

Social Influences on Return to Play Following Concussion in Female Competitive Youth Ice Hockey Players

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Increasing rates of concussion within youth sport has sparked interest in several related areas, such as, the psychological and physiological effects of concussion (Stein & Meehan, 2014). Despite this increased interest, there remains limited knowledge about the potential influence of significant others (e.g., parents, coaches, and teammates) on young athletes concerning the Return to Play (RTP) process following a concussion. The purpose of this exploratory study was to examine the perceived social influences on female youth ice hockey players' RTP following a concussion. Using a phenomenological approach, five female competitive youth ice hockey players ($M_{age} = 12.2$) were interviewed to gain insight into their experiences during the RTP process. Coaches, teammates, parents, siblings, and teachers were found to play a significant role in RTP. With regards to influences from others, four common themes emerged: Compassion, Support, Protection and Pressure. Study findings support the importance of concussion management education systems for coaches, parents, and athletes.

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Ice hockey is among the most popular youth sports in North America, behind only soccer and swimming (Government Canada, 2013). Recent data suggest there were approximately 351,890 youth hockey participants in the United States (USA Hockey, 2014), and more than 600,000 youth registered for hockey in Canada (Ontario Hockey Federation, 2013). Participation in hockey has increased world wide with many of the new participants coming from countries in Europe (IIHF, 2014). Among European countries, Russia, Sweden and Finland have lead the way among youth hockey registrants (IIHF, 2014). Youth hockey players are subject to a wide range of injuries; however, there is literature to support that concussions are not only the most common specific injury type, but also that concussion rates appear to be rising among youth hockey participants (Emery, 2006; Emery & Meeuwisse, 2006; Proctor & Cantu, 2000). These recent findings have prompted a greater discussion around the safety of players in youth hockey and led to rule changes in both Canada and the United States. For example, in response to the elevation in sport-related confirmed concussions, the Ontario Minor Hockey Association (OMHA Official Playing Rules, 2013) has changed Rule 6.2 – Body Checking, twice in the past two years, more recently removing body contact at the Peeewe age group (ages 11-12) in order to promote greater player safety. This rule change has since been implemented nation-wide across Canada.

The prevalence of concussions in youth sport has generated discussion around the Return to Play (RTP) guidelines for athletes who have suffered a concussion (e.g., Creighton, Shrier, Shultz, Meeuwisse, & Matheson, 2010; Davis & Purcell, 2013; Echemendia, 2006). Following the diagnosis of a concussion, athletes may begin the RTP process. This process is fluid and can be influenced by a variety of factors. Creighton and colleagues have provided a decision-based RTP model that outlines three key factors and numerous sub-factors. The three main factors outlined are: (1) Medical factors (e.g., demographics, symptoms, and medical history), (2) Sport risk modifiers (type of sport, position played, and competitive level), and (3) Decision modifiers (timing, pressure from the athlete, and external pressure). Decision modifiers are identified by Creighton and colleagues as additional factors that may change the athlete's decision to RTP. The factor that is the focus of this study is decision modifiers, and more specifically, external pressure otherwise described as social influence of others. Creighton and colleagues consider external pressure to be "pressure from people other than the athlete, and the clinician" (p. 383). This pressure may come from family members, teammates, coaches or others, and could influence the athlete's decision when contemplating returning to sport. Based on this definition, the pressure may be considered a form of social influence.

Social influence is commonly described as how one individual impacts, directly or indirectly, the thoughts, feelings, or behaviours of another (Turner, 1991). There is literature

that highlights the importance of supportive roles from important others during the recovery process from both orthopedic injury (Bianco & Eklund, 2001) as well as concussive injuries (Caron, Bloom, Johnston, & Sabiston, 2013). Bianco and Eklund (2001) identified that elite level skiers found family and important others (e.g., spouses, loved ones, or close friends) to play a predominantly supportive role when recovering from a variety of injuries. More specific to concussion, Caron and colleagues (2013) found that former NHL hockey players were subject to a number of social influences including family members, coaches, and medical professionals. The athletes identified varying types of influence, including positive influences from family members, and at times negative influences from medical professionals or coaches. The results of the study prompted the researchers to call for further investigation into the dynamics of these networks when an athlete is suffering from concussion (see Caron et al., 2013). Conversely, within medical research, patients identified family and friends as giving unwanted support, whereas patients placed more value on the support received from medical professionals when the patients perceived they had insufficient amounts of support (Neuling & Winefield, 1988). To our knowledge, social influences have yet to be investigated at the youth sport level in relation to concussive injuries.

One particular demographic in need of further exploration with regards to concussion research is female athletes. Recent studies have suggested that there may be gender differences in the onset, amount, type, and duration of concussion-like symptoms (Dick, 2009; Farace & Alves, 2000; Gessel, Fields, Collins, Dick, & Comstock, 2007). Farace and Alves (2000) conducted a meta-analysis exploring sex differences in post-concussion symptoms among adolescents and adults. For nearly all symptoms examined, they found that females experienced greater number and longer onset of symptoms for concussion. Some of these symptoms included dizziness, impaired memory, headache, fatigue, anxiety and depression. Of the studies within the analysis, the time since injury ranged from six weeks to approximately seven years, with the majority of the data collection falling within the three to five years since injury (see Farace & Alves, 2000 for a review). A more recent study was conducted by Gessel and colleagues (2007) examining gender differences among collegiate and high school athletes. This study found that in sports that were played by both genders, female high school athletes reported higher rates of concussion than males. One limitation with regards to the application of the study is that they did not examine ice hockey.

Dick (2009) performed a meta-analysis comparing gender differences in concussion in multiple sports including ice hockey. Females were found to have higher rates of concussions in comparison to males. Dick (2009) speculated that biomechanical differences such as neck strength and head to ball ratio may account for the gender differences in concussion prevalence. She also identified potential hormonal differences affecting the amount of blood

flow to the brain, which could account for the discrepancies in symptoms. Additionally, the author noted that it is possible that females are more likely to report their symptoms due to cultural differences and that males may be more likely to under report, given their "macho" mentality pertaining to sports (Dick, 2009).

In addition to gender differences in the onset of symptoms and recovery process, much of the literature within the field also suggests that age differences exist. In comparison with adults, there is an increased head to neck ratio in children which results in greater injury given the same force (Munoz-Sanchez et al., 2005). Furthermore, children take nearly twice as long to recover from concussive injuries (Grady, 2010) and are more likely to experience repeated concussions later in life (Guskiewicz & Valovich McLeod, 2011). A growing body of research has also identified that pediatric and adolescent athletes should follow a cautious and individualized RTP protocol (McCrory et al., 2008; Halstead & Walter, 2010; Purcell, 2009; Purcell & Living, 2012).

In sum, higher risk of concussion, and worsened symptoms among female and youth populations, along with the potential role of social influence on the decision to RTP highlights the need for further research on concussions with female youth athlete populations. In addition, there has been limited research directly examining the social influences surrounding the RTP process. Thus, the purpose of this study is to examine the social influences on RTP following a concussion in female competitive youth ice hockey players.

Methods

Participants

Participants were five competitive female ice hockey players ($M_{age} = 12.2$ years, $SD = 1.2$) from a small city in northeastern Ontario. The inclusion criteria required the players to be between the ages of 9-16 years and have suffered a medically diagnosed concussion while playing hockey during the current or previous hockey season. The athlete must have returned to playing hockey since the time of her injury. Only one of the athletes had suffered more than one hockey-related concussion. That athlete was asked to reflect upon her most recent concussion, as the initial concussion was suffered four years prior to data collection. The time spent injured and unable to participate in hockey ranged from three to seven weeks.

Procedure

A qualitative phenomenological approach was used to evaluate the athletes' experiences in returning to sport following their concussion. Phenomenological approaches allow the researchers to move past a brief description and to gain an in depth understanding of the athlete's experience (Dale, 1996). The purpose of using a phenomenological approach is to "identify phenomena through how they are perceived by the actors in a situation" (Lester, 1999, p.1). Additionally, phenomenological methods seek to describe rather than explain, through the use of qualitative data analysis such as interviews, discussions, and participant observations (Smith, 2007). A phenomenological approach was chosen for this study, as it attempted to describe the experiences perceived by female hockey players on the social influences during their RTP process.

Following ethical approval from the University Ethics Review Board, as well as approval from the participating hockey association, presentations were conducted to the head coaches within the association at an annual coaches meeting. Coaches who were interested in participating in the study contacted the researchers to set up an initial meeting at the beginning of their season. The researchers were then referred to players who had suffered concussions during the 2013-2014 season or during a previous hockey season. The research team then contacted each athlete, as well as their guardian, individually and followed specific ethical protocol for consent and assent. The athletes involved in the study were required to sign individual assent forms; additionally, parental consent was received for each athlete because they were under the age of 18. Each athlete received a \$20.00 gift card for participating in the study. Participating teams received an on ice practice, which was run by members of the Women's Varsity Intercollegiate Hockey team. The researchers conducted one on one interviews with the athletes in order to ensure that the young athletes' responses were not influenced by others, and so that the participants felt as though they may share responses freely. The interviews were conducted using a semi-structured, open-ended interview guide, and were recorded using two audio devices for each interview.

The interview guide was designed to gather information about the athletes' experiences during the RTP process. The guide included five main question areas: (1) opening questions; (2) introductory questions; (3) transition questions; (4) key questions; (5) ending questions. This approach was outlined in Bruner, Munroe-Chandler and Spink's (2008) study examining entry into elite level sport, and was supported by the recommendations of Drever (1995) for using semi-structured interviews in small-scale research. A detailed outline of the interview guide is presented as Appendix A.

The first author who conducted the interviews was male and had 19 years of experience playing hockey. The interviewer also had experienced multiple concussions, and as such was able to relate to participants' experiences. In addition, the interviewer received training and guidance from a senior member of the research team and completed multiple interviews and focus groups as part of other research projects prior to the beginning of the study. In addition, a practice run was conducted using the interview guide with a research colleague in order to ensure the interviewer was familiar and comfortable with the questions.

Guidelines set by Lincoln and Guba (1985) were used to ensure credibility, transferability, dependability, and confirmability throughout the research process. Specifically, field notes taken by the first author during the interviews facilitated triangulation of the various data sources (i.e., respondents' expressions, transcriptions, member checks and field notes) to strengthen the credibility and confirmability of the results (Lincoln & Guba, 1985). To enhance the transferability of the findings, the authors obtained detailed descriptions of the participants, contexts and experiences. Finally, given that this study served as mainly exploratory, use of overlap methods and stepwise replication in future studies would assist in determining the dependability.

Data Analysis

Interviews were transcribed verbatim using Gear Player software. Notes that were made during each interview were also used to assist the researcher to recall specific parts of each interview and ensure consistency of transcriptions. Thematic content analysis was conducted using the six-step process outlined by Braun and Clarke (2006). Thematic content analysis provides a flexible and useful tool, which has the potential to provide a rich and detailed account of the data. Additionally, this type of analysis is particularly useful for identifying, analyzing, and reporting patterns or themes within the data (Braun & Clarke). The dataset from this study was derived from any instance that had relevance to social influence during a participant's recovery process. A realist method of thematic analysis was used, which reports experiences, meanings and the reality of participants (Braun & Clarke). In order to provide a more detailed analysis of a particular set of data, we chose to use a mainly inductive thematic analysis. Inductive analyses are driven by the interest of the researchers and formed through the responses of the participants (in this case, the social influences that were identified, and their nature), without use of previous research or themes. Finally, the themes from this study were analyzed at a semantic level, which means that the themes identified were within the explicit meaning of the data (not looking beyond what the participant had said) (Braun & Clarke). Descriptive labels for each theme were derived from the participants' words and experiences.

To enhance trustworthiness of the findings, the lead researcher and a coauthor discussed the findings, with the coauthor acting as a resource to assist in reflecting on the themes, as well as in the interpretation of the data (Lincoln and Guba, 1985). The interviews were coded into meaning units, which were then grouped together forming themes. The themes were then reviewed, and named; finally, each theme was then further grouped into categories.

Results

From the data analysis, we identified four overarching themes describing the types of influence as expressed by the participants. The four themes that emerged consisted of: Compassion, Support, Protection, and Pressure. Each theme was then further broken down into the source from which the influence came. Sources of perceived influence included: coaches, teammates, teachers, parents, and siblings. Quotes from the interviews are provided to display each theme; pseudonyms are used to credit participants while also protecting their identities.

Compassion

The first theme that emerged was compassion. First, athletes identified that teammates showed compassion with regards to their injury, as displayed when one athlete noted:

I would go to the games and I would go in the dressing room with the girls even if I couldn't play and they were all really good like they would ask me like how I was feeling and when I was coming back but not like, 'you need to come back, you need to come back', they were pretty good about it (Kelly).

Additionally, teachers were viewed as compassionate, in that they would make modifications for the athlete both inside and outside of the classroom. One athlete discussed the role of her teachers by saying "all of my teachers were really good about it like I told them all that I was hurt and like I had a test the next day and my teacher like let me postpone it" (Kelly). While another athlete who couldn't go outside for recess mentioned, "...they (teachers) would let me stay in with a friend so we could talk at recess" (Alex).

Support

Parents were the first source of influence identified within this theme and were viewed as supportive with regards to the RTP process. One athlete expressed, "my parents were kind of like my coaches because my dad was there and they were always like 'don't come back

on until you need and take your time” (Madison). Parents also provided support by helping the athlete get around, and without restricting them, as this athlete mentioned, “My parents did help me go around places, it wasn’t like, ‘NO you’re staying here’...” (Tristan). Finally, when athletes were asked about the support they received during the process, they specifically identified that their parents were supportive, “Well my father was very supportive while I was hurt” (Meghan).

The second source of influence identified within the “Support” theme was coaches. Coaches would ensure that athletes were not rushed into returning. One athlete noted, “Coaches, always said you know ‘don’t come in until you’re ready’” (Madison). In another instance, where the athlete felt pressured to return by others, the coach even told the athlete to disregard what their parents were saying, “Yeah and Paula (coach) was telling me she was like don’t go back unless you’re ready like it’s your choice. Don’t listen to your Mom and Dad. It’s your choice. It’s your head you know?” (Kelly). Finally, coaches ensured that the athletes knew that there was no rush to RTP. One athlete noted, “she (my coach) said, take it easy, I don’t care when you get back, just get better” (Meghan).

The third source of influence identified within this theme was teammates. One athlete mentioned that her teammates were very supportive when she said,

From my teammates it was always support, they always wanted me back on the ice, but I wouldn’t say it was like pressure, they just were saying ‘We miss you’ and ‘Are you coming back soon?’ (Madison).

Protection

A number of sources fell within the “Protection” theme. Parents made sure that their daughter was ready to RTP even after a doctor had cleared her, this exemplified by the quote, “After the doctor, we had a talk, well while we were having a talk with the doctor my mom was like ‘Alex, like are you okay?’ She made sure (I was ready)” (Alex). Parents would also allow children to stay home and rest. One athlete said, “he would just say go to bed and he would be very protective about it” (Meghan). In addition to parents, coaches, would enforce strict concussion protocols by ensuring athletes had obtained doctor’s clearance before they could RTP, as well as displaying concern for the athlete even after they had returned. This athlete noted, “It was always, stay out as long as you need we (coaches) don’t want you like... if I fell again they were like just in case just sit out the rest of the game, lots of that” (Madison). Another athlete also experienced protective coaching after she had made her RTP, she said “yeah and then my coach like Bryan just told me to come sit down if I felt light headed and he was fine with it” (Kelly).

The final source of influence within the "Protection" theme was teachers. Teachers would ensure that athletes were abiding to the recommendations outlined by medical professionals. One athlete expressed,

Well the school would allow... like when we were in a certain class and they were using the white board the teacher would do something so that I wouldn't have to use the white board or I wouldn't have to read (Tristan).

Teachers also took precautions to ensure the athletes did not risk re-injury while at school. One athlete noted that, "teachers wouldn't let me go outside because it was winter and everybody is like playing around and I would fall in the snow" (Alex).

Pressure

The final theme that was identified was pressure. Two sources of influence were identified within this theme, the first of which was parents. Pressure from parents is exemplified through one athlete's experience when she shared:

My dad, he is my (assistant) coach and he's crazy... I don't want to say he didn't care but he didn't really think it was a big deal, he was like 'yeah I had a concussion when I was younger but I still played through it, it's not a big deal.' So he kept pressuring me to return to play and every time I would say 'no I'm not ready' he would say 'yeah I think you're ready, it's been a while' so I said, 'no I still have headaches. I can't go back it's not safe' (Kelly).

The athlete continued to discuss the pressure that she felt from her parents when she noted that her parents were actually providing conflicting pressure:

Well my dad is really intense and he wanted me to go back. He wasn't really sympathetic at all so he wanted me to go back but my mom didn't even want me to play hockey anymore so it was kind of hard. My parents are divorced so I was hearing one thing from one and one thing from the other (Kelly).

Alongside pressure from parents, athletes reported pressure from siblings to RTP. One athlete shared "My sister, she was like: 'Alex, you've got to keep on playing' because she was on my team too" (Alex). When the athlete was discussing the influences that she had received, she noted that her sister, rather than her teammate had provided some pressure to return. Therefore, this was coded as a sibling influence rather than a teammate. Another athlete mentioned that their sibling wanted her to RTP because they were having a goal-scoring competition:

Well there was my brother a little bit, but then my mom said, 'well she can't go back'. He's always trying to be really competitive with me, but he was the only one that

pushed me to go back (Tristan).

The sibling continued to provide negative influence to his injured sister, trying to encourage her to resume playing. "He was like 'Tristan you've got to get back out there what about our competition that we're having' and stuff like that, because we have competitions for who can get the most goals" (Tristan).

Discussion

Female ice hockey players from a small city in Northeastern Ontario who had previously suffered a concussion were interviewed to better understand the social influences on the RTP process. To our knowledge, this study was the first empirical investigation of perceived social influences surrounding female competitive youth ice hockey players who have suffered a concussion. The findings of this study suggest female competitive ice hockey players' RTP are subject to a number of influences throughout the RTP process including, but not limited to, those described as Compassion, Support, Protection and Pressure. It should be noted that all female athletes reported RTP only after they felt they were ready.

Previous literature in the sport participation context has shown that similar to this study, parents and coaches have a relatively strong and in certain cases conflicting influence on the athlete with regards to motivation to participate in sport (Keegan, Harwood, Spray, & Lavalley, 2009). Keegan and colleagues found that parents and coaches had the strongest influence on the athletes, but also that peers played a small role in influencing the athletes' motivation. The mention of having supportive coaches in this study is important to highlight, given that they are ultimately in charge of the athletes' safety while playing. While coaches were identified as supportive and understanding, athletes in this study reported that parents as well as siblings may be a source of pressure. This may potentially lead the athlete to RTP earlier than they are ready, posing a greater risk of suffering from a second concussion and the cumulative effects of concussion (Guskiewicz, McCrea, & Marshall, 2003). It is important to note that although pressure from parents was identified as a theme, parents were also grouped within the more positively toned themes such as "Protection" and "Support".

There is also evidence that parents are highly likely to coach their son or daughter in the youth sport context (Barber, Sukhi, & White, 1999). This could be potentially harmful to the athlete if they are subject to pressure during their recovery from a concussion if the parent is also a coach. In particular, one athlete who reported feeling pressure from her father to RTP also noted that her father was an assistant coach for her team. It is unclear at present how this type of interaction might differ from that of a coach who is not a parent, or

vice versa. Thus, there is a need to further explore this relationship in future studies. Positive influence from both parents as well as coaches, given their active roles in the child's sport participation as well as decision-making during the RTP process, may be important in order to relieve unnecessary stress or anxiety on the athlete.

As mentioned earlier, Caron and colleagues (2013) found that former elite level hockey players reported having both positive and negative influences when recovering from concussive injuries. Some players reported having strong social support groups including family, coaches, and teammates. Similarly, in this study, teammates were excited to see the athletes RTP, but were not viewed as pressuring. Interestingly, the only theme in which the athletes recognized teammates was "Supportive". Other players in the Caron et al. study reported being pressured by medical staff as well as coaches to RTP while they were still experiencing concussion-like symptoms. The findings of this study support previous findings in that the source and direction of the influence varied among athletes. The findings from both studies outline positive support and influence as well as negative influences, such as pressure to RTP, on the athletes during their time spent injured.

One difference found between the two studies was the identification of medical professionals. There were no athletes within this study that perceived to have been influenced positively or negatively by any medical professional. While athletes did mention that they had received a doctor's note to clear them to play, the interactions with medical professionals were viewed as informational. Unlike previous research (Bianco & Eklund, 2001; Caron et al., 2013), these interactions did not seem to carry any sort of external influences and were seen by the athletes as facts about their injury as displayed in the following quote: "So I went to the doctor twice, and he just, he would check and ask me questions like; are you feeling dizzy or anything?" (Kelly). The present findings may be attributed to the younger age of the participants and lower level of competition of the athletes or a cultural shift in attitudes and perceptions towards concussion (Bianco & Eklund, 2001; Caron et al., 2013). However, this awaits further research.

Bianco and Eklund's (2001) study examining elite level skiers and their sources of support while returning from injury differed from the results of this study in other aspects as well. The researchers found coaches to be the most common source of negative support, and that family and significant others were the most common sources of positive support. The findings in this study relating to coaches however are encouraging, in that it might provide some evidence that current concussion education is having a positive impact on those who are required to have it (i.e., coaches and trainers). One important limitation to identify is that all participants in this study came from teams where the coaches had expressed an interest

in participating. Therefore, it is possible that there is a bias that these coaches are more informed or have a more positive attitude towards following the RTP protocols than those who did not participate in the study. As a result, coaches who participated in this study may be less likely to pressure their players to RTP based on their knowledge or attitude toward concussion.

One interesting finding was that athletes identified teachers as protective, supportive and compassionate. The athletes reported that teachers made in-class and out of class modifications such as postponing tests, allowing them to rest their eyes if their head hurt, or staying in with friends at recess in order to promote the recovery of the athlete. There is scarce literature focusing on the teacher's role during the injury recovery process. However, there is literature that supports the notion that teachers influence classroom behavior (Davis, 2003), which may be related to out of classroom behavior and decision making as well. Recent researchers have also suggested that accommodations within the classroom should be made for athletes who have recently been concussed (Doolan, Day, Maerlender, Goforth, & Brolinson, 2012). In addition, Davis & Purcell (2014) note that students might worsen symptoms by participating in schoolwork or assignments too soon, due to fear of falling behind. Thus it is important for teachers to be aware of symptoms and signs of concussion among students in order to allow the child to fully recover. Finally, because teachers spend significant amounts of time with children at this particular age; it is encouraging to see them playing a positive role when athletes are injured. The role of teachers is important to consider, given the amount of interaction they have with children at this age. It would be useful to examine the role that the teacher plays during an athlete's recovery process and whether they influence the decision-making RTP process. It is also unclear as to whether teachers receive any formal education on the management of concussive injuries and are aware of the precautions necessary to restore the child to full mental and physical health.

The final source of influence identified was siblings, who were classified as pressuring; however, it should be noted that at a young age, it is possible that siblings do not understand that they may be influencing their brother or sister in a positive or negative way based on their interactions with each other. What is interesting about the mention of siblings is that they were only mentioned within this theme, and not identified as sources among the other three themes. Previous sibling research within the physical activity field has shown siblings to have a significant positive influence on the other siblings' work ethic in sport (Côté, 1999). Findings from other studies examining the role of family on physical activity have also found that siblings may have a strong influence in activity participation among youth (Weiss & Barber, 1995). The results of this study may be concerning in a similar fashion to that of the parents. An athlete who feels pressure to RTP, and chooses to do so when they

may not be fully recovered, is at a greater risk of suffering a second concussion, posing much greater health risks (Bey & Ostick, 2009).

Given the findings of this study, as well as support from previous research, there is a need for more consistent concussion protocol education for parents, family members, teachers and participants of youth sport. Current programs such as *ThinkFirst* (2015), *Heads Up* (2015) and *imPact* (2015) that have been implemented in order to increase awareness of the prevention, recognition and response to concussion (CDC, 2014) as well as education modules installed by national coaching organizations (e.g., National Coaching Certification Program in Canada). The general purpose of these programs is to inform and educate trainers and coaches on how to deal with concussive injuries. These programs provide specific protocols on when to terminate an athlete's play during a game if they are suspected to have a concussion, and to advise the athlete to seek the opinion of a medical professional (e.g., doctor). However, given the findings of this study, there appears to be a need for greater education of parents as well as athletes on the risks of RTP too early from concussion. In addition, information may also be needed for parents, siblings and athletes on the benefits of positive support and positive influences during the RTP process for the injured athlete.

Kontos, Collins and Russo (2004) identify a need for a team approach to dealing with concussion and RTP protocol. This study seconds their motion, in that we feel it is important to educate the breadth of individuals who might influence the RTP decision-making process. This might include educating family members, teammates, teachers, the injured athlete, and any others who have potential to influence this process. At the time the study was conducted, the governing hockey association, in which this particular study took place, did not currently require the coaches, parents or athletes to participate in any concussion education training (Bill Houlder, Personal Communication, July 14, 2014). The trainers of the teams were trained via the Hockey Trainer Certification Program to recognize concussion symptoms and take action as they see fit (e.g., stop playing, refer to medical professional). Perhaps educating the coaches, as well as parents and athletes on the long-term hazards of concussions and the potential danger of an early RTP would reduce the likelihood of pressure to return and unnecessary pressure on the athletes. Concussed athletes are already subject to a number of psychological symptoms including depression and anxiety (Gavett, Stern, & McKee, 2011). Negative influences on the athletes could result in the compounding of these symptoms, and although not found in this study, it could result in the athletes' decision to RTP too early.

In sum, coaches, trainers and sport psychology consultants can minimize the risks of having negative or pressuring influences primarily through education. By educating players, parents and family members about the physical and psychological stresses that accompany

concussion, they can increase awareness about potential negative outcomes that result from an early RTP (e.g., Second Impact Syndrome, risk of other injury and long term symptoms). Again, these recommendations are in line with that of Kontos and colleagues (2004) who recommend sports psychologists to take on the role of the educator, in educating the injured athlete.

Limitations

While this study has brought attention to RTP concussion protocol for female ice hockey players, it should be noted that there were study limitations. The first limitation to this study regards the sample. Given that sports can vary by type, gender, age, competitiveness and many other factors, the findings of this study may not be applicable to all sporting contexts. In addition to context, the sample was limited in its relatively small size ($N=5$). A second limitation was the fact that interviews took place at a single point in time after the athlete had returned to sport. The participants' experiences may differ throughout the duration of the recovery process as well as the timing of the injury (i.e., pre-season versus late regular season, playoffs). A third limitation was the examination of a single viewpoint (i.e., players) of the RTP experience (i.e., concussed athlete). There may be value in examining the viewpoints of other social agents who were involved in the experience (e.g., coaches, teammates, parents, siblings).

Future directions

Based on the limitations and findings of the study, the researchers have identified several future directions. Conducting the study across multiple sport types would allow for researchers to examine differences in the social influences among athletes of varying sports as well as varying skill level (e.g., age, recreation, competitive, elite, gender). Results may differ in more elite level competition settings, where missing competition may have a larger impact on the athlete's success or future. In addition, larger sample sizes would be beneficial in order to explore the consistency of the findings across diverse groups of athletes throughout the RTP process. Thirdly, having multiple interviews with each participant would allow for deeper insight into the RTP process and the influences surrounding it. Multiple interviews would also allow for the examination of how timing of the injury may affect the types and sources of influence to which the athlete is subject (e.g., playoffs or tryouts). Future studies may also aim to examine the RTP process from other perspectives, such as that of the parent, coach, teammate or sibling (Shrier, Charland, Mohtadi, Meeuwisse, & Matheson,

2010). This would allow for the comparison of perceptions between the injured athlete and others involved in the process. Given the influence of siblings that was found in this study, and their potential to influence activity participation for this age group, it would be beneficial to further examine these relationships. Finally, exploring the differences between coach and parent-coach influences would aid in understanding of the type and strength of influence when a parent is also the coach.

Conclusion

This study offers preliminary phenomenologically-based evidence that competitive, female ice hockey players (ages 9-16 years) are subject to a number of social influences during the RTP process following a concussion. These influences can be both positive and negative and may affect the athletes' decision to RTP. Further examination of the type and sources of social influence would enhance our understanding of what types of influences female athletes are subject to during the RTP process. Finally, this study supports past research in that further education for any individual who might influence an athlete's decision to RTP is encouraged.

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Appendix A

Interview Guide

The following questions represent an overarching agenda for the personal interviews with the female ice hockey players who have suffered a concussion.

Introductory Questions:

1. How long have you been playing competitive hockey?
2. What reasons have kept you playing hockey competitively? E.g., Why do you enjoy playing hockey?
3. A) When did you receive your concussion?
B) How many concussions have you had while playing hockey?

Transition Questions:

4. Could you explain how you felt during your time spent injured or not being able to play?
5. Tell me about the process of recovery and returning to play
Follow Up:
6. Describe for me the kind of support that you received during your recovery?
Probe: Were there specific people or places that provided you with support during recovery? E.g., Parents, Teammates, Physicians, Peers or Coaches?
7. Could you explain how you felt when you were preparing to return to play?
8. What role did other people have in your decision to return to play?
Probe: Were there specific people who played a role in your decision? E.g., Parents, Teammates, Coaches or Physician?

Key Questions:

9. Was there anyone who pressured you into returning to play?
Probe: Parents, Teammates, Coaches, Physician or Others?
10. How was it decided that you were ready to make a return to play and did anyone influence you in making that decision?
Probe: Were there specific people or places that provided you with support or played a role in the decision making process? E.g., Parents, Teammates, Coaches or Physician?
11. Do you have any lingering effects from your concussions?
Probe: Do you experience any psychological effects from your concussion? E.g., Fear of re-injury, anxiety about contact, confidence or ability to return to same level of play?

Ending Questions:

12. Reflecting back on the experience, do you feel that you were ready to return to play when you did?
Probe: (If yes) were there any specific reasons that you felt influenced you to return too quickly?
13. Anything else to add about your experience and returning to play?

Closing Remarks:

14. We would like to thank you for participating in the study. Upon your coach's request, we will pass along any of our findings, should you or your teammates be interested in looking at our results. Thank you for your time, and feel free to contact us about any questions, comments or concerns.

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