



**Unraveling the impact of stress on performances, training and the overall well-being for figure skaters.**

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Amk- research based thesis  
2024

## Tiivistelmä

<b>Tekijä(t)</b> Aino Andrews
<b>Tutkinto</b> Sports Coaching and Management
<b>Opinnäytetyön nimi</b> Unraveling the impact of stress on performances, training and the overall well-being for figure skaters.
<b>Sivu- ja liitesivumäärä</b> 23 + 1
<p>Figure skating naturally places high demands on figure skaters, requiring them to almost always be in a prime physical condition, since figure skating requires great coordination, impeccable balance, and a strong consistent mental focus.</p> <p>This makes the athlete more susceptible to the on-going effects of stress on ones performance levels as the athlete always needs to be at one hundred percent, even during training sessions.</p> <p>This thesis aims to investigate how stress has an effect on a figure skaters performance and training environment, attempting to delve into the physiological, psychological, training and competition performance. Through extensive research in literature articles, and a questionnaire answered by figure skaters varying of different ages, this study aims to create a better understanding of how stress can have an impact on different aspects of ones figure skating performance, and training. By highlighting the triggers that cause stress to manifest and develop, and the effects it can create in a training, and competition atmosphere, as well as the effect the overall mental well-being of an ice skater, this research hopes to develop an understanding on effective stress management skills, that are uniquely adept in supporting the high demands within figure skating.</p>
<b>Asiasanat</b> Figure skating, stress, anxiety & mindfulness

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## 1 Introduction

Figure skating is the epitome of athleticism and artistry, creating the ability to capture audiences with breath taking displays of grace, agility, balance, near perfect precision, and entertainment. “The sport demands highly trained capabilities, such as power, endurance, speed, strength, coordination skills” (Mälkki. 2016, 12), yet ice skaters are also required to remain graceful and move effortlessly. As figure skaters continue to work hard through their training experience, they start to glide more and more effortlessly across the ice, executing difficult jumps, spins, and choreographed step sequences; they embody the pinnacle of athlete achievement in the realm of this specific sport.

However, figure skaters attempt to productively navigate between the high demands of high a successful performance level and their psychological well-being, there is more discretely hidden beneath the surface of what the eye can initially see. This delicate and graceful spectacle has a massive undercurrent of expectation, perfectionism, pressure, and ultimately uncertainty. Many ice skaters indicate that they experience negative difficulties, such as worry, anxiety, and sleepless nights, as well as poorer relationships with others such as family and friends (Hill & al. 2018, 4). These signs of negative mental, emotional, and physical experiences, all have the ability to affect a skater’s ability to perform under pressure.

The pursuit of perfectionism in figure skating is ultimately intertwined with the relative experience of stress, an ever-present factor that spreads through every corner of an athlete’s life, from training venues to competition venues. Defined as the physiological and psychological response to perceived obstacles or challenges, stress encompasses a diverse array of stressors, ranging from the pressure to succeed in competitions to the demands of rigorous training regimens and the scrutiny of coaches, judges, and spectators. Some athletes described perfectionism as a major source of their motivation (Hill, 2018, 4), which they hope will eventually lead to their own success. For figure skaters, the stakes always feel like they are high, and that’s because they are, with the margin for mistakes in a performance often being razor thin, and the ultimate consequence of failure for a figure skater extends far beyond the confines of the ice rink, trying to take on personal demons and striving to find one’s place in the world (Omasi, 2024,1).

The literature on stress in sport provides firm guide lines for understanding the various ways in which stress can alter and effect an athlete, or a figure skaters performance, whether that’s physiologically, or psychological well-being. With the biopsychosocial model of stress, stress can be noticed with three components: an external component, an internal component, and the interaction between the external and internal components (Cordon. 1997). Consequently, this highlights that there is an intricate interplay between biological, psychological, and social factors, to which each

one provides personal influences to an individual's response factors when experiencing stress. Looking at it from a physiological point of view, stress has the potential to exploit an onflow of hormonal and autonomic responses, this includes the release of cortisol in the body and the activation of the sympathetic nervous system, which can stimulate the body's natural resources in order to prepare itself for sport. When experiencing stress there often is an increase in cardiac output, additionally "catabolism is increased and blood flow is redirected to provide the highest perfusion and fuel to the aroused brain, heart and muscles" (Chrousos. 2002, 886). These physiological changes have the potential to enhance an athlete's potential physical capability in the short term, creating the subconscious 'fight or flight' response that the human body feels necessary for survival in any situations it perceives as threatening. As we experience stress, attention is enhanced and the brain focuses on the perceived threat (Tsigos. 2002, 886). However, when experiencing prolonged or extreme amount of stress it can have harmful effects on an athlete's health and performance, since chronic stress is also thought to underpin burnout development (Glandorf & al. 2023, 4), eventually contributing to fatigue, complete burnout, and an increased risk of injury and illness.

Psychologically, stress has the potential to manifest as an intricate interplay of emotional, cognitive, and behavioural responses, experiencing fluctuating responses from heightened vigilance and increased response to feelings of anxiety, confusion, perfectionism, self-doubt, and fear of failure. The cognitive-relational theory emphasizes the fundamental role of cognitive appraisal in the stress process (Peacock & Wong. 1990, 227). This notion advances that individuals' own interpretations of stress factors, and their potential ability to cope with them, end up playing a pivotal role in deciding their emotional and behavioural responses to their stress. More often than not for figure skaters, the pressure felt to perform near perfect every time in front of judges and audience members can bring forward strong feelings of anxiety and self-doubt, as they try to juggle with the fear of falling short of their and everyone else's expectations, as well as the consequences of the athlete's perceived failure. Additionally, the naturally subjective outlook of figure skating judging contributes an extra layer of complicatedness to the athlete's potential experience of stress, as they try to navigate and understand the in depth intricacies of the points system, artistic interpretation, and the ever persisting ideal for perfection (Pomai, 2023, 1).

Observing from a performance perspective, stress can exhibit obvious effects on an athlete's ability to successfully complete intricate motor skills and maintain a high level of concentration and focus during events, tests, and competitions. Looking at the hypothesis of arousal and performance, it suggests that people are driven toward situations and activities that will maintain an optimum level of arousal, such as alertness, interest, and energy (Cherry. 2023). This indicates that there is a desirable level of arousal to be reached at which an athlete can perform to the best level possible, with performance potentially regressing at both high and low levels of an athlete's arousal levels.

Generally in figure skating, finding the correct balance between arousal and relaxation is of high importance, as most skaters attempt to harness the adrenaline and energy of a competition all while keeping the grace and control necessary for completing many different technically demanding elements remains to be the most difficult challenge.

In relatively recent years, some researchers have increased their attention and focus to the idea of stress management techniques to improve an athlete's performance and mental well-being while in an high-pressure environment. The primary goal of stress management in sports is to help the athlete to effectively manage competition related demands as well as to enhance psychological well-being (Sadhaura & Yamunanagar. 2017,1103). Unique skill sets such as relaxation training, meditation, mindfulness, visualization, goal-setting, and cognitive-behavioural interventions have all shown great potential in having the ability to help athletes cope more effectively with stress factors, control their arousal levels, and increase an athlete's performance under pressure. However, the perceived effectiveness of these interventions in the bracket of figure skating still remains to be an area of continued investigation, as not many researcher have looked to identify the most effective interventions for improving the concerning effects of stress and maximizing an athletes performance on the ice.

From this point of view the thesis will seek to provide a thorough examination on the impact that stress has on performance in figure skating, taking into account physiological, psychological, and performance-related aspects. Utilizing the best mixture of existing literature, first-hand research, and qualitative points of view from figure skaters, this study aims to increase our understanding of how stress has the ability to manifest and influence different aspects of figure skating performance. By highlighting the conditions through which stress can affect an athletes physiology, psychology, and on-ice performance, this research intends to bring forward the suggested improvements of potential interventions and support methods aimed at pushing figure skaters further to thrive in spite of the pressures experienced in competition or tests and reach their full potential out on the ice.

## 2 Literature review

In this thesis the literature review will attempt to explore on-going research on stress in athletic performance, with the intent to highlight specific stress factors triggered within figure skating. It will delve into the physiological responses to stress, such as increased cortisol levels and heart rate, as well as mental well-being triggers such as anxiety, perfectionism, burnout, fear of failure, and self-doubt. Additionally, the researched literature will look at the contributing effects of stress on influencing an athlete's focus, decision-making skills, and motor coordination. With all these being such critical components in order to allow a figure skater to succeed in performing a successful figure skating routine.

### 2.1 Introduction to figure skating

Ice skating, is a highly athletic sport blended with grace and artistic expression has captivated audiences of all ages for centuries. Potentially originating in the frozen landscapes of Scandinavia as early as 1000BC (Augustyn. Britannica 2024), ice skates evolved from rib bones of elk, reindeer, and oxen as a means for transportation, but soon adapted into a popular sport and leisure activity enjoyed globally.

The Evolution of ice skates has been developed over many different stages. The first iron skates were introduced in the 17<sup>th</sup> century, followed by steel skates in the 1850s, which were only attached to shoes via screws and clamps. Eventually in the 1990s another leap forward was made and the clap skate was introduced, this featured a spring-hinged blade at the toe pick. This innovative design allowed the blade of the speed skater to remain in contact with the ice slightly longer, and resulted in significantly faster times (Schrodt. 2015).

The eventual development of refrigerated ice rinks ended up changing and revolutionizing ice skating for the better. Ice skating turned from a seasonal hobby to a major sport and opened the door for entertainment with ice skating shows. The first rink with artificially frozen ice, a private one, the Glaciarium, was opened in London in 1876 (Augustyn. Britannica, 2024). This eventually allowed for ice skating to spread across the globe to other countries and in regions with warmer climates.

From the gracefulness of figure skating to the intense speed and power of ice hockey, or the in-depth coordination skills of ice dancing, the sport calls on an array of different disciplines to entice and capture people of interest and skill levels. Outside of just the competitive aspect, ice skating can provide a recreational outlet such as adult or recreational skate courses so more people can enjoy the thrill of learning to skate, all while enjoying the thrill of gliding across the ice, whether that is at your local ice rink or on a frozen lake.

Ice skating offers many different health benefits as a form of physical activity, including increased muscle strength, enhanced balance, and improved cardiovascular fitness. Moreover, the mental improvements are just as valuable; these benefits also include increased concentration, perseverance, and self-confidence. Additionally, as your physical agility improves, your mental agility also benefits as you concentrate, react to the changing environment and build self-confidence (Kathryn. 2017). Whether figure skating is pursued for recreational or competitive purposes, it will continue to hold many physiological and psychological benefits, as well as continuing the ability to captivate audiences around the world with its aesthetically pleasing athleticism, grace, and artistic impression.

## **2.2 Perfectionism**

Perfectionism looms large in figure skating, shaping the mindset and approach for athletes towards their relentless pursuit of performing a near flawless routine. This brings immense pressure and stress, creating high standards and intense self-criticism. Recognizing the role of perfectionism in figure skating is a key ingredient to help create a supportive training environment and promote positive athlete development.

Within the realms of sport, the pursuit of perfection is deeply ingrained and this often stems from the inherent demand for a near flawless performance, where being successful usually hangs in the balance by a small margin. Alternatively, in the exercise domain where first hand competition is not necessarily as prevalent, the pressure to adapt to the ideals of what society believes to be physical perfection remains just as persuasive (Hill. 2016, 11). This can add extra pressure and possibly glorify the pursuit of perfection, particularly in any sport where the attainment of perfection is celebrated as the pinnacle of an athlete's achievement.

The relationship between perfectionism, and body satisfaction, and dieting behaviours amongst athletes also can play its part in the ideals of perfectionism. A study monitoring these behaviours came to the conclusion that although there was an effect, male athletes were less likely to be affected by these factors, whereas female athletes had a significant increase in body dissatisfaction and dieting behaviour. Generally, the prevalence of eating disorders is higher in females than in males and among athletes compared to non-athletes (Prnjak, Jukic, & Tufano, 2019, 6). Through this analysis they determined that body satisfaction could serve as a mediator between adaptive and maladaptive perfectionism. As a counterbalance, having good communication amongst athletes, coaches, sport nutritionists, and psychologists will be crucial for helping to prevent any potential eating disorders and body dissatisfaction in athletes.



In summary, perfectionism has a strong influence on figure skating, adjusting an athlete's mindset and performance capability. Recognizing the impact of this is essential for creating a positive and supportive training atmosphere, in order to push positive athlete development. By acknowledging and monitoring perfectionist tendencies, the figure skating community has the ability to better support athletes in achieving success, while also prioritizing an athlete's well-being.

### **2.3 Anxiety**

This section aims to provide an incite on the research based upon anxiety in figure skaters, focusing on its importance, factors that add to its development, and how it can have an impact on performance.

Anxiety is a well-known stress factor among figure skaters, with this having an impact on both a figure skaters performance state and mental well-being. Some studies have highlighted the prevalence of anxiety among figure skaters, particularly the competitive or testing environment contributed to frequent thoughts of worry and moderate physiological symptoms of anxiety on average (Benish. 2020, 32). They found that an increased number of figure skaters experience anxiety symptoms, including nervousness, tension, self doubt, shyness and anxiety, before competitions or tests. However, the study "An Investigation of the Competitive Anxiety Experiences of Adolescent Figure Skaters" (Benish. 2020, 27-29) reported high levels of anxiety during events or performances among figure skaters, indicating the lack of perceived self-control while performing. The study suggests that its findings for figure skaters with higher levels of stress or anxiety had a more detrimental outlook on a figure skaters ability to perform well, giving the impression they were in less control.

There are many different factors that can contribute to the development of stress and anxiety in competitive figure skaters. Two of these factors that regularly appear are the high-stakes nature of figure skating competitions or tests, and someone's innate shyness. Figure skaters regularly come face-to-face with intense pressure to perform perfectly, taking into account the subjective nature of judging criteria and the high expectations of coaches, parents, and spectators. Skaters who are shy may also experience difficulties in their ability to perform during competitions (Prakash & Coplan, 2003, 22), or tests. This pressure can lead to increased risk of anxiety, stress, and injury as skaters strive to reach and potentially exceed performance expectations. This finding was able to link a figure skaters shyness and psychological coping style to their overall perception on their athletic ability. It suggests that an athlete's environmental surroundings can increase stress in those who experience self-presentational worries, indicating that daily training sessions may specifically be stressful for shy athletes (Prakash. 2003, 30). Hypothetically, if a shy skater were to perform spins or jumps during training while being observed by onlookers, they may fear negative

observation from others and a perceived lack of attention, increasing their anxiety levels. However, figure skaters would find an improved perception of their athletic capabilities if they focused on the task at hand rather than concentrating on external factors.

Additionally, with the fear of failure and the potential aftermath of making mistakes in front of a judging panel, your coaches, and audience members, can propel forward anxiety symptoms in figure skaters. Since judging art is such a subjective view point, there really is no way to control a judge's personal opinion on a skater's specific skating style, or the enjoyment a judge may receive watching a specific individual perform. Athletes create a pedestal of importance for competitions and the desire to achieve perfection, this further contributes to stress levels and creating anxiety, as skaters attempt to navigate through their own competitive atmosphere.

When looking at the coping mechanisms for figure skaters, it was suggested that techniques utilized by a majority (65%) of the skaters in managing sources of stress (Benish. 2020, 13) use pre-competition and anxiety control techniques, these include meditation, visualization, relaxation, and understanding their nervousness. While the outcomes of these stress and anxiety management techniques weren't directly addressed, the different insights from elite skaters suggest that trying to use psychological coping techniques are important in trying to maintain and control anxiety and stress levels pre-event.

In conclusion, anxiety is an ever-present stress factor, and it will continue to be a complex emotion that figure skaters will have to face on a regular basis. Trying to understand the stress factors that contribute to anxiety and how it could affect an athlete's performance or training is vital going forward in the future with trying to improve and develop stress management skill sets aimed at improving figure skaters' performances, training sessions, and overall mental well-being. Hopefully future research can continue to explore the delicate emotions linked to anxiety in figure skaters, and find effective measures to manage stress effectively in figure skating.

## **2.4 Resilience**

The book *Emotional Intelligence: Resilience*, explores the importance of understanding and managing emotions effectively, as well as the ability to bounce back from adversity. As it was stated in the book by Dean Becker (Coutu. 2017, 8) "More than education, more than experience, more than training, a level of resilience will determine who succeeds and who fails. That's true in the cancer ward, it's true in the Olympics, and it's true in the boardroom."

"A common belief about resilience is that it stems from an optimistic nature. That's true but only as long as such optimism doesn't distort your sense of reality" (Coutu. 2017, 11). Highlighting that

resilience is crucial in both personal and professional life for making effective decisions, managing stress, adapting to challenges, setbacks, and failures, and using them as opportunities for growth. It's a valuable skill in overcoming the ups and downs of life, sport, and work.

Athletes can demonstrate resilience in several ways:

1. Persistent Practice:

Ice skaters experience many falls and failures during training, but they have to remain patient and continue to be persistent in practice in order to improve their skills. They learn from previous mistakes and setbacks, continuously working on their techniques.

2. Ability to Handle Pressure:

Figure skaters are required to perform under immense pressure during competitions or tests, with the eyes of judges and spectators always on them. Resilient skaters are often able to manage this pressure effectively, by staying focused and composed despite the natural high stakes nature of the sport.

3. Adaptability:

Skaters often encounter unexpected obstacles or situations, such as an overload of adrenaline, anxiety, sometimes injuries, or even equipment malfunctions. Resilient ice skaters adapt quickly to these challenges, adjusting their routines and technical elements to overcome such hurdles.

4. Emotional Control:

Skaters must manage their emotions, such as nerves, frustration, or disappointment, especially after a below par performance, or after experiencing an unexpected fall. Resilient skaters often have the ability to stay calm, maintain confidence, and bounce back from adversity with determination and passion.

5. Learning from Failure:

Every ice skater experiences failures and mistakes, but resilient ones use these experiences as opportunities for growth. They analyze their performances and technical elements, identify areas for improvement, and continue to refine their skills with their confidence still intact.

Figure skaters demonstrate resilience through their perseverance, ability to handle pressure, adaptability, emotional control, and willingness to learn from failure. When it comes to resilience the brain has a unique ability to bounce back from the built up impact of daily hassles, and with a little effort, you can increase its ability to bounce back from life's setbacks. As it was stated by

Goleman (2017, 34), "Whenever we get so upset that we say or do something we later regret (and who doesn't now and then?), that's a sure sign that our amygdala—the brain's radar for danger and the trigger for the fight-or-flight response—has hijacked the brain's executive centers in the prefrontal cortex." The neural key to resilience hides in how quickly we can recover from a hijacked state of mind. Richard Davidson, a neuroscientist at the University of Wisconsin, has found that when we're distressed, there's heightened activity on the right side of the prefrontal area, while the circuitry that brings us back to full energy and focus concentrates on the left side of our prefrontal area.

To effectively approach this in the workplace, Davidson teamed with the CEO of a high-pressure, 24/7 biotech startup and meditation expert Jon Kabat-Zinn of the University of Massachusetts Medical School. Kabat-Zinn delivered the employees at the biotech outfit some instructions in mindfulness, a method in attention-training that teaches the brain to register what is happening in the present moment with complete focus - but without reacting. They had the employees practice mindfulness for eight straight weeks, with the intent to average 30 minutes a day, and shift their brain activity from the stressed-out right side to the resilient left side. "What's more, they said they remembered what they loved about their work: they got in touch with what had brought them energy in the first place" (Goleman. 2017, 36).

Athletes can the potential to strengthen their mental resilience much like they train for peak performance on the field or ice. Building up an individuals personal "positivity currency" is crucial. "We can't print resilience like countries print money; it's earned through positive interactions, events, and memories, which serve as valuable assets in boosting resilience" (Kopans. 2017, 42). Research by experts such as Robert Emmons and Michael McCullough indicates that maintaining a more positive outlook and expressing gratitude on a consistent basis are key to increasing personal happiness and life satisfaction, ultimately leading to greater resilience. "Just as meticulous record-keeping is essential in refining our athletic skills, it's also vital for building individual resilience (Kopans, 2017, 43). Documenting and keeping track of positive interactions and achievements, whether in a journal or digital platform, helps track personal progress and strengthens an individual's resilience over time. As it was stated by David Kopans (2017, 43) "Creating such positivity currency can decrease anxiety, reduce symptoms of illness, and improve the quality of your sleep. All of which, of course, lead to greater personal resilience".

In conclusion, the journey of resilience is a diverse pursuit, whether it is on the ice or in a boardroom. Athletes, like figure skaters, demonstrate resilience through their persistence, adaptability, and emotional control, showcasing the strength of being able to bounce back from different types of setbacks. As highlighted by Goleman, Davidson, and Kabat-Zinn, understanding the brain's

mechanisms and introducing daily mindfulness are key tools for enhancing resilience in both personal and professional atmospheres. Moreover, creating a "positivity currency," as emphasized by Kopans, serves as a valuable asset in increasing resilience, assisting individuals to navigate challenges with grace and determination. By embracing these factors and practices, individuals can strengthen their mental resilience and thrive regardless of life's ups and downs.

### **3 The aims and research questions**

In light of the significant role stress plays in the daily lives of figure skaters, this research aims to explore the delicate relationship between stress, training and performance within the sport. By delving into the physiological, psychological, and performance-related aspects of stress, this questionnaire intends to enhance the understanding stress has on a figure skaters ability to train and perform, and how it could effect their overall well-being.

Through a combination of stressors experienced by figure skaters, varying from competition pressures to self-imposed expectations of perfectionism, this questionnaire hopes to identify the key factors contributing to stress within figure skating. Furthermore, by investigating the effectiveness of stress management methods utilized by figure skaters, such as relaxation training and cognitive-behavioral interventions, this questionnaire aims to find strategies for improving and optimizing performance outcomes and promoting mental resilience.

By shedding light on the importance between stress and an athlete's figure skating performance, these questions intends to explore the development of stress interventions and support systems aimed at empowering figure skaters to thrive in the face of pressure and anxiety. Ultimately, this research seeks to contribute to the exploration on improving overall well-being and the success of figure skaters, both on and off the ice.

#### **3.1 Aim of the questionnaire**

The aim of the questionnaire is to collect personal insights into the moments that a figure skater experiences regarding stress and how it affects its performance, stress management techniques, and well-being. By collecting responses from current figure skaters, this questionnaire seeks to;

1. To explore the numerous stressors experienced by figure skaters in both a training and competition environment.
2. To investigate the physiological, psychological, and performance-related effects of stress on figure skaters.
3. To evaluate the effectiveness of stress management techniques explored by figure skaters.
4. To identify potential techniques and support methods that could help improve figure skaters' performance and mental well-being while under pressure.
5. Understand the impact of factors such as coaching support and organization of training, that could have an influence on stress levels and performance outcomes.

6. Generate ideas that could enhance stress management skills and improve an athletes overall well-being, promoting increased performance potential.

Through the collection and analysis of the question responses, the questionnaire aims to explore and understand the valuable insights to the knowledge gained surrounding stress in figure skating and identify strategies that will better equip and support figure skaters in managing stress factors experienced, potentially optimizing their on ice performance.

### **3.2 Questions asked**

The following is a list of statements put forward to figure skaters between the age of 14-18, to explore and understand the effect that stress has in training, tests, and competitions.

1. I am worried that I will fail or make mistakes at practice.
2. I feel physically stressed or nervous during a competition or a test.
3. I believe in my ability to perform at the level required.
4. I get nervous and worried of the end result of the upcoming competition during the week.
5. I am prepared for the upcoming competition or a test.
6. I understand how to deal with a stressful situation.
7. I tend to overthink my mistakes during a performance.
8. I worry that I will not meet other's expectations (eg. A coach or a parent).
9. People sitting in the audience, have a positive impact on my success (in a competition or in training).

These research statements will have a multiple choice scale from 1-5, one being totally disagree and five being totally agree, with the aim to further explore the complex nature of stress in figure skating, looking at its impact on athlete's physiology, psychology, and performance.

## **4 Data and methodology**

### **4.1 Research Design**

This questionnaire aims to unravel the impact of stress on performance, training, and overall well-being in figure skaters. A cross-sectional research approach was used, utilizing a questionnaire to collect data from a sample of eight figure skaters aged between fourteen and eighteen. The questionnaire consisted of nine questions designed to explore various aspects of stress, confidence, preparation, and the influence of external factors on a skaters' training and performance.

### **4.2 Participants**

The participants who took part in this study were eight figure skaters, aged between fourteen and eighteen, from the same local ice skating club, Mikkelin Luistelijat. All participants who took part in this questionnaire have at least six years of competitive skating experience to help ensure that they had sufficient exposure to intense training and competitive atmospheres. Informed consent was obtained from all participants and their guardians prior to participation in the study.

### **4.3 Data and Collection**

Data was collected for this study using a structured questionnaire approach consisting of nine questions. Each question aimed to evaluate different aspects of stress and its potential impact on a skaters' training, performance and overall well-being. The questions were created on the bases of existing literature on sports psychology and stress management, maintaining the relevance and clarity within this study. Participants responded to each question using a five-point scale, with response options ranging from "Strongly Disagree" to "Strongly Agree."

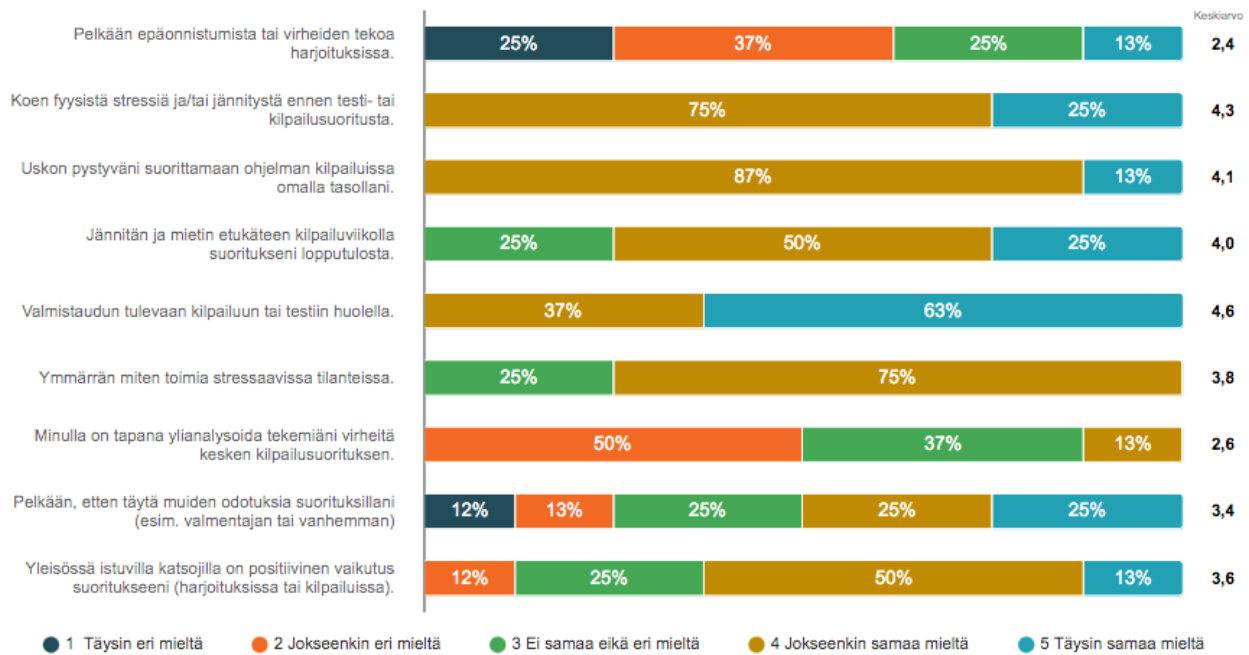
### **4.4 Data Analysis**

The graph below shows the distribution of votes across each different question as a percentage total. By presenting the data in percentage terms, the relative data was compared with the intention to understand the significance of each category within the questionnaire. This visualisation highlights key trends, similarities, and differences with how each individual skater feels and understands the impact of stress internally and externally.

The responses to each question were compared and analyzed to find any contrasting patterns and trends. The percentage of responses for each question are shown below:



Vastaajien määrä: 8



#### 4.5 Methodological Considerations

The methodology of questionnaire highlighted a thorough understanding of the impact of stress on a figure skater by concentrating on self-reported data from each of the questionnaire participants. However, there are some limitations to consider; the small sample size and age bracket may limit the productivity of the findings, and the self-reported nature of the questionnaire may introduce personal bias. Future research could benefit from a larger participant size and the inclusion of physiological measures of stress to complement the self-reported data.

#### 4.6 Ethical Considerations

The ethical considerations were thoroughly considered, and the participants and their guardians approval/consent were obtained to have the questions answered within the questionnaire. The confidentiality and anonymity of the participants were maintained while providing their answers for the questionnaire, with data being kept only accessible to the researcher of this study.

By applying this methodology, the study pushes to provide important insights into how stress has the ability to affect a figure skaters performance, training, and overall well-being, while potentially providing strategies and interventions to help better support athletes in managing their stress more effectively.

## 5 Results and Discussion

### 5.1 Results

The questionnaire responses helped provide a detailed outlook on how stress impacts the performance, training, and overall well-being of the eight figure skaters. The results for each question are summarized and analyzed below.

**Question 1:** I am worried that I will fail or make a mistake at practice.

- Strongly Disagree: 25%
- Somewhat Disagree: 37%
- Neither Agree nor Disagree: 25%
- Somewhat Agree: 0%
- Strongly Agree: 13%

#### **Analysis:**

A significant percentage of participants (62%) do not worry about potentially failing or making a mistake during practice, indicating a seemingly low level of stress related to practice sessions. Only a small percentage (13%) strongly agrees with this being an area of concern.

**Question 2:** I feel physically stressed or nervous during a competition or a test.

- Strongly Disagree: 0%
- Somewhat Disagree: 0%
- Neither Agree nor Disagree: 0%
- Somewhat Agree: 75%
- Strongly Agree: 25%

#### **Analysis:**

All participants reported experiencing some form of physical stress or nervousness while participating in competitions or tests, with 100% agreeing (somewhat or strongly). This suggests that taking part in a competition is a significant source of stress for these athletes.

**Question 3:** I believe in my ability to perform at the level required.

- Strongly Disagree: 0%
- Somewhat Disagree: 0%
- Neither Agree nor Disagree: 0%
- Somewhat Agree: 87%

- Strongly Agree: 13%

### **Analysis**

All participants expressed confidence in their ability to perform at their required level, with the majority agreeing (87%) and the rest strongly agreeing (13%).

**Question 4:** I get nervous and worried of the end result of the upcoming competition during the week.

- Strongly Disagree: 0%
- Somewhat Disagree: 0%
- Neither Agree nor Disagree: 25%
- Somewhat Agree: 50%
- Strongly Agree: 25%

### **Analysis:**

Most of the participants (75%) are in agreement that they feel nervous and worried about the outcomes of upcoming competitions, highlighting that pre-competition anxiety is prevalent in the build up to events.

**Question 5:** I am prepared for the upcoming competition or test:

- Strongly Disagree: 0%
- Somewhat Disagree: 0%
- Neither Agree nor Disagree: 0%
- Somewhat Agree: 37%
- Strongly Agree: 63%

### **Analysis:**

All participants feel prepared for their upcoming competition or tests, with a majority (63%) strongly agreeing, suggesting that despite the feeling of stress, they are adequately prepared to perform at the level required.

**Question 6:** I understand how to deal with a stressful situation.

- Strongly Disagree: 0%
- Somewhat Disagree: 0%
- Neither Agree nor Disagree: 25%
- Somewhat Agree: 75%

- Strongly Agree: 0%

**Analysis:**

While 75% somewhat agree that they understand how to deal with stressful situations, no participants strongly agreed, suggesting there could still possibly be room for improvement in utilising stress management skills.

**Question 7:** I tend to overthink my mistakes during a performance.

- Strongly Disagree: 0%
- Somewhat Disagree: 50%
- Neither Agree nor Disagree: 37%
- Somewhat Agree: 13%
- Strongly Agree: 0%

**Analysis:**

Half of the voting participants do not believe they overthink their mistakes during performances, suggesting that this may not be a significant issue for most. However, 13% still somewhat agree with this tendency.

**Question 8:** I worry that I will not meet other's expectations (e.g. A coach or a parent).

- Strongly Disagree: 12%
- Somewhat Disagree: 12%
- Neither Agree nor Disagree: 25%
- Somewhat Agree: 25%
- Strongly Agree: 13%

**Analysis:**

There is a diverse range of responses for this question regarding worry about meeting others' expectations. While a more prevalent portion (38%) is neutral or disagrees with this concern, 38% somewhat or strongly agree, indicating varying levels of external pressure.

**Question 9:** People sitting in the audience, have a positive impact on my success (in a competition or in training).

- Strongly Disagree: 0%
- Somewhat Disagree: 12%
- Neither Agree nor Disagree: 25%

- Somewhat Agree: 50%
- Strongly Agree: 13%

### **Analysis:**

Most participants (63%) feel that an audience has a positive impact on their success, suggesting that external support can be positive and beneficial.

## **5.2 Discussion**

The results of this questionnaire indicates that figure skaters experience varying levels of stress related to practice and competition, with competition being a more significant factor that contributes to stress. Despite this, the figure skaters generally believe in their abilities to perform at the level required and feel well-prepared for competitions, highlighting a positive aspect of their training and self-efficacy.

The high levels of physical stress and nervousness reported during competitions (100% agreement) align with the previous research in this thesis indicating that competitive environments can elevate stress levels in athletes. However, the confidence in their ability to perform (100% agreement) and their preparation (100% agreement) suggest that these skaters have developed some form of coping mechanisms to manage this stress, even if they still continue to experience it.

The responses also indicate that while skaters feel prepared for competitions, there is room for improvement in their understanding on how to possibly deal with stressful situations (75% somewhat agree) moving forward. This suggests that interventions focusing on stress management techniques could be beneficial in the future, helping to reduce stress and anxiety.

When it comes down to external factors, some worry about meeting others' expectations and the influence of an audience reveal mixed responses. The diverse opinions on meeting expectations (38% agree) suggest that some skaters are more susceptible to experiencing external pressures than others. The generally positive impact of an audience (63% agree) indicates that external support or presence can enhance a skaters performance.

The tendency to overthink mistakes during performances (50% somewhat or strongly disagree) highlights that while this is not a predominant problem, it still affects a small selection of figure skaters. Trying to address this through cognitive-behavioural strategies could have the potential to help reduce performance anxiety.

When it comes to practical Implications, these findings suggest several practical applications for coaches and sports psychologists working with figure skaters; Emphasising the input of stress

management and relaxation techniques in training programs could help figure skaters better handle competition stress and anxiety. Additionally, adopting a supportive environment that balances expectations with positive encouragement may help lessen pressure from external sources.

Additionally, the small sample size and the specific age range (14-18) of participants do limit the generalizability of the findings. Future research would be better served in considering larger, more diverse samples and ideally investigating physiological measures of stress to complement the self-reported data. Taking a longitudinal study stance could also provide insights into how stress impacts performance over a longer period of time and the effectiveness of different stress management interventions.

In summary, this study highlights the potentially significant impact of stress on a figure skaters' performance, test, and overall well-being. While the athletes reported that they generally feel confident and prepared, addressing the nuances of stress management and external pressures can further enhance their performance and overall well-being.

## 6 Conclusion

This thesis looked at unravelling the impact of stress on the performance, training, and overall well-being of figure skaters aged fourteen to eighteen. By analysing these individuals responses to a structured questionnaire, several key factors emerged regarding the sources of stress, coping mechanisms, and the role that external factors play in influencing an athletes performance.

The findings indicate that while figure skaters experience significant stress, especially while in competitive settings, they still often feel confident in their abilities and well-prepared for their competitions. This suggested confidence and preparedness show that figure skaters have developed effective coping strategies, though there potentially could still be room for improvement in their understanding and management of stressful situations or environments. Specifically, the presence of an audience was seen to have a rather positive impact on most of the figure skaters, showing that external support can enhance an athletes performance.

However, the results also highlighted some areas where stress could negatively impact a skater, such as pre-competition anxiety and stressing concerns about meeting others' expectations. These stress factors can potentially hinder a skaters performance and overall well-being, emphasizing the need for targeted interventions concentrating on stress management and cognitive-behavioural strategies.

Despite these findings, it is important to acknowledge the potential limitations that this study may hold. The small sample size and specific age range limit the generalizability of the findings. Therefore, the natural self-reported nature of the questionnaire may introduce personal bias, as participants might not have been fully honest or may have misunderstood how to express their experiences of stress correctly or in a more progressive way. Future research should consider larger, more diverse questions and incorporate physiological measures of stress to contribute a deeper and more thorough understanding.

In conclusion, this study sheds light on the multifaceted nature of stress amongst competitive figure skaters and highlights the importance of effective stress management strategies. By addressing the nuances of stress and any external pressures, coaches and sports psychologists have the ability to better support figure skaters in achieving their optimal performance level and maintaining overall well-being. This research contributes to the wider understanding of stress in not just figure skating but all sports and highlights the on-going need for continued exploration and intervention to help better support athletes in high-stress environments.

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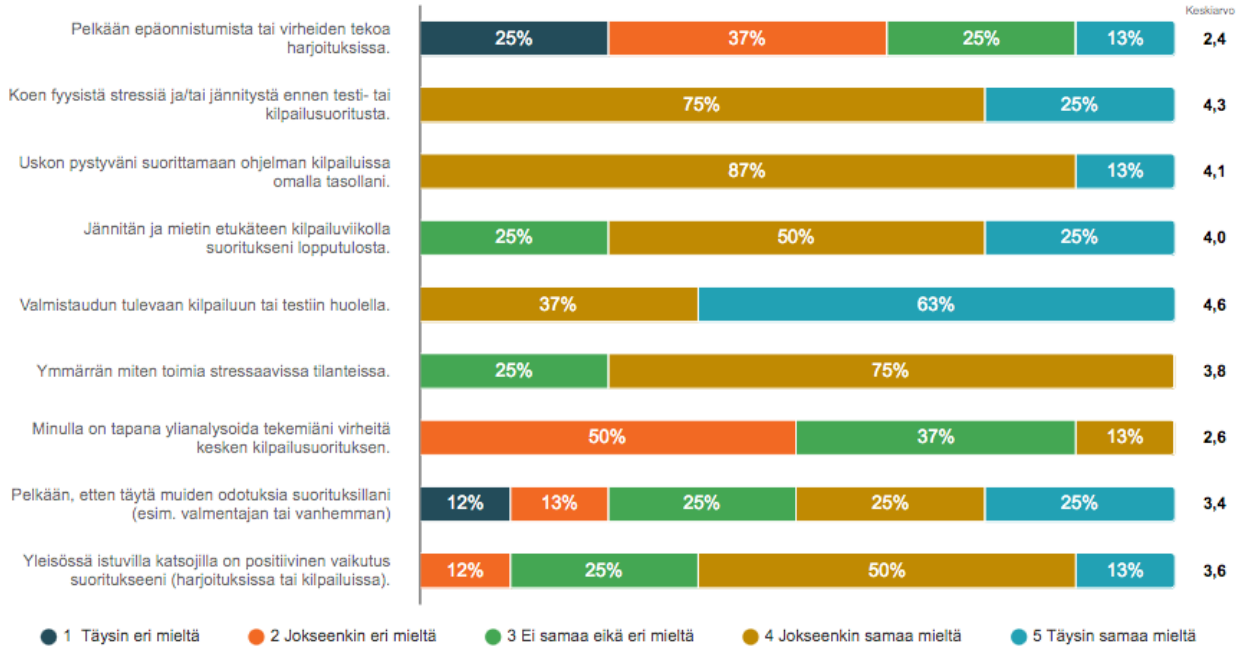
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## Appendix

Vastaajien määrä: 8



	1 Täysin eri mieltä	2 Jokseenkin eri mieltä	3 Ei samaa eikä eri mieltä	4 Jokseenkin samaa mieltä	5 Täysin samaa mieltä	Keskiarvo	Mediaani
Pelkään epäonnistumista tai virheiden tekoa harjoituksissa.	25,0%	37,5%	25,0%	0,0%	12,5%	2,4	2,0
Koen fyysistä stressiä ja/tai jännitystä ennen testi- tai kilpailusuoritusta.	0,0%	0,0%	0,0%	75,0%	25,0%	4,3	4,0
Uskon pystyväni suorittamaan ohjelman kilpailuissa omalla tasollani.	0,0%	0,0%	0,0%	87,5%	12,5%	4,1	4,0
Jännitän ja mietin etukäteen kilpailuviikolla suoritukseni lopputulosta.	0,0%	0,0%	25,0%	50,0%	25,0%	4,0	4,0
Valmistaudun tulevaan kilpailuun tai testiin huolella.	0,0%	0,0%	0,0%	37,5%	62,5%	4,6	5,0
Ymmärrän miten toimia stressaavissa tilanteissa.	0,0%	0,0%	25,0%	75,0%	0,0%	3,8	4,0
Minulla on tapana ylläanalysoida tekemiäni virheitä kesken kilpailusuorituksen.	0,0%	50,0%	37,5%	12,5%	0,0%	2,6	2,5
Pelkään, etten täytä muiden odotuksia suorituksillani (esim. valmentajan tai vanhemman)	12,5%	12,5%	25,0%	25,0%	25,0%	3,4	3,5
Yleisössä istuvilla katsojilla on positiivinen vaikutus suoritukseni (harjoituksissa tai kilpailuissa).	0,0%	12,5%	25,0%	50,0%	12,5%	3,6	4,0
<b>Yhteensä</b>	<b>4,2%</b>	<b>12,5%</b>	<b>18,1%</b>	<b>45,8%</b>	<b>19,4%</b>	<b>3,6</b>	<b>4,0</b>