



## Article

# Orienteering from Cradle to Grave—How a Sport Could Offer Lifelong Participation

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**Abstract:** Background: The aim of this present study is to explore what makes orienteering meaningful and rewarding to former elite athletes' years or even decades after ending their elite careers. Methods: Applying a qualitative approach with a case study design, data was collected through semi-structured interviews with 11 former elite orienteers from Norway and Sweden, and the data was subsequently analyzed with thematic analysis, resulting in two main themes: individually matched challenges and a social community. Results: The character, structure, and culture of orienteering both enabled and encouraged former elite athletes to make the transition into recreational sport. Even so, the characteristics of the sport related to both its structure (range of ages, level, and ambition) and organization (well-organized) as well as the participants' backgrounds (well-educated) and intrinsic motivation (satisfaction, enjoyment, mastery) seemed to match a lifelong sport participation. Conclusions: These factors could indicate that orienteering is a sport that can facilitate a lifelong sport participation for athletes with such a background.

**Keywords:** elite athletes; orienteering; recreational activity; social community; sport participation



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## 1. Introduction

Sport participation represents a vital arena for physical activity for both recreational and elite athletes not only for health-related reasons, such as preventing cancer, depression, and cardiovascular and metabolic diseases (WHO 2010; Kamphius et al. 2007), but also because of the relationship between sport and exercise activities and enjoyment, excitement, passion, and challenges (Adie and Jowett 2010). The World Health Organization (WHO 2018)) has highlighted the importance of lifelong physical activity to physical and mental health. Sport participation is, however, a complex interaction of sociodemographic, physical, psychological, social, environmental, and sociopolitical factors (Green 2014; Pinto Pereira et al. 2018).

Previous research shows that individuals tend to retain physical behaviors from youth into adulthood (Pinto Pereira et al. 2018; Skille and Solbakken 2014; Engström 2008). For example, correlations have been found between physical inactivity in youth and inactivity in mid-adulthood, as well as a broad repertoire of sports in childhood and higher rates of physical activity later in life (Pinto Pereira et al. 2018; Skille and Solbakken 2014; Engström 2008). Another factor in retainment of physical activity is the motivation for doing the activity. High autonomous motivation has shown to be an important factor for sustained exercise behaviors over time (Teixera et al. 2012). Intrinsic motivation has also been shown to be a powerful predictor for long-term exercise participation (Teixera et al. 2012), naturally linked to lifelong participation (LLP).

Previous research also shows that development, competition, challenge, engagement with others and a feeling of belonging are associated with higher levels of sport participation and lifelong involvement (Teixera et al. 2012; Thedin Jakobsson 2014; Simon and

[Docherty 2017](#)). However, social contexts can either foster or undermine an individual's motivation. Social class, parent's education and occupation, as well as parental encouragement, siblings, and friends also have all a major impact on an individual's future lifestyle ([Green 2014](#); [Skille and Solbakken 2014](#)). High levels of sport habitus and cultural and educational capital in youth also correlate with exercise levels in adulthood ([Engström 2008](#)). Consequently, [Green \(2014\)](#) argued that the complexity of sport participation (e.g., multiplicity of activities, skills and differing levels of commitment, intensity, levels and motivators) also means that it 'rarely is the product of a single cause'.

### *1.1. Lifelong Sport Participation*

Naturally, most sports want to offer themselves as an activity that can be conducted throughout life. Even though most funding bodies have primarily focused on performance sport, the importance of health and wellbeing have also gained increased attention ([Funahashi et al. 2020](#)). Many sports are characterized by activity patterns that are hard to maintain throughout life (e.g., gymnastics), while other sports are more suitable to offer this opportunity and adaptations to current physical and mental capacity are possible (e.g., long-distance running and cycling) ([Russel et al. 2018](#); [Tracey and Elcombe 2004](#)). Additional reasons for this are the fact that many athletes retire because of injuries, or they are no longer capable of performing their sport in general (i.e., weight, reduced motor skills, eye-hand coordination) or at the level they would like, or they lack opportunities to compete.

From an LLP perspective, the transition to life as a recreational athlete is often a considerable challenge for former elite athletes ([Simon and Docherty 2017](#)). Previous research has suggested that many former top athletes become inactive when they cannot perform on the same level as before due to pain or injury, when losing the aspect of competition, lack of motivation, loss of structure, routines, and resources (e.g., coaches, teammates, equipment, finances), or new life commitments and requirements ([Tracey and Elcombe 2004](#); [Simon and Docherty 2017](#)). Although elite athletes normally exceed guidelines for physical activity while they are competing in sport, many former competitive athletes become inactive after terminating their competitive careers ([Russel et al. 2018](#); [Sorenson et al. 2015](#)). Furthermore, competitive sport may not necessarily promote healthy lifestyles or LLP once the athlete's professional career is over due to different mentalities, cultures, and utilitarian attitudes ([Tracey and Elcombe 2004](#)). For example, [Melekoglu et al. \(2019\)](#) showed that there are several negative health effects in former professional football players who led an inactive lifestyle in mid-adulthood compared to those who continued to engage in other forms of exercise.

### *1.2. Lifelong participation in Orienteering*

Orienteering could be seen as an especially interesting sport from a lifelong participation perspective. Orienteering is a low-cost endurance sport in which the athletes individually with the help of a map and a compass need to find control points in the terrain in a predetermined order. The orienteering course remains unknown to the athlete until the competition starts. By looking at the characteristics of the terrain, the athlete tries to make the fastest route choice to the next control point. The sport is mainly organized in forest areas but sometimes also in urban environments. Navigation and quick decision making at high intensity are essential in orienteering. The athlete completing the correct course in the shortest amount of time is the winner. Hence, orienteering requires both excellent physical health and cognitive skills ([Hèbert-Losier et al. 2014](#); [Eccles and Arsal 2015](#)). Orienteering suits both competitive and recreational runners of all ages. The competitions are normally organized in classes from 10-year-olds to 95-year-olds (and older). The recreational events are organized on a continuum with different difficulties and lengths, which allows individuals of different ages and capabilities to participate in orienteering events ([Swedish Orienteering Federation 2018](#)). Hence, young children and grandparents can participate in the same events.

From a health perspective, orienteering attracts a large proportion of aged athletes in Scandinavia (Östlund-Lagerström et al. 2015), with more than 55% of the registered orienteering club members aged over 26 years (Norges Orienteringsforbund 2018). In Sweden, the orienteering sport has a mean age of 36, which is considerably higher than sports such as swimming (14), basketball (19), football (21), and ice hockey (23), but more in line with cycling (36), dancing (39), and golf (48) (Riksidrottsförbundet 2019). The Scandinavian countries are covered by large forest areas and are also sparsely populated in relation to many other European countries (e.g., Germany, France, and the United Kingdom). Nature areas are easily accessible even from the bigger cities. Further, the right of public access (Naturvårdsverket 2020) is deeply rooted in Scandinavian culture, which enables everyone to roam freely in nature but also creates a responsibility not to disturb or destroy. These countries have a longstanding tradition of weekend trips in the forest, gathering the whole family across age groups. This cultural significance of the sport in Scandinavia could also be seen in relation to television and other media coverage of big orienteering events, such as the Jukola relays. Both sponsorship of elite athletes and mass participation in such events may have influenced the social and community aspect of the sport in Sweden and Norway.

Furthermore, given that many countries are currently faced with a demographic shift towards a larger proportion of older people, the health status among the older population has become more important (Coakley and Pike 2014; Cohen 2003; Moschny et al. 2011). For example, 20% of the population in Sweden is above 65 years of age and this share is expected to increase to 25% by 2070 (Statistics Sweden 2018). Because older people use a disproportionate share of medical resources, the demographic shift may be a challenge for many healthcare systems (Östlund-Lagerström et al. 2015; Coakley and Pike 2014). In addition, physical inactivity is a major health risk (Kohl et al. 2012), while a physically active lifestyle can preserve or improve health status, independence, and quality of life (Moschny et al. 2011). Kohl et al. (2012) argued that the role of physical activity is undervalued and urged for global actions.

### 1.3. Our Study

Despite the focus on LLP among both recreational and elite athletes, Green (2014) stated that ‘knowing which social processes to study in order to make sense of lifelong adherence to sport and physically active recreation is far from straightforward’ (pp. 370). This means that they could continue their participation in their sport even though their age increases and the level of performance decreases. The former elite athletes must change their participation from elite to a recreational level. We wanted to explore a ‘case study’ of how former elite orienteering athletes continue their engagement in orienteering and how they find the activity meaningful and rewarding. Studies on senior orienteering athletes have found that they experience greater subjective physical health and wellbeing in relation to comparable aged individuals (Östlund-Lagerström et al. 2015), making it an interesting case to study. Therefore, the aim of the present study is to explore through a qualitative approach how orienteering is meaningful and rewarding to continue to train and compete for former elite athletes from a lifelong physical activity perspective. In line with previous research, we expected that the informant’s commitment to their sport would be driven more by short-term values and intrinsic motivation than expected long-term health effects.

## 2. Materials and Methods

The study was organized as an explorative integrative and qualitative-oriented case study by looking at the sport of orienteering and its opportunities of LLP (Maaløe 2004). A case study’s major strength according to Flyvbjerg (2006) is that it is an empirical method that examines a contemporary phenomenon in its actual context and would be considered a good way to create fertile knowledge of a complex phenomenon (Yin 2009). Because of the lack of studies on LLP, the design is exploratory and integrative in the way that the participating athletes’ perceptions of their sport of orienteering is seen in relationship with

the characteristics of the sport in the Scandinavian context. Because our objective was to describe how orienteering could be seen as an LLP sport in this context, we expected that the case study would be an appropriate methodological choice for this study. Qualitative credibility is ‘achieved through practices including thick description, triangulation or crystallization, and multivocality and partiality’ (Tracy 2010, p. 843), which we have tried to account for in the presentation of the findings.

### 2.1. Participants

In total, 29 potential informants were recruited from the Swedish and Norwegian orienteering federations. The informants were contacted and 11 accepted to participate in the study (see Table 1 for a more detailed description of the participants). The inclusion criteria were former elite athletes in the sport of orienteering with a minimum age of 30 who ended their elite careers a minimum of five years before the study. The top level was defined as competing for the national team at a senior level. Additionally, the informants were required to regularly participate in different orienteering events (e.g., competitions, club training sessions or recreation). All of the informants were former elite orienteers aged between 30–55 (mean 47.7). The informants had been involved in the sport of orienteering since childhood (mean 39.2 years in the sport), and they had ended their careers between 10–20 years before participating in the present study. Five of the informants were Norwegian (three females and two males) and the other six were Swedish (three females and three males). Additionally, many of the informants had won medals from both national and international championships before ending their careers. The informants lived in different parts of the two countries, from both urban and rural geographical areas, and they represented several local orienteering clubs. A majority of the informants had university degrees and they had a broad repertoire of sport involvement during childhood and adolescent years (e.g., cross-country skiing, swimming, ballet, ice hockey, and track and field). They also seemed to fit in the category of middle class.

**Table 1.** Description of the participants.

Name.	Description
Stina, 30–35 female	Stina had been involved in orienteering since she was eight years old. Her parents started with orienteering as adults, and introduced her and her siblings to the sport. Stina was on the national team (both as junior and senior) from the age of 16–23, at which point she ended her elite-career. Stina works a medical doctor.
Marit, 50–55 female	Marit had been involved in orienteering since she was 12 years old. Her parents had no orienteering experience, but they started orienteering after her. Marit was on the national team for several years. Marit works in IT.
Harald, 45–50 male	Harald had been involved in the sport for 38 years and was on the national team for several years. His father had started orienteering a year before Harald and his sister. Harald worked partly as a coach for an elite group of orienteers. Harald works as a business controller.
Peter, 45–50 male	Peter had been involved in the sport for 40 years (10 years on the national team). Peter retired from elite sports at the age of 32. His father had been involved in orienteering for 15 years when Peter and his brother joined him. He had studied architecture at university. Peter coaches adolescents in his local club.
Johanna, 45–50 female	Johanna started orienteering when she was eight years old. Both her father and grandfather had competed for the national team. Johanna was on the national team in orienteering for 12 years and ended her elite-career at the age of 32. She works in a sport organisation and also coaches local children.
Haakon, 50–55 male	Haakon started orienteering when he was 11. His parents started after him. Haakon was on the national team for 10 years and ended his career at the age of 32. He now works as an engineer and he also coaches athletes in his local club.

Table 1. Cont.

Name.	Description
Martine, 45–50 female	Martine’s parents were orienteers and took her with them from a very young age. Martine was on the on the national team in orienteering for several years and ended her career at the age of 31. Martine works fulltime as an orienteering coach.
Anne, 50–55 female	Anne started orienteering when she was eight years old. Her parents had no relationship to orienteering when she started, but her mother and brother had started a couple of years after her. Anne was on the national team for nine years. She has an active role in her local club.
Jonas, 50–55 male	Jonas started orienteering when he was 10 years old. His sister and mother started after him and eventually his father joined them too. Jonas was on the national team for nine years before he ended his career at the age of 32. He works with public road administration and also helps out as a coach in his local orienteering club.
Britta, 50–55 female	Britta started orienteering when she was 11 years old. Her brother had been involved in orienteering before her, and their parents started after them. Britta was on the national team for several years and had ended her elite-career at the age of 38. She coaches athletes in her local club. Britta had studied engineering and was working at a university.
Karl, 45–50 male	Karl started orienteering at the age of seven, when he and his sister were introduced by their parents. In total, Karl had been on the national team for 10 years. He helps out as a coach for his local club.

### 2.2. Data Collection Procedure

After we had identified the potential informants, they were contacted via telephone or email and asked to participate in the study. Data was collected through semi-structured interviews, lasting between 30–60 min. The interviews were recorded (audio) and transcribed. The interview guide consisted of three topics: sport background, motivation, and sociodemographic background. Examples of questions within each topic are: Why do you think you chose orienteering (sport background)? Why do you choose to stay in the sport after ending your elite career (motivation)? and What did your parents do for a living (sociodemographic background)? Because of the large geographical distances, all except one of the interviews were carried out using online video conference because the method provided the informants with more flexibility. The interview with ‘Jonas’ was not done over Skype. In contrast to quantitative research, a qualitative approach asks questions such as ‘how’ and ‘why’. Further, data is collected from the viewpoint of the informant and exemplified using ‘for example’ words or statements, which allows concepts to be explored that may otherwise be missed with other approaches (Gratton and Jones 2004; Patton 2002). Another aspect of qualitative research in general is that researchers may unconsciously add bias which can affect how the informant answers the questions. Further, the spoken word will always have some ambiguity, which means that the collected data has to be interpreted. These interpretations are affected by the researcher’s personal history and experiences (Graneheim and Lundman 2004).

### 2.3. Data Analysis

The data was analyzed with thematic analysis, which is organized in the following steps: 1. familiarizing yourself with the data; 2. generating initial codes; 3. searching for themes; 4. reviewing themes; 5. defining and naming themes; and 6. producing the report (Braun and Clarke 2006). First, the transcript was roughly read with an open mind to get a general sense of the content. Second, any interesting features from the entire dataset were coded. The deductive coding was based on a node tree primarily involving higher-order themes. Third, the dataset and codes were organized into groups. Initial themes were developed and reviewed in the following step. In the fifth step, the themes were analyzed, refined and labelled. In the final step, we presented some selected quotes that reflected the themes in relation to the study aim and previous research and presented them in

the findings (Patton 2002). Adding up the subthemes allowed us to identify two main themes: individually matched challenges and a social community, which are presented in the results and discussion. This method was chosen to enhance the holistic perspective of the informants' experiences. To avoid quotes from just a few participants, the informants were given code names. The collected data was interpreted and compared with previous research. Moreover, we have continually sought to verify and validate the analysis and provide critical interpretations of the data. During the data collection, we discussed dual role and various theoretical perspectives and interpretations with the co-authors (and supervisors), thereby ensuring peer validity (Kvale and Brinkmann 2009). Additionally, ongoing member reflections took place during the study (Tracy 2010).

#### 2.4. Ethical Considerations

The potential informants were apprised of the study objectives. Participation was voluntary and the informants were told that they could drop out of the study at any time during the process until the article was published. The author conducting the interviews as well as the co-authors had no background in orienteering and did not have a relationship with any of the participants. The interviews were done in Swedish, which was the first language of six of the participants, while five of the participants had Norwegian as their first language. Because of the fact that five of the participants did not have the same first language as the interviewee, this might increase the likelihood of misunderstandings of context, words and interpretations. Before interviewing the informants, they received a letter with all necessary information about the study and the interview topics. This gave them an opportunity to start a thinking process, which hopefully generated richer data. The informants were guaranteed confidentiality. Only authorized researchers had access to the information about the participants and the collected data. This study was carried out according to the Declaration of Helsinki (WMA 2019), and approved by a local ethical committee at the first author's university. The informants were given pseudonyms to ensure that no unauthorized access could identify individuals from the selected citations.

### 3. Results

Thematic analysis revealed two main themes—individually-matched challenges and a social community (Table 2).

**Table 2.** Main themes in the thematic analysis of how orienteering is meaningful and rewarding for former elite athletes from a lifelong physical activity perspective.

Main Theme	Higher Order Themes	Lower Order Themes
Individually matched challenges	Intrinsic motivation	Passion Mastery Short-term satisfaction and wellbeing Relationship to nature and the forest Combination of physical and cognitive tasks
	Sportingly challenges	New things (e.g., courses, maps, terrain, locations) to explore Competition (e.g., optional course difficulties, distances and age groups) Weekly organised local trainings and competitions (for all ages/levels)
A social community	Orienteering involvement	Commitment (e.g., helping out/helping others in club activities/competitions) Family orientated culture—whole family activity (e.g., same competitions/trainings for everyone, family holidays) Meeting partners and both new and old friends
	Orienteering identity	Belongingness (e.g., majority of social network within the orienteering community) Lifestyle (e.g., shared passion and perceived norm/culture of LLP-encouraged to stay in sport)

### 3.1. Theme 1: Individually Matched Challenges

Even though the informants were former elite athletes who had strived to become world champions and win international medals, they had also naturally developed the habit of a large weekly training dose. The informants expressed an awareness of the importance of being regularly physically active as they become older. For example, physical activity was described as an important part of their perceived wellbeing, as described by Anne:

‘Sometimes I’m wondering what I’m doing, but . . . Yes, it’s too nice to stop. And what would I do instead? What would I do instead to like stay in shape and preserve health and so on?’

Although the informants experienced a natural decline in physical ability due to age and lower amounts of training, and there was very little or no development of their technical skills, they all still enjoyed competing and participating in orienteering events. The informants generally expressed the view that they had received something back from the time that they had invested in the sport. Orienteering made physical activity a natural, joyful, and meaningful part of their lives, as expressed by Britta:

‘I absolutely don’t do it against my will. I do it because I think I get something in return. Sometimes I can get almost like euphoric sensations after an orienteering experience, like ‘Oh, this is so fun!’ if you come to a new place and the terrain is like really, really nice’. (Britta)

Notably, Britta focused on the sports short-term satisfaction by using strong words such as ‘euphoric sensations’, ‘fun’, and ‘really nice’. Ending their top-level careers did not mean dropping out from orienteering altogether, just a change in their ambitions. The informants stayed in sport because they wanted to, and the structure of the sport enabled them to do so. Furthermore, the character of the sport made it possible for the informants to combine physical training and the use of cognitive skills. During competition, they could normally choose a technically demanding orienteering but with lengths matched to their age category or fitness level. The informants expressed that winning had become less important as compared to when they had been striving to become world champions, but most of them still enjoyed competing in their age category. Finding the checkpoints (the post) in the forest, given the difficulty, gave them the same feelings of joy, mastery, and competence as before, as expressed by Britta:

‘Yes, but if you like get the checkpoints and they are just there, then it’s like so much positive reinforcement of the experience. There is a very strong feeling when you nail a difficult control point’. (Britta)

The cognitive challenge of completing an orienteering course meant making many tactical decisions along the way. The combination of running and navigating in the forest, optimizing the route to the checkpoints, was described to be just as motivating and joyful as during adolescence, as top athletes and now as senior athletes:

‘You make so many decisions during an orienteering course and maybe it’s also a satisfaction in feeling that you made good decisions’. (Jonas)

Although the informants were no longer striving to become world champions, they still experienced similar positive emotions from their orienteering involvement:

‘The race result it is not so important. But when I’m at the start line, I think it’s so fun to compete. Then I always try to . . . to push myself . . . my resources and do the best of it. It’s like a challenge. It’s a riddle that you try to solve with your mind and body’. (Marit)

This combination of physical and cognitive tasks motivated the informants. Furthermore, the challenge of finding control points was frequently described as a treasure hunt. To be successful, the informants had to stay focused to avoid making mistakes and also run as fast as they could. Given that the course difficulty was matched to their skills, they experienced orienteering as thrilling. The risk of making tactical mistakes and the rush

of succeeding still motivated them, regardless of their age and current level. Hence, the structure and character of the sport enabled the informants to have a similar experience as when they were top athletes, as described by Karl:

‘To find and to run in technically very challenging terrain gives me a rush . . . For me, it’s to be afraid. I mean that it’s so difficult that you doubt if you will find the checkpoint. It’s like the ultimate feeling. To run in challenging terrain on a good course. It’s like ‘focus’... I think it’s this feeling that makes me do orienteering’.

From childhood, the informants had developed a close relationship to nature and the forest. Map reading and exploring new terrain were also common interests among the informants. The nature of orienteering events is that the athletes never run the same course twice. Even though the informants had been involved since childhood, there were still new things (e.g., challenges, maps, terrain) to explore, which made involvement motivating to former elite athletes, as highlighted by Haakon:

‘If you put the competition part aside, you’ll always have new challenges, new terrain, new maps, new courses . . . I mean there is always a new challenge that can motivate you, and for me, competing isn’t the most important anymore, it’s more the challenge and joy you get from running’.

At every practice or competition event, there are according to the informants always new courses available. The arena was often moved to different locations. The rich variation of courses and location also motivated the informants to stay in their sport. There was always a new challenge and something new to explore awaiting them.

### 3.2. Theme 2: A Social Community

Although the sport had always been performed individually, the orienteering context was described as a very social environment. For example, after each race, there were normally intensive discussions between competitors about the route choices made along the course. Most of the informants had also started coaching others in their free time after ending their elite careers, while others helped to organize competitions and practices in their local clubs. For all of the informants, family and friends played a central part in their orienteering involvement. The structure of the sport enabled the informants to bring their families to the same practice or competition, and they allowed different generations to meet and share experiences, as expressed by Martine:

‘My youngest daughter takes the beginner course which is very easy, my son who is an adolescent takes a more difficult course, and my partner who also used to be an elite orienteer takes the most difficult one and so can I, but now I usually run with my youngest daughter and follow her. Sometimes we go on our own or we go together in the forest’.

Many of the informants, including Harald and Marit, also combined their family holidays with orienteering events in other regions or countries:

‘When we go to orienteering events we usually go the whole family. It is very seldom . . . it’s really just single occasions that I go alone on an orienteering competition’. (Harald)

‘We stick together like a little clan, like . . . and do things together’. (Marit)

The family orientated culture and opportunities for the informants and their families to go to orienteering events together were highlighted as important. So the social aspect of the sport—such as spending time with friends and family, helping others to develop as orienteers, or simply helping out in general—made it meaningful for the informants to stay in the orienteering community, as in the following example:

‘My father is still very active and he is 77 years old. And he enjoys it and I think it’s nice to go to practice and I meet him at the same time and my children meet their grandfather and I meet my friends, so it is a very nice social arena and fun



too. And the 77-year-old can help the younger children, he can help the adults, so it's a lot of sharing experience and helping each other over the generations'. (Martine)

The informants had been involved in the sport since childhood (mean 39.2 years in the sport) and had their closest friends and a majority of their social network within the orienteering community. For example, many of their orienteering friends from childhood and adolescent years were also still committed to the sport and participated in the same events. The informants had most commonly been introduced to orienteering by family members or friends. For some of the informants, their parents and siblings had started with them or after them. Most of the informants had met their partners through the orienteering community and they later introduced their children to the sport. During interviews, several of the informants mentioned that there were often even small 'field kindergartens' at orienteering competitions and introduction courses for the youngest members. Orienteering was a habit they had gladly kept over the years. For some informants, orienteering was a central part of their identity, as expressed by Marit:

'I identify myself as an orienteer. I have done some different things in life, both work related and . . . there I've always found it more difficult to find an identity. I worked as a physio for some years, but I never felt like a physio. I'm a mother too . . . and a wife, but I'm actually mostly an orienteer . . . I'm interested in many things and I try to do different things parallel to orienteering, but the central thing has always been . . . what I always come back to. I would never give up orienteering'.

For Marit, here orienteering identity made her experience a strong feeling of belonging or social relatedness within the orienteering community. Another of the informants, Jonas, did not experience such a strong orienteering identity, but the sport was still a central part of his life:

'But really, I'm not an orienteer. I'm a human being just like everyone else, but I do orienteering. In some way, it has connected all stages of my life and is something I still hold on to. It has always been important to me and something that I enjoy and find satisfying to do'.

The informants also shared the experience of encouragement to stay in sport after ending their elite careers, as in the following example:

'Since you have this opportunity to stay [in orienteering], it continues to be your lifestyle. It's not like you change, but rather it has become such an important part of life and that you need that little workout and relationship to nature and the social community where you can meet others regardless to age . . . You have your friends and that. So, in one way a lot of circles around it and some shared passion'. (Peter)

The structure and culture of the sport both enabled and encouraged the informants to stay, regardless of age, level, or ambition. Ending their elite careers has not caused any dramatic life changes, just a change in ambition. Peter expressed his transition from elite sports with the words: 'it's not like you change'. Hence, staying in the orienteering sport was a natural choice for the informants because of their 'shared passion'. Orienteering was one of the building blocks towards a healthy lifestyle, successful ageing, and a meaningful life for the informants.

#### 4. Discussion

This study used a qualitative approach to explore why orienteering was perceived as meaningful and rewarding to former elite athletes from a lifelong physical activity perspective. This particular group was chosen to explore the motives for sport participation when competing to win titles was no longer an option. The findings can hopefully bring a better understanding of factors promoting lifelong participation potentially transferred

to other sports. Sport and exercise activities with individually experienced enjoyment, excitement, passion and challenges (Adie and Jowett 2010), but also the social contexts can both foster or undermine an individual's motivation (Ryan and Deci 2000). For example, Tracey and Elcombe (2004) argued that competitive sport may not necessarily promote healthy lifestyles and LLP once the professional career is over. The present study showed, similar to Teixeira et al. (2012), that intrinsic motivation seems to be a powerful incentive for LLP. It became apparent that the sport involvement of the informants was driven not only by short-term values, such as satisfaction, enjoyment, and challenge, but also by mastery and the social community.

Although many other sports tend to separate sexes, ages, and skill levels, orienteering events are generally organized with a wide range of age categories (10 to 95-year-olds) which offers an organization that allows both competitive and recreational athletes of different ages, levels, and ambitions to participate in the same events and encourages lifelong engagement. Furthermore, the structure and context of orienteering enabled the informants to experience mastery, challenge, and social relatedness (Ryan and Deci 2000). Orienteering as a sport seemed to offer the informants competition, which the participants in this study considered self-referential, that provides challenges according to their level of performance; even challenges similar to those they experienced as elite athletes. For example, the structure of the orienteering events made it possible for the informants to choose courses and competition classes matched to their skills and fitness levels, spend time with friends and family and help others. Furthermore, Teixeira et al. (2012) suggested in earlier research that social engagement, challenge, and skill development are associated with greater exercise participation. Except for skill development, these factors were found in the present study's informants' narratives. This may be explained by the informants' experiences as top athletes and their high levels of skill. On the other hand, it would be natural to point out that the organization of the competition also demands planning effort and expertise to be able to challenge all participating athletes independently of skill level and experience. Even so, the nature of the sport means that the informants could practice their skills and find new challenges by exploring unknown forest areas, new types of terrain or participating in competitions or other events.

The description of orienteering as a sport promoting social engagement for all ages would create a unique social climate and a social arena for different generations to meet and become a part of a lifestyle. The social aspect of the sport was expressed as rewarding and meaningful in the narratives of the informants. As previous research has suggested, many former top athletes become inactive when they can no longer perform at the same level as before due to pain or injury, and when they lose the aspect of competition, lack of motivation, loss of structure, routines, and resources (e.g., coaches, teammates, equipment, finances) (Tracey and Elcombe 2004; Simon and Docherty 2017). It can be difficult in any sport to avoid a decline in physical strength and falling performance due to age. However, orienteering may serve as an example that other factors, such as structure, routines, and resources, can remain even when a competitive career is over. For example, most of the informant's social networks were located within the orienteering community and they could still participate in the same events as before. This likely promotes motivation in former top athletes and makes the transition from competitive to recreational sport less dramatic. It also created good conditions for developing LLP. In the social context of orienteering, LLP was encouraged, which could potentially explain the higher mean age seen in orienteering compared to many other sports. Additionally, the participants talked about a passion for the sport, which was integrated into the fact that the athletes after ending their professional careers continued competing and also included their children in competition and used holidays to go to orienteering camps and competitions.

Their lifelong relationship to orienteering could also be explained with Bourdieu's (1985) theories about social, economic, cultural and field-specific capital. Skille and Solbakken (2014) argued that social class, family income, parent's education, and occupation will affect the child's future socialization patterns. Participation in sport is also a com-

plex interaction of sociodemographic, physical, psychological, social, environmental, and socio-political factors (Moschny et al. 2011). It could be speculated if Östlund-Lagerström et al.'s (2015) findings about the health of senior orienteers could also be explained with Marmot's (2004) theories that health is also determined by education, family, career, income, consumption, and spiritual and cultural life. High levels of sport habitus and cultural and educational capital in youth also correlate with exercise levels in adulthood (Engström 2008). Consequently, Green (2014) argued that the complexity of sport participation (e.g., multiplicity of activities, skills and differing levels of commitment, intensity, levels, and motivators) also means that it 'rarely is the product of a single cause'.

Furthermore, different sports in youth will bring different socialization patterns in adulthood, and people tend to keep behaviors from late youth into adulthood (Pinto Pereira et al. 2018; Skille and Solbakken 2014; Engström 2008). Hence, another possible explanation for the informants' LLP could be that during childhood, adolescent years, and as elite athletes, they had developed a social pattern which promoted physical activity and health literacy. Parental encouragement, siblings, and friends have a considerable impact on an individual's future lifestyle. Even so, it is reasonable to question to what degree orienteering as a sport is as inclusive and accessible if your parents do not have the background in terms of education and history to be part of the lifestyle and culture the participants highlighted as important. The present study showed the central role of family and friends among orienteers. Interestingly, the orienteering sport according to the participants also welcomed adult beginners. For example, about half of the informants' parents had started the sport either with them or after them. This could indicate that given the structure and culture of the sport, children can also affect the lifestyle of their parents. This could potentially promote the development of LLP in adults with or without experience from other sports. Green (2015) showed a decline in sport participation when individuals prioritize family and work. If time and logistics are limiting factors, then this could be helpful for many families (as mentioned by the informants, there is often even a small 'field kindergarten' at orienteering competitions). This social and family-centered approach seemed to be appreciated by the informants but might not be applicable to all sports.

#### 4.1. Future Research

Thedin Jakobsson (2014) argued that if the goal for the sports federation is for as many as possible to be physically active and develop LLP, sport clubs should offer activities for different levels, ambitions, and capabilities. Previous research has shown that autonomy, competence, and relatedness-supportive contexts promote greater internalization and integration than contexts that thwart these needs. For example, non-optimal challenges and excessive control disrupt the inherent satisfaction and self-actualizing and may result in distress. This in particular is crucial for organizations, federations, and individuals who wish to motivate others in ways that stimulate commitment (Ryan and Deci 2000). The orienteering sport, as described in this case study, is a positive example of how a sport federation can promote LLP. However, it is clear that every sport is unique, which means that other sport federations would have to adjust potential reforms to the features of their sports. This study showed not only that intrinsic motivation and meaningfulness promote LLP in orienteering but also that these factors were generated by the structure, character and culture of orienteering as well as by broader aspects like class and national culture. This could be more challenging for team sports compared to individual sports because teams consist of many individuals of different levels and ambitions. As mentioned in the introduction, the orienteering sport in Sweden had (in 2018) a mean age of 36, which is well above team sports with mean ages from 19–23 and more similar to other individual sports with mean ages of 36–48 (Riksidrottsförbundet 2019). This might raise the question of whether for practical reasons, individual sports might promote LLP easier than team sports. Future studies could focus on the differences in LLP between individual sports and team sports. Furthermore, not every sport offers the same variation of location and

challenge as orienteering does. It could thus be discussed if LLP necessarily has to be a lifelong commitment to just one sport. Instead, variation and challenge could be achieved by trying several new sports as an ageing adult (e.g., cycling, dancing, golf, running, and cross-country skiing), which could help individuals to stay intrinsically motivated and experience meaningfulness in sports. Hence, sport federations could develop a structure and culture that encourages adults to try different sports even if only seasonal or during a limited period of time, much like children's sports are practiced in the Scandinavian countries.

#### 4.2. Limitations

The interviews were mainly done by the use of online video conference solutions, which could indicate that the interviewer would lose insight into the respondent's non-verbal communication and body language. The study was conducted on a relatively small group of former elite athletes mainly from the middle class, which possibly may limit the transferability of the finding into different settings and groups. However, by giving examples of quotes that represent the richness of the interviews and the analysis, the reader is given the opportunity to recognize and possibly acknowledge the possibility to apply the findings in different settings (Graneheim and Lundman 2004). A possible limitation is that only 11 of 29 of the invited responders in the study agreed to participate which also may reduce the representability of the findings. Their interviews were rich in content and thereby represented a high degree of informational power (Malterud et al. 2016), providing essential information on the subject under study.

#### 5. Conclusions

The character, structure, and culture of orienteering seems to both enable and encourage former top athletes in this study to stay in the sport and makes the transition into recreational sport smoother. In line with previous research, the present study showed that intrinsic motivation seems to be important to maintain a physically active lifestyle. The study with its qualitative perspective gives new insight into how former elite orienteering athletes continue their engagement in orienteering and how they find the activity meaningful and rewarding. Even so, the characteristics of the sport related to both structural (range of age, level, and ambition) and organizational aspects (well-organized) as well as intrinsic motivation (satisfaction, enjoyment, mastery) seemed to be a good match for lifelong sport participation. These factors could indicate that orienteering for the athletes in this study is a sport that can facilitate a lifelong sport participation for athletes with such a background. Consequently, future studies could focus on differences in LLP between individual sports and team sports. Sports organizations wanting to promote LLP could create a sport structure that accepts ageing and enables lifelong participation in sports.

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