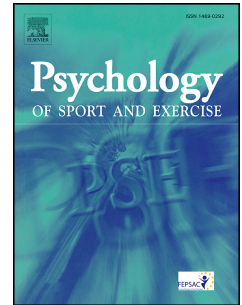


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Understanding Overuse Injuries in Rhythmic Gymnastics:**A 12-month Ethnographic Study**

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Abstract

Objectives: This study aimed to gain an in-depth understanding of overuse injuries in rhythmic gymnastics from a psychosocial perspective. More specifically, it examined how sport culture impacts overuse injuries.

Design: To develop an understanding of the culture of rhythmic gymnastics and gymnasts' behaviour within the context of this culture, ethnography was the chosen method and written product of this research.

Method: A 12-month ethnography was conducted in an elite rhythmic gymnastics club in Italy, with 43 participants, consisting of 16 gymnasts, three female coaches, one physiotherapist, 22 parents, and the club's president. Eight qualitative methods of data collection were used to provide rigor and depth. Following data transcription, a thematic analysis was conducted to identify the emergent themes. Findings are presented using ethnographic creative nonfiction for ethical, theoretical and practical reasons.

Results: Two stories were created portraying the same training session through the eyes of a gymnast and her coach. The stories reflect the differences in the interpretation of the same situations and the cultural norms, values and behaviours that influenced the occurrence and experience of overuse injuries.

Conclusions: This study extends research on overuse injuries in three ways: (a) it honours athletes as social agents by exploring the intersection between psychology and sociology, (b) it uses a rigorous methodology to elicit a more in-depth understanding of overuse injuries, and (c) it adopts an innovative form of representation to increase the accessibility of the findings to non-academic audiences.

Keywords: qualitative inquiry, creative nonfiction, pain, youth sport, well-being, coach-athlete relationship

Introduction

There are many benefits from participating in competitive sport. These range from personal (e.g., psychological well-being, physical competence) to social benefits such as social integration and social acceptance (e.g., Findlay & Coplan, 2008; Neely & Holt, 2014). Nevertheless, a few researchers have started to suggest that there might be a *darker side* to sport, and that the environments that athletes inhabit may damage their health (e.g., Douglas & Carless, 2015; Theberge, 2008). For example, a sport culture that solely rewards winning can lead athletes to set unrealistic expectations and adopt extreme performance-enhancement practices, which can result in overtraining, injury, and burnout (Douglas & Carless, 2015). Yet, understanding the darker side to sport, and how it can damage athletes' health has received limited attention. One prevalent and significant physical health consequence that has received limited research attention is overuse injuries. This type of injury has been found to be highly prevalent in sport, particularly in endurance and aesthetic disciplines (Clarsen, Myklebust, & Bahr, 2013). Despite the high prevalence of overuse injuries, very little research has been conducted to understand athletes' experiences of overuse injuries and the social environments in which they occur. This study aims to address this gap by understanding the culture of a sample of sportspeople vulnerable to overuse injuries.

Understanding sport cultures that perpetuate overuse injuries and honouring athletes as social agents is important and timely. First, researchers have started to explore the intersection between the psychology and sociology of sport (McGannon & Smith, 2015). One of the benefits of examining this intersection is that it can provide psychologists with a contextualised understanding of the influence of the social-cultural realm on athletes'

psychological experiences. Rather than perpetuating a distinction between people's minds and the social world, this approach to research demonstrates athletes' experiences may derive from the surrounding environment (McGannon & Smith, 2015). Second, overuse injuries have been found to be prevalent across a breadth of age groups and competitive levels in sport (e.g., Liston, Reacher, Smith, & Waddington, 2006; Straccolini, Casciano, Friedman, Meehan, & Micheli, 2015). Therefore, it is important that researchers seek to better understand overuse injuries in order to enrich athletes' experiences of sport and the environments they operate in. Lastly, overuse injuries can have undesirable short- and long-term consequences for athletes. For example, researchers have found overuse injuries to lead to early retirement and long-term chronic pain (e.g., DiFiori et al., 2014; Maffulli, Longo, Gougoulas, Loppini, & Denaro, 2010), as well as physical growth disturbance and joint deformity (DiFiori et al., 2014). Yet, despite these negative outcomes, it is surprising there is such a dearth of research to help sport science and medicine professionals better understand the occurrence and experience of overuse injuries. Understanding athletes' and coaches' experiences of overuse injuries and the environments in which they occur will strengthen our position as sport and exercise psychologists to explore the possibility for individual and social change.

A few researchers have recently begun to explore overuse injuries from a psychosocial perspective (e.g., Tranaeus, Johnson, Engstrom, Skillgate, & Werner, 2014; van Wilgen & Verhagen, 2012). These studies observed overuse injuries to be dynamic and complex, and not simply due to an overuse of the joint, muscle, or tendon. For example, Tranaeus and colleagues (2014) and Van Wilgen and Verhagen (2012) used one-shot semi-structured interviews and identified a number of non-physical factors related to overuse injuries across various sports (e.g., indoor floor hockey, swimming, volleyball). These factors included culture, stress, staleness, passion, and identity, which reinforces the importance of

considering both the person and the environment. Despite their contribution to the literature, the studies concluded with the need for a greater depth of understanding of overuse injuries to safeguard athletes' well-being. Indeed, we still do not fully understand the dynamic nature of overuse injuries, and how sport culture influences their occurrence and experience.

One tradition in qualitative inquiry that was developed to understand the culture of a particular group from the perspective of its members is ethnography (Krane & Baird, 2005). Although there are many definitions of ethnography which are challenging to distinguish between, Bryman (2012) characterised ethnography as a research method in which the researcher: (a) is immersed in a social setting, (b) makes regular observations of the behaviours in that setting, (c) listens to and engages in conversations and interviews, (e) collects documents about the group, (f) develops an understanding of the culture of the group and people's behaviour within the context of that culture, and (g) writes up a detailed account of that setting. Indeed, ethnography is not only a method of research, but also a written product of that research (Bryman, 2012; Krane & Baird, 2005). In the last decade a number of sport and exercise psychology researchers have embraced ethnography and the focus of their works has spanned through different areas of sport psychology. For example, research included investigating issues surrounding the supply of sport opportunities to young men from inner-city areas (Holt, Scherer, & Koch, 2013), examining the rehabilitation experiences of athletes suffering for a spinal cord injury (Smith, 2013), and understanding the organizational functioning of a sport organisation (Wagstaff, Fletcher, & Hanton, 2012). With the preceding discourse in mind, this study aims to adopt ethnography to develop an in-depth understanding of overuse injuries in rhythmic gymnastics. Specifically, it aims to examine how sport culture impacts overuse injuries.

Methodology and Methods

Philosophical Assumptions and Methodology

The design of this study is underpinned by ontological relativism (i.e., reality is multiple, created, and mind-dependant) and epistemological constructivism (i.e., knowledge is constructed and subjective). Consistent with these philosophical beliefs and the aim of the study, ethnography was the chosen methodology. Given ethnography seeks to develop an understanding of a group's culture and of people's behaviour in the context of that culture (Wolcott, 2005), it was deemed the appropriate method of inquiry. I, the first author, used ethnography to gain a comprehensive understanding of overuse injuries in an elite rhythmic gymnastics club. Founded in the 1980's, the club is based in Italy and is consistently among one of the highest performance clubs within the country. For 12 months (September 2013 to September 2014) I immersed myself in the club's environment, observing and talking to key stakeholders and its members. Rhythmic gymnastics was the chosen sport for the following reasons: (a) the gymnastics environment has been portrayed in previous research as being characterised by the disciplinarian methods used by coaches to develop strong and competitive gymnasts (e.g., Barker-Ruchti, 2008; Krane, Greenleaf & Snow, 1997), which previous researchers have suggested might lead to overuse injuries (Tranaeus et al., 2014); (b) a lot of attention has focused on understanding the demands of artistic gymnastics, with little emphasis on rhythmic gymnastics; and (c) it was of personal interest to the first author who was a former rhythmic gymnast and current coach.

As a white middle-class female, rhythmic gymnastics coach with 15 years of coaching experience, and as a former gymnast myself (12 years retired), I shared a common cultural background with the organization's coaching staff and with the gymnasts. Consequently, these characteristics granted me an *insider status* and allowed me to take on the role of overt participant observer (i.e., marginally participating in the activities of the community while conducting observations; Hammersley & Atkinson, 2007). This status meant that I could access people and situations, perhaps not available for someone considered an 'outsider'. The

challenge for me however, was to avoid issues of overfamiliarity (Hammersley & Atkinson, 2007). To overcome this challenge I adopted two strategies: (a) I kept a reflective journal, which allowed me to critically reflect on my role as a researcher and on the research process by making me self-aware of my own values, beliefs, thoughts, feelings and behaviours, and how my positioning at the club may be impacting others, situations, and the social climate; and (b) my co-authors acted as *critical friends* by asking thought-provoking questions and discussing with me how I reached and interpreted my observations to make sure they were fair and balanced. Questions included: “How have you come to that conclusion?” and “Is there any other way of looking at this?”

Participants

Following University ethics board approval, the project was presented to the president of the gymnastics club, who agreed to let me approach the club’s members. I held two meetings, one with the staff (i.e., coaches and physiotherapist) and another with the club’s gymnasts and parents. The purpose of the meeting was to outline the study and invite staff and gymnasts to participate. All of the club’s personnel agreed to participate, providing written informed consent. Specifically, 16 female gymnasts of which 4 were Espoirs (age 10-11), 5 Juniors (age 12-14), and 7 Seniors (age 15 and older; $M\ age = 13.6$, $SD = 2.4$); three female coaches ($M\ age = 30.6$, $SD = 6.6$; coaching experience $M\ years = 12$, $SD = 8.5$); one female physiotherapist (aged 30); 22 parents (16 mothers, 6 fathers); and the club’s president (male, aged 54) took part into the study.

Data Collection

I began my study with a broad research question aiming to develop an understanding of overuse injuries in a group of Italian elite rhythmic gymnasts. Over time I narrowed my research lens as themes emerged throughout the research process (e.g., pain normalization, coach-athlete communication; Taylor & Bogdan, 1998). A number of methods of data

collection were used as the study unfolded. The first and main method was participant observation. This method enabled me to gain an overall perspective of the environment and to monitor, reflect and refine emergent themes. Observations were conducted three days a week during training and competition (i.e., regional, national and international tournaments), lasted three to four hours, and allowed me to look at transactions between coaches and gymnasts, as well as among teammates, examining both verbal and non-verbal behaviours. Moreover, my insider status also offered me a chance to witness episodes that took place “behind the scenes” (e.g., in the changing rooms). Observations were recorded using field notes, which contained an outline of what was observed and took the form of no more than a few words to reflect emergent themes. These field notes were translated into more coherent stories each evening in a research log, which provided a detailed account of the research setting. The final research log consisted of 148 pages of double-spaced text.

After the first three months as a participant-observer, I wanted to elicit a deeper understanding of the emergent themes. Based on recommendations in the literature (e.g., Ely, 1991; Krane & Baird, 2005), I decided to use interviews to learn how the participants perceived and made sense of their situations. Interviews allowed me insight into a world larger than the one I could observe through observation, and provided me with a deeper understanding of the context and culture of the club’s organization. Both informal and formal interviews were used. Informal interviews were unstructured, initiated when the opportunity arose, and lasted from 1 to 20 minutes. In contrast, formal interviews were organised with each participant and took place in the locker rooms. The questions within the interview-guide emerged from my observations and reflections on what was needed to answer the study’s aim. The guide opened with introducing questions to make the interviewee feel at ease (e.g., “When did you start gymnastics/coaching?”). The questions then focused on pain and injury (e.g., “Have you ever been injured?”). Based on the participants’ responses, follow-up and

probing questions (e.g., “How did you cope with and manage your injury?”) were used thereafter to respond to points that seemed worthy of being followed up. Through the follow-up and probing questions, I also sought to understand how the participants viewed their social world by varying the phenomena asked (e.g., values, beliefs, behaviour, formal and informal roles, relationships, stories). Overall, the participants were provided with a great deal of leeway in how to reply to the questions, which allowed room for topics of particular interest to them to emerge. Twenty-five formal interviews were conducted with gymnasts ($N = 17$), coaches ($N = 3$), the club’s physiotherapist, and parents ($N = 4$). These interviews ranged from 10 to 64 minutes ($M = 30.1$, $SD = 15$), and resulted in 137 pages of double-spaced text.

It is important to note that although in some cases the interviews were an effective method of data collection, with some participants they were not. The younger gymnasts were shy and only offered brief answers. To address this limitation, I used focus groups based on previous reports suggesting that focus groups with children allow for richer discussions than individual interviews, avoiding power imbalances between adult and child in one-to-one situations (Heary & Hennessy, 2002). Four focus groups were conducted, three with gymnasts and one with parents. The interview guide for the focus groups with the gymnasts was developed in the hope of further exploring some of the emerging themes from observations and individual interviews (e.g., “Can you define what ‘pain’ means to you?”). Specifically, the gymnasts were divided into their age categories for the focus groups. The groups were made up of four to six participants, a size that is recommended for lively discussions to develop and to avoid creating an intimidating setting (Krol, Sixma, Meerdink, Wiersma, & Rademakers, 2014). During the focus groups, I fulfilled a number of roles: (a) facilitating the discussion (e.g., asking questions, making sure everyone was involved in the discussion, and summarizing emerging themes); (b) monitoring the discussion (e.g., listening and prompting for more information); and (c) creating a permissive, non-threatening

environment to ensure everyone had the opportunity to express their own perspectives (Fern, 2001). While the focus groups with Senior and Junior gymnasts followed a more traditional format with several questions (e.g., “Why do you keep training when your body hurts?”, “Do you think there are ‘rules’ about dealing with pain and injury in the gym?”), the focus group with the Espoir gymnasts accounted for their lower cognitive and linguistic development (Hill, Laybourn, & Borland, 1996). Because children can become bored with verbal conversations, a variety of formats were used during the focus group: a “trigger story” poster, drawings, sentence completion, and role play (Hill et al., 1996). All the activities were discussed so that the participants could explain what they had done and why (Hill et al., 1996). A final focus group was conducted with the gymnasts’ parents to examine their shared understanding of the injury process (e.g., “Do your daughters discuss their pain and injuries with you?”, “How do they manage their pain and injuries at home?”). The focus groups lasted between 80 and 100 minutes ($M = 92$, $SD = 7.9$), were audio-recorded and transcribed verbatim, resulting in 108 pages of double-spaced text. Finally, the reflective journal played an important role over the course of the ethnography to help me to critically look at my assumptions (Hammersley & Atkinson, 2007; Silverman, 2011). I filled the journal in every night following observations, interviews or focus groups, and it resulted in 44 pages of double-spaced text.

Data Analysis and Representation

The data were analysed in two phases. First, from the standpoint of a story analyst, and then from the perspective of a storyteller. The story analyst conducts a rigorous analysis of narrative, using procedures and strategies to examine the story from an abstract perspective (Smith & Sparkes, 2009). As a story analyst, I used a thematic analysis of narrative, which is an analytic method seeking to identify patterns across the collected data (Braun & Clarke, 2006). I identified, analysed, and interpreted the content of the data set, to single out the

1 *whats* (i.e., the themes in the stories people tell). Specifically, following Braun and Clarke's
2 (2006) procedure, first I familiarised with the data through the long immersion in the field
3 and the transcription and translation of all the verbal data collected. Second, I immersed
4 myself in the coding process, identifying initial codes and grouping them into bigger themes
5 when they related to similar ideas. Then, I chose labels for the themes so that they could be
6 representative of the participants' words. The co-authors reviewed the analysis and
7 challenged my interpretations over several meetings we held together. As a result of these
8 conversations, themes were discussed and redefined, according to the recursive nature of the
9 thematic analysis process (cf. Braun & Clarke, 2006).

10 Once the first phase was completed, I adopted the role of the storyteller. Unlike the
11 story analyst, storytellers consider the story to be an analysis *in* itself (Smith & Sparkes,
12 2009). That is, producing an analysis *in* storytelling means to move away from the analysis of
13 the story, showing rather than telling theory in and through the story (Smith, 2013). An
14 effective way to achieve this is by using a creative analytical process (CAP), through which
15 the process and the product of writing become deeply intertwined (Richardson & St Pierre,
16 2005). Among the numerous versions of CAP available, I opted to use ethnographic creative
17 nonfiction to represent the research findings (e.g., McMahon & Penney, 2015; Schinke,
18 Blodgett, McGannon, & Ge, 2016; Smith, 2013). The term nonfiction refers to the adoption
19 of techniques originally belonging to literary fiction (e.g., metaphors, dialogues) to represent
20 the data, and does not mean that facts reported are made up (Sparkes & Smith, 2014).
21 Theoretically, this allowed me to *show* theory, rather than just describe it, using different
22 creative writing strategies to conjure vivid images and emotions in the reader. From an
23 ethical point of view, ethnographic creative nonfiction allowed me to protect the identity of
24 the participants, without losing the rawness of real episodes (Smith, McGannon, & Williams,
25 2015). Finally, by offering an embodied, sensorial, and relational account of human lives it

can also reach multiple audiences, not only in the academic world, possibly producing a stronger practical impact by affecting more people (Smith et al., 2015).

Spalding and Phillips (2007) distinguished between three different types of stories, or vignettes: portraits (i.e., an account to represent participants' character and experience), snapshots (i.e., descriptions of an observed situation), and composites (i.e., a mix of experiences amalgamated in a single account). I chose to use composite to support the story in the best way and protect participants' identity. In developing the stories, I used not only the key themes from my findings, but also participants' own words from interviews, focus groups and observations, as well as interactions and situations documented in my notes and research log. Nonetheless, the events represented in the story do not follow the same order in which the data were collected. I selected the events from the amount of data in order to represent the key themes in the most effective way.

A relativist non-foundational perspective was adopted to judge the quality of this study (Sparkes & Smith, 2009). In this perspective no social reality exists in an independent way from a person's interests and purposes, and there are no universal criteria to judge the goodness of a research (Sparkes & Smith, 2009). The criteria against which this research should be evaluated are *characterizing traits* that influence judgement of a research's quality, and are subject to re-interpretation and change over time (Sparkes & Smith, 2014). Based on Sparkes and Douglas' (2007) guidelines, the following list of criteria aims to assist the reader in the judgement of this study. As the product of a constructive process, involving the collation of extracts from interviews, focus groups and observations, coherence is an important notion that might be used. Do the stories provide the reader with a readable and meaningful picture of the experience? Are the stories plausible? Are they credible in the way they represent the different perspectives? Also, do these stories offer a new perspective, by giving voice to characters often absent in the literature, like elite but young athletes? Do they

show empathy and respect for all the participants, and are the participants portrayed in an ethically informed way? As for the contribution of the study to the literature, do the stories advance our understanding of the overuse injury process? Do they allow the reader to learn something from them? Do they resonate with the reader's experience, affecting him/her emotionally and/or intellectually? Can the stories evoke the emotional dimension of the participants' experience? And, do they invite dialogue and reflection by raising awareness towards the phenomenon under study? It is with these questions in mind that the readers are invited to approach the following two short stories, which portray the same situation from different perspectives.

Results

A Gymnast's Story

"Come on", I shout inwardly at the bus driver. I can't be late!

With every turn of the wheels of the bus, my heart beats faster and faster. I can't stand still, I keep hearing my coach's voice resounding in my head: "A 'good' gymnast is never late for training". Finally, my stop! I pull the doors open, jump off the bus and sprint to the gym. I push the changing room doors, and the familiar smell of sweat and smelly shoes hits me. My second home. I get changed as quickly as possible, still out of breath from running from the bus, with beads of sweat starting to form on my forehead.

Leotard on... Check! Toe-shoes on... Check! Hair tightly pinned back... Check! I'm ready. I burst through the gym doors, and...

[Silence]

For a brief moment, all eyes are fixed on me. I stand motionless. The other gymnasts, my friends, soon redirect their gaze and continue running. But, my coach, Trudy, stares at me with her piercing eyes. Slowly, she raises her head to the grimacing clock towering over us. I follow her gaze. The time: 15:03.

“Sally”, she shouts. “You’re late. You know what to do”. My shoulders slump and my head drops, bowing to her authority as I walk to pick up the rope and start doing my 300 double-skips, 100 for every minute you are late.

“Come on Sally, get going, we don’t have the whole afternoon! And tuck those legs up. Have you forgotten it’s the Regionals next week? Don’t you want to defend your title?” shouts Trudy.

I start skipping. 1... 2... 3...

I feel the rope swishing through the air, keeping me cool as my body warms up. My legs bounce up and down like coiled springs. My feet landing heavier and heavier on the floor with each skip... 298... 299... and 300!

I bend forward, placing my hands on my knees. I try to catch my breath, while my heart plays tug-and-war with my rib cage. “Oh no”, I say under my breath. “It’s back!” Soon I start to feel the pain crawling down my spine. Clearly, it didn’t like all that heavy landing. “Leave me alone”, I tell it. “I *need* to train!” My Mum wanted to keep me home today, but I refused. It’s the Regional’s next week. A ‘good’ gymnast doesn’t miss a training session.

“Come on Sally, join your teammates now. Let’s get started. Hopefully you’ll remember that training starts at 3 p.m. sharp”, says Trudy.

“Yes, but...”

“But, what? What excuse do you have?” shouts Trudy.

“It’s just that... there was so much traffic on the way here, the bus...”

“Well, you should have got the earlier bus. Right, if you are done now, I would like to carry on with the warm up if that’s okay with you?”

I sigh and join my friends for the conditioning.

I pray to myself that Trudy will remember that my back has been hurting lately.

Although I’ve rested my back this week for the Regionals, as Trudy told me to, the pain is

1 still lurking around. I really hope it will go away soon. But I certainly don't feel like I can tell
2 her now, after I've turned up late. It's too easy to imagine the conversation in my head:

3 Me: "Umm, by the way Trudy, I also wanted to let you know..."

4 Trudy: "What now Sally?"

5 Me: "Umm... my back still hurts."

6 Trudy: "What do you expect me to say? Have a look around: everyone has back pain
7 here. It's part-and-parcel of doing gymnastics! You use your back, so it's normal if you feel
8 pain every now and then. This is not the time to turn into a whiner Sally, especially with the
9 Regionals next week. You haven't broken any bones, have you?"

10 Me: "Umm, no, I guess not"

11 Trudy: "So, come on! A 'good' gymnast would keep going."

12 I say nothing.

13 *****

14 "Okay, girls, in the centre, let's start with some body waves. And 1, 2, 3... Soften
15 your arms girls" says Trudy.

16 "Ouch!" I say under my breath. "Not again", I plead to the pain.

17 The pain starts shooting up through the left side of my back, as if wanting to prove
18 who is stronger, urging to stop me. I remind the pain that I am a gymnast, and I'll do what
19 any 'good' gymnast would do: I grit my teeth and smile.

20 "Now flex your body forward and stretch", Trudy continues.

21 "Ouch" I say, again. Wow, I hadn't realised how painful it is even bending forward!

22 "And now backwards... Sally, you are barely moving, come on!" shouts Trudy.

23 I knew she'd forget about my back pain. Should I tell her? But, what if she thinks I'm
24 just being a whiner and making up excuses? Worst of all, that I'm not a 'good' gymnast?

With every movement, the pain reminds me it's there with me, sticking its nails into my back. The pain gets sharper, more intense, and increasingly difficult to ignore. But I keep going. I keep smiling and reminding myself about the Regionals next week.

Trudy sees me smiling and nods her head with approval.

"Ouch!" Again, the pain puts what feels like a knife in my back. I wish it would just go and leave me alone. With every movement it cuts deeper and deeper, radiating through my whole body. "Regionals, Sally, think of the Regionals", I tell myself.

I keep going. I grit my teeth harder.

After all, I am a 'good' gymnast.

[30 minutes later]

The pain appears to have left my body. I'm back in control. As long as I don't flex my back, I am fine. I see Trudy out the corner of my eye watching us doing our flexibility exercises.

"Right, I'll prove to her how much I want to do well at the Regionals", I tell myself.

I look at my foot on the back of the chair, and I point it further. I push my pelvis down, until I feel the floor under me. I am so happy with myself. My legs are now angled to at least 250 degrees. I turn my head to the left, then right, hoping Trudy has witnessed my improvement. But she is now setting up the stereo, getting ready to watch our routines. Disappointedly, I take my foot off the chair and I go and get the clubs to prepare for my routine.

I practice, throwing the clubs high into the air, with my arms stretched out to catch them. After the throws I try some leaps and balances. I feel good.

"The pain has gone", I tell myself hopefully, optimistically.

I can't help but smile. I feel so... I don't know... content!

The gym is buzzing with activity. Balls, ribbons, ropes, hoops, and clubs dance around the room. I remind myself how gymnastics can be so much fun. All my friends are practicing their routines, getting ready to have them judged by Trudy. Still smiling, I throw the clubs up again, then quickly turn to catch them...

My smile freezes on my lips. "It's back!" The pain lashes down my back and leg, taking my breath away. "Please go! Just leave me alone!" Around me my teammates keep working. Each of us has her own routines to practice. Slowing down, stopping, chatting is not permitted. We have to work. To practice, over and over again. Chase the perfect execution. After all, that's what a 'good' gymnast would do.

"Sally, come to the carpet, you can go first" says Trudy.

I sigh, and tell the pain to please leave me alone for 5 minutes, *just* 5 minutes! Then, I'll rest. I promise I'll rest. Please, just 5 minutes.

Time to start routines with music. "Just keep going, Sally", I tell myself while I walk onto the carpet, my mind fixed on Regionals.

[60 minutes later]

Okay. So far I have completed 9 out of the 12 routines with music planned for today. I have managed to keep the pain under control, but after my last hoop routine it has become almost unbearable. I want to scream. I want to cry. I don't know what I want. My back feels like the pain has set it on fire, with red-hot iron searing it.

Now it's the turn of the ball routine. With all the flexibility passages, the pain will gnaw and kill me. "Just one more routine", I tell it. I start practicing the beginning of the routine. I am in a bridge position then flip my legs over, squeezing the ball between my ankles. "Ouch!" I shout inwardly. The pain sends another sharp sensation, quick as light, down my whole back, the agony cascading down the back of my legs. I slow down, catch my

1 breath, do some rolls on the arms, resisting the urge to stop and just curl into a foetal position
2 on the floor. I fight the urge to cry. Trudy doesn't like criers. I want to tell her about the pain
3 that's taking over my body. I can't do the ball routine. But I'm scared. I know Trudy, what if
4 she thinks I don't care about the competition, or about gymnastics anymore? I quickly wipe
5 my tears, hoping she hasn't seen me. Oh come on Sally, I say to myself. Get a grip! Everyone
6 has back pain, but everyone keeps training. You know it. It's *just* pain.

7 "Come on Sally, it's your turn again" Trudy's icy voice interrupts my thoughts.

8 I look at her. Arms folded. Eyebrows raised. "Have you prepared your ball routine?
9 To me, it looked like you were doing nothing there. Let's see if you are ready to perform it
10 with music."

11 Perfect. She saw me slow down when practicing, and now she's angry. Great start,
12 Sally! You should have learnt there is no place for stopping during training. Now at least try
13 to perform well, or you'll never hear the end of this. I scurry onto the carpet and take my
14 starting position.

15 [Music starts]

16 I go through my routine, performing every movement. The longest 90 seconds of my
17 life. With every passing second, the pain keeps sending burning sensations through my body.
18 My back feels stuck. It doesn't matter. I must continue. I throw the ball – just too long – and
19 lunge forward to catch it.

20 "Just catch it, please catch it!" I say to myself.

21 The shot of pain is so sudden and intense that for a moment everything around me is
22 black. I can feel millions of daggers penetrating through my spine. When I see again, the ball
23 is bouncing away from me. I must have dropped it. Pain is everywhere. Overwhelming.

24 "Sally, focus!" Trudy's voice interrupts the moment.

25 "Keep going", I tell myself "Just ignore it!". I grit my teeth harder.

I need all my mental energy to steady myself and continue my routine, keep moving, keep doing all the elements and throws. It's too much.

Another throw. Another drop.

[Music stops]

I reach for the ball, but it rolls away mercilessly off of the carpet. Despite finishing without my ball, I smile wide, as a 'good' gymnast would do at the end of a routine.

Soon, my smile turns into a frown. The music is over, the mask comes off. I don't want to look up. I don't want to hear Trudy's comments. Tears well up in my eyes, but I try to fight them by looking up towards the lights, willing them back inside. "Don't cry. Please don't cry. Don't let Trudy see you cry. Just walk off the carpet and pick up the ball", I tell myself.

But hot tears start to stream down my face. I act quickly to try to wipe them away, but my efforts are futile. The gymnasts closest to me see my tears and I sense they feel my pain. I can see in their eyes the desire to help, sharing a look that also tells me they can't, and they continue to practice their own routines.

Slowly, I manage to get to my feet. I turn to Trudy.

"Oh, come on Sally! Not tears again! What's your excuse now? Are you in pain *again*? You look fine to me", shouts Trudy.

I say nothing.

"What's wrong with you? I bet if you had caught those throws, you wouldn't be crying. Don't you want to win next week and defend your title? Don't you want to win for yourself and your club? I really don't have time for this. Right, who's next?"

She turns her back to me. I walk off of the carpet. Tears continue to stream down my face. My body is shaking from the pain. I want to scream. I want to shout. I want Trudy to

1 understand the pain. I want her to know how much I care about the Regionals. I just don't
2 know *how*. I don't think I can.

3 I say nothing.

4 After all, that's what a 'good' gymnast would do.

5 **A Coach's Story**

6 I look up at the clock on the wall: 14.59.

7 "Where is Sally?" I say to myself. How many times do I have to say that they have to
8 be on time? *I* would have never been late for training when I was competing. As we all know,
9 a 'good' gymnast is never late. If only these girls would realise how much training they have
10 to do to be the best! There's not even enough time when they are punctual. And, if they start
11 arriving late, I will never be able to do everything we need to! As for Sally, she has Regionals
12 next week. How can she be late? Argh! It's so frustrating.

13 I look at the clock again: 15.00.

14 "Okay girls, run 10 laps around the gym to start" I say.

15 Suddenly, I hear the doors in the changing room slam open. A few minutes later, Sally
16 bursts into the gym with a worried look on her face. I want to shout at her. I want her to
17 understand how she's letting herself down, letting the club down, and letting me down! *I*
18 would have given anything to have her talent when I was her age. I don't want her talent to
19 go to waste. Why can't she understand?

20 I decide to stare at her and say nothing. As she looks at me, I slowly raise my head to
21 the clock. The time is 15.03. I turn back to her. She looks at me.

22 "You are late. You know what to do", I say.

23 I see her shoulders slump, while she bows her head and walks to pick up the rope. I
24 quickly remind myself, it's the only way she'll learn. I don't particularly enjoy punishing my

gymnasts, especially the hard-working and talented ones like Sally, but, that's what we did in my day, and it's the only way they'll become 'good' gymnasts.

"Come on Sally, get going, we don't have the whole afternoon! And tuck those legs up! Have you forgotten it's the Regionals next week? Don't you want to defend your title?" I shout.

While Sally starts skipping and her teammates keep running, I check the training plan for next week. Once again, we have to cut training short for a school show! It's so frustrating. Argh! Politics! I need to make sure my girls won't suffer from this setback, and it won't affect their preparation for the Regionals. We are defending several titles. It's so important for the club's reputation to remain at the top, which I keep getting reminded by the club's president!

The girls finish running and walk to the carpet. The only noise I can hear is Sally's rope swishing through the air, and her feet landing heavier and heavier on the floor. I wished she'd hurry up. Finally, she finishes and bends forward, with her hands on her knees, trying to catch her breath.

"Come on Sally, join your teammates now. Let's get started. Hopefully you'll remember that training starts at 3 p.m. sharp", I say.

"Yes, but..." Sally mumbles.

"But, what? What excuse do you have?" I shout.

"It's just that... there was so much traffic on the way here, the bus..."

"Well, you should have got the earlier bus. Right, if we are done now, I would like to carry on with the warm up if that's okay with you?"

I can't believe how cheeky these gymnasts are sometimes. *I* would have never got away with answering back to a coach in my day.

Sally looks at me, sighs and walks towards her teammates.

“Okay girls, in the centre, let’s start with body waves. And 1, 2, 3... Soften your arms girls”, I say. While I guide the warm up, I look at each one of my gymnasts and I see so much potential. A few of them are so talented. It’s so reassuring that the club has such a good chance to stay at the top at the Regionals. There’s just so much pressure surrounding the Regionals. I wish the girls would understand the pressures I’m under. The Regionals is all I think about. It’s all the club’s president lets me think about! I just need the girls to keep going and to work hard, I remind myself.

“Now flex your body forward and stretch”, I continue.

“And now backwards... Sally, you are barely moving, come on!” I can feel my frustration start to boil over again. What’s wrong with her lately, I say to myself. Is her back playing up again? I can’t keep up with all their so-called injuries.

Sally responds to my comment by smiling and doing the body waves properly.

I smile back and nod my head in approval. Good, that’s what I like to see. That’s the good gymnast I know. I really need her to perform well next week. She was probably just not focusing. She went to the physiotherapist last week and he told her what to work on, so she knows. She’s old enough not to need me to babysit her.

[30 minutes later]

Good. Conditioning is done. The girls seem nicely warmed up, with their faces a bit reddened and sweaty. I send them to do their flexibility work and to get ready for their routines. I keep an eye on them while they stretch their legs from the chairs. Everything looks fine and I’m running a bit behind, so I decide to start setting up the stereo to prepare to watch the routines with music.

Now, where is my notebook? Oh yes, I put it in my bag while I was rushing out of my house. What would I do without my notebook? That’s where I put all the comments on my

gymnasts' routines. I write down each mistake they make during their routines and make sure I correct everything once they are finished. Routines should be spotless, and there's only one way to get to achieve that: repetition. They need to repeat their routines, the leaps, balances, turns, and throws over and over again. No stopping. No skipping training. Movements have to become automatic and the only way is through daily practice, constant focus, and pushing through the pain barrier. I need to make these girls strong by toughening them up. Just like my coach did with me. Gymnastics isn't for girly girls.

Once I finish setting up the music, I look up. Around me, the gym is buzzing with activity from the different groups training. Balls, ribbons, ropes, hoops, and clubs dance around the room. What a sight! Gymnastics is such a beautiful sport. It takes me back to my early days as a gymnast, when I fell in love with it. Coordination, strength, music, and freedom of expression. Art and sport, at the same time. It's amazing what the body can do if you train it right. Anyway, I must get on with the training. Let's start with the routines with music.

"Sally, come to the carpet, you can go first" I say.

Sally takes her clubs and prepares for her starting position. Aged 15, she is one of the oldest gymnasts of the squad. She won the regional title last year, and hopefully she'll do it again this year. She deserves it. And it would be good for our club. She's had some back injuries over recent years, but no broken bones or anything serious. Although the physiotherapist says different, I think her back pain is just in her head, because she's afraid of not doing well next week, of not being able to win again. She just needs toughening up...

I push play.

[Music starts]

[60 minutes later]

Oh my God, today is a nightmare!

I had planned a packed training session, with lots of routines with music for each of the girls, due to the Regionals. But everything seems to be going wrong today! Some of my younger gymnasts have started crying, whilst the older gymnasts are complaining of pain here and there. Why won't they just help me? Can't they see there's only one of me? I need more good gymnasts. I really don't have time for this. I can feel my levels of frustration increasing, but I try to give the appearance of being in control. I tell the younger gymnasts to toughen up and get back to training, and remind the older one's that injuries are temporary and all in the mind. Even when it's a more severe injury, I try to teach my gymnasts that even if they need to modify their routines, they need to keep going, *we* need to keep going, because gymnastics doesn't stop.

I look up to the clock, cruelly ticking on. Sigh! Where has that time gone? I say to myself. All I want is one good training session, just one, where I can work with my girls, watch their routines, and critique them to make them perfect! All the time taken up by a few crying and whining about injuries, it's so frustrating! Even Sally is driving me crazy today. She is just not focusing, too worried about the Regionals I suspect. Why can't anybody train properly today? Why can't we just have one perfect session in preparation of the Regionals. I really don't have time for this.

I look around the gym, and notice Sally rehearsing her ball routine. She stops and turns away from me, and practices some rolls, as if she has all the time in the world! I can't believe it! Rolls? Why is she practicing rolls? It's her body elements she should be working on, and the risky throws with the walkovers. She knows she hasn't performed well in the previous routines, and that's how she prepares for her last apparatus?

"Come on Sally, it's your turn again" I say, folding my arms.

Sally jolts to attention, and looks at me with a worried expression.

“Have you prepared your ball routine?” I ask, raising my eyebrows. “To me, it looked like you were doing nothing there. Let’s see if you are ready to perform it with music.”

Sally says nothing, like normal, and simply scurries to the carpet, into her starting position.

[Music starts]

Sally starts her routine. Straight away, I can tell something’s wrong. There’s no energy. There’s no passion. She’s smiling, but her expression is distant. Where’s the artistry? She can’t perform like this. “No! No! No!” I say under my breath. That won’t win the Regionals, it wouldn’t even win the school competition! It looks as if she just doesn’t care about what she’s doing. I am tempted to stop the music and just send her out, but I don’t, hoping it’ll get better. She looks so serious. She’s not interpreting the music at all! Her eyes are looking down, instead of up. She knows better than this. I can’t believe it. And now she’s dropped the ball! Where’s my good gymnast gone? This is just what I need.

I can’t help myself. “Sally, focus.” I shout.

But nothing changes. I might as well have said nothing. She can’t afford to perform like this, not this week! There’s no excuse for performing like this.

Another throw. Another drop. Unbelievable!

[Music stops]

The ball rolls away. Sally reaches for it, then stops.

Finally, this horrible performance has come to an end. Why is she smiling? I am speechless. Even my best and most hard-working gymnast is unwatchable today! I can’t believe it. The president will go crazy at me if we don’t retain her title.

And now she’s crying! OF COURSE! First, she doesn’t practice properly, then she doesn’t focus, and now she cries!

“Oh come on, Sally! Not tears again. What’s your excuse now? Are you in pain again? You look fine to me”, I shout.

She looks at me and says nothing, just keeps crying. It’s so infuriating.

“What’s wrong with you?” I shout. “I bet if you had caught those throws, you wouldn’t be crying. Don’t you want to win next week and defend your title? Don’t you want to win for yourself and for your club?”

[Silence]

I really don’t have time for this. “Right, who’s next?” I say, turning away from her. I really don’t know why I bother sometimes. Why should I be made to feel like the bad guy? *I* am on time. *I* am dedicated. *I* care. What else am I supposed to do? Don’t *they* want to win?

Discussion

The aim of this study was to explore how sport culture impacts overuse injuries. Through Sally and Trudy’s stories, certain socio-cultural values and norms of the Italian gymnastics club were illuminated. The socio-cultural values included sporting success (i.e., winning and ‘being the best’), discipline (i.e., complete dedication, unwavering commitment, and a high work ethic) and striving for perfection, together with the social norms, which included being on time and ready to train, attending all training sessions, and respecting the coaches (e.g., adhering to their training program, not answering them back). These values were soon learned, accepted, and embodied by the gymnasts to gain social acceptance from their coaches and peers. Evidence of the gymnasts embodying these socio-cultural values was through displaying what they considered to be ‘mentally tough’ attitudes and behaviours, which ultimately led them to become reflective of what the club considered to be a ‘good’ gymnast. Indeed, ‘mental toughness’ meant accepting pain as part-and-parcel of sport and continuing to train and compete despite experiencing pain. Those gymnasts who did not adhere to the values of the club (e.g., arriving late to training, not striving for perfection) and

1 did not embody mental toughness (e.g., disclosing pain, showing weakness) were punished
2 by doing additional training or by being dismissed by the coaches. In the club, the pressure
3 for results to remain at elite level resulted in the coaches maximising the intensity of each
4 training session and minimising any disruption. In turn, this led to a perceived lack of time
5 for reflection and meaningful dialogue with the gymnasts, which, combined with the
6 gymnasts embodying and exhibiting the club's values and norms, led early experiences of
7 pain to become exacerbated over time and ultimately led to overuse injuries.

8 This study resonates with and extends research on overuse injuries. In terms of the
9 socio-cultural values and norms, they are reflective of Nixon's body of research on the
10 'culture of risk' in sport. Nixon (1993) defined the concept of 'culture of risk' as a sport
11 culture that normalises pain and injury and glorifies those athletes who take risks with their
12 bodies (e.g., training or competing despite physical pain). In a culture of risk, pain is seen as
13 something that has to be accepted and endured in order to succeed, in line with the slogan 'no
14 pain, no gain' (Loland, 2006). Recent studies in the sociology of sport have further observed
15 the prevalence of the culture of risk in the 21st century, and in particular pain normalization
16 behaviours (e.g., Liston et al., 2006; Malcom, 2006). For example, Liston et al. (2006) found
17 that behaviours of non-elite rugby players are very similar to elite and professional ones.
18 More recently, Roderick, Waddington and Parker (2012) also identified several punishing
19 mechanisms in place at football clubs to encourage pain normalization behaviours. These
20 mechanisms included giving fewer free tickets for watching games, and 'inconveniencing'
21 injured players with different daily routines, planned to discourage players to stay injured.
22 The cultural norms and behaviours described in the previous literature resonate with the
23 findings in this study.

24 Embodying the club's elitist values and norms ultimately led the gymnasts to exhibit
25 certain mentally tough attitudes and behaviours. For example, if I want to win (i.e., elitist

value to 'be the best') I must display certain attitudes and behaviours (e.g., accepting pain and pushing through the pain barrier), thereby making a strong connection between the club's social values and the way gymnasts should think, feel, and behave. Interestingly, this finding is consistent with the mental toughness research in sport psychology, whereby mental toughness has been portrayed as the key to ultimate success and used to describe successful athletes (e.g., Gucciardi, Gordon, & Dimmock, 2009; Jones, Hanton, & Connaughton, 2002). In Jones et al.'s (2002) conception, mental toughness is necessary for victory, whereas in Gucciardi et al.'s (2009) description, mental toughness allows for the consistent achievement of one's goals. According to Caddick and Ryall (2012) however, making a connection between elitist values and mental toughness is morally questionable. In the context of our study, gymnasts are respected by coaches if they display certain attitudes and behaviours; however, if athletes' fail to adhere to the socio-cultural values and do not display appropriate attitudes and behaviours, they are deprived of attention and considered to be 'weak' by others and by themselves. In Sally's story, it is evident she kept pushing herself through the pain barrier to be successful at the Regional's the following week, thereby demonstrating mental toughness to herself and her coach. The cost of this mindset was to Sally's physical well-being, leading to increasing episodes of pain and then ultimately to an overuse injury.

Another interesting finding from the study is the lack of personal disclosure in the coach-athlete relationship. Indeed, not only was personal disclosure not considered to be a mentally tough behaviour, it was not encouraged by Trudy due to time pressure she was under, and Sally already perceived how Trudy would respond. There are many research articles that profess to the stress coaches are under (see Fletcher & Scott, 2010). Yet, according to Jowett and associates (e.g., Lorimer & Jowett, 2009; Rhind & Jowett, 2012), if we want develop effective coach-athlete relationships, communication is of paramount importance. Lorimer and Jowett (2009) suggested that high levels of *empathic accuracy* (i.e.,

members of the coach-athlete relationship's ability to accurately infer the partner's feelings, thoughts and behaviours moment-to-moment) are fundamental for successful social interactions. These authors encouraged coaches to allot time for dialogue with their athletes during training sessions, to maintain and develop an open communication in the relationship (Rhind & Jowett, 2012). In Sally's and Trudy's story there is no time for dialogue, and this is reflected in low levels of empathic accuracy. Sally thinks she knows what her coach would say if she talked to her about her back pain and therefore decided against raising the matter. From the coach's perspective, Trudy incorrectly perceives her gymnast's tears, her possible pain and her poor performance as a consequence of pre-competition nerves. In the long run, if the lines of communication are not opened, these misperceptions might impact not only upon Sally's health, but also on the overall quality of the coach-athlete relationship (Jowett, 2009).

Conclusion

The purpose of this study was to gain an in-depth understanding of overuse injuries in rhythmic gymnastics. In doing so, this study extends research on overuse injuries in three ways: (a) it honours athletes as social agents by exploring the intersection between psychology and sociology, (b) it uses a rigorous methodology to elicit a more in-depth understanding of overuse injuries, and (c) it adopts an innovative form of representation to increase the accessibility of the findings to non-academic audiences. In terms of accessibility, the stories use everyday language compared to the academic terminology usually utilised in scientific articles. By doing so, we hope these stories allow for an increased dissemination of knowledge to athletes and coaches, which in turn can encourage them to not only stop, think, and reflect on their own thoughts, feelings and actions, but also how they are influenced by their socio-cultural environments

References

- 1 Barker-Ruchti, N. (2008). "They must be working hard": An (auto-)ethnography account of
2 women's artistic gymnastics. *Cultural Studies <=> Critical Methodologies*, 8 (3),
3 372-380. doi: 10.1177/1532708607310799
- 4 Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research*
5 *in Psychology*, 3 (2), 77-101. doi:10.1191/1478088706qp063oa
- 6 Bryman, A. (2012). *Social research methods*, 4th ed. Oxford: Oxford University Press.
- 7 Caddick, N., & Ryall, E. (2012). The social construction of 'mental toughness' – a Fascistoid
8 ideology? *Journal of the Philosophy of Sport*, 39 (2), 137-154. doi:
9 10.1080/00948705.2012.675068
- 10 Clarsen, B., Myklebust, G., & Barh, R. (2013). Development and validation of a new method
11 for the registration of overuse injuries in sports injury epidemiology: The Oslo Sports
12 Trauma Research Centre (OSTRC) overuse injury questionnaire. *British Journal of*
13 *Sports Medicine*, 47 (8), 495-502. doi:10.1136/bjsports-2012-091524
- 14 DiFiori, J. P., Benjamin, H. J., Brenner, J., Gregory, A., Jayanthi, N., Landry, G. L., & Luke,
15 A. (2014). Overuse injuries and burnout in youth sports: A position statement from
16 the American Medical Society for Sports Medicine. *Clinical Journal of Sport*
17 *Medicine*, 24 (1), 3-20. doi: 10.1097/JSM.0000000000000060
- 18 Douglas, K., & Careless, D. (2015). *Life story research in sport: Understanding the*
19 *experiences of elite and professional athletes through narrative*. New York, NY:
20 Routledge.
- 21 Ely, M. (1991). *Doing qualitative research: Circles within circles*. London: Falmer Press.
- 22 Fern, E. F. (2001). *Advanced focus group research*. London: Sage.
- 23 Findlay, L. C., & Coplan, R. J. (2008). Come out and play: Shyness in childhood and the
24 benefits of organized sports participation. *Canadian Journal of Behavioural Science*,
25 40 (3), 153-161. doi: 10.1037/0008-400X.40.3.153

- 1 Fletcher, D., & Scott, M. (2010). Psychological stress in sports coaches: A review of
2 concepts, research, and practice. *Journal of Sports Sciences*, 28 (2), 127-137. doi:
3 10.1080/02640410903406208
- 4 Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2009). Advancing mental toughness
5 research and theory using personal construct psychology. *International Review of*
6 *Sport & Exercise Psychology*, 2, 54-72. doi: 10.1080/17509840802705938
- 7 Hammersley, M., & Atkinson, P. (2007). *What is ethnography? Ethnography, principles in*
8 *practice* (3rd Edition). New York, NY: Routledge.
- 9 Heary, C., & Hennessy, E. (2002). The use of focus group interviews in paediatric health care
10 research. *Journal of Paediatric Psychology*, 27, 47-57. doi: 10.1093/jpepsy/27.1.47
- 11 Hill, M., Laybourn, A., & Borland, M. (1996). Engaging with primary-aged children about
12 their emotions and well-being: Methodological considerations. *Children & Society*,
13 10, 129-144. doi: 10.1111/j.1099-0860.1996.tb00463.x
- 14 Holt, N. L., Scherer, J., & Koch, J. (2013). An ethnographic study of issues surrounding the
15 provision of sport opportunities to young men from a Western-Canadian inner-city.
16 *Psychology of Sport and Exercise*, 14, 538-548. doi:10.1016/j.psychsport.2013.02.005
- 17 Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental
18 toughness? An investigation of elite sport performers. *Journal of Applied Sport*
19 *Psychology*, 14, 205-218. doi: 10.1080/10413200290103509
- 20 Jowett, S. (2009). Factor structure and criterion validity of the meta-perspective version of
21 the Coach-Athlete Relationship Questionnaire (CART-Q). *Group Dynamics: Theory*,
22 *Research and Practice*, 8, 302-311. doi: 10.1037/a0014998
- 23 Krane, V., Greenleaf, & Snow (1997). Reaching for gold and the price of glory: A
24 motivational case study of an elite gymnast. *The Sport Psychologist*, 11, 53-71.
25 Retrieved from <http://search.ebscohost.com>.

- 1 Krane, V., & Baird, S. M. (2005). Using ethnography in applied sport psychology. *Journal of*
2 *Applied Sport Psychology*, 17, 87-107. doi: 10.1080/10413200590932371
- 3 Krol, M., Sixma, H., Meerdink, J., Wiersma, H., & Rademakers, J. (2014). Exploring young
4 patients' perspectives on rehabilitation care: Methods and challenges of organizing
5 focus groups for children and adolescents. *Child: Care, Health and Development*, 40
6 (4), 507-514. doi: 10.1111/cch.12095
- 7 Liston, K., Reacher, D., Smith, A., & Waddington, I. (2006). Managing pain and injury in
8 non-elite Rugby Union and Rugby League: A case study of players at a British
9 University. *Sport in Society: Cultures, Commerce, Media, Politics*, 9 (3), 388-402.
10 doi: 10.1080/17430430600673407
- 11 Loland, S. (2006). Three approaches to the study of pain in sport. In S. Loland, B. Skirstad, &
12 I. Waddington (Eds.), *Pain and injury in sport: Social and ethical analysis* (pp. 49-
13 63). London: Routledge.
- 14 Lorimer, R., & Jowett, S. (2009). Empathic accuracy, meta-perspective, and satisfaction in
15 the coach-athlete relationship. *Journal of Applied Sport Psychology*, 21, 201-212. doi:
16 10.1080/10413200902777289
- 17 Maffulli, N., Longo, U. G., Gougoulis, N., Loppini, M., & Denaro, V. (2010). Long-term
18 health outcomes of youth sports injuries. *British Journal of Sports Medicine*, 44, 21-
19 25. doi: 10.1136/bjsm.2009.069526
- 20 Malcom, N. L. (2006). "Shaking it off" and "toughing it out": Socialization to pain and injury
21 in girls' softball. *Journal of Contemporary Ethnography*, 35, 495-525. doi:
22 10.1177/0891241605283571
- 23 McGannon, K. R., & Smith, B. (2015). Centralizing culture in cultural sport psychology
24 *Sport and Exercise*, 17, 79-87. doi: 10.1016/j.psychsport.2014.07.010

- McMahon, J., & Penney, D. (2015). Sporting parents on the pool deck: Living out a sporting culture? *Qualitative Research in Sport, Exercise and Health*, 7 (2), 153-169. doi: 10.1080/2159676X.2014.901985
- Neely, K. C., & Holt, N. (2014). Parents' perspectives on the benefits of sport participation for young children. *The Sport Psychologist*, 28 (3), 255-268. doi: 10.1123/tsp.2013-0094
- Nixon, H. L. (1993). Accepting the risks of pain and injury in sports: Mediated cultural influences on playing hurt. *Sociology of Sport Journal*, 10 (2), 183-196
- Rhind, D. J. A., & Jowett, S. (2012). Working with coach-athlete relationships: Their quality and maintenance. In S. Hanton, & S. D. Mellalieu, *Professional Practice in Sport Psychology: A review* (pp. 219-248). London: Routledge.
- Richardson, L., & St Pierre, E. A. (2005). Writing: A method of inquiry. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (3rd Edition). London: Sage.
- Roderick, M., Waddington, I., & Parker, G. (2012). Playing hurt: Managing injuries in English professional football. *International Review for the Sociology of Sport*, 35(2), 165-180. doi: 10.1177/101269000035002003
- Schinke, R. J., Blodgett, A. T., McGannon, K. R., & Ge, Y. (2016). Finding one's footing on foreign soil: A composite vignette of elite athlete acculturation. *Psychology of Sport & Exercise*. doi: 10.1016/j.psychsport.2016.04.001
- Silverman, D. (2011) *Qualitative research*, (3rd ed.). London: SAGE Publications Ltd.
- Smith, B. (2013). Sporting spinal cord injuries, social relations, and rehabilitation narratives: An ethnographic creative non-fiction of becoming disabled through sport. *Sociology of Sport Journal*, 30, 132-152. Retrieved from <http://search.ebscohost.com>.

- Smith, B., McGannon, K. R., & Williams, T. (2015). Ethnographic creative non-fiction: Exploring the what's, why's and how's. In G. Molnar & L. Purdy (Eds.), *Ethnographies in Sport and Exercise Research* (pp. 59-73). London: Routledge.
- Smith, B., & Sparkes, A. C. (2009). Narrative inquiry in sport and exercise psychology: What can it mean, and why might we do it? *Psychology of Sport and Exercise*, 10, 1-11. doi: 10.1016/j.psychsport.2008.01.004
- Spalding, N. J., & Phillips, T. (2007). Exploring the use of vignettes: From validity to trustworthiness. *Qualitative Health Research*, 17, 954-962. doi:10.1177/1049732307306187
- Sparkes, A. C., & Douglas, K. (2007). Making the case for poetic representations: An example in action. *The Sport Psychologist*, 21, 170-189. Retrieved from <http://search.ebscohost.com>.
- Sparkes, A. C., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and relativism in action. *Psychology of Sport and Exercise*, 10, 491-497. doi: 10.1016/j.psychsport.2009.02.006
- Sparkes, A.C., & Smith, B. (2014). *Qualitative research methods in sport, exercise and health*. New York: Routledge.
- Stracciolini, A., Casciano, R., Friedman, H. L., Meehan, W. P., & Micheli, L. J. (2015). A closer look at overuse injuries in the paediatric athlete. *Clinical Journal of Sport Medicine*, 25 (1), 30-35. doi: 10.1097/JSM.0000000000000105
- Taylor, S. T., & Bogdan, R. (1998). *Introduction to qualitative research methods: A guidebook and resource* (3rd Edition). New York: J. Wiley.
- Theberge, N. (2008). "Just a normal bad part of what I do": Elite athletes' accounts of the relationship between health and sport. *Sociology of Sport Journal*, 25, 206-222. Retrieved from <http://search.ebscohost.com>.

- 1 Tranaeus, U., Johnson, U., Engstrom, B., Skillgate, E., & Werner, S. (2014). Psychological
2 antecedents of overuse injuries in Swedish elite floorball players. *Athletic Insight*, 6 (2),
3 155-172. Retrieved from <http://search.ebscohost.com>.
- 4 Van Wilgen, C. P., & Verhagen, E. A. L. M. (2012). A qualitative study on overuse injuries:
5 The beliefs of athletes and coaches. *Journal of Science and Medicine in Sport*, 15, 116-
6 121. doi: 10.1016/j.jsams.2011.11.253
- 7 Wagstaff, C., Fletcher, D., & Hanton, S. (2012). Positive organizational psychology in sport:
8 An ethnography of organizational functioning in a National Sport Organization *Journal*
9 *of Applied Sport Psychology*, 24 (1), 26-47. doi: 10.1080/10413200.2011.589423
- 10 Wolcott, H. F. (2005). *The art of fieldwork*. Walnut Creek, CA: Altamira Press.

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Highlights

- Overuse injuries in rhythmic gymnastics are not only caused by physical factors.
- Cultural values and unwritten norms influence gymnasts' attitude towards pain.
- Mental toughness behaviours can have negative influences on gymnasts' health.
- Poor communication between gymnasts and coaches causes misunderstandings.