players' entry into the mastery stage.⁴ According to Wylleman et al,⁶ athletes enter the mastery stage at 18.5 years of age. The age range between transitions may vary from country to country and depend on the

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sport system and the sport.⁵ The longitudinal aspects gave us an opportunity to follow the players for 6 years with their ups and downs in both secondary (age 13-16) and also at the Sport Academy High School (SAHS) years (from ages 16-19), and look into how they have mastered the two transitions schoolwise and sportwise? Has early specialization been an advantage for the transition into SAHS, or has it resulted in injuries⁷ and dropout?⁸ Based on concerns about early sports specialization, the International Olympic Committee (IOC) and the American Orthopaedic Society for Sports Medicine (AOSSM) published consensus statements and recommendations of "best practices" for youth athletic development, psychological and physiological development in 2015 and 2016, respectively.^{9,10} However, Moseid et al¹¹ concluded recently that neither early single-sport specialization nor performance level appears to represent risk factors for injury or illness. The present longitudinal investigation aims to add more insights to this discussion.

1.1 | Theoretical context

Sport schools provide environments for young athletes to both develop as elite athletes and qualify as students for higher education.^{12,13} This may be a valuable resource and positive environment for young athletes.¹⁴ However, for success to happen, extensive collaboration between school trainers/teachers, club coaches, and parents is needed to monitor the workload of young athletes. In addition, the young athletes must learn how to endure the pressure they experience.¹⁵ Elite athletes live a unique lifestyle, and this lifestyle exposes them to specific types of stress. Unfortunately, there is not a single coping method that will successfully serve all athletes in all situations, and knowing that younger athletes have a limited coping repertoire is vital.¹⁶ The sport school is therefore a perfect arena for learning adaptive skills in a safe environment. For this to happen, a supportive and close coach relationship would be beneficial for both enhancing the dual workload experience and reducing the young athletes' perception of stress.^{17,18}

The process approach to *coping* emphasizes stress managing efforts, which is a concept from the 1960s.¹⁹ In its simplest form, coping is the way athletes attempt to deal with demands such as stress, injury, high expectations, and time management. Coping consists of learned behavioral responses that successfully lower arousal by neutralizing or minimizing the importance of a threatening condition.²⁰ The transactional framework defines *stressors* as "the environmental demand (ie, stimuli) encountered by an individual."^{21(p359)} Furthermore, there are three major types of stressors; the individual's ongoing transaction with environmental demands is associated with "competitive performance," "the organisation which he/she operates within," and "personal life events," respectively.^{21,22} While the social environment includes stressors, it also provides athletes with

resources that help them to cope. Lazarus and Folkman argue that one is resourceful when he/she has "many resources and/or is clever in finding ways of using them to counter demands".^{20(p158)} The athlete can draw on these resources, and the sport school may more easily provide these than a public school would. Coping resources may be personal or come from the environment,¹⁹ and younger athletes tend to rely more on the environment than older athletes do. Parents, club coaches, and peers may all be valuable support persons for successful development.^{5,23} A lack of social support from a coach may be perceived as stressful.²⁴ If coaches are not able to communicate and there is a lack of trust, injuries are more likely to happen. Therefore, coping is linked to athletic injuries.²⁵

The fragile balance between success and injuries, burnout and other negative effects cannot be stressed too often, and the need to balance athletics and academics complicates this balancing act. Social support facilitates problem-focused (managing the problem) and emotion-focused (maintain hope and optimism) coping.²⁶ To follow-up our results from the first 3 years of this longitudinal study,³ the purpose of the present article is to present and explore on status quo after 6 years of annual monitoring with a particular focus on the psychological and physical transition into (and subsequent 3 years in) a Sport Academy High School of 10 young female handball players. Four athletes have been included in addition to the start-up group of six. What did they experience as stressful, and how did they cope with the perceived challenges?

2 | MATERIALS AND METHODS

2.1 | Design and participants

Ten young female handball players were recruited by a convenient and purposeful sampling procedure,²⁷ six of whom belonged to the original study group. All players received written and verbal information about the purpose and procedures of the study and signed an informed consent before inclusion. We interviewed them annually for 3 years, where we discussed that past year's challenges. We kept track of their well-being, school, team, and injuries. A summary is offered in Table 1.

After participants finished high school (age 19), we also interviewed parents ($n = 5$), coaches at relevant SAHS and teams ($n = 3$) and a Director of sport at one of the SAHS to add depth to the athlete interviews. The Norwegian Social Science Data Services (NSD) approved the study.

2.2 | Anthropometric and physical data

Anthropometric and physical results were discussed during the interviews. We asked the girls about height, weight, body

TABLE 1 ID 1-6 participated in the first investigation³; they started together in the sport-specialized secondary school (SSSS)

ID	School	Team	Level
No.1	SSSS/SAHS	Team 1/Team 2	N
No.2	SSSS/SAHS-2	Team 1/Team 1	N
No.3	SSSS/PUB	Team 1/Changed sport	R
No.4	SSSS/PUB	Team 1/Team 2/Quit	
No.5	SSSS/SAHS-2	Team 1/Quit	
No.6	SSSS/SAHS	Team 1/Team 1	N
No.7	PUB/SAHS	Team 1/Team 1	N
No.8	PUB/SAHS	Team 1/Team 1	N
No.9	PUB/SAHS	Team 1/Team 2	I
No.10	PUB/SAHS	Team 1/Team 2	R

Note: The other four players went to a public high school (PUB). Two of the original six went on to the same Sport Academy High School (SAHS), two others went to another Sport Academy High School (SAHS-2), and two attended public high schools. At 13-16 y, all participants belonged to the same team (Team 1), but during high school years, six changed team (Team 2), changed sport, or quit. We categorized their levels as regional (R), national (N), or international (I).

composition, measured by InBody 720, and maximal oxygen uptake (VO_{2max}), which were written in their training diaries. All girls had been tested and measured in another ongoing study; “Development of physical fitness, physical characteristics and injuries during 3 years at a Sport Academy High School – a follow up study,” and thus, we can ensure that the results of body composition and VO_{2max} are correct. In addition, they had answered a questionnaire regarding training volume and sleep time and had kept track of acute and overuse injuries every week during the last season. Injuries were classified as acute (due to a sudden event, for instance a fall) or overuse injury (no particular injury situation) according to Clarsen et al²⁸ All results were recorded in their training diaries and were followed up and discussed during the interview for in-depth understanding of progress or difficulties.

2.3 | Interviews

At the beginning of each interview, the interviewees were informed that the information they provided would remain confidential and that they could terminate the interviews at any time. The face-to-face, semi-structured interviews were conducted wherever convenient for participants. The focus in this study was on the “where are you now” after finishing high school. The athlete interviews consisted of five main sections: (a) demographic background, physical data and injury history; (b) experiences of playing team sport at their level and the combination with school; (c) experiences with a sport school; (d) perceived stressors; and (e) coping with these stressors. The interview guide was tailored to the

different participants. Parents were asked about their role in their daughters' talent development, their experience with stakeholders (ie, school, federation, coaches, teachers, and other parents) and balancing school and sport. The coaches and Director of sport were questioned the same in addition to who they considered to have the primary responsibility. Follow-up questions were used in order to elicit in-depth responses from all the participants. The interviews were conducted in Norwegian and carefully translated in English. The interviewees showed a keen interest in the topic and shared more information than we had anticipated. This was particularly true for the parents.

The interviews lasted between 50 and 105 minutes and were transcribed verbatim, and a generic qualitative driven approach²⁹ was conducted for the analyses. Question-focused analyses were used as the starting point when organizing the raw data,³⁰ and segments that had similar themes and represented the same stressor were grouped together (see Table 4). Furthermore, the athlete answers were aggregated to maintain anonymity, following ethical guidelines by using ID numbers (see Table 1). Next, we created three different athlete stories, collective narratives,^{31,32} after their choice of school and club in order to articulate the different experiences by all 10 athletes (see Tables 1 and 3). This is a fruitful way of gaining an overview of the data,³³ in particular when adding in-depth quotes.³⁴ Rigor was demonstrated by use of *member reflection* in order to generate additional data and insight.³⁵

3 | RESULTS AND DISCUSSION

3.1 | The athletes

There were no differences in the development of physical characteristics or numbers/duration of injuries (acute and overuse) during six (three) years of data collection between the players; however, seven out of 10 players had experienced one or two long-lasting injuries (defined as more than 3 months of no handball, see Table 2). The high prevalence of injuries is in line with previous studies.^{7,36,37} All reduced their VO_{2max} , ranging from 3.4% (ID 1 and 10) to 24.7% (ID 2), respectively. In addition, the handball players reported a training load between 12 and 16 hours per week based on what they had reported in their training diaries This is in line with the average training load in female handball players attending SAHS in Norway.³⁸ Furthermore, all participants reported to sleep between 6.5 and 8 hours per night during the week, which is the same as what the six players, who are followed from the beginning in this longitudinal study, reported after the first year at SSSS.³ In the IOC consensus statement on youth athletic development, Bergeron et al⁹ recommend 8.5-9.5 hour sleep per night as optimal level for recovery and preliminary results indicate increased risk of injuries with

TABLE 2 Development of anthropometric and physical characteristics, training volume, sleep time, and total number of injuries lasting more than 14 d from baseline (before starting at the sport-specialized secondary school) to the end of Grade 3 at the Sport Academy High School (when the players were interviewed)

Variables at baseline and after 6 y	Participants									
	1	2	3	4	5	6	7	8	9	10
Age (y)	13.4 19.3	13.4 19.3	13.1 19.0	12.7 18.5	13.0 18.8	13.4 19.3	12.9 18.8	13.2 19.1	13.3 19.1	13.1 19.2
Height (cm)	159.0 161.0	161.0 176.5	152.0 163.5	160.0 174.0	162.0 171.5	158.0 165.0	nm 170.0	164.0 175.0	nm 179.0	165.0 176.0
Weight (kg)	50.5 58.7	53.5 71.6	45.8 58.4	47.3 68.3	53.2 66.6	44.8 58.5	nm 73.8	53.1 74.4	nm 61.9	42.1 62.7
BMI (w/h ²)	20.0 22.7	20.7 22.9	19.8 21.7	18.5 22.5	20.3 22.5	17.9 21.5	nm 25.5	19.7 24.3	nm 19.3	15.5 20.2
Fat mass (%)	16.8 18.1	24.0 28.6	8.4 18.8	10.3 19.9	16.8 18.4	9.2 17.7	nm 25.4	14.2 22.5	nm 15.9	8.3 16.8
Muscle mass (kg)	23.0 28.9	22.1 28.6	23.1 28.1	24.2 29.5	24.5 30.7	21.6 27.0	nm 30.9	24.9 32.2	nm 29.2	21.8 32.3
VO _{2max} (mL kg ⁻¹ min ⁻¹)	62.5 60.4	56.3 42.4	57.9 56.4	54.1 47.5	53.2 46.6	55.2 50.7	nm 47.8	52.3 46.9	nm 44.3	60.3 58.3
Training load (hours-week ⁻¹)	10.0 16.0	8.0 13.0	7.0 10.5	8.0 4.0	7.0 4.0	8.0 14.5	nm 14.5	6.0 12.0	nm 12.5	7.5 14.0
Sleeping time (hours-night ¹)	8.5/nm 7.0/9.0	8.0/nm 6.5/9.0	8.5/nm 8.0/10.5	8.0/nm 8.0/8.5	8.5/nm 7.0/10.5	8.5/nm 7.0/10.0	nm/nm 7.5/10.5	nm/nm 7.5/9.0	nm/nm 7.5/9.0	nm/nm 8.0/8.5
Total Number of injuries (n)	0 0	0 2**	1 2	0 2*	1 3*	0 1	0 2*	1 3*	1 3**	0 1*

Note: BMI, body mass index; h n⁻¹, hours-night⁻¹; h wk⁻¹, hours-week⁻¹; nm, not measured; TV, training volume; VO_{2max}, maximal oxygen uptake; w/h², weight/height²; WD, week days; WE, weekends.

*One long-lasting injury > 3 mo.

**Two long-lasting injuries > 3 mo.

insufficiently sleep. However, we want to focus on players ID 1 and 6; they are the only players who continued in the same sport-specialized school system (see Table 1). They did not report severe injuries during the 6 years follow-up, only one sprain injury, lasting fewer than 10 days (ID 6) (Table 2). In addition, they have some common characteristics; slowly (step by step) developing as handball players; participating in different sports until the age of 13, comprehensive movement experience, dedication to various training/activities (handball, strength, endurance, and injury prevention) from an early age, and having parents with experience and knowledge about team sports. These may have been success factors in line with aforementioned recommendations.^{9,10}

In order to add knowledge and understanding to the differences in choice of school, team, injuries, and so forth, we interpreted physical development, the perception of stressors and coping/or lack thereof by means of three narratives.³¹ This retrospective meaning making³⁹ is one way of organizing a sequence of events into a whole, and the grouping into Student-athlete A, B, and C (Table 3) depended on when they started at the sport school and current level (see also Table 1).

3.1.1 | Student-athlete A

While Student-athlete A experienced her first year at the secondary sport school to be the toughest of the six due to the increased training load, the major stressor for the final year was related to graduation:

This last year has been extremely stressful school wise; we have had a substitute in several classes who was poorly prepared. This resulted in a lot of frustration and at one point; the entire class went the Director of education and complained about the situation. We have told our parents, and they have talked to our coach [who is supposed to be the liaison], but I do not think he cares much. At least not enough to do something with this situation.

While the 6 years have not always been easy, she believes that she became a better athlete by attending the sport school. Student-athlete A is committed to doing well at tests and

TABLE 3 Summing up some tendencies from the interviews in order to reveal “success factors” for talent development by combining the stories from the handball players into *Student-athlete A* (ID 1,2,6), *Student-athlete B* (ID number 3,4,5), and *Student-athlete C* (ID number 7,8,9,10)

	Student-athlete A	Student-athlete B	Student-athlete C
School	Three years at the Secondary Sport School and 3 y at the Sport academic High School	Three years at the Secondary Sport School	Three years at the Sport Academic High School
Sport	Senior Handball (level 1)	Not playing handball anymore	Senior Handball (level 1)
Coach relationship	Good	Problematic, perceived lack of understanding	Good
Parent-coach interaction	Resourceful, communicative, and helpful parents	Parental regret for lack of coach communication	Parental regret for lack of coach communication
Perception of stressors	Being a student-athlete is a dual challenge	Being a student-athlete is a dual challenge—injuries add more stress	Being a student-athlete is a dual challenge. Starting later at sport-specialized school is an advantage
Coping with stressors	Social support and problem-focused strategies	Relies on social support and perceives lack of support	Social support and problem-focused strategies
Severe injuries	Only minor injuries	Severe, overuse injuries lasting more than 3 mo	Minor, overuse, and acute injuries lasting from 1 wk to more than 3 mo
Future plans	Part-time job and focus on elite division handball	Education—applying for Universities	Part-time job and focus on elite division handball

examinations, but not at all costs: “My parents tell me not to worry too much about my grades; they understand the dual workload and that I need to rest”. Regarding coping with stress, she reports relying on coach support and parental support, but also emphasizes, “you have to learn to take care of yourself, the dual workload, when to rest and so forth.” The earlier you learn this, the better. In addition, as she has the same coach at the team practice as well as at school, which made her feel looked after; someone other than her kept an eye out for her and her workload. This made it easier to discuss “your spot on the team when you have a good relationship with your coach.” Further, there were times when she realized that she needed help and had on occasion talked to a sport psychologist: “I realised that some of the problems are psychological, but I have learned how to work through this periods.” She learned how to use problem-focused coping (ie, reframing) in addition to looking to social support.

3.1.2 | Student-athlete B

It was obvious in the interviews that Student-athlete B, more than Student-athlete A, relied on coach support and coach understanding, and a lack of this was duly emphasized:

Sometimes I “force” my mom to text the coach when I am sick, it is so much easier when she does it – because then I do not have to worry about if he responds with a full sentence or just an “okay”

This student spent a lot of time worrying and focusing on factors outside her control. She talked about the injuries and not knowing how to motivate herself:

I totally lost my motivation [after the last severe injury] because there is nothing to do with it, and you are in a way excluded by the team [by losing your spot on the line-up]. With this injury, it is not possible to plan when you are back, as you can when you break something – so you just have to wait. At first when I got depressed – I did not realize why ...

In addition to the injuries, the dual workload became a stressor for her. She also worried a lot about what her teammates thought of her dropping out of practice. Even when injured, you are supposed to show up and support the others:

I wonder if it would almost have been better to stay home and focus on schoolwork instead of showing up and cheering for the others three days a week. I spent more time than I wanted at practice.

She admits that she should not have worried so much because it is “natural on a team that everyone has opinions about each other, but I also think that it is tough when everyone has an opinion on what would be best for me to do”. While injuries and the opinions of others were tough, she perceived receiving plenty of support. She did not mention using problem-focused coping strategies, which might have helped her coping better with recovery.

TABLE 4 Parents reflecting over type of stressors related to them as parents, school, and their daughters' life and plans

Main category	Type of stressor	Illustrative quotes
Parent as navigators	Dedication	"They are often too dedicated and we must protect them from burn-out"
		"We talk a lot about challenges, and we role-play when she has issues to address with coaches"
		"We need to prepare them for the bumps in the road"
		"She played for so many leagues and teams, but there was no coordination among the different coaches – and of course she ended up with severe injuries"
		"Sport first and school second, I think it has been good for her that the school day also includes training"
	Coach understanding	"She has started to listen more to us this last year in high school"
		"Going away on training camps is exhausting, and it's tough to see her the fear for authoritarian coaches"
		"The coaches are not aware of the total work-load due to lack of coordination – and they do not want us to remind them either"
		"When I finally told the coach what I thought about the situation, he listened. In retrospect, I should have talked with him sooner"
		"We know our daughter best, but nevertheless, she listens more to her coach"
Competition for positions	"The coach would give them time off to rest if they ask, but I think all of them are so afraid of missing out of something – their position, not play the next game – that they do not dare to ask"	
	"It is psychosocially draining to constantly compete with your friends for positions, it was hard to watch how exhausted this made her"	
Athlete responsibility	"When they were young – they did not dare to talk to the coaches themselves, but at 16 they are old enough and we do not want to meddle in that communication"	
Sport School	Transition	"The first six months at the sport school were the toughest ones for her, she needed to adapt"
		"She changed schools when entering high school due to better flexibility and closer follow up"
		"That the school accepts her being absent sometimes is vital for choosing to attend the sport schools – that gives her an opportunity to develop as an athlete"
		"The focus on recovery and sleep is why she continues to succeed"
	Coordination	"School-club coordination did not work at all; someone simply must take on this responsibility"
		"They keep saying that they will coordinate the total workload, but it is almost absent"
	Acceptance of absence from school	"The flexibility offered by the sport schools has been vital for her development"
	Teacher-coach-parent relationship	"I should probably have contacted the school more often, but you do not want to be the annoying parent"
		"I have had much contact with 2-3 teachers over her 6 years at school A, that helped her situation"
	Two sports	"Versatility is always emphasized in Norway, it is good to do two sports – but it is impossible if the coaches don't communicate"
"we advised her to choose one sport when she entered the sport school system – we considered two sports to be draining"		
"She first quit cross-country skiing and then football due to the conflicts between the different coaches"		
Personal life	Sacrifices	"I think she would enjoy being in a relationship, but they have a busy schedule"
		"We are an active family, we do sports on vacation"
	Self-confidence	"She will always prioritize training over family birthdays and parties, she goes to bed early – she has been very consistent her entire life"
Self-confidence	"School has never been easy for her, so her athletic achievements and the sport school have been really great for her"	

(Continues)

TABLE 4 (Continued)

Main category	Type of stressor	Illustrative quotes
Club change	Opportunity to develop	<p>“We felt that the coach held her back, she needed a change in order to excel”</p> <p>“I think it has been hard for her not being around her former team-mates all the time”</p> <p>“It is important to be patient, even if the current coach does not see you, the next one will – to change club may not solve all your problems”</p>
After 19 decisions	Elite team division choice	“She has two offers for next year, she has been to trainings and meetings ... tough choice”

3.1.3 | Student-athlete C

There are many similarities between Student-athlete C and Student-athlete A, but also one main difference:

When I started here [ie SAHS], I felt that the ones who had been part of this school system for three years were better trained. My advantage is maybe that I am motivated to train – I contribute with energy. I think I would have lost that with a more serious focus on sport at an earlier age... On the other side, I also feel that we have to be energetic to avoid the question “are you not motivated?”

It seems that the first 6 months at the specialized sport school is a transition for all athletes, and she experienced some minor and more severe injuries. She emphasized that she had learned more about being an elite athlete, which comes in handy when injured or when experiencing increased workloads. She also mentioned that she felt pressure to train hard during every training session to avoid giving the impression that she is unmotivated. She worried, as Student-athlete B, about what others think of her when she is injured, which also became a stressor. The group pressure does not benefit recovery periods. Furthermore, she also worried about her school marks and about having enough time for homework. As the others, Student-athlete C relied on social support (supportive parents and non-handball friends) and problem-focused strategies. She is ambitious in handball, as Student-athlete A, but she also talked about education and has a plan for that after SAHS. In other words, she seemed to be less in need of a break from studying than the others.

3.2 | Parents

Parents' perception of a lack of influence is one main finding in this investigation; even though they felt that they helped navigate the pressures on the girls (see Table 4). They expressed that it was hard that they, after the girls turned 16, were discouraged to interact with club coaches and communication with school coaches was challenging

as well. Some parents obeyed this new “rule” (parents of Student-athlete A), while others regretted not having interacted with coaches sooner or more. They asked us, the researchers, about what they *should* have done in order to help their daughters in the transition phase, while they also reflected on the lack of sport school coordination and communication. They found it difficult to be a good parent to an elite athlete and felt that they had somehow failed their daughters. In addition, each club has a “mom from hell”, which tends to make others try not to be “problem moms.”

Summing up the results from athletes and parents, Student-athlete A and C coped better with stressors caused by, for example, injuries, dual workload, and problematic communication with coaches and teachers than Student-athlete B (see Table 3). In addition, both Student-athlete A and C used a broad range of coping strategies,^{5,18} and their parents carefully intervened and contributed when the players struggled in their coping process. Thus, the question is whether things would have been better for Student-athlete B if the parents had intervened regarding the lack of communication between the different coaches in charge, and coordinated sport, and school. This student also tried to do more than one sport for several years, which might have become an extra stressor for her.

3.3 | Coach and school reflections on coordination

From the interviews with parents and athletes, coordination and communication seemed to be pivotal for success. From this finding, the main question asked of coaches and the Director of sport at one SASH was “who is in charge or who should be in charge for the coordination of the players working load,” due to organizational stressors being the most reported by the athletes.²¹ The sentence should read: When talking to the coaches, Coach 1, who works both as a SAHS and a club coach, summed it up perfectly when stating:

Coordination is hard here at SAHS due to the players being part of four different teams outside school. I have control of the workload for

my club, but not the three others... In an ideal world they would be at the same club – then I could control strength training and running... Actually, the federation is the worst one to communicate with, the strength training regime they require makes it obvious that they do not care about the total workload ...

The coach also expressed very clearly that a coach needs to “see” the players and interact with parents. Furthermore, this coach found it hard to communicate with the teachers at the school – and felt that teachers could be more helpful and supportive. Or as Coach 2 (SAHS and club coach) expressed: “I cannot tell the teachers that she is really tired from training and that she needs rest more than mathematics!” Coach 3 (SAHS and club coach) was more reflective:

I think the one who coordinates the overall workload should be a coach ... of course the best thing is when they do it themselves... In that regard, there is a huge difference between a 16-year old and a 19 year old. They have an immense maturity from their first to their last year.

While the Director of Sport [SAHS] was not informed about the lack of communication between teachers and coaches and the problems this might lead to, his sentiments in regard coordination with other clubs and the federation was in accordance with the coaches:

We feel that our coaches take a lot of responsibility for coordination. However, they depend on other stakeholders (ie, federation, club, and region) for successful coordination, and this seems to be more of a problem in the team sports than in the individual sports here at SAHS. Coordination is a challenge, and this is easier done with some federations than others. Some obviously sabotage what we try to do and really do not care about school for 16-19-year olds ...

While all interviewees agreed that it would be beneficial to have one person in charge for coordinating the athletes' workload, the school coaches argued that this is the club coaches' responsibility.

3.4 | Strengths and limitations

The strength of the present multidisciplinary study is that we have closely followed six young players for 6 years, and added four new players starting at the SAHS for the last 3 years. In addition, we have interviewed parents, school,

and club trainers and a sport Director to get their view on the development of young female handball players.

A limitation may be that the interviews were performed retrospectively and annually and all test results are based on what the girls had reported in their training diaries. However, we also had informal “small talk” during the year to register injuries and general well-being. We emphasize that results from the present study must be interpreted with caution and cannot be generalized due to the small sample size.

4 | PERSPECTIVE

The universal truth by Epictetus makes sense in relation to our findings: “It's not what happens to you, but how you react to it that matters.” We might also add, having resourceful parents is vital. Six of 10 players started up at the same SSSS, were teammates in the same club and had the same coaches and teachers, but when they started at High School they split into different Schools and handball teams according to Table 1. As we tried to keep the structure and organizational stressors from this structure stable, we also know that individuals respond differently to different stressors.⁴⁰ The findings also confirm this as the truly successful ones' (meaning still pursuing an elite career) commitments were supported by resourceful parents both economic and sports wise, as they paid for the sport school and knew when to interact with the school and coaches.¹³ This finding is supported by previous research on the changing role of parents in talent development.^{41,42} While parents' role in the early years is to create a good home environment for nurturing their children's talent, it moves to finding the right coaches in the middle years to more of a complex supportive role in the later years. Witte and colleagues⁴³ confirm that talent development is linked to four factors: early experience,⁴¹ top coaching,⁴¹ deliberate practice,⁴⁴ and strong motivation.⁴⁵ In their recent study, the influence parents may have on all of them is underlined, as they often are the closets ones to help athletes navigate the elite sport system, in addition to facilitating and organizing family life around the sport. Witte et al^{43(p94)} also conclude “Talent might partially be born, but it is largely made—made by parents who devote their full measure to fostering their children's talent development.” This is exactly what the parents of Student-athlete A appear to have provided, which made her work through injuries, handle the stress of dual careers, and stay motivated in tough times.

CONFLICT OF INTEREST

The authors have no conflict of interest.

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