PAIN AMONG FEMALE SOCCER PLAYERS

A study on high-level athletes

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Introduction

The motivation behind choosing to explore pain among athletes is heavily inspired by own experiences. As an elite athlete, I have both experienced and endured pain to a high extent during my career. By knowing which affect pain has had on myself, the will to explore the area arose. There is also a knowledge gap on the matter, which strengthened the motivation to make this study.

I would like to thank all the players who participated in this study as well as all the coaches who were very cooperative and willing to help and make the collection of the data as smooth as possible.

Hopefully the results from this study can be a revelation for coaches and physiotherapists in clubs and make players reflect on their view on pain.
Abstract

Background: Physical pain affects mental performance as well as many physical factors and is often associated with injuries. Injuries are common among athletes and a higher level of play coheres with a higher prevalence of injuries. Since injuries are so common among high-level athletes, it is reasonable to assume that pain is also connected to the high level of play. Also, since experiencing pain has its side-effects, it is interesting to investigate physical pain among high-level athletes.

Purpose: The purpose of the study was to investigate the presence and experience of pain among high-level female soccer players in Sweden, as well as their relationship to pain.

Method: 68 players between 14-30 years old who had played at a high level for 1-13 years participated in the study. A questionnaire was used to collect the data and SPSS was used to analyse it with descriptive statistics.

Results: 50% of the players rated their pain extent before, during and after practices and games with 3 or more on a scale from 1-5, where 1 is “no extent” and 5 is “high extent”. The results were scattered regarding the influence pain had on carefulness, ability, potential, emotions and concentration, but the players felt that pain had the biggest influence on their ability to play and their emotional wellbeing. 42.65% of the players continue as normal when experiencing pain during practice and 44.12% of them continue but take it easier, while 83.82% continue as normal when experiencing pain during game. All of them thought that playing and practicing with pain could lead to future complications in some way.

Conclusion: Most of the players struggled with pain to varying degrees. Even though being convinced that playing with pain can lead to complications, they kept on playing when they experienced pain themselves.

Keywords: pain, women, soccer, sport, questionnaire
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Background
The mechanisms of pain
The perception of physical pain (also referred to as just “pain” in this study) is something that the majority can relate to. Our bodies induce the feeling of pain to protect us from injuries. As soon as a structure gets exposed to what is considered as a physical threat, such as extreme heat or cold, high impact, inflammation, high muscular strain etc., receptors in the affected structure send nerve signals to the spinal cord, which responds by subconsciously making the muscles in the concerned structure perform a reflexive manoeuvre. Signals are then sent to the central nervous system which causes the body to react to the physical danger with for example tachycardia (increased heart rhythm), hyperventilation, increased blood pressure and physical pain.1

In conclusion: if a part of your body starts hurting, your body is telling you that you are exposing yourself to harm and that you need to change something to protect it.

Pain and soccer
Soccer as a sport had its rise in England in the late 1100s where it was seen as the “sport of the people” because everyone could play it: the only thing needed was an object which could be used as a ball.2

The sport is mostly characterized by kicking and running with a ball. Being a contact sport, a lot of player collisions and turf collisions (mostly due to initial player collisions) occur during matches and practices. Added with muscle overload and injuries occurring when making explosive movements with the shoe stuck in the turf, these were the biggest injury mechanisms among the female soccer players participating in a study.3

Studies on pain in soccer mostly cover groin and back pain. One study showed that 45 % of the soccer playing women who participated in the study had experienced an episode of groin pain at least once during a 6-week period. They also found that groin pain was more common among male soccer players than women, which was also confirmed in another study which examined the same field. Among 894 patients with hip pain, hip joint pathology was the biggest cause for the pain with 55.98 % of the cases. A study on back pain in different sports noted a 3 % prevalence of back pain during the past 7 days among the 266 soccer players which participated in the study.4-7
Research has covered the experience of physical pain among children and young people, with focus on the coaching culture and how coaches invite and praise aggressive and violent play between players. The results from the study showed that physical pain is common, especially in sports where there is a lot of physical contact between players, which occurs frequently in soccer.  

Another study on 6945 adolescents between 15 and 16 years of age from the North Finland Birth Cohort made the finding that playing many different sports leads to less experience of pain in neck, shoulders and lower back than playing a single sport, at least on a recreational level. What these findings mean in this context is that only playing soccer lead to a higher risk for injuries than playing several sports.

Pain and performance

Firstly, the experience of pain has a negative impact on the ability to multitask and think with a broad focus, according to one study where people made complex tasks while wearing heat pads and another study where a comparison was made between people with and without back pain when multitasking. Furthermore, it impairs the working memory performance, which in short is the skill to use your senses and long-term memory to process information, which was shown in a study with 78 participants which subjected themselves to pain from cold pressors while performing a test in working memory.

Studies found a decrease in maximal voluntary contraction, flexibility and muscle endurance in body structures which were hurting compared to when they weren’t hurt. Physical soreness can also lead to, not necessarily in a negative sense, but, changes in dynamic motor function which causes a difference in how impact is distributed on your joints, muscle fibres and bones.

A study that compared muscle activation and motor function among injured and uninjured badminton players demonstrated that, when performing the same motions, injured players activate their muscle fibres to a higher extent than uninjured ones. They are also more conservative in their movement patterns, which presumably is induced by a conscious or subconscious fear of pain or injury. Other studies, one interview study
on 49 recreational athletes and one questionnaire study on 14 elite team gym athletes, show that a fear of injury can lead to anxiety and that it can prolong return to play after an injury.\textsuperscript{18,19} According to an interview study made by Chase, Magyar and Drake (2005), the main reason behind being afraid of getting injured among gymnasts is not being able to practice and compete as well as the difficulties in rehabilitating an injury.\textsuperscript{20}

Makhni (2014) showed, in his study made on 203 baseball players, that as much as 74 percent of the participants experienced pain when throwing baseballs. Another interesting find was that 75 percent of the respondents felt that pain restrained them in their throwing power. Fifty-five percent of the players also agreed on the statement that pain decreased the amount of joy that they got out of playing baseball.\textsuperscript{21}

Aside from sports-related symptoms, pain is also something which can cause several serious mental conditions, such as depression, anxiety and other psychological symptoms, which is shown by studies involving patients from hospitals and cohorts for different pain disorders.\textsuperscript{22-26} In a study about the relationship between knee-pain and depressive symptoms among 6599 middle-aged and elders, it was concluded that severe knee pain independently was associated with depression, with an odds ratio of 2.55.\textsuperscript{27} An article on the Swedish newspaper Aftonbladet shared the story of the young talented national team player Ivo Pekalski, who fought with back problems and eventually developed spinal disc herniation which led to depression. The depression caused sleeping disorders, panic attacks and social problems. Ivo was close to ending his career, but after getting proper help he eventually found joy in playing soccer again, and today he plays in Halmstad BK in the highest division in Sweden.\textsuperscript{28} Emotional issues can affect perceived mental effort and concentration as well as performance in sport: two studies indicated that players believed that their mood affected their concentration and performance, and two intervention studies showed increases in performance when the players were happy.\textsuperscript{29-32}

If you feel that you don’t perform optimally, your confidence might go down. Confidence is very important in sports, and a lack of confidence can lead to a decrease in performance, according to an interview study on world class athletes and a review study on confidence and performance.\textsuperscript{33,34}
Pain and injuries among athletes

A factor which can provoke pain is injuries. Injuries which are not treated correctly can lead to future complications such as chronic impairment and hampered mobility. Athletes who expose themselves to more loading than their body can take for a long period of time can end up with problematic injuries and physical strain.35-39

When encountering injuries, the standard procedure to optimally rehabilitate the injury is in most cases to cut down on or remove any physical loading, and, in time, slowly progress the exercise intensity to get towards the pre-injury state.35,36,40-42 It is not always applied in reality though: a study on lower back pain and physical activity showed that 93% of the involved athletes maintained their physical activity despite being in pain.41 Another study made on soccer playing females displayed that 69.9% of the players admitted that they had played a game while being injured.44

Injuries are common among athletes; different studies showed that between 62-70 percent of high-level soccer players were injured in some way during a one-year period.43-45 Other studies found a correlation between amount of practice and playing time and risk for overuse injuries.39,48-50

Problematisation

It is reasonable to assume that it is common for athletes who compete on a high level to experience pain since injuries are so common among high-level athletes. It is interesting to know how present pain is for them since it can affect them in so many ways. It is also interesting to know what their standpoint is on personal pain management as it can lead to further complications if you don’t respect the pain and treat injuries properly.

There is a knowledge gap regarding general physical pain among soccer players. Most studies investigate pain in certain areas, mostly groin and back pain. There is also a lack of research on physical pain among high-level athletes in general. In addition, women are underrepresented in studies on pain in sports and soccer is an explosive contact sport which makes pain research more relevant in this field. What also makes this study stand out is its focus on how pain is experienced and treated by the players, as well as which risks they think playing with physical pain can lead to.
What this study hopes to achieve is for it to lead to a higher focus on pain management among coaches, doctors and physiotherapists working with players in elite teams. An understanding of how elite players perceive and treat pain could also be useful when having conversations with players about injuries and pain management. For example, if a player doesn’t rehabilitate correctly due to an “easy-going” relationship to pain, it would be interesting for the physiotherapist to be aware of this, and therefore put more effort into motivating the player to rehabilitate correctly.

Purpose

The purpose of the study was to investigate the presence and experience of pain among first and second-division female soccer players in Sweden, as well as their relationship to pain.

Research questions

• To what extent is pain present before, during and after practices and games?
• To what extent does pain affect the players?
• How do the players react to experienced pain?
• Do the players show an understanding of the fact that prolonged physical activity can lead to physical complications? If so, which complications?

Method

Design

A quantitative method with at descriptive design was chosen, as it was considered the best method to be able to generalize the results and focus on the “what” question, rather than “how”, “when” or “why”. 51-54

A deductive basis was used for this study. A deductive method is characteristically chosen when the motivation is to answer a hypothesis which originates from previous research. 51-55

The inspiration behind the setup of the study was taken from two books about writing reports and essays. For example, the choice of referencing system and the overall language in the study were inspired by these books. 48 52 To ensure that a clear research
question was formed for the study, inspiration was taken from Mayo´s report from 2013.56

Selection

Four teams were selected in the study: two division 1 teams and two division 2 teams (of which had both played in division 1 the previous season). The characteristics of the players are shown in Table I. A total of 68 female soccer players participated in the study. The mean age among the players were 19,9 and the age gap between the youngest and the oldest was sixteen (14-30). The mean height was 168,5 centimetres, with a range from 155-185 centimetres in height. 41,2 % of the participants had encountered a previous injury which resulted in at least 3 months off play. The mean amount of years which the players had played at a high level was 4,2 years, ranging between 1 and 13 years.

Table I. Descriptive data of the players who participated in the study

<table>
<thead>
<tr>
<th></th>
<th>Total N: 68</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>19,9</td>
</tr>
<tr>
<td>min-max</td>
<td>14-30</td>
</tr>
<tr>
<td>SD</td>
<td>3,60</td>
</tr>
<tr>
<td><strong>Height (cm)</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>168,5</td>
</tr>
<tr>
<td>min-max</td>
<td>155-185</td>
</tr>
<tr>
<td>SD</td>
<td>5,96</td>
</tr>
<tr>
<td><strong>Previous injury (&lt; 3 months off play)</strong></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>28</td>
</tr>
<tr>
<td>%</td>
<td>41,2</td>
</tr>
<tr>
<td><strong>Years on current (or higher) level</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4,2</td>
</tr>
<tr>
<td>min-max</td>
<td>1-13</td>
</tr>
</tbody>
</table>

The number of participants which participated in the study was considered enough, as the descriptive data among the players were scattered, which meant that they didn’t all have the same background, and therefore the generalizability increases. The mindset going into the study was to get as many participants as possible, while still being convinced that all the data would be collected and analysed within the period of time at hand.47 The generalizability of the results was also increased by targeting elite teams with no age-restriction in different parts of the country, as it increases the chance that a wide array of individuals with different backgrounds are targeted. On the other hand,
the fact that the teams weren’t randomly chosen is not optimal when striving for high generalizability.

Some requirements had to be fulfilled to get included in the study. Firstly, the players had to be women. The least amount of team practices a week to be included was 4 and the lowest division that the team could play in was division 2.
An exclusion criteria was the location of the teams. All the teams practiced at locations which were moderately convenient to get to.

**Data-collection method**
The coaches in the teams were contacted via mail or phone call approximately 1 month before the data-collection took place. They were briefly informed about the purpose of the study, ethical considerations and what the results would be used for. After agreeing to participate in the study, a time was set for collecting the data, with focus on making it as convenient as possible for the teams. Therefore, the times were scheduled either before or after a practice for the teams.

The decision was made to collect the data via paper questionnaire. The reasoning behind the decision was that it is a good approach to successfully collect information from people about knowledge, attitudes or behaviour to describe, compare or explain a phenomenon. It was also considered the most efficient way to get a high number of participants from different geographic locations while still being able to get relevant results. It is also a very cheap way to collect data, and the respondents get enough time to answer without getting stressed. By being present while the participants filled in the questionnaires, the respondents had the opportunity to ask questions if any uncertainties occurred. The players were all in the same room as they filled in the questionnaires, mostly for convenience reasons. In addition, all the participants in the teams got the same presentation of the questionnaire, which minimized the risk for different interpretations and misunderstandings.

The main focus when designing the questionnaire was to compose understandable yet comprehensive questions, while still making sure that the questions answered the purpose of the study. Some of the questions were also inspired by the questionnaire used in Makhni’s (2014) study on arm pain among baseball players.
To assess if the questions were easily understandable and interpreted the way they were intended, a pilot study was made on a group of 4 sports-related individuals with different age and background, who got to fill in the questionnaire and give feedback. A few tweaks were made to some questions in how they were formulated due to the feedback from the test-participants.\textsuperscript{56}

**Statistics**

After receiving all the data, IBM SPSS Statistics (version 22) was used as statistical tool to analyse the data. Tables and figures were then established to simplify the results and patterns of the data to make them easier to read and comprehend.\textsuperscript{59,60} Lastly, the data was analysed to establish mean values, median values, standard deviations, counts and percentages for the results.

No comparisons were made nor strived for revealing with the results from this study, such as comparisons between results and age or height, or the connection between previous injuries and experienced pain. The sole purpose was to reveal a potential problem, not to find connections or make any conclusions to answer why the problem exists.

**Ethics**

To ensure absolute consent among the participants, forms were handed out and read by the players before they got access to the questionnaires. The forms consisted of statements regarding the full disclosure and anonymity among the players, the disposal of the sheets after processing them and the option to drop out of the study if desired. The information gathered from the questionnaires was only used for the sake of the study.\textsuperscript{58}

For each team, the sheets were distributed simultaneously to the players and the results were not processed until the data from all teams were acquired and shuffled, to prevent the possibility of connecting questionnaires to certain individuals.\textsuperscript{61}

The majority of the participants were strangers. A few of them were of mild acquaintance which could be taken into consideration as one can argue about its influence on the study results.
Lastly, the goal throughout the entirety of the study was to be objective, non-biased and reflective, as well as being truthful and transparent.52

Results

Experienced pain during career

When rating their experienced pain during their career on a scale from 1-10, the majority (29.41%) of the players chose a 7 (Figure I). Only one player chose the lowest rating on the scale, and almost 62% of them rated their experienced pain with a 5 or more. Despite this, only six of them rated an 8 or 9, and none of the participants answered with a 10.

Figure I. Extent of experienced pain during their career on a scale from 1-10, with 1 being “no extent” and 10 being “high extent”

Pain extent during practice and games

50% of the players put 3 or higher on a scale from 1-5 regarding the amount of pain they had experienced during and after practice in the past month (Figure II). However, the majority (35.3%) of them rated a 2 in their sheet.

Only 4 people gave the highest rating for their perceived pain.
Figure II. The extent of experienced pain in connection to practices and games according to the players on a scale from 1-5, with 1 being “no extent” and 5 being “high extent”

Influence of pain

The highest average score was given on the worsening of their play and their emotional wellbeing. Over 23% of the players rated a 4 on the influence of pain leading to worsening their level of play, and 44.8% of them rated 3 or more on the matter (Table II).

Also, almost half of them thought that pain had affected them emotionally to an extent of 3 or more on the scale.

The players did not experience that pain had such a high influence in making them more careful, with 79.4% of them rating a 3 or lower on that statement. Most of them (35.3%) chose the lowest number on the scale. Neither did they feel that pain had hampered their potential to such a high extent, with 81.2% crossing in a 3 or lower.

Most players (47.1%) gave the lowest rating on pain causing them concentration issues. Most players gave the highest rating on pain making them more careful, worsening their level of play and hampering their potential (7.4% each).
Table II. Influence of pain the past month according to the players on a scale from 1-5, with 1 being “no extent” and 5 being “high extent”, n (%)

<table>
<thead>
<tr>
<th></th>
<th>Median</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain made me more careful</td>
<td>1</td>
<td>24 (35,3)</td>
<td>19 (27,9)</td>
<td>11 (16,2)</td>
<td>9 (13,2)</td>
<td>5 (7,4)</td>
</tr>
<tr>
<td>Pain worsened my level of play</td>
<td>1,5</td>
<td>19 (27,9)</td>
<td>19 (27,9)</td>
<td>9 (13,9)</td>
<td>16 (23,5)</td>
<td>5 (7,4)</td>
</tr>
<tr>
<td>Pain hampered my potential</td>
<td>2</td>
<td>19 (27,9)</td>
<td>28 (41,2)</td>
<td>7 (10,3)</td>
<td>9 (13,2)</td>
<td>5 (7,4)</td>
</tr>
<tr>
<td>Pain affected me emotionally</td>
<td>2</td>
<td>18 (26,5)</td>
<td>19 (27,9)</td>
<td>12 (17,6)</td>
<td>15 (22,1)</td>
<td>4 (5,9)</td>
</tr>
<tr>
<td>Pain caused concentration issues</td>
<td>1</td>
<td>32 (47,1)</td>
<td>14 (20,6)</td>
<td>9 (13,2)</td>
<td>11 (16,2)</td>
<td>2 (2,9)</td>
</tr>
</tbody>
</table>

Reactions to pain

Two areas were explored, reactions to pain during practice (Figure III) and reactions to pain during game (Figure IIII). Most players would continue as normal or continue but take it easier (86,77 %) when experiencing pain during practice. The majority of them said that they would continue but take it easier, with 30 out of 68 choosing that response. 5 of the participants stated that they would choose step off the practice, at least temporarily. The ones who chose to write their own answer stated, for example, that it depended on the location of the pain and that they would try to make adjustments to put the loading on different structures than the hurt one.

![Reactions to pain during practice](image-url)
83.82% of the participants chose that they would continue as normal if they experienced pain during game, whilst 4 of them would step off for the rest of the game (Figure III). Compared to the reactions during practice, 2 instead of 30 would continue and take it easier when experiencing pain during game. 2 of the participants chose to write alternative answers, stating that they continued until it got worse and that it depended on the location as well as the severity of the pain (Appendix 2). When looking at the two diagrams, the biggest difference is that during practice the players are more likely to take it easier when experiencing pain, but in games the players keep on playing to their fullest potential.

Figure IV. The players reactions to experienced pain during games

More players (4) were prone to step off games when experiencing pain compared to practice (1). For the comments made by the participants who choose “other” as an answer, see appendix 2.

Pain and future complications

Every single player believed that playing and practicing with pain could lead to future complications (Table III).
Table III. Belief that playing and practicing with pain can lead to future complications

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>68</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

When asked which complications they believed could be caused by playing and practicing with pain, 79.4% of the participants stated that they believed it could lead to long-term injuries (Figure IIIII). 60.2% of them thought that it could lead to chronic pain and over half of the players thought that chronic hampered mobility and short-term injuries could be caused as a result of playing and practicing with pain. The complication which the least number of players believed could occur (34) was chronic impairment of structures, which means that you lose strength from either muscles or joints losing their ability to build force. In short, all the players were convinced that playing and practicing with pain could lead to complications in some way.

![Which complications they believe playing/practicing with pain can lead to](image)

Discussion

Result discussion

The high general rating among the respondents on the first question (about pain experience) cohere with previous studies about injuries among athletes, if the
assumption is made that pain and injuries are linked together. Research has shown both that pain is common in sports where being physical is needed to perform and that pain is experienced at a higher rate when playing a single sport compared to when playing multiple sports. Soccer is a physical sport and the participants in the study play on a high level, which probably means that they only play soccer. Therefore, the high rating among the players might not be out of order. The fact that many players experience pain means that they can’t perform optimally, since pain affects performance in so many ways. Since pain and injuries often are associated, these results also mean that players are exposing themselves to a high risk for injuries every practice. 

Among the questions in the second part (about the influence of pain on carefulness, level of play, potential, emotions and concentration) of the questionnaire which were related to Makhni’s questions in his study, the results are moderately equal, although the players in this study generally had a bit higher score. In addition, the previously stated data about pain decreasing flexibility, motor functions and muscle endurance show that it might be reasonable that players experience those factors themselves. Many of the players thought that pain affected their emotions. That might be problematic, since having emotional problems affects concentration, performance and mental effort. Since the players experienced that they played worse due to pain, their confidence might have gotten affected. That lack of confidence could have led to a decrease in performance.

The relevance of this study’s results regarding reactions to pain during games and practices are strengthened by the fact that they are similar to the study presented in the introduction about lower back pain and physical activity, where 93 % of the athletes maintained their physical activity despite being in pain. Also, Babwah’s (2014) find that 69.9% of the soccer playing females which were targeted had played a game while being injured correlates with the finds from this study. These results mean that players regularly expose themselves to danger by playing with pain, since that is linked with a high risk for injuries.

The answers from the last two questions (about the belief that physical activity can lead to complication and which complications that could be) in the questionnaire indicate that players are convinced that they expose themselves to danger by playing with pain.
This might lead to a fear of pain/injury which affects performance, rehabilitation length and anxiety. 18-20

There are some additional parts about the two last questions which could be discussed as well. One could assume that the players figured that the questions about the correlation between playing with pain and future complications wouldn’t be in the questionnaire if it wasn’t true. That the purpose of the study was to investigate a possible problem, which would be that players don’t understand the consequences of playing with pain, and therefore the respondents assumed that it must be true. A related problem could have affected the answers in the last question, about which complications playing with pain could lead to. The thought process for some of the players could have been “if these factors are all brought up, I’m sure that all of them are true”. It could also have affected them in the opposite way, meaning that the players would assume that one or more of the stated complications probably are false to test them on their knowledge.

Giving the highest rating on a scale could be hard. If, for example, one would rate the influence pain has had on one’s emotions, the thought process could be that rating a 5 would equal that pain has led to depression. “It could always be worse” is an attitude which could lead to a likeliness for renouncing from rating the highest number on a scale.

The entirety of the answers could also have been affected by bias. Maybe the presence of the other players or coaches had an influence on the answers in some way, making the responses weight over to either side of the spectrum to live up to some standard which is set in the team.

The results might also have been influenced by the fact that the respondents know, or have an idea about what the purpose of the study is and what it wants to achieve. Since one of the purposes of the study was to investigate the commonness of pain among high-level athletes, the players might have been a bit more generous in their estimations to confirm what was sought after in the study.

By some, these finding might have been expected beforehand, but concretizing them helps to pinpoint the problematic issue which exists in the teams which were included in
this study, and probably also in other teams as well as in other sports. There is a culture of normalizing pain and injuries among the players which must come from somewhere, supposedly their parents, their club or role models. This culture means that players fight with pain and injuries during their whole careers which could shatter their whole experience of being high-level athletes. From a performance point of view this could also lead to worse results for certain teams due to injuries and weakened skill level from the players.

**Method discussion**

The reason why this study was made on women was because it was perceived that men were overrepresented in studies on soccer and pain or injuries. Therefore, the decision was for this study to focus on women. The study could have included both men and women, but the decision was made that it would be better to keep to one gender as possible differences between the genders could make the results non-applicable to neither men nor women, since the purpose wasn’t to make comparisons between genders.

In their book about questionnaire studies, Phillips, Phillips & Bruce (2013) bring up four possible errors which might occur when working with questionnaires: coverage errors, sampling errors, non-response errors and measurement errors. When a coverage error occurs, the range of the respondents is outside the field of the purpose. For example, if a high number of participants was strived for, which led to a group of individuals with very different training backgrounds, some on elite-level and some on recreational level, the results wouldn’t answer the purpose of the study. Therefore, a priority in the selection of teams was to choose teams on a high level to prevent this error from occurring.

A sampling error is an error which is caused by targeting groups which differs from how the general population is. This is hard to prevent in any sort of study, but by using a high number of individuals from different locations the results get a bit more generalizable.

Another risk with using questionnaires is the risk of people deciding not to participate. These risks are formulated as non-response errors. If the sheets had been sent to the individuals online, it would have been easier for them to ignore it. By handing them out
physically on practice time with the coaches being present, it increased the chances of
the players deciding to participate in the study.

*Measurement errors* are errors which are caused when the questions are misinterpreted
by the participants and therefore don’t give relevant results. These errors were reduced
by presenting and explaining the questions and the purpose of the study before handing
out the sheets. The participants were also informed that they were welcome to ask
questions if they were unsure about anything in the questionnaire.

Aside from the four risks stated above, the liability of the study could also be impaired
by the respondents not taking their time to answer the questionnaire to the best of their
ability, due to, for example, laziness, lack of time or other more attractive activities to
attend to while filling in the sheet. This was also taken into consideration, by trying to
make the questionnaire short and easily understandable, and by being enthusiastic about
the importance of the study.

More disadvantages of questionnaires are brought up by Göran Eljertsson, such as the
limited information which can be gathered from it, the inability of following up on
interesting finds with further questions and the struggle with making complex questions
due to the high risk for misunderstanding. 58

Although the questionnaire was partly based on the one by Makhni,21 it was mostly self-
designed and non-validated. The weakness by that is that there was no guarantee that
the questions were formulated well enough to make them understandable and answer
the purpose of the study. On the other hand, the questions were custom made which
made it easier to make them relevant for this particular study.

When deciding which method to use to answer the purpose of the study, there were two
more approaches aside from the method which was chosen which were considered; a
longitudinal study or a qualitative interview study. If one of those methods would have
been chosen instead, the outcome of the results would have been different.
If a longitudinal study would have been made, the answers could have been more
precise. If, instead of making a general estimation of the influence of physical pain, the
players would have had diaries where they answered a number of questions about pain
after every practice and game, it would have been easier for the players to give a precise
answer. It would also have been easier to generalize from the results since data would have been held from every practice and game.

If an interview study was chosen as the method, the depth of the results would have been greater. Follow-up questions could have been asked to get a greater understanding behind the standpoints of the players. The study could have brought up more about why they treat injuries the way that they did and how different situations could lead to different answers, instead of finding a general answer.63

The thought process behind ultimately deciding to use a questionnaire to get the results for the study was that it would have been hard to make a longitudinal study, due to a shortage of time to finish the project, as well as the difficulty in supervising all the players in the study, since the study was made on four different teams from different parts of the country. It increased the risk of players forgetting to fill in their diaries and inattentively filling them in several days after the practice or game took place. The reasoning was also that it would be bothersome for the players to both remember and be motivated to fill in their diaries almost every day for several weeks. Interviews would have been relevant to make to answer the purpose of the study. The motive behind not choosing that method was the lack of participants which would have been possible to include. The decision was made that it was more important to be able to illustrate a problem via generalization than to get a deeper view on the attitudes of a few individuals.

The reasoning behind including a question in the questionnaire about previous injuries was because injuries increase the prevalence of reoccurring injuries in the same proximities, and therefore the conclusion was made that pain also could be more prevalent for players whom had been injured before.64

In the first question about experienced pain during career, the fact that the respondent must make a general rating based on their whole career could be problematic, especially if said player have had a long career. It might be hard to recall and evaluate perceived pain which occurred several years ago,65 and chances are that the rating is mostly influenced by experiences from more recent years. The same problem also applies to the question about experienced pain connected to practice and games the last month. Even if it concerns a month instead of several years, it might be hard to make a collected
evaluation from all the practices and games, and you might also be more affected by the most recent practices when rating the perceived pain.

In addition, there is a risk that the previous month doesn’t give a just reflection on how affected the player usually is by physical pain. Maybe some players felt more or less pain that specific month than they usually do, which makes the results less generalizable. Regarding the reactions to pain during practice and games, a response by some of the players was that it was hard to answer those questions since it often depends on the amount of pain which is felt. The instruction was to try and make a general estimation on the amount of pain they would imagine experiencing, but nevertheless it could be hard to give a clear answer to those questions.

**Future studies**

Since this study has a broad orientation, there are many fields which could be further explored, such as connections between pain in sports and age, nationality, previous injuries, level of play etc. Studies could also target the coaches, physiotherapists or parents of athletes. Quantitative studies could be made were pain during practice and games were examined more precisely by letting players fill in diaries where they summarize the level of pain experienced during every practice and game, as well as whenever they don’t play due to pain. Interview studies could also be made to extract more qualitative information from the players to get a view on what their thoughts are on pain.

**Conclusions**

The majority of the players in a team struggle with pain to varying degrees. Even though players are convinced that it might be dangerous to practice and play games while being in pain as well as that it can lead to several lifelong complications, most of them keep on playing when they experience pain, especially during game.

Coaches and physiotherapists can, by being inspired by this study, be warier of the state of the players that they work with to prevent injuries by letting players play games and practice with pain as well as putting more effort into pain prevention when setting up their practices. The players should be properly informed about the risks in playing with pain and encouraged to treat their body better when experiencing pain by not continuing practices and games when being in pain.
References


28. www.aftonbladet.se, 31st of May 2017


# Appendix 1 Questionnaire Questions

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<th>Characteristics</th>
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<td>Age, height, amount of years played at current (or higher) level &amp; if they had encountered a serious injury (more than 3 months away from play) in their career.</td>
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**Q1** “To which extent do you think that pain has been present during your sports career?” On a scale from one to ten where one is no extent and ten is high extent.

**Q2** “Mark the box which fits in the most depending on the extent you’ve been affected the last month.” On a scale from one to five where one is no extent and five is high extent. They took a stand on six statements:
1. I experience physical pain during/after practice/games
2. Physical pain has made me more careful in my motions
3. Physical pain has worsened my ability to play soccer
4. Physical pain has hampered my potential as a player
5. Physical pain has affected me emotionally
6. Physical pain has caused me problems with concentrating

**Q3** “If you start experiencing pain during practice; how do you react to it? Choose 1 alternative.” Five alternatives were available:
1. Continue as usual
2. Continue but take it easier
3. Step off until it feels better
4. Step off completely
5. Other

**Q4** “If you start experiencing pain during game; how do you react to it? Choose 1 alternative.”
1. Continue as usual
2. Continue but take it easier
3. Step off until it feels better
4. Step off completely
5. Other

**Q5** “Do you think that practicing and playing games despite being in pain can lead to future complications?” Yes/No

**Q6** “If yes; which complications do you think it can lead to? You can mark several alternatives.”
1. Short term injuries (weeks)
2. Long term injuries (months/years)
3. Chronic pain
4. Chronic hampered mobility
5. Chronic impairment of structures
6. Other
### Appendix 2 Comments from the participants

| “Others” from reactions to pain during practice | 1. “It depends on where the location is: if I feel pain in a previously injured area I tend to get more careful.”
| | 2. “I try to continue as normal. If I can’t I take it easier”
| | 3. “I continue practicing but adjust the practice to avoid getting hurt, for example by putting load on a different muscle group.”
| | 4. “It depends on where and how much pain I feel”
| “Others” from reactions to pain during game | 1. “I try to continue but if it gets worse I step off the game”
| | 2. “It depends on where and how much pain I feel”
| Other comments | “I think that many injuries occur because you are too physically weak in different parts of your body.”
| | “Depending on what kind of pain you feel, I think that I can lead to future complications.”
| | “I have had Schlatters Disease in both of my knees as well as periostitis but still kept on going.”
| | “Many of the questions are hard to answer as I experience many different kinds of pain which I treat in various ways.”
| | “I have had this high extent of pain because I’ve had four cruciate ligament and meniscus injuries in the same knee”
| | “I am always in pain due to chronic periostitis”
| | “I have had a meniscus injury for the past year and I am on my way back after two surgeries. My cruciate ligament is also torn since earlier which has prolonged my rehabilitation. I have been injured for a total of two years.”