


# Early specialization and talent development in figure skating: Elite coaches' perspectives

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## ABSTRACT

Among the many issues explored by sport science researchers, one topic that seems the least controversial is the recommendation against specialization in early sport training. However, there has been little examination of early specialization in sports where this type of training is the norm. In this study, we explored notions of early specialization and its consequences (i.e. psychological, social, and physical) among 7 figure skating coaches (5 males and 2 females) responsible for coaching singles skating (both women and men) at a range of competition levels. Semi-structured interviews with each coach were subjected to a thematic analysis. Themes identified through the analysis revealed coaches were aware and attentive to the potential risks of early specialization and took steps to manage these risks. Moreover, the coaches noted that developing a skater in the environment of elite figure skating required identifying athletes with the right combination of characteristics, and that there were important nuances to developing these athletes in the Canadian context. These findings highlight the complexities of developing a well-rounded athlete in a sport where early specialization is widely accepted as the norm.

### Keywords

*youth, athlete, elite, sport*

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## Introduction

Researchers and practitioners working in sport settings are often encouraged (and sometimes required) to provide evidence-based recommendations for athlete training, particularly during early development as highlighted by the ongoing discussions about the costs and benefits of early sport specialization (e.g., Baker et al., 2021). There has been a high degree of inconsistency in how early specialization has been defined in previous research (Mosher et al., 2020); however, this paper focuses on the definition set out by Baker et al. in their 2009 review, which proposes early specialization has four elements that seem to be reflective of most, if not all, elements captured in previous research: an early start age in sport; early involvement in one sport; early involvement in focused, high-intensity training; and early involvement in competitive sport. While researchers are still exploring the equivocality of this notion (e.g., Baker et al., 2021; Larson et al., 2019; Mosher et al., 2020), coaches and parents of youth athletes are regularly advised by policymakers to avoid early specialization.

However, there is an entire category of sports where early devotion to specialized training is considered a necessity for success, one of which is figure skating (Baker, 2003; LaPrade et al., 2016; Skate Canada, 2010; Wall et al., 2020; Wiersma, 2000). Figure skating is a sport where performers require high degrees of balance, agility, rotation, rhythm, and spatial orientation, in addition to the exceptional physical conditioning needed to train and compete. The unique combination of performance-related variables presumably requires early start ages and a greater degree of specialization than later specialization sports. In Canada, for instance, the development of elite figure skaters follows the pathway detailed in Skate Canada's Long Term Athlete Development Model (LTADM), which assumes that many elements of performance, such as multi-rotational jumps and spins, are more difficult to acquire in later years if training has not started early (Skate Canada, 2010). Moreover, the sophistication and technical difficulty of the skills required for elite-level performance require an extensive devotion to training,

10-15 hours/week, to acquire these skills before the age of peak performance (16 years old for females and 17 years old for males; Skate Canada, 2010).

Models of athlete development, such as the one used by Skate Canada, provide coaches and parents with comprehensive guides for training skaters based on where they are in their developmental pathway. Similar to other programs based on the Long-Term Athlete Development approach (Balyi et al., 2013), the LTADM is broadly grounded in Ericsson et al.'s (1993) deliberate practice framework, highlighting the extensive training required for the attainment of athletic excellence. In addition, development in figure skating needs to "take advantage of sensitive periods of athlete development" (Skate Canada, 2010, p.7). In the LTADM, an elite figure skater moves through various stages, with each stage emphasizing different elements of development, training, and competition. While the LTADM is positioned as a guide for athlete training, a skater's developmental pathway is ultimately determined by their coach. Coaches are responsible for the holistic (i.e., mental, physical, and social) development of their athletes, particularly during early phases of their development (e.g., ages 7-14) when athletes are most impressionable (Kuhlin et al., 2020; Skate Canada, 2010).

There have been concerns around the physiological and psychosocial effects of early specialization sports due to early intensive training (Baker et al., 2009; LaPrade et al., 2016). For example, specialization and intensive training have been linked to overuse injuries (Han et al., 2018; Jayanthi et al., 2015). An epidemiological study of figure skating injuries by Han et al. (2018) found that the most prevalent injuries in figure skating were those of the lower extremities; most notably, generalized low back pain was found in 13% of skaters in singles and pairs. Other injuries included various forms of bursitis in the feet and ankles, developmental injuries such as Osgood-Schlatter disease, and chronic conditions such as patellar tendinopathy (Han et al., 2018).

Sport scientists have also expressed concerns about other health and developmental risks such as com-

promised social development; social isolation, sacrificed lifestyle, a lack of free time and underdeveloped social skills (Baker et al., 2009). There are also higher rates of dropout and burnout in specializers vs. samplers as well as a higher rate of eating disorders in aesthetic sports such as figure skating (Baker et al., 2009; Fraser-Thomas et al., 2008; Strachan et al., 2009). Largely as a result of this research, there is a climate, particularly in the youth sport literature, that is highly anti-specialization (e.g., Côté et al., 2009; DiFiori et al., 2014; Jayanthi et al., 2021; LaPrade et al., 2016). It is important to advance our understanding of early specialization as we continue to see improper management of the risks, such as preventing psychological and physical consequences (Baker et al., 2009; Mosher et al., 2020). This has also left coaches in the unfortunate position of having to work with athletes despite conflicting messages about how to do so most effectively.

In addition to the perceived need for early specialization, the nature of figure skating generally promotes a context of early talent identification, likely due to the early start ages of many elite skaters. In artistic sports such as figure skating, organizations and coaches argue talent is necessary for success, and early identification is necessary since athletes must learn complex movements at a young age while their minds and bodies are most flexible (Kuhlin et al., 2020). The evidence in support of this conclusion is limited, but this belief can create expectations for skaters and parents that early success is necessary to be successful at later levels of competition. While recent research has challenged the extent to which early talent selection relates to long-term success (Baker et al., 2018), these procedures remain a regular occurrence in many sports.

The objective of the study was to explore coaches' understanding of early specialization and athlete development in the context of figure skating, with the goal of understanding how coaches manage the complexities associated with the long-term nature of skill acquisition in figure skating. Given the lack of information on coaches working in early specialization contexts, and figure skating in particular, our focus was

broad and general, with the goal of exploring the range of issues coaches identify related to this topic.

## Methods

### Participants

Participants in this study were 7 figure skating coaches (5 males and 2 females) based in the province of Ontario. All were National level certified NCCP (National Coaching Certification Program) elite developmental coaches responsible for singles skating (both women and men) at a range of levels (e.g., CanSkate to national/Olympic level). Each coach had experience ranging from 25-50 years and combined they have coached at over 10 Winter Olympics. Compared to other provinces in Canada, there is a high saturation of figure skating clubs and coaches in Ontario. A total of 16 coaches were approached to participate in the study, of which 9 agreed to be interviewed and provided informed consent, ultimately, 7 coaches participated in interviews.

### Procedure

Following approval from the University Board of Ethics and obtaining informed consent from participants, interviews were scheduled. Semi-structured interviews were chosen to initiate the thought-process from coaches, and probing questions allowed the participants to expand on their ideas regarding talent. The questions in the interview guide (see Appendix A) focused on the following areas: coaches' understanding of early specialization, the qualities they seek in their athletes, the best age to start skating and how they understood talent in the context of figure skating. All questions were open ended, were intentionally very broad and were used as the initial stimulus for a general discussion of the topic for each question. During the interview phase, the primary author and the senior author met regularly to discuss the content of the interviews. Interviews were 30 to 45 minutes in duration and were transcribed verbatim. Interviews were conducted between November 2020 and January 2021.

## Data analysis

Our philosophical approach combined researchers' theoretical knowledge with the practical knowledge of figure skating coaches from the perspective of pragmatism (i.e., a philosophy that emphasizes practical solutions to applied research questions and the consequences of inquiry, see Giacobbi et al., 2005). Pragmatism places value on different types of knowledge to answer practical problems within the environment, and, as a result, this approach was seen as best suited to examine coaches' perceptions of talent and early specialization.

Epistemologically, pragmatism promotes the use of methodologies that are best suited to address the research question, which is why thematic analysis was chosen to analyze the data. Thematic analysis has also been successfully used in other studies exploring coaches' perspectives (example Johnston & Baker, 2022; Sabiston et al., 2020). The process of thematic analysis, specific to sport and exercise research, as outlined by Braun et al. (2016) was used to analyze the data. The thematic analysis by Braun et al. (2016) was further chosen as it is not tied to any specific theoretical framework. In the first phase of analysis, the primary researcher became intimately familiar with the data by reading and re-reading the transcripts, making detailed informal notes about thoughts, implications, and potential meanings (Braun et al., 2016). Subsequently, respondents' answers were coded openly and inclusively; Braun et al. (2016) explain this way of coding as not having strict categories but allowing the coding to be flexible. During the coding process, the data was labelled and categorized as either something of interest or something that addressed the research question. Different colours were used in Microsoft Word to denote codes. After the initial coding process, a second round of coding was performed which allowed the primary author to further refine and collapse existing codes. Once comfortable with the final coding, these codes were then clustered based on concepts they shared to capture a broader explanation of a specific theme (Braun et al., 2016). Candidate themes

were created and, upon discussion with the co-authors, were further revised to represent higher level patterns.

Finally, resulting from discussions between the authors to ensure that the themes offered a clear, interpretative narrative of the interview results, some revisions were made to the codes and the candidate themes. The final themes were then labelled with a name reflecting the central organizing concept (i.e., original concepts' common properties; Braun et al., 2016). Importantly, themes reflected the overall pattern of discussion during the participant interviews and were not derived from specific questions.

## Results and discussion

The thematic analysis resulted in three broad but inter-connected themes: managing early specialization, developing a well-rounded athlete, and the Canadian context. These are explored in detail below.

### Managing early development

As mentioned, figure skating is regularly classified as an early specialization sport. Managing early development emerged as a very broad theme that encompasses how coaches manage early specialization and mitigate any risks from early engagement, as well as navigating the requirements for sport success laid out by Skate Canada. Many of the coaches in this study acknowledged the benefits of multi-sport involvement for their athletes, especially in early development. This reflects coaches' knowledge of the issues associated with early specialization as their recommendations are similar to those by sport science organizations such as the American Medical Society of Sport Medicine (DiFiori et al., 2014) or the International Society of Sport Psychology (Côté et al., 2009) as well as those captured in models of athlete development (e.g., Balyi et al., 2013; Côté & Vierimaa, 2014). In particular, coaches seemed to be well aware of the potential risks associated with early specialization. Several noted how they tried to manage these risks to promote the longevity of their athletes, by actively trying to reduce

burnout and dropout at early ages. For instance, Coach 1 reported:

I always tell them at an early age like 5-6, 6-7 that they should not just figure skate. I'm big...[on] do[ing] as many things as possible until you actually have to focus in on one sport. But still, when you're focusing in on that sport [figure skating] I am, even at the high level, really [encouraging] them [athletes] to do other things.

Similarly, Coach 6 noted:

There's that aspect of it of having a balanced over-all sport life which can really help you accelerate at one sport you can also get very burnt out if you only do that sport and all your focus is on that sport at a young age.

Despite this awareness of the risks of early specialization and the interest in mitigating them, coaches acknowledged that figure skating is an early exposure and development sport, emphasizing the importance of learning multi-rotational jumps and getting comfortable with the feel of the blade early on in sport development. As noted by Coach 2, "the earlier the better right, ... it's easier to learn all these jumps while you are younger. When you get older, it's harder. Now that doesn't mean that it's impossible but it's just easier [when younger]." Similarly, Coach 4 noted:

Well, you can't really get national level competitor [or] international competitor figure skater if you don't specialize early. It's not one of those you know if you're a speed skater and then when you're 20 you decide to try figure skating. You haven't learned the sense of fast rotation, the awareness and all of those things that have to be built up over the years.

Several coaches also felt that Skate Canada's approach to athlete development focused on selecting skaters when they are younger, to help develop them as they move into the higher levels, while discounting skaters who may be "late bloomers" in the sport. For instance, coach 4 states, "we all wish Skate Canada kept their

pool a little bigger because they can pick kids so young and then pick wrong who knows what kids are going to be like when they're older". Similarly, Coach 4 noted "it's hard to shine early enough to get the experience that you need to be good at a later age". These statements reflect several of the issues raised by researchers in talent identification and development as underpinning the poor predictive accuracy in this area (Baker et al., 2019).

### *Skaters' developmental timeline*

Although these coaches were aware of the dangers of specializing in a sport too early, they were also aware of their skater's timeline and development in figure skating, and the best time for them to start increasing their hours on the ice to peak at the right time to be a competitive skater. In particular, there seemed to be a threshold when skaters needed to make the transition to more serious involvement as Coach 3 explained:

The sweet spot where kids make that transition to competitive skating a lot - it's kind of in that like 8 to 12 range which seems like a very big range and the earlier in that range the better obviously. But I think that's kind of the sweet spot and then if you can get the kids to be able to start the multi rotation jumps when they're kind of 8-9. If they can do axel and doubles then, it makes a huge difference then. They can get going on there later; it's more difficult but it's not impossible.

Similarly, Coach 6 noted:

Ideally the younger [they make this transition] the better. It's a long road, you know. There's people that have come in later and done fabulous but a lot of the best skaters, they grew up with skating. They were in a competitive program when they were you know sort of 8 to 12 and then they maybe strived and started to grow between 12 and 15 and then from there moving forward so there, again, it's a long road.

Overall, it was evident the coaches understood the importance of multi-sport involvement and early exposure to sport rather than specializing as well as how this may help increase the longevity of their athletes. The coaches also noted the importance of the 8-12 age range, calling it a “sweet spot” to start introducing more complex skills and increasing training time. Interestingly, this same age range is seen as the critical sampling stage in Côté and colleagues (see Côté & Vierimaa, 2014 for a review of this program of research) model of sport participation. Future work may wish to further examine the link between this model of athlete development and coaches' beliefs regarding what is necessary for skill acquisition in figure skating.

#### *Russian athletes' influence on figure skating*

When the coaches were asked about any changes they have noticed within figure skating in the past 10 years, they all noted the current dominance of Russian women between the ages of 13-17. Interestingly, this was not because of the Russia versus Canada rivalries on the world stage, but because of the speed of their skaters' development and what this might mean for the future of figure skater development. Since 2014, Russian women have won championship events such as the Olympics, Europeans, Grand prix Final and World Championships. At the same time, Canadian women have dropped from the top of the world in 2018 to 39<sup>th</sup> in the world as of 2021 (International Skating Union, 2021). The coaches noted that their biggest concern was not women doing more complex jumps (e.g., quads) but rather doing quads in the pre-pubescent phase of development and what impact that may have physically and mentally on developing young athletes. Coach 3 noted, “We see what's coming out of Russia right now, and it's like one kid after the other that can do quads and girls like one after the other that can do quads. It's crazy”. Coach 2 noted:

Russian women you know they had some when I skated, they had some you know women that were decent and stuff like this right but not nearly as good as what they have right now and then they're definitely, I feel like they're pushing the envelope quite a bit.

Similarly, Coach 6 had this to say:

Typically, the Russian girls were good there's you know sporadically here and there, there would be you know a good Russian girl but now there's kind of a dominance. I'm not sure where it's coming from, there's all kinds of theories and explanations and that is a whole different subject of getting into other areas where they you know possibly manipulate what is happening with the human body and you know that you kind of look at places like Russia and China where they are able to do that kind of thing without you know sort of any social pressure.

The beliefs of Canadian coaches regarding the early specialization of young Russian athletes echoes the recent controversy at the 2022 Olympics and emphasizes the importance of developmental policies that may protect the physical health, mental health and the emotional well-being of young skaters. Moreover, the perceived implications of early specialization, that it is too early, could be one reason coaches in this study advocated for multi-sport involvement during early development. The fear of burnout, dropout, and injury discussed earlier may also explain why these coaches focused on longevity and sport enjoyment rather than early specialization and early sport success. At the moment, we do not have enough information to draw a conclusion about the current success of Russian women, but this is an intriguing area for future research. These Canadian coaches appeared very aware of the negative aspects of early specialization and found value in multisport participation in the early years of athlete development. While the current documents and policies affecting Canadian figure skating promote early specialization and talent identification, the coaches involved in this study made it clear that

these elements may not support the development of many skaters in Canada.

### Developing a well-rounded athlete

As alluded to in the previous section, not only were coaches able to provide insight into how they help guide successful well-rounded figure skaters, but they also shared their perceptions of what type of person would be most successful in figure skating and what they look for in terms of early talent identification. Interestingly, despite much of the talent research in sport focusing on physical and anthropometric characteristics (Johnston et al., 2017), coaches did not focus on these factors. For instance, when speaking about singles events (men's and women's), coaches noted the importance of psychological qualities. Coach 5 noted, "[the] first thing you do is build the person, then you teach them how to skate. First thing I'm going to do is build your mind". This was echoed by Coach 3 who felt it was important to be able to "detach yourself emotionally from the training" and see the learning process as a puzzle to be solved:

There's a lot of mistakes along the way. There's a lot of falls along the way and I kind of preach if you can keep that as [the] puzzle of the whatever may be - the double axel - see the puzzle of the double axel and then you gotta figure out "OK when I missed it this piece was missing". So, then you work at adding that piece in and that's kind of the only thought you should have.

Many of the coaches emphasized that early talent for figure skating was only a small portion of what they look for in a young skater. In addition to early precocity, other sought-after qualities included patience, determination, fearlessness, competitiveness, and work ethic.

I think the best ones are just able to have that kind of drive and that determination. There's physical attributes, sure, but a lot of that can be learned you know. I don't think anybody is born a figure skater... I'm definitely a nurture over nature person. I think a lot of it is mindset and ... just reluctance to give up (Coach 3)

Relatedly, Coach 4 emphasized the need for athletes to be "dedicated, driven, willing to be coached, would do anything that ... you ask to become better - would take any advice to become better." Similarly, Coach 1 emphasized the importance of hard work:

Talent is in there but if you put side by side - you have a very talented skater [and] a medium talented skater, but that medium talent skater is a hard worker and the really talented is not, the hard worker is going to go further.

These data emphasize the importance of nurture-related elements in how these coaches perceived optimal athlete development, with acquired skills/capabilities being more important than initial talent. Recent discussions of athlete development have emphasized the importance of understanding the psychological factors affecting engagement with practice and training (e.g., Baker et al., 2017; McCardle et al., 2019). Moreover, these coaches' comments relate well to the broader discussion of sporting talent as emergent, and the result of complex interactions between genetic factors in both training and competition environments (Baker et al., 2019).

### The Canadian context

As suggested above in the comparison between the Canadian and Russian contexts, one surprising area that emerged from the interviews related to the perceived strengths of the Canadian system for developing elite figure skaters. These coaches believed the collective knowledge and understanding of athlete development in figure skating in Canada was unique in the world. In particular, Coach 4 noted:

Canada is definitely one of the top in the world. We're not lacking in knowledgeable coaches that's for sure... If you skate in Russia, you have to get to the one or two schools they have but in Canada there's lots of great places to skate.

Similarly, Coach 5 felt it was the early influence of key coaches and choreographers who initially planted the seeds for this coaching excellence to the point where "that skill set is all over the place".

Coaches also reflected on how, with all these resources, Canadians were not performing at the same level as the other top competitors in the world. Coach 6 suggested that in Canada, we can do any sport we want, which may lead to losing a potential phenomenal figure skater to other sports (e.g., diving). Similarly, Coach 3 stated that we do not have the same volume of people who are performing at a high level in Canada, but we usually do have one very strong individual:

We've always been able to kind of produce that superstar and kind of one after the other for a really, really long time and just kind of like you know one superstar left and then the next one was waiting right there go. I think that's because I think the quality of coaching in Canada's really high there's a lot of very, very, very good coaches here, and I think we have a system that allows that superstar to really blossom and really kind of step into the top of the world.

Although this has worked for many years and Canada has been historically very successful, the coaches suggested this was a period of important changes in the skating world, and that Canada might need to start changing along with it. As Coach 4 mentioned, this may mean opening up the pool of skaters to give us a chance to be at the top of the world again. Collectively, this theme emphasized the importance of understanding cultural factors that may affect approaches to, and opportunities for, athlete development (e.g., secondary influences, see Baker & Horton, 2004).

## General discussion

Coaches' interview data revealed three interconnected themes; Managing Early Specialization, Developing a Well-Rounded Athlete and The Canadian Context, which demonstrate coaches' concern with their athletes' development, sport longevity and enjoyment. The push for career longevity and early exposure in figure skating could be a by-product of the infrastructure of Canadian figure skating, which picks athletes early rather than keeping an eye out for the late bloomers. As mentioned, Skate Canada's LTADM has laid out a developmental framework, but coaches' comments, somewhat surprisingly, did not always align with the expectations of these documents. This may reflect coaches' capacity to make sense of what may be conflicting messages from Skate Canada and sport scientists around the topics of early specialization and talent identification.

In contrast to coaches' recommendations, which are supported by current evidence, their use of outdated concepts and language suggests their knowledge of the latest developments in sport science is incomplete. For example, their understanding of talent as something physical and fixed, is not reflective of more holistic and dynamic conceptualizations (Baker et al., 2018, 2019). Coaches also referred to "sweet spots" and "the earlier, the better" which generally reflect elements of the deliberate practice framework (a strong component of Skate Canada's LTADM)<sup>1</sup>.

An intriguing discovery was the focus these coaches had on early exposure to the sport (i.e., a slow introduction to the competitive elements of the sport while developing foundational skills) rather than specialization. This distinction between exposure and specialization is emerging as an important element in this area (e.g., Jayanthi et al., 2021). For instance, the focus on exposure relates to provision of the appropriate load

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1. In October of 2021, after our research was conducted, Skate Canada released their new Long Term Development Resource to its members. This new guide is based on the holistic development of the athlete at their own pace.



progression for training and development. The coaches in the current study seemed to understand load progression as reflected in the discussion around identifying the right person. Furthermore, the coaches noted the qualities they look for in an athlete and demonstrated their knowledge of the best progression for different kinds of skaters (e.g., talented skaters with little motivation and moderately talented skaters with high motivation will have different load progressions).

Coaches' encouragement of their skaters' participation in other sports, during early development (8-12 years of age), as a way of avoiding early burnout, increasing longevity and starting to increase training hours aligns with many recommendations regarding decreasing early specialization (Baker, 2003; Baker et al., 2009; Jayanthi et al., 2021; Mosher et al., 2020; Wiersma, 2000). A recent meta-analysis by Güllich et al. (2022) shows multidisciplinary practice and diversified training as better predictors of future athletic success than athletes who specialized in one sport early, further supporting coaches' recommendations that athletes should have a well-rounded pattern of sport engagement. Moreover, coaches seemed to take active steps to keep their athletes as healthy as possible, both mentally and physically. Notably, Coaches discussed the need for a slow progression into specialized sport and a good sport/life balance to prevent early burnout. Coaches also emphasized the importance of mental training, which has been recently discussed as an important factor when engaging in purposeful training and practice (Baker et al., 2017; McCardle et al., 2019). In particular, coaches noted the need to prepare their athletes with the tools for success, such as building mental toughness and learning to become emotionally detached from training.

The interview data also suggested coaches believe the Canadian high-performance system was equipped with the resources to produce successful figure skaters (e.g., knowledgeable coaches). However, they implied that the historical success of the Canadian system was largely due to a small number of stars and that adding greater depth and breadth to all levels of the system is important for future success. Collectively, these find-

ings suggest figure skating may be better served by placing greater emphasis on early exposure and development rather than early specialization, since this may promote a greater number of more well-rounded, adaptable, and successful figure skaters who may stay engaged in the system for longer.

While this small study revealed several intriguing results, there were some obvious limitations to our design, affecting what these results mean in the broader research context. Most notably, while these coaches were highly experienced and knowledgeable, the small sample only included coaches from a single Canadian province, and opinions may differ throughout the country and internationally. Coaches' answers may have also been biased by social desirability as the media have been critical of the sport and its early specialization nature (among other scandals). However, due to the primary author's experience and familiarity with the sport, this should have increased the potential for honest and thoughtful discussion. Furthermore, many coaches noted the unique temporal and cultural factors affecting what is happening in figure skating at this moment, and, as a result, coaches' perspectives may change over time. Finally, this study only considered coaches' perspectives and future research should investigate skaters' perception of early specialization and its relationship to their holistic development.

## Conclusion

Research conducted over the past few years has emphasized that the concept of early specialization is more complex than originally considered, and the current results add to this complexity. Coaches in this early specialization sport reported being aware of the potential risks associated with this type of engagement and made efforts to mitigate these risks. Moreover, coaches made it clear that although the culture of figure skating seems to expect early specialization, even making it explicit in athlete development documents, diversification and early exposure are seen as better pathways. Results also, indirectly, reflect how slowly policy changes occur in sport, and the need

for coaches to keep up with new information. These results suggest further investigation into atypical sports, such as figure skating, are important for understanding the nuances associated with this phenomenon.

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### **Data availability statement**

All relevant data are within the paper.

## Appendix A

The following questions constitute the interview guide that was used in this study.

1. Tell me about your coaching and sport background?
2. Can you tell me about some of the best athletes you have worked with?
3. What made them stand out?
4. How do you select the athletes in your program?
5. How long does it take to 'know' (e.g., if they're a suitable fit for your program/team? And whether they will be successful?)
6. What do you think makes a successful competitive figure skater? What qualities do you look for when working with an athlete?
7. Describe the 'ideal' athlete (i.e., figure skater)
8. In your experience at what age should someone start training to be a competitive figure skater? And why?
9. If you had to describe what 'talent' means in figure skating, how would you describe it?
10. How do you think early specialization impacts skaters/ kids?
11. What are some of the changes you have noticed in this sport within the last 10 years?