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Are there differences between the psychological make-up of those deselected compared to the aspirants admitted to NORSOC's Parachute Ranger Platoon or the Special Reconnaissance Platoon?

An examination of psychological characteristics

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Summary

The present study was part of a larger research project, "FSK-studien 2017", that was investigating gender differences among the applicants in the body's physiological response to extreme depletion of the body's resources (Vikmoen, Teien, Rones, & Raastad, 2017).

The aim of this study was threefold: first, based on their psychological characteristics, we wondered if we could distinguish the military conscripts applying to positions in two of the Norwegian Special Operations Command's (NORSOC) training wing platoons, from those applicants who were deselected. Second, we wanted to know if we could find differences between the male and the female applicants. Third, we wanted to examine if the Norwegian version of the applied instrument, the Psychological Characteristics of Developing Excellence Questionnaire 2 (PCDEQ2), measures what it claims to measure.

The respondents filled out the PCDEQ2 once. Two MANOVAs were conducted on the data set, showing a significant result on the sixth factor named "active coping". The admitted applicants scored significantly higher ($p = 0.05$) than the deselected. Additionally, we could distinguish the women from the men on the seventh factor named "clinical indicators". The women scored significantly higher ($p = 0.01$) than the men.

A factor analysis was conducted on the questionnaire, following the initial test protocol set by Collins (to review). We were not able to recreate the same factor structure as in the original PCDEQ2 from the Norwegian version.

Conclusively, we can state that, in the current sample, those who are admitted to the platoons are significantly better at active coping, and that the female applicants report a significant stronger association with clinical indicators than the men. Finally, we recommend further validation of the questionnaire.

Abbreviations

EFA – Exploratory factor analysis

FFI – The Norwegian Defence Research Establishment (Forsvarets Forsnkninsinstitutt)

MRE – Meal ready to eat

NORSOC – Norwegian Special Operations Command

PAF – Principal axis factor

PCDE – Psychological Characteristics of Developing Excellence

PCDEQ2 - Psychological Characteristics of Developing Excellence Questionnaire 2

PR – Parachute Ranger

PTSD – Post Traumatic Stress Disorder

SOP – Standard Operation Procedures

TTP – Technical and Tactical Procedures

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1. Introduction

The aim of this study was to investigate potential psychological differences between applicants for positions in the Norwegian Special Operations Command's (NORSOC) two educational platoons for drafted personnel. Can we distinguish the applicants admitted to the platoons from the ones who were deselected, based on their psychological characteristics? And, are there differences between male and female applicants? Finally, does the Norwegian version of the Psychological Characteristics of Developing Excellence 2 (PCDEQ2) (Appendix A) measure what it claims to measure?

The applicants in the current study compete for positions in NORSOC's Parachute Ranger (PR) Platoon and all-female Special Reconnaissance (SR) Platoon, located at Rena, north of Oslo. The PR Platoon has been open to women since the Norwegian Armed Forces opened all positions for both genders in 1985. However, the platoons select the best applicants with regards to attitudes, collaborative skills, situational understanding, and more, among the physical fittest persons, and no women have outperformed enough men to win a position among the selected few in the physically demanding selection-competition (Rones & Steder, 2017). Consequently, NORSOC established an all-female platoon alongside their regular training program which takes place in the PR Platoon. The all-female platoon is aimed at selecting and training the best candidates on the same parameters as previously mentioned, on women's physical premises (Rones & Steder, 2017).

Specifically, NORSOC initiated a three years long project with an all-female platoon starting in the summer of 2014; the SR Platoon. The SR platoon is reserved for a small group of specially selected women serving in NORSOC's training wing. The grounds for establishing this platoon is the need for female operatives who are available for special operations where the soldiers' gender is of significance: searches of private residences, body searches, and interrogations in gender segregated societies, mentoring of female police- and security officers, and reckon or other unconventional tasks in populated areas (Rones & Steder, 2017).

Most of the studies targeting physiological effects of military field exercises have almost exclusively been performed on male soldiers, partly because few women have

served in the military, both nationally and internationally. On January 1st 2015, a decision came into force about gender-neutral conscription. As a result, the percentage of women in the Norwegian Armed Forces increased. There is now a need for greater knowledge about how women respond to demanding field exercises, and distinguishing factors between the male and female body's recovery process.

The current study was part of a larger project, "FSK-studien 2017", investigating gender differences among the applicants in the body's physiological response to extreme depletion of the body's resources (Vikmoen et al., 2017). While the main study was looking at physiological variables to distinguish the male from the female applicants, the current study targeted psychological differences. Particularly, we wanted to gain deeper knowledge about these highly qualified applicants' psychological characteristics, specifically with regards to which of these characteristics facilitated their performance. With a basis from the Psychological Characteristics of Developing Excellence (PCDE) theoretical framework (MacNamara, Button, & Collins, 2010a, 2010b; MacNamara & Collins, 2011), we wondered what characterizes the psychological map of an admitted aspirant to either the PR or SR Platoon? And, is the chosen PCDEQ2 a questionnaire equipped to target these questions?

Before moving on: to be clear, the men and women competing for the positions are drafted conscripts participating at boot camp, in this case military recruits. The recruits who make the cut are admitted as aspirants in respectively the PR Platoon and all-female SR-platoon, whereas the rest will be transferred back to complete the boot camp, and then distributed to service in other platoons and/or departments. In this study, the recruits will be named applicants, and after the selection process, they will be termed aspirants or non-aspirants based on where they end up.

2. Theory

In the current study of applicants to NORSOC's all-female SR Platoon and the open to all PR Platoon, it is proposed that the applicants who are selected and admitted as aspirants have a more well-developed set of psychological characteristics than those applicants who are deselected. If selected, they will face high pressure situations both during training, and for some, maybe in combat later on.

In the following, I will go through why it is considered necessary for the members of the platoons to have well-developed psychological characteristics in light of the environmental demands, before moving on to the theoretical framework for the applied questionnaire.

2.1 Psychological characteristics for military performance

High pressure situations, such as a competitive sports environment, are known to place individuals under a great deal of stress (Fletcher & Fletcher, 2005). Some of these high pressure situations occur in extreme environments. An extreme environment can be defined as "an external context that exposes individuals to demanding psychological and/or physical conditions, and which may have profound effects on cognitive and behavioral performance" (Paulus et al., 2012, p. 2). Soldiers, as professional athletes, are exposed to a particular type of extreme environment (Meland, 2016) and are forced to deal with a range of stressful and demanding situations, both during training and while deployed (McGraw, Pickering, Ohlson, & Hammermeister, 2012). These demands are examples of sudden, uncertain and threatening situations placing individuals under acute stress. Moreover, examples are shootings, intimidation, terrorist threats and foreign missions. Some are able to perform well under these circumstances, while others are not (Delahaij & Van Dam, 2017). Possibly, this discrepancy might be related to psychological characteristics.

Moreover, neuropsychological similarities have been found between elite performance in combat scenarios and performance at expert levels in sports (Walsh, 2014). Meland (2016) acknowledges commonalities in environmental characteristics between these elite groups, despite their differences. Furthermore, Meland (2016) highlights the ability

to remain composed and focused during high intensity situations as a common important characteristic, which is significant also in non-optimal conditions. In response to the environmental demands, the US Army acknowledges the need for well-developed predeployment mental skills to promote resiliency in the soldiers across the force (McGraw et al., 2012).

2.2 Previous research on soldiers in competitive environments

Demanding field exercises often include extreme loads in the form of lack of rest, sleep and food (Teien, 2013). Soldiers are often faced with constant occupational physical and psychological demands, ranging from intense training schedules, extended work hours to long-term overseas deployments in stressful combat situations (McGraw et al., 2012), along with the aforementioned examples of high pressure situations. Being operational platoons, the soldiers of the Special Forces continuously train to be fit for deployment, both physically and tactically, as well as mentally. Acute stress situations can have severe negative impacts on performance, and require professionals, such as soldiers, to remain calm and perform their tasks in line with their orders (Delahaij & Van Dam, 2017). Moreover, professionals performing or working in high-risk situations need to be able to cope effectively with acute stress situations in order to maintain the required performance level (Delahaij & Van Dam, 2017).

In addition to the demands set by their own standard operational procedures (SOPs) and tactical and technical procedures (TTPs), deployed soldiers in war-zone areas could be faced with communities where the population's mental health are affected by severe war-related effects. For example: people's homes are destroyed, family members die or disappear, some suffer sexual assault by armed combatants, others are tortured and live with a constant fear of being killed or injured (Miller, Omidian, Rasmussen, Yaqubi, & Daudzai, 2008). Furthermore, situations of prolonged violence may lead to indirect effects on mental health by destroying a nation's economy and infrastructure, thereby increasing poverty and the associated psychological stressors (Miller et al., 2008).

However, not all challenges soldiers face while deployed are as dramatic as the beforementioned examples. While missions might include high pressure situations in extreme environments, deployments are also known to include a great deal of boredom

and waiting around (Mæland, Brunstad, & Mæland, 2009). Moreover, enduring boredom can be understood on several levels, and has been described as ranging from "being a rather simple and superficial irritant to a grave, disease-like state of mind" (Mæland et al., 2009, p. 2). Accordingly, an individual can be affected by boredom on a level which can portray as deep-set agony. It is considered a relative phenomenon, and the consequences can be both a catalysator for imaginative and creative processes but also serve as a devastating force of dissolution and destruction (Mæland et al., 2009).

Traditionally, the long-term impact of war-zone veterans have been known to be severe, ranging from alcoholism to drug use to other issues related to poor mental health (Hoge, 2015). The National Vietnam Veterans Readjustment Study was completed between 1984 and 1988 and found that 30% of Vietnam veterans met the criteria for post-traumatic stress disorder (PTSD) during their lifetime, while 15% still had PTSD (Hoge, 2015). Furthermore, psychiatric diagnoses have been known to account for the second and fourth overall causes of medical evacuation from deployment locations (McGraw et al., 2012). However, in recent years, there has been a development regarding the support systems for veterans, both ahead of, during and post deployment. In their recent study on posttraumatic changes in the wake of major stressors, Nordstrand, Hjemdal, Holen, Reichelt, and Bøe (2017) found that 80,8% of the Norwegian veterans from Afghanistan (N=4053), reported positive changes after returning home.

One explanation to why some are less affected by high pressure situations is due to the coping mechanisms they deploy. Researchers have suggested that both personality and coping strategies individuals adopt to handle stressors, play a key role in the psychological well-being of military personnel (Skomorovsky & Dursun, 2013). Individuals can respond differently to stressful situations, a discrepancy possibly explained by the coping style they have developed over time (Delahaij & Van Dam, 2017). Furthermore, Skomorovsky and Dursun (2013) found that problem-solving and active coping were related to better psychological well-being or lower training stress for the officer candidates, while emotion-focused coping was related to poorer psychological well-being or greater training stress.

We will now look at the theoretical background for the applied questionnaire in the present study.

2.3 Almosts, champions and super-champions

Elaborating on research concerning talent development, Collins, MacNamara, and McCarthy (2016b) aimed to identify characteristics associated with performers at different levels. Previously, several researchers have explained development of talent and expertise from different viewpoints. For example, the deliberate practice framework (Ericsson, Krampe, & Tesch-Römer, 1993, p. 400) explains expert performance as "the product of a decade or more of maximal efforts to improve performance in a domain thorugh an optimal distribution of deliberate practice", or in other words: a linear function between time spent in practice and development of talent. However, successful athletes have been known to report a complex and non-linear timeline from their developmental years (Collins et al., 2016b). Accordingly, there was a need for a theoretical framework that covered additional factors that may positively or negatively influence an individual's developmental pathway. Specifically, in attempt to answer the criticism talent development programs have received for minimizing the number and impact of challenges for young developers, Collins et al. (2016b) aimed to fill a part of this gap in the literature. In their 2016 study, they classified their participants (N=54) into three categories: almosts, champions and super-champions based on their past, adult performances. Regarding team sport, almosts were defined as players who had achieved well at youth level, but had their highest adult achievement at Championship level (the second level in their national league system). Champions had or were playing at premiership level (the highest national level), and had achieved less than five appearances for their national team. Super-champions were all playing or had played at premiership level, and had more than 50 caps for their national team. With non-team sports, a combination of time at the highest levels of world ranking in combination with major (world, Olympic) medals won was used to distinguish between the groups. Among the discriminating factors found in the study were commitment, reaction to challenge, reflection and reward and the role of coaches and significant others. We will now look at elements distinguishing super-champions from champions and will argue that these two groups can be regarded as equivalent to the selected applicants and the deselected applicants in the current study.

2.4 Super-champions versus champions

Both super-champions and champions were recognized by their early commitment and interest in their sport. Though distinguishing elements were found separating super-

champions and champions from almosts, the two former groups reported a similar, and intense, commitment to their sport from early on.

On the data gathered on their reaction to challenge, super-champions were described as having an almost fanatical reaction to challenge, both proactively and in reaction to mishaps or setbacks. This type of trauma had typically occurred in association with injuries or sport related setbacks such as not being selected to a team or a tournament, or being dropped. Several of the super-champions considered challenges as positive developmental experiences. Moreover, this positive attitude, or reaction to challenge, was classified as a "never satisfied" approach.

Most notably, maybe, was their reaction to setbacks, which several super-champions described as catalysts for their development instead of roadblocks for their performance. Champions, on the other hand, displayed a much less consistent drive. They describe how they placed a lot of effort in their training, but that these efforts could compensate for not working on for example technical details. These technical details were often poor and should have been improved, and when placing a lot of effort in the more general work of a session they ignored gaps in their technical skills repertoire, and these gaps were left unattended. Additionally, the performer-categories thought differently about their sport, especially with regards to how they perceived progress and administered self-reward. The super-champions appeared intrinsically driven, whereas the champions seemed to be more focused externally. Finally, the role of coaches and significant others appeared to have played a key role in the athletes' developmental years. The super-champions mostly reported positive facilitation and parents who supported them, who took more of a back seat position in their child's sports career and didn't interfere with the coaches' intentions. For champions, on the other hand, parents' involvement appeared more hands on. The same regarded both groups' relationship with their coach.

Based on these findings, authors decided to develop a theoretical framework named psychological characteristics of developing excellence (PCDEs) associated with successful fulfillment of potential. An elaboration on PCDEs will now be provided, before moving on to the theoretical framework of the questionnaire.

2.5 Psychological Characteristics of Developing Excellence (PCDE)

Though developed with the goal of being used in talent development work, the framework seems applicable to both adult performance in sports and military personnel, due to the fact that these highly skilled individuals are always aiming to develop their skills. Moreover, the theoretical framework of the PCDEs might offer explanations to why some reach higher levels of achievement in their field than others do. PCDEs include both trait characteristics and the state-deployed skills that are known to play a key role in the realization of talent (MacNamara & Collins, 2013). Whereas trait characteristics describe '*the tendency to'*, state-deployed skills are '*the ability to when*' (MacNamara & Collins, 2013). PCDEs have been described as not just mental skills such as imagery or goal setting, but also characteristics including attitudes, emotions and desires young athletes need to successfully realize their potential (MacNamara et al., 2010a), such as the factors described to distinguish the three groups. Furthermore, these skills or characteristics supposedly allow developing athletes to optimize development opportunities, such as playing up an age group or cope with significant wins or losses (MacNamara et al., 2010b). Moreover, PCDEs are thought to help an individual adapt to setbacks such as injuries or drops in performance, and expediently negotiate key transitions such as selection or demands from increased practice (MacNamara et al., 2010b).

In their study involving 24 elite participants from team sports, individual sports, and music, MacNamara et al. (2010a) named characteristics such as motivation, commitment, goal setting, quality practice, imagery, realistic performance evaluations, coping under pressure, social skills and competitiveness to be among the PCDEs. However, it seems likely PCDEs can be operationalized differently depending on the performer's age, stage, domain or performance challenges (MacNamara & Collins, 2015). Moreover, the individual will interpret and deploy PCDEs differently depending on the current challenges faced at specific stages of development.

Before moving on to a presentation of the present study's applied questionnaire, a brief overview of the PCDEs' standing in the literature and applied implications will be provided.

2.6 PCDEs for elite performers across fields and domains

The importance of well-developed psychological characteristics for elite performers has been well documented in the literature, both for musicians (MacNamara & Collins, 2009) and for athletes (Collins et al., 2016b), as well as for military personnel (McGraw et al., 2012). Moreover, MacNamara and Collins (2013) argue that it is well established that the athletes who achieve the greatest success continuously apply psychological skills that optimize learning and focus, enabling them to successfully negotiate the challenges they inevitable face on their developmental pathway.

Due to the fact that individuals deploy and interpret PCDEs differently, PCDEs appear to offer the 'building blocks' that enable individuals to cope with the challenges of development (MacNamara & Collins, 2015). However, there are features of PCDEs known to possibly have a negative impact on development, for example excessively or inappropriately deployment of positive characteristics (MacNamara & Collins, 2015).

As will be explained in 3. Method, the applied instrument in the present study was the Psychological Characteristics of Developing Excellence Questionnaire 2 (PCDEQ2). A review of the theoretical framework supporting the questionnaire used to measure the participants in the current study will now be provided.

2.7 Psychological Characteristics of Developing Excellence Questionnaire 2

The PCDEQ2 was developed as a measurement of PCDEs. The questionnaire is a development of and are meant to be an enhancement of the initial PCDEQ (Collins, to review). The initial questionnaire, PCDEQ, is an instrument made to measure PCDEs and thought to be used in talent development environments (TDEs), though not as a talent identification tool (MacNamara & Collins, 2011, 2013).

The PCDEQ2 consists of seven factors, and these are the main psychological characteristics considered necessary for successful talent development by the PCDEs researchers (Collins, to review). The factors will now be presented separately with the related items presented in attached tables, in addition to a brief review of the theory supporting the factor.

Factor 1 adverse response to failure

Table 1: *The 21 items from factor 1; adverse response to failure*

All items from factor 1; adverse response to failure.
1. "When things are going wrong for me, my future seems uncertain"
2. "Although they may not say it, other people get upset when I make mistakes"
3. "I often lie awake at night thinking things over and over"
4. "The day-to-day setbacks can often get me down"
5. "My sleep is often disturbed by worrisome thoughts"
6. "Even minor setbacks disturb my focus"
7. "When I am failing at something, I hate the fact that I am not in control of the outcome"
8. "I often worry that bad things will happen"
9. "I often keep thinking about the mistakes I have made and let this interfere with my performance"
10. "I find it difficult to overcome my feelings of anxiety when I perform"
11. "When things go wrong, I find it difficult to see a way forwards"
12. "When things are not going well, I get worried about what other people will think"
13. "If I make a mistake I dwell on it and can't see the big picture"
14. "When I am not succeeding, I feel like people lose interest in me"
15. "I tend not to worry about things"
16. "When I am failing, I worry most about what others think about me"
17. "I often feel nervous"
18. "I sometimes feel down without really knowing why"
19. "When I make a mistake I find it really difficult to get my focus back on task"
20. "I get distracted thinking about how other performers are doing"
21. "When I am failing, I am afraid I might not have what it takes"

The first factor draws primarily on the literature concerning fear of failure, and athletes scoring high in this domain are likely to have suboptimal interaction with developmental challenge (Collins, to review). Moreover, targeting the established relationship between anxiety, depression, focus and performance, the factor assesses the individual's maladaptive responses to failure.

Fear of failure

Fear of failure is known to be an avoidance-based motive related to the tendency to appraise threat in evaluative situations (Sagar, 2009). It has been conceptualized as "the motive to avoid failure associated with anticipatory shame in evaluative situations; thus, a unidimensional construct where shame is at the core of fear of failure" (Gustafsson, Sagar, & Stenling, 2017, p. 2091). Moreover the phenomenon describes a person who have a tendency to appraise threat in situations where failure is a possibility. Due to the fact that fear of failure has been associated with a prevalence of negative psychological and physical effects on performers, the concept can have important implications for athletes (Sagar, 2009). For example, Gustafsson et al. (2017) established a link between fear of experiencing shame and embarrassment and perceived psychological stress, burnout and reduced sense of accomplishment. Other aspects known to be related to fear of failure are devaluating one's self-estimate, fear of having an uncertain future, fear of significant others losing interest and fear of upsetting significant others (Conroy, Willow, & Metzler, 2002). Fear of failure can trigger the need to avoid specific situations. Strains of research building on this notion have connected the role of avoidance, or avoidance coping, to depression disorders and anxiety (Grant et al., 2013). As presented in the Table 1, several of the items from factor 1 targets avoidance related behavior.

For the participants in the current study, scoring low in this domain is most likely beneficial for their chance to be selected to the platoons. Because their education is designed to test them in face of adversity, avoidant behavior would be a negative factor both during the selection process and during their educational year. Moreover, if deployed, soldiers are required to meet the environmental demands, and scoring high on adverse response to failure would most likely mean they would not be capable of doing just that.

Factor 2: Imagery and Active Preparation

Table 2:*15 items from factor 2: imagery and active preparation*

All items from factor 2: imagery and active preparation
1. "I include imagery in my preparation"
2. "I use imagery to improve my physical performance"
3. "I have a carefully thought out plan of my pathway to the top"
4. "I imagine coping with setbacks"
5. "I regularly imagine what a good performance feels like"
6. "I regularly set clear targets for myself"
7. "I like to try things out in my head first"
8. "I use mental rehearsing to focus myself on what I have to do"
9. "I can clearly see my pathway to the top"
10. "I take time to clarify what is required"
11. "I tend to run through things over and over again"
12. "Before attempting a skill, I imagine myself performing it"
13. "I incorporate mental rehearsal in my practice"
14. "Before I arrive at a performance venue, I mentally rehearse my performance there"
15. "When I have to do something that worries me, I imagine how I will overcome my anxieties and perform successfully"

The second factor was designed to assess the need for effective and controllable imagery abilities, both in skill refinement and the management or arousal (Collins, to review). The factor differs from the original PCDEQ's "imagery use during practice and competition"-factor, because of its self-regulated planning and goal-setting components.

Imagery can be defined as using one's senses to create or re-create an experience in the mind (Vealey & Greenleaf, 2010). Imagery refers to parts of an athlete's mental preparation, and have been described with different terms, such as visualization, mental rehearsal, symbolic rehearsal and mental practice (Weinberg & Gould, 2011). They all refer to creating or re-creating an experience in the mind, for example recalling from

memory pieces of information stored from experience. These bits of information can be shaped into meaningful images, and are a product of your memory that an individual experience internally when reconstructing previous events (Weinberg & Gould, 2011). Imagery can be described as a form of simulation, and is most powerful when all senses are involved (Weinberg & Gould, 2011).

The images can be both positive and negative, though the different effects of these two are important to consider. Positive images are reported to be most used during practice and competition (Weinberg & Gould, 2011). Additionally, research focusing on imagery highlights the importance of using positive images, because negative images have been known to have a negative effect on performance such as choking under pressure (Weinberg & Gould, 2011). Beilock and Gray (2007, p. 425) defined choking as "performing more poorly than expected given one's skill level (…)".

Moreover, use of positive imagery is known to help an athlete get the most out of its training, competitions and performances, and by that being able to release their full potential (Orlick, 2015). Negative images, on the other hand, has been known to hurt an individual's performance, if focused on the wrong images at the wrong time (Vealey & Greenleaf, 2010). For example, Vealey and Greenleaf (2010) refers to studies done on imagery, highlighting results found among golfers. When performers used negative imagery by imagining unsuccessful putts, their golf putting accuracy declined (Vealey & Greenleaf, 2010), meaning that, yes, imagery can have negative effects on performance.

As for the participants in the current study, scoring high in this domain is likely to be a good sign. During their educational year they will be practicing hypothetical situations and are supposed to be able to face real life threats when they graduate. Accordingly, having well-developed imagery skills is facilitative for performance, and therefore beneficial for the soldiers who continue on to become soldiers of NORSOC.

Factor 3: Self-Directed Control and Management

Table 3: *14 items from factor 3: self-directed control and management*

	All items from factor 3: self-directed control and management
1.	"I often act without thinking through all the alternatives"
2.	"My life is well organized"
3.	"I give myself treats even when I don't achieve my goals"
4.	"People would say that I am very self-disciplined"
5.	"I sometimes forget items of equipment"
6.	"I would usually blame other people or circumstances for failure"
7.	"I am lazy"
8.	"I am good at resisting temptation"
9.	"I often do things I know I shouldn't do"
10.	"I often forget appointments or timings"
11.	"I wish I had more discipline"
12.	"I prepare carefully for training sessions"
13.	"I do certain things that are bad for me if they are fun"
14.	"I have a hard time breaking bad habits"

The third factor assesses the construct of self-regulation and self-control, and draws heavily on these constructs (Collins, to review). Moreover, it is designed to portray the aspects of planning and organization that have been categorized with the items regarding self-regulation.

Self-directed control and management has often been talked about as self-control or self-regulation, and the terms are often used interchangeably (Toering & Jordet, 2015). Self-control can be defined as the capacity to alter one's responses to achieve a desired state or outcome that would otherwise not arise naturally, though some researchers describe self-control as a deliberate and effortful form of self-regulation (Toering & Jordet, 2015). Self-regulation has been defined as overriding or altering responses, specifically as guided by standards of desired responses (Baumeister, 2014). Intervening to prevent a response from being felt or acted upon can be called inhibiting a response, or inhibition, and is a form of self-regulation (Baumeister, 2014). Studies have found that 80-90% of self-regulation in everyday life is related to stopping a response, such as resisting desires or impulses, reject unwanted thoughts from one's mind and stifling

emotions (Baumeister, 2014). Additionally, self-regulation is thought to be a key process in psychological functioning, due to the fact that it allows individuals to adapt to their social and physical environment (Toering, Elferink-Gemser, Jordet, & Visscher, 2009). Well-developed self-regulation and self-control abilities are valued in both young talents and for soldiers in training, and the importance of such abilities for developing athletes have been documented. For example, Toering and Jordet (2015) found that the self-regulation aspect of reflection distinguished between the best from the second best Dutch youth soccer players.

The participants in the current study are soldiers who are to be trained at NORSOC or one of the other training wings at the Norwegian Armed Forces. As with developing athletes, there are high requirements set regarding the soldiers' physical and cognitive abilities. In addition to having well-developed self-regulation skills needed to complete the necessary training hours, the soldiers are also required to have the abilities to act within a strict set of rules and guidelines during training, and if they are to deploy; on missions in possibly life-threatening situations. From such a set of demands, the need for well-developed self-regulation and self-control skills can be understood, both with regards to learning and development, in addition to being able to control their behavior in high pressures situations.

Factor 4: Perfectionistic Tendencies

Table 4: *10 items from factor 4: perfectionistic tendencies*

	All items from factor 4: perfectionistic tendencies
1.	"The people around me expect me to be perfect at everything I do"
2.	"My preparation for competition has to be exactly the same each time"
3.	"When I fail, people are less interested in me"
4.	"I find it difficult to overcome my feelings of anxiety when I perform"
5.	"I only feel happy when I win"
6.	"The day-to-day setbacks can often get me down"
7.	"I can't be bothered with people who don't always strive to better themselves"
8.	"My mood depends entirely on my sporting success"
9.	"I get annoyed very easily"
10.	"When I am failing, significant others are often disappointed in me"

Factor 4 was designed to assess perfectionism, anxiety, fear of failure and the obsessive component of passion (Collins, to review). A high score on this factor would likely indicate that the individual have perfectionistic tendencies.

Perfectionism is argued to be a "multidimensional disposition that broadly reflects a rigid commitment to exceedingly high standards combined with a preoccupation with harsh self-critical evaluation" (Hill, Hall, & Appleton, 2010, p. 416). A distinction is made between two forms of perfectionism: socially-prescribed and self-oriented. Socially-prescribed perfectionism is closely linked to a preoccupation with harsh self-critical evaluation, whereas the latter is related to a commitment to very high standards (Hill et al., 2010). That being said, though both dimensions are possible beneficiaries to achievement-related behavior, they have a possible dark side. Perfectionism can be described as a dual-effect PCDE: a certain amount of perfectionism can benefit an individual due to its detail oriented aspect, but if applied too excessively it can have negative effects. For example, perfectionism has been associated with burnout in cases where the individual is not capable of attaining self-acceptance (Hill et al., 2010). Furthermore, socially-prescribed perfectionism is thought to have a stronger negative influence on burnout. A possible explanation is the uncontrollable aspect of socially-

prescribed perfectionism for the individual. Perceived demands or standards imposed by others can be experienced as unrealistic as well as uncontrollable (Hill et al., 2010). Also, if coupled with for example a strong sense of the personality quality grit, a personality trait usually considered positive, the effects of perfectionism can be both adaptive and maladaptive (MacNamara & Collins, 2015). Grit has been defined as "perseverance and passion for long-term goals" (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087). An individual with a gritty personality has been described as approaching achievement as a marathon, and that their strength and advantage is stamina (Duckworth et al., 2007), not unlike a person guided by perfectionistic tendencies.

As for the participants in the current study, a relatively high score would be desired because of the detail-oriented focus perfectionism brings with it. Accordingly, the ideal combination might be athletes who are self-oriented perfectionists and apply problem-focused coping strategies in their work, due to the fact that this particular combination is known to be the most adaptive and are the least likely combination to lead to burnout (Hill et al., 2010).

Factor 5: Seeking and Using Social Support

Table 5: 9 items from factor 5: seeking and using social support

	All items from factor 5: seeking and using social support
1.	"I often seek advice from different people"
2.	"I value and use the opinion of others about my performance"
3.	"I know who to go to to get thing done"
4.	"I am keen to ask other people for help"
5.	"If I don't know something, I will find out who to ask"
6.	"I think asking other people for help is a sign of weakness"
7.	"I often find it hard to talk to other people about things that are bothering me"
8.	"When faced with a problem there is no one I can ask to help"
9.	"I dislike asking other people for help and advice"

Factor 5 is based around the facilitative role effective support networks play for developing athletes. Due to the accompanying challenges related to talent development, significant others are often relied upon for support when negotiation the talent pathway.

For young athletes, significant others might include parents, siblings, coaches or peers. Both coaches and peers have been identified as important factors in relation to athlete well-being and both are known to have the power to affect the performer's well-being (Kipp & Weiss, 2013). However, following the lines set by Collins et al. (2016b), the rest of 7.12 will present issues related to parents' involvement in sport, because that is the main focus of the theoretical framework supporting the PCDEQ2 with regards to significant others.

Coach and family support systems within the context of elite performance are known to be of great importance, and are said to play a crucial role in a performer's continued development (Taylor & Collins, 2015). Often, enjoyment, intrinsic motivation, and preference for challenges have been associated with high perceived amounts of parental support in addition to encouragement, involvement and satisfaction (Fraser-Thomas, Côté, & Deakin, 2008). Notably, the role parents play in young performers' involvement in sport has been receiving scrutiny, and over-involved or "problem"

parents have been repeatedly reported (Gould, Lauer, Rolo, Jannes, & Pennisi, 2006). On the one hand, there are horror stories about parents of children in sports, such as the parent who drugged their child's competitors with the aim of aiding their child's tennis career, and reports published stating that 33% of parents from a specific sample felt winning was very important (Gould et al., 2006). On the other hand, there are success stories about highly involved parents, whom the children describe as facilitative, and that their somewhat pushy parenting style have provided them with the necessary toughness and respect needed to succeed in their field (Gould et al., 2006). Conclusively, regardless of parenting style, the role of parents in sports can be of great influence on a young athlete, either as a positive facilitator of development, or as someone who unknowingly interfere with their child's development. What works for specific individuals might be due to their interpretation of the parents' behavior, and the type of parenting that works for one might be debilitative for another. This discrepancy is possibly a result of individuals' interpretation and direction of situations.

For the participants in the current study, a high score on factor 5 might be a reflection of well-functioning relationships with their significant others. These relationships are, if adaptive, likely based on trust and respect. However, we don't know anything about their previous history, and have to keep that in mind.

Factor 6: Active Coping

Table 6: *10 items from factor 6: active coping*

	All items from factor 6: active coping
1.	"When we need to work hard I am first in the queue"
2.	"If I encounter a problem I make a plan to get around it"
3.	"I like to take control when dealing with problems"
4.	"I can deal with whatever comes my way"
5.	"I am able to adapt and change when thing aren't going right for me"
6.	"I find it hard to push myself to overcome difficulties"
7.	"Failures do not distract me from my pathway to success"
8.	"My teammates would describe me as a consistent person"
9.	"I work through setbacks"
10.	"When things seem hopeless, I still keep going"

The sixth factor regards active coping, a form of coping that often might be more adaptive than other forms of coping. The factor recognizes the proactive, self-regulated deployment of coping mechanisms and is thought to include the constructs of resilience and commitment (Collins, to review).

Moreover, authors have characterized top athletes who win time after time as being in possession of a special reaction to adversity, and describe these athletes as individuals with an almost fanatical reaction to challenge, both proactively and in reaction to mishaps such as injuries or sport related setbacks(Collins et al., 2016b). This type of response or attitude can be described as resilience or being resilient, a concept that has been described as a defense mechanism which allows people to grow in the face of adversity (Davydov, Stewart, Ritchie, & Chaudieu, 2010). Proactive coping has been defined as "efforts taken in advance of a potentially stressful event to prevent it or to modify its form before it occurs" (Holt, Berg, & Tamminen, 2007, p. 118).

Regarding the participants in the current study, scoring high in this domain might be considered a requirement if they are to be selected to the platoons and later on perform satisfactorily. This argument is based on the fact that the environmental demands are high, and if one is to perform in said environments, an ability to plan, cope well and adapt according to the changes of the situations is necessary.

Factor 7: Clinical Indicators

Table 7: *Items from factor 7: clinical indicators*

	All items from factor 7: clinical indicators
1.	"After eating, I sometimes feel guilty about its effect on my body shape"
2.	"I often lack energy"
3.	"I worry about putting weight on"
4.	"If something unexpected happens I find it really hard to adapt"
5.	"I socialize with my teammates much less than I used to"
6.	"Compared to my teammates I often fail to complete a heavy training session"
7.	"I struggle to get myself motivated"
8.	"I have lost interest in socializing with my training group"
9.	"I feel tired and have little energy more often than my peers"

The final factor regards clinical indicators and mental health, mainly focusing on eating disorders, anxiety, depression and behavioral change (Collins, to review). The items target issues that affect both athlete wellbeing as well as talent development. Interestingly, the seventh factor is a new addition, and is not a part of the initial PCDEQ (Collins, to review). As part of the development of the PCDE theoretical framework, Hill (2016) identified several reoccurring issues related to mental health thorugh interviews with purposefully chosen participants ranging from 13-31 years of age. The issues he identified are the just-mentioned indicators that are the base of factor seven: eating disorders, anxiety, depression and behavioral change (Hill, 2016).

Mental illness is a severe public health issue, known to account for 15% of the total burden of disease by 2020 (Biddle & Asare, 2011). Mental health has been defined by World Health Organization (WHO) as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health Organization, 2014 first paragraph). Moreover, it is widely recognized that biological, psychological and environmental factors are responsible for the onset, course and outcome of mental disorders (Schacter, 2016).

As for anxiety, it is a phenomenon often talked about in association with stress. Rumbold, Fletcher, and Daniels (2012, p. 173) defined stress from a transactional perspective as "an ongoing process that involves individuals transacting with their environment, making appraisals of the situations they find themselves in, and endeavoring to cope with any issues that may arise".

Anxiety, on the other hand, is known to occur in threating circumstances, and has been described as an aversive emotional and motivational state (Eysenck, Derakshan, Santos, & Calvo, 2007). Furthermore, anxiety is known as either state or trait anxiety. State anxiety is the experienced level of anxiety at a specific moment, and does not necessarily speak to personality characteristics (Patel, Omar, & Terry, 2010). Trait anxiety, on the other hand, describes an individual prone to anxiety; someone with anxiety as an continuing characteristic of its personality which affects their perception of a situation (Patel et al., 2010).

As explained, Hill (2016) found the just-mentioned issues related to anxiety and mental health, and argues that clinical issues and poor mental health is a significant part of talent development, and are negatively affecting talent development, in addition to athlete's wellbeing in general.

3. Method

This study was part of a larger research project performed by The Norwegian Defence Research Establishment (FFI), named "FSK-studien 2017", targeting gender differences in physiological responses to extreme physiological demands in recruits. With the overall goal to maintain the soldiers' health, the researchers wanted to study what effects demanding military field exercises have on specifically the female soldiers' muscle mass and performance ability, but also the male's. Additionally, they wondered how much time the male and female body need to recover after said exercises (Vikmoen et al., 2017). Specifically, their aim was to gain knowledge about gender differences in the recovery processes going on in the body after such a depletion of the body's resources. The project targeted differences in body weight, with pre- and post-tests, as well as tests performed in the days and weeks following the return from the final field exercise. Tests performed with the same intervals were done on physical performance abilities, hormonal differences and chemical differences in the blood.

The main project contained a set of questionnaires were the PCDEQ2 was included as a measurement. The collection of questionnaire-data was registered by the data protection representative at FFI. Initially, FSK-studien 2017 applied for approval to the Regional Committees for Medical and Health Research Ethics (REC) . However, the committee from REC decided that the study fell outside their jurisdiction (Regional Etisk Komité, 2016). Hence, approval to collect personal data from military personnel was granted from the research committee at the Norwegian Defense University College, which is the ethical committee responsible for making such decisions when studies are performed on military personnel in Norway. When the current study was added to the main study, a second application to gather data from military personnel was sent to the research and ethics committee at the Norwegian Defense University College. The application was approved, and the current study was granted approval.

3.1 Recruiting

The recruit process for the current study followed the main study's recruiting process, as described in Figure 1.

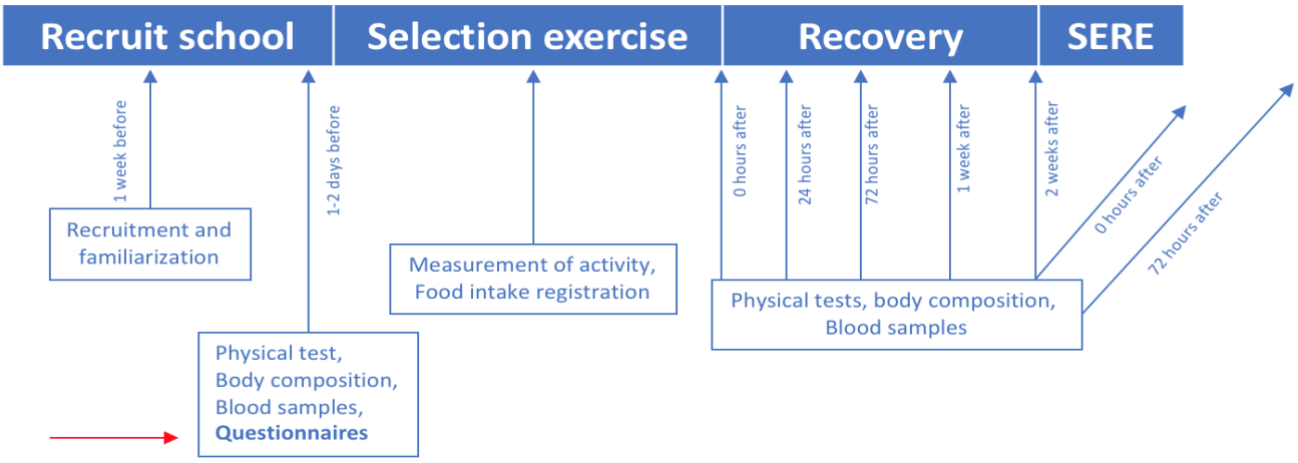

Figure 1: *The figure gives an overview of the main study's (FSK-studien 2017) design. The red arrow marks the time of testing for the current study. SERE is the name of a field exercise that begins two weeks after the final selection exercise.*

3.2 Participants

The population in this study was recruited from military conscripts applying for service in The Norwegian Special Operations Commands' (NORSOC) training program. All of the conscripts applying got a presentation with information about the study, that participation was voluntary and that they could withdraw at any time. 141 (141 males and 26 females) volunteered to participate and signed an informed consent document (Appendix B). Of the 114 male respondents, 23 were selected in the Parachute Ranger platoon. Of the 23 female respondents, 12 were selected as aspirant in the all-female Special Reconnaissance Platoon (males n=23, female n=12). Mean age was 19,3 years (±1,8 years) for men, and 19,4 (± 1,5 years) for women.

The selection process is done in stages: first, the rough selection is made from a large pool of applicants performing physical tests and interviews. The ones who do not meet the requirements are cut form the process and will have to try out for spots in other training wings or departments at the Norwegian Armed Forces. After the rough

selection, the applicants enter boot camp which lasts several weeks. A relatively large pool of applicants choose to leave during these weeks. After boot camp, the ones who are left begin the final selection exercise. Afterwards, NORSOC selects the applicants they view as the most fitting for the platoons, based on physical, psychological and social parameters.

The selection is done separately for men and women, but at the same time, and ends with a highly physically and psychologically demanding selection exercise. The level of activity is high, and the applicants are put through demanding exercises and activities while carrying backpacks weighing 20-40 kg. They are given one meal ready to eat (MRE) per day. A calorie intake at this level results in great energy deficit. Due to the fact that they are barely allowed to sleep, the applicants are sleep deprived for the whole duration of the exercise, thus a great number of applicants withdraw during the final selection process.

NORSOC does not contract a specific number of aspirants, but it was expected that the final number of aspirants would be approximately twenty. Not all of the recruits who made it through the final selection exercise were offered a spot in the platoon, as some were deselected for different physiological or psychological reasons (n=5 males, n= 0 females).

3.3 Measurements

3.3.1 Translation of the PCDEQ2

The original PCDEQ2, consisting of 88 items, was translated to Norwegian by the "parallel back-translation" method (Pelletier et al., 1995)(Appendix C). The procedure consists of four stages, with the first step being the translation of the scale from the original to the target language by a bilingual person. Thereafter, the new version is translated back to the original language by another bilingual person without having access to the original scale. In the case of this study, first, two different bilingual people translated the English version to Norwegian. Second, in collaboration with my supervisor, we reviewed both samples and chose the translations that were judged to be the better fit. Third, we made a few changes to the wording of the sentences, to adjust the questionnaire to fit the participants in this study. For example, "performance venue" was changed to "competition/field assignment" to account for the fact that the

participants are competing for positions in military platoons. Finally, a third person who had not read the initial English version translated the questionnaire back to English. The process was finalized when all of the items were satisfactorily translated back to English.

The PCDEQ2 (Collins, to review) was utilized to measure the applicants' psychological characteristics and to compare the psychological characteristics of the ones who were selected with those who did not make the cut. Furthermore, the PCDEQ2 was used to measure possible differences between male and female participants. The PCDEQ2 contains 88 items using a six-point Likert-scale with a similarity response format from 1 (very unlike me) to 6 (very like me). This format ensures that participants are not allowed to remain neutral and therefore encourages participants to think more carefully about whether he or she disagrees or agrees with the statement leading to greater precision (Collins, to review). A mixture of positively (n = 72) and negatively (n = 16) worded items are included to minimize the danger of acquiescent bias. The PCDEQ2 is designed to assess the possession and deployment of adaptive, maladaptive and dual-effect PCDEs. The aim for the questionnaire is to be used in talent development environments to inform and monitor effective talent development (Collins, to review).

The psychometrics support of the questionnaire is moderate, and the PCDEQ2 is only tested on males in team sport.

The factors are:

Factor 1: Adverse response to failure (21 items)

Factor 2: Imagery and active preparation (15 items)

Factor 3: Self-directed control and management (14 items)

Factor 4: Perfectionistic Tendencies (10 items)

Factor 5: Seeking and using social support (9 items)

Factor 6: Active coping (10 items)

Factor 7: Clinical indicators (9 items)

3.4 Procedure

The day before test day, a mandatory meeting was held for the respondents, where the main project, FSK-studien 2017, was presented as a project designed to gain knowledge about gender differences in the body's response to extreme physical conditions, its ability to recover and what the potential new information might add to the aspirants' training. Informed consent was obtained from all the recruits. All respondents (N=141) participated in both studies. With regards to this study, they were only tested once. If possible, it would have been interesting to test the groups at later times as well, and target additional questions for example regarding possible changes in the participants psychological characteristics during their educational year. However, due to the participants highly structured and intensive educational year in NORSOC's training wing, additional testing was not possible.

3.5 Administration

On test day, the physical and psychological measurements ran parallel. The physical measurements regarded the larger research project. While waiting for their physical tests, the participants were provided with a tablet, information about the scale, and given general insight into what the questionnaire was targeting. In addition, they were given a link to a website where they could fill out the form. The pre-questionnaire information was given either by my second supervisor, Nina Rones, or myself. The recruits had 45 minutes to finish the questionnaire, and were sitting by themselves and not allowed to talk to each other (see picture 1 and 2). The collected data are kept safe and according to regulations.

Picture 1. Male recruits participating in the study. Photo by Nina Rones.

Picture 2. Female recruits participating in the study. Photo by Nina Rones.

3.6 Design

The present study was a cross-sectional study where the main aim was to investigate possible psychological differences between those who were selected to be aspirants and those who were deselected and remained recruits.

3.7 Data analyses

The PCDEQ2 is a newly developed instrument with a scarce amount of data gathered from it and not yet validated in Norwegian. Therefore, it was decided to follow a two stage procedure were stage 1 was to utilize the original factor structure, and at stage 2 use the same data analysis protocol utilized by Collins (to review) on the Norwegian sample to see whether the proposed factor structure was maintained within this sample.

3.7.1 Stage 1 Original factor structure

As a first step of the further examination of the questionnaire, Cronbach's Alpha was run on every factor. The data analysis was done in stages: first, a MANOVA (multivariate analysis of variance) was run on the data gathered from the initial version of the PCDEQ2. MANOVA is a generalization of ANOVA (analysis of variance). Furthermore, MANOVA emphasizes the mean differences and statistical significance of differences among groups (Tabachnick & Fidell, 2014). Importantly, MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2014).

3.7.2 Stage 2 Factor structure based on the Norwegian sample

Due to the fact that PCDEQ2 is a new instrument not used on a Norwegian sample before, we decided to conduct an explorative factor analysis (principal component analysis) with the same test protocol Collins (to review) used in their analysis. The purpose was to decide which factor the items belonged to and if a different factorial construction might be better for the Norwegian version. Moreover, did the same factor structure come forth as in the original PCDEQ2 when used with the Norwegian data?

Exploratory factor analysis is often used in early stages of research to collect information about the interrelationship among a set of variables (Pallant, 2013). Principal component analysis and factor analysis are statistical techniques utilized when working with a single set of variables when the researcher is interested in discovering

which variables that are relatively independent of another (Tabachnick & Fidell, 2014). Moreover, variables that correlates with one another but largely independent of other variables are combined into factors. An explorative factor analysis aims to describe and summarize data by grouping together variables that are correlated (Tabachnick & Fidell, 2014).

By utilizing factor analysis, underlying factors are brought to light from a large number of variables. Ideally, these underlying factors will understand the relationship between the observed variables and test theories of underlying processes (Tabachnick & Fidell, 2014). Factor analysis rarely gives one-sided answers due to the fact that the statistical techniques you can choose from are multiple and complex in their construction, that the researcher's choice of method can have great impact on the result of the analysis. A well-performed explorative factor analysis therefore includes testing of different methods, and requires many evaluations throughout the process. Moreover, a good factor analysis makes sense, while a bad one does not. The factor analysis is done in stages:

a) the factor reliability to the correlation matrix is evaluated and which factors and variables that should be can or should be removed from the analysis.
b) the researcher experiments with running different extraction methods: such as changing the number of factors and run both orthogonal (uncorrelated) and oblique (correlated) rotations, until you find the method which produces the best solution: the method with the greatest opportunity for scientific application, one-sidedness and meaning.

When considering how many factors to include, a conflict often rises with the wish to choose a simple solution with as few factors as possible on the one side, while simultaneously wanting to describe as much as possible of the variance in the data, on the other hand. Therefore, the goal becomes to choose the lowest number of factors possible to represent the data while representing the variance of the data in a purposeful manner.

The data analysis was performed with Statistical Package for the Social Sciences (SPSS) version 24.

4. Results

This chapter is organized into two parts: Stage 1 (Original factor structure PCDEQ2) contains descriptive statistics and the MANOVA analysis. Stage 2 includes the exploratory factor analysis of the translated PCDEQ2.

4.1 Stage 1 (Original factor structure PCDEQ2)

In circumstances where we are interested in several outcomes multivariate analysis of variance (MANOVA) can be used. MANOVA can be described as ANOVA for situations in which there are several dependent variables (Field, 2013). MANOVA can be used with only one or several independent variables and interactions between independent variables can be examined. Moreover, the test is designed to look at several dependent outcomes (variables) simultaneously and is therefore a multivariate test. In the case of the current study, we have two independent variables (aspirant/non-aspirant, male/female) and five dependent variables (factor 1, 2 ,4, 6 and 7).

4.1.1 Reliability

Before conducting the MANOVAs, Cronbach's Alpha was run on every factor to test for the data's reliability. Cronbach's Alpha is the most common measure of scale reliability. Moreover, the measure calculates the variance within the item, and the covariance between a specific item and any other item on the scale, for each item on the scale (Field, 2013). A value of 0.7 to 0.8 is considered an acceptable value for Cronbach's Alpha, and values considerably lower indicate an unreliable scale.

Only factor 1 (0.89), factor 2 (.86) and factor 4 (0.78) scored satisfactorily between 0.7 - 0.8. However, due to the fact that factor 6 (0.61) and factor 7 (0.67) scored relatively high, and because there are some disagreements in the literature as to where to draw the line (Field, 2013), the factors were included in the analysis, while factor 3 (0.29) and factor 5 (0.18) were excluded.

Table 8 includes mean scores and standard deviation for the full sample, as well as for men, women, aspirants and non-aspirants. As presented in the table, mean scores are low on the factors known to be debilitative to performance (factors 1, 4 and 7), while

the remaining two factors (factors 2 and 6), known to be facilitative to performance, show relatively high scores for the full sample.

Table 8: *Descriptive characteristics for the full sample on the PCDEQ2's five remaining factors*

Factor	M (SD)	Female M (SD)	Male M (SD)	Aspirant M (SD)	Non-Asp. M (SD)
1: Adverse response to failure	2.63 (0.72)	2.79 (0.47)	2.60 (0.77)	2.53 (0.67)	2.68 (0.74)
2: Imagery and active preparation	4.27 (0.77)	4.16 (0.69)	4.30 (0.79)	4.37 (0.58)	4.23 (0.83)
4: Perfectionistic tendencies	2.48 (0.71)	2.64 (0.60)	2.44 (0.74)	2.45 (0.57)	2.49 (0.77)
6: Active coping	4.41 (0.48)	4.33 (0.38)	4.43 (0.50)	4.45 (0.45)	4.36 (0.48)
7: Clinical indicators	1.84 (0.54)	2.09 (0.52)	1.78 (0.53)	1.76 (0.49)	1.87 (0.55)

Note. M: mean scores, SD: standard deviation, female/male: the female/male participants in the study, aspirant: this study respondents who were admitted to the PR or SR platoons, non-asp.: the respondents who were not selected and had to apply for positions in training wings at other departments in the Norwegian Armed Forces.

Preliminary assumptions testing was conducted to check for normality, linearity, univariate and multivariate outliers, and multicollinearity, with no serious violations noted.

A correlations analysis was conducted on the factors, showing low to relatively high correlations ($r = 0.23 – r = 0.63$) . As presented in Table 9, we can see relatively high correlations between the factors, meaning that they are similar, and that some factors are most likely too alike.

Table 9: *Correlation analysis for the seven initial factors from the PCDEQ2*

		Fac.1 Adverse response to failure	Fac. 2 Imagery and active prep.	Fac. 3 Self-Directed Control and Managem.	Fac. 4 Perfectionism	Fac. 5 Social Support	Fac. 6. Active coping	Fac. 7 Clinical indicators
Fac.1	Pearson C.	1	-0.03	0.50**	0.61**	0.34**	-0.33**	0.63**
	Sig. (2-tailed)		0.70	0.00	0.00	0.00	0.00	0.00
Fac. 2	Pearson C.	-0.03	1	0.02	0.24**	0.35**	0.57**	-0.32
	Sig. (2-tailed)	0.70		0.78	0.01	0.00	0.00	0.13
Fac. 3	Pearson C.	0.50**	0.02	1	0.40**	0.33**	-0.08	0.49**
	Sig. (2-tailed)	0.00	0.78		0.00	0.00	0.35	0.00
Fac.	Pearson C.	0.61**	0.36**	0.40**	1	0.50**	-0.08	0.57**
	Sig. (2-tailed)	0.00	0.01	0.00		0.00	0.33	0.00
Fac. 5	Pearson C.	0.34**	0.35**	0.33**	0.46**	1	0.23**	0.22**
	Sig. (2-tailed)	0.00	0.00	0.00	0.00		0.01	0.01
Fac. 6.	Pearson C.	-0.33**	0.57**	-0.08	-0.08	0.23**	1	-0.34**
	Sig. (2-tailed)	0.00	0.00	0.35	0.33	0.01		0.00
Fac. 7	Pearson C.	0.63**	-0.13	0.49**	0.57**	0.22**	-0.34**	1
	Sig. (2-tailed)	0.00	0.13	0.00	0.00	0.01	0.00	

*Note. ** Significant at p < 0.01.*

Factor 1: Adverse response to failure, Factor 2: Imagery and active preparation, Factor 3: Self-directed control and management, Factor 4: Perfectionistic tendencies, Factor 5: Seeking and using social support, Factor 6: Active coping, Factor 7: Clinical indicators.

4.1.2 MANOVAs

Two between-groups MANOVAs were performed to investigate differences in psychological characteristics between genders as well as between aspirants and non-aspirants. Five dependent variables were included: factor 1; adverse response to failure, factor 2; imagery and active preparation, factor 4; perfectionistic tendencies, factor 6; active coping and factor 7; clinical indicators. The independent variables in the first MANOVA was aspirants/non-aspirants and in the second: gender.

A Box's test was run to test the assumption of equality of covariance matrices. The measure did not show a significant result ($p = 0.07$ for aspirants/non-aspirants and $p = 0.09$ for gender), explaining that the observed covariance matrices of the dependent variables are roughly equal across the groups (Field, 2013).

A Levene's test was conducted on the factors from PCDEQ2. Levene's test tests the null hypothesis that the variance in different groups are equal. If the test is significant at $p \neq .05$, the null hypothesis is incorrect and the variances are significantly different. If so, the assumption of homogeneity of variance has been violated. However, if it is not significant ($p > .05$), the variance is roughly equal and the assumption is tenable. The test showed that for the aspirants/non-aspirants two of the factors were significant, and the assumption of homogeneity of variance was violated; factor 2 ($p = 0.23$) and factor 3 ($p = 0.28$). As for the male/female-group, two factors were significant; factor 1 ($p= 0.00$) and factor 6 ($p= 0.44$), again violating the assumption of homogeneity of variance.

Due to the unequal group sizes, Pillai's trace was applied as a multivariate test to search for significant differences between the groups. Pillai's trace is defined as "the sum of proportion of explained variance on the discriminant functions" (Field, 2013, p. 640). Using Pillai's trace, there was not a significant difference between the groups on either of the factors (aspirants/non-aspirants: $p = 0.51$; male/female: $p = 0.21$).

4.1.3 Tests of Between-Subject Effects

Even though the overall MANOVA proved to be nonsignificant, we decided to investigate whether there still was any differences on the various subscales. We believe

this was justified because the PCDEQ2 is a new instrument and consists of a large number of subscales. Thus, interesting differences can be secluded due to this fact. As presented in Tables 10 and 11, the between-subject effects tests showed a significant difference between aspirants and non- aspirants on factor 6 active coping ($p = 0.50$), and between male and female on factor 7 clinical indicators ($p = 0.01$).

Table 10: *Statistical results from the Between-Subject Effects test for aspirants/non-aspirants.*

Factor	Mean Square	F	Sig.
Factor 1 Adverse response to failure	0.61	1.17	0.28
Factor 2 Imagery and active preparation	0.52	0.87	0.35
Factor 4 Perfectionistic tendencies	0.06	0.11	0.74
Factor 6 Active coping	0.89	4	0.05*
Factor 7 Clinical indicators	0.38	1.33	0.25

*Note. *Significant at $p \leq 0.05$.*

Table 11: *Statistical results from the Between-Subject Effects test for genders.*

Factor	Mean Square	F	Sig.
Factor 1 Adverse response to failure	0.81	1.56	0.21
Factor 2 Imagery and active preparation	0.40	0.68	0.41
Factor 4 Perfectionistic tendencies	0.85	1.67	0.20
Factor 6 Active coping	0.20	0.89	0.35
Factor 7 Clinical indicators	1.92	6.98	0.01**

Note. ** Significant at $p \leq 0.01$.

4.2 Stage 2

An EFA with principal axis factor (PAF) extraction was conducted, which according to Collins (to review, p. 12) was with "the aim of identifying any latent variables that cause the manifest variables to covary and therefore determining a more parsimonious factor structure for the PCDEQ2, whilst eliminating measurement error and acknowledging the potentially skewed distribution of the data". According to Tabachnick and Fidell (2014), you can conduct a factor analysis to datasets with sample sizes from to 100-200 participants and end up with well-determined factors. Although, in some cases samples with less than 100 participants can be acceptable. The current study accordingly qualifies for factor analysis (N=141).

Collins (to review) test protocol was as follows:

1) Run an EFA with PAF.
2) Apply a direct Oblimin rotation with Kaiser Normalization and a default value of 0, to improve the interpretation of the factor structure.
3) Examine the factor correlation matrix.
4) Examine the values provided by the direct Oblimin rotation, the Kaiser Meyer Olkin (KMO) measure of sampling adequacy, as well as Bartlett's test for sphericity.
5) Analyze the scree plot.
6) Run a parallel analysis.
7) Examine 6-, 7-, 8-, 9-, and 10-factor solutions, to conduct further analyses.
8) These were examined and compared with the aim to identify the most suitable solution. The criteria used were:
    a) Items loading above 0.3
    b) No or few cross-loading items
    c) No factors with less than three items
9) Examine both the pattern matrix and the structure matrix.

4.2.1 Exploratory factor analysis in line with Collins (to review)'s test protocol

1. and 2. In line with the test protocol provided by Collins (to review) a direct Oblimin rotation with Kaiser Normalization and a default value of 0 was adopted to improve the factor structure, "recognizing the likely correlation between factors identified in the

extant literature". The direct Oblimin simplifies factors by minimizing cross-products of loadings. It allows wide range of factor inter-correlations (Tabachnick & Fidell, 2014).

3. and 4. The correlation matrix was examined and, in line with the initial validation, moderate correlations between several factors were found. Ideally, correlations in the residual matrix are small, indicating a close fit between the observed and reproduced matrices (Tabachnick & Fidell, 2014). Based on their results, Collins (to review) deemed it appropriate to utilize PAF with direct Oblimin rotation as a method of analysis. Their Kaiser Meyer Olkin measure of sampling adequacy gave a score that showed that the sample size was sufficient for factor analysis (KMO = 0.87), whereas the KMO value gathered from the current analysis showed a lower value (KMO = 0.66). The KMO represents the ratio of the squared correlation between variables to the squared partial correlation between variables (Field, 2013). Moreover, the KMO statistic varies between 0 and 1. Scores should most certainly be above 0.5, and scores in the 0.60s are considered mediocre, whereas scores in the 0.80s are thought of as meritorious (Field, 2013). In both analyses, the Bartlett's test for sphericity was significant ($p = 0.00$). This suggests that there is adequate correlation between the variables and supports the appropriateness of the EFA.

As presented in table 12, item communalities ranged from 0.69 to 0.89 (M=0.78), whereas for Collins, the communalities ranged from 0.28 to 0.70 (M=0.52). In Collins' case the range indicated that multiple criteria would be required for factor extraction. Because we were following the same test protocol, the same considerations were made for the current item communalities. Examination of the Total Variance Explained (Kaiser's Criterion) revealed 25 factors with eigenvalues greater than one, whereas the score for Collins was 38. Collins (to review) argues, however, that this method is recognized as one of the least accurate methods of extraction due to its inherent assumptions.

Table 12: *Presentation of compared scores from Collins' study to scores the current study from statistical tests performed as part of the EFAs*

Statistical test	Collins (to review)	The current study
Kaiser Meyer Olkin (KMO)	0.87	0.66
Bartlett's test for sphericity	P= 0.00	P= 0.00
Item communalities	0.28 – 0.70 (M=0.52)	0.69-0.90 (M=0.78)
Total Variance Explained (Kaiser's Criterion)	38 items with eigenvalues greater than one	25 items with eigenvalues greater than one
Scree plot	Break at 6 and 10	Break at 3 and 6

5. Therefore, a scree plot was analyzed, showing a clear break at three factors and a moderate break at six. As for Collins, the scree plot showed a clear break at 6 factors and again at 10 factors.

6. The next step in Collins' test protocol was to run a parallel analysis. However, due to the fact that the necessary statistical data program was unavailable, such an analysis was not conducted in the case of the current study.

7. and 8. As both over-factoring and under-factoring can lead to substantial errors (Tabachnick & Fidell, 2014), different factor structures were examined following the set criteria. The Factor Matrix showed that 8 factors had three or more items. However, two out of three items cross-loaded and were consequently removed, and every item from factor 4 -7 cross-loaded. Accordingly, only two factors remained, and we had to overlook the results from the scree plot that indicated three or six factors.

9. The pattern matrix and the structure matrix could not be provided by SPSS, and were therefore not analyzed. One explanation as to why these were not provided might be that our EFA was not performed exactly as the original one, due to lack of information about the initial test protocol.

After finishing the factor analysis following Collins (to review) only two factors were left.

5. Discussion

The aim of this study was to investigate potential psychological differences between the applicants applying to NORSOC's all-female SR Platoon and the open to all PR Platoon. We wanted to gain knowledge about a very specific group of soldiers, because supplementary knowledge about this group's characteristics are especially interesting after the decision about gender-neutral conscription came into force, in addition to the understandable interest in a cohort of such expertise.

Specifically, we wanted to investigate whether it is possible to distinguish the ones who were selected from those who were not, and men from women. The initial questions targeted were a) are there psychological differences between the ones who were selected to the platoons and those who were not, b) are there psychological differences between the male and female applicants, and c) does the Norwegian version of the PCDEQ2 measure what it claims to measure?

This chapter is divided into two parts: part 1, general discussion of the initial findings from the original PCDEQ2, and part 2, discussion and findings regarding the Norwegian version of the questionnaire.

5.1 Part 1.

As hypothesised we found a significant difference between the ones who were selected from those who were deselected. The aspirants scored significantly higher on factor 6 active coping ($p = 0.05$). Additionally, a difference was found between men and women on factor 7 clinical indicators ($p = 0.01$). Interestingly, we could not distinguish men from women on any other factors. We did not find any interaction between the two main groups aspirants/non-aspirants and men/women. Interaction effect is explained by Field (2013) as the combined effect of two variables on another.

Several studies indicate that military field exercises lead to decreased physical (Guezennec, Satabin, Legrand, & Bigard, 1994; Hackney, Shaw, Hodgdon, Coyne, & Kelleher, 1991; Legg & Patton, 1987) and mental performance (Eid & Morgan III, 2006; Hodgdon, Hesslink, Hackney, Vickers, & Hilbert, 1991; Lieberman et al., 2005).

As stated previously, some are able to perform well in these circumstances, while others are not (Delahaij & Van Dam, 2017). Because the participants in the current study are applicants for NORSOC's first educational step, the ones who are selected to the NORSOC training wing platoons are required to possess the necessary qualities and characteristics to perform well in said environments, and to be capable of coping well under such conditions.

Arguably, the participants in the current study can be described as super-champions or champions depending on whether they were selected to NORSOC's training wing (super-champions) or 'alternative service'. NORSOC has the luxury of being able to select the best of the best (Rones & Steder, 2017), which means that as low a share as 1 percent of the applicants, or 4 percent of those who meet the selection preparation and exercises are admitted as aspirants. Additional knowledge about what characteristics the ideal applicant for NORSOC's training programs should have, was desired because it might add valuable information to their next selection process.

5.1.1 Psychological Characteristics of Developing Excellence

There is a general agreement that an individual's capacity to cope with environmental demands of a high pressure setting, partly explains their level of achievement with regards to their performance goals, or lack thereof (Martinent & Nicolas, 2016). In other words, performing without being negatively affected by neither external nor internal pressures is a necessary ability to develop for every performer if they are to avoid choking under pressure.

5.2 Aspirants versus non-aspirants

5.2.1 Active coping

We found that those who were selected to the platoons scored significantly higher on factor 6, active coping. The factor was initially designed to encompass the constructs of resilience and commitment, but arguing that resilience is an outcome, Hill (2016) explains that the factor therefore recognizes the proactive, self-regulated deployment of coping mechanisms. Accordingly, a high score on factor 6 would suggest that the individual proactively copes well with challenges. Or, as described by Collins et al. (2016b), the super champions, or the aspirants in this case, are recognized by their somewhat fanatical reaction to challenge, both proactively and in reaction to setbacks.

Studies show that proactive coping can be used as a strategy to cope with stress, even though these studies did not test proactive coping directly (Tamminen & Holt, 2010). These proactive strategies can include building confidence, maintaining concentration and focus, time management as well as organization and pre-competition preparations. (Tamminen & Holt, 2010). The same authors found that subjective appraisals of effective coping were associated with consistency between proactive and actual coping attempts.

Furthermore, proactive coping theory also explains proactivity, with its five different interrelated stages of proactive coping: a) building a reservoir of resources; b) recognition of potential stressors; c) initial appraisals of stressors; d) preliminary coping efforts; and e) the elicitation and use of feedback regarding coping efforts (Aspinwall & Taylor, 1997). This theory is an extension of Lazarus and Folkman (1987)'s previous theory of coping. While Lazarus and Folkman's theory mainly focuses on events that have happened previously or situations that are currently happening, proactive coping theory aims to include behaviors in advance of possible stressors that are meant to avoid or decrease the effect of these stressors. This theoretical framework highlights an individual's coping resources, their ability to recognize stressors and their ability to receive feedback to learn from previous coping related behaviors (Holt et al., 2007).

From these studies we now have some knowledge about what might characterize a soldier who scores high on factor 6: capable of managing stress, has built a strong confidence, is able to maintain concentration and focus, can master time management and prepare well ahead of competitions or such. Moreover, looking at proactive coping theory, we also know that a person who has a well-developed ability to cope proactively, is able to build a reservoir of resources, recognize potential stressors, appraise initial stressors, apply preliminary coping efforts and can use feedback to adjust their coping mechanisms – all qualities we can easily recognize as desired in NORSOC's soldiers.

It is important to stress that a great deal of deployed soldiers' time include hours of boredom and waiting around, and not intense warfare. The applicants in the study will most definitely face adversity during their educational year because they are to be tested in extreme environments. However, if they choose to continue in NORSOC's training

wing and eventually become operational soldiers they will not be in the midst of dramatic war-scenarios every day while deployed, but most likely have to endure boredom and therefore have to learn to cope with that. That being said, it is often NORSOC's platoons who are deployed on the most dangerous missions in extreme environments, and because of that the applicants are required to master both situations.

Because people respond differently to stressful situations, the coping style someone has developed over time might explain this discrepancy between an individual who responds adaptively to pressure and one who does not, or in this case, the aspirants and the non-aspirants. As stated, active coping has been related to psychological well-being or lower training stress for officer candidates (Skomorovsky & Dursun, 2013), and almost 81% of the Norwegian veterans from Afghanistan reported positive changes after returning from deployment (Nordstrand et al., 2017), a significant difference from the post-Vietnam reports from US soldiers (Hoge, 2015). The progress made in veterans' mental health can possibly be explained by both psychological characteristics in addition to the awareness made and recognized by the Norwegian government, Moreover, the operations' character, better selection processes and greater use of professionally trained soldiers instead of untrained men who were thrown out in high-intensity war zones, are also to be considered further developments for soldiers' care. Gustavsen (2017) explains how Norway has made progress when identifying the need for a better system for returning vets, with the Plan of Action presented in 2011, including measures made to improve veterans' care. Today, the SOP for returning soldiers include a required layover. These layovers are often in a neutral country or place with the aim of providing the soldiers with a softer return, a buffer, before coming home to civilian life with for example a wife, children and normal work hours. The soldiers are required to talk to each other, doctors and psychologists, in addition to take part in more casual leisure activities.

Conclusively, we can argue that soldiers with better active coping skills might be less likely to develop PTSD or be otherwise negatively affected by extreme environments. The aspirants, the super champions, are accordingly better at the before-mentioned aspects of proactive coping. Moreover, from these findings it is also apparent that NORSOC is successfully selecting its aspirants because the admitted applicants are

better at coping with adversity. However, as stated, the factor was initially designed to encompass resilience and commitment.

Being able to find value in setbacks and build a stronger foundation of for example confidence as a response to failure, can be thought of as being resilient. We can understand an operative soldier's need to be resilient, when resilience is described as the ability to grow in the face of adversity. The selected applicants will be trained to complete missions and function optimally in extreme environments, and they will almost certainly face some kind of adversity if they are to be deployed, and if not, during training. The ability to grow in the face of adversity is a quality we can easily understand is desired in soldiers who are to face possible life threatening situations, especially because the opposite reaction could lead to loss of human life.

How to practice active coping

As mentioned earlier, one example of an individual malfunctioning is when someone chokes under pressure. It is a devastating phenomenon to happen to an athlete chasing their dreams, but when considering deployed soldiers who are to fulfill dangerous missions, the downfall of a lapse in performance is not just devastating but dangerous. If the soldiers are not able to cope well in said environments, lives would be at risk, both their own and the lives of the rest of the soldiers in the platoon. Based on such an argument, we understand NORSOC's need to select the very best on all parameters, including coping abilities.

As previously mentioned, Skomorovsky and Dursun (2013) suggest in their study of Canadian Air Force officer candidates, that providing training of coping strategies could be beneficial for the candidates. More specifically, they suggest focusing the training on the effectiveness of specific coping strategies, such as problem-solving and seeking social support. Additionally, Skomorovsky and Dursun (2013) argue that training that focus on stress management and coping might be beneficial.

There are different opinions on how to best cope with stress. Active coping often involves actively changing something. However, a different example of efforts made to train soldiers at being able to function well in extreme environments is through mindfullness (Meland, 2016). Mindfullness has been defined as "paying attention in a

particular way, on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). In contrast to imagery where you are aiming to re-create a past experience, or create a future possible experience, mindfullness is about being in the present moment. The goal is not to change your current internal situation, by for example changing your posture to feel more confident, or change negative thoughts to positive ones, but it is about accepting where you are right now (Meland, 2014).

Research supporting mindfullness argue for the value of not actively trying to change the circumstances of a situation, specifically with regards to the individual's internal status. Accordingly, adaptive coping does not necessarily mean the individual has to actively change something, but being able to stand in the thick of it all without choking or collapsing in some other way while under pressure, a concept not unlike resiliency.

5.3 Gender differences

As stated, we found that the female applicants scored significantly higher on factor 7, clinical indicators, than the male applicants. The fact that we did not find any other results to distinguish the men from the women is interesting. Gender-neutral conscription is a fairly new decision made by the Norwegian government, in addition to the all-female NORSOC's Special Reconnaissance Platoon, and there is understandably an active discussion about the pros and cons of women in the military. The fact that we could not distinguish the women applicants from the male applicants in the present study on any other factors is an interesting addition to the said discussion. Hence, based on our findings, a male and a female applicant to a position in one of NORSOC's training wing platoons, appears to have fairly similar psychological make-up. As for their differences, they can be viewed as complimentary, because the increasing percentage of women in the Norwegian Armed Forces bring additional qualities to the departments.

5.3.1 Clinical indicators

The seventh factor incorporates constructs related to mental health, namely eating disorders, anxiety, depression, and behavioral changes. These are issues that can have an impact on an individual's development regardless of performance area, in addition to the individual's wellbeing. Therefore, a high score on factor 7 would suggest the presence of symptoms of clinical issues that could affect the person negatively (Hill,

2016). Importantly, factor 7 is not meant as a diagnostic tool, and moreover, factor 7 was created as an aid to help spot individuals who might have need for clinical help, or are about to, although it has not yet been validated to such an instrument and no cut-off score is recommended.

However, it is important to note that, even though the women reported more clinical indicators of mentally related issues than the men, they scored low on the factor (M=2.09). In other words, the women scored significantly higher than the men, but both groups scored low on the factor. Looking at their mean scores, neither the male nor the female applicants in the current study could be considered to be at risk of developing clinical, mental, issues at the time they were tested.

Interestingly, women have been known to demonstrate and report higher levels of anxiety than men across the life span (McLean & Hope, 2010). Moreover, men have been found to underestimate on fear related surveys, a tendency that might be related to the idea that the expression of fear for men is affected by the need to live up to the traditional male gender role (Pierce & Kirkpatrick, 1992). Accordingly, though women are known to be more likely to develop anxiety disorders (McLean & Anderson, 2009), a possible explanation to why this discrepancy has been found, might be related to masculinity and the socially expected version of the male gender role. Additionally, some questionnaires, such as the Drive for Thinness Scale (Garner, Olmstead, & Polivy, 1983), are better fitted for women. For example, in the case of the just-mentioned scale, women are often more likely to experience pressure to be thin, while men feel the need to be muscular (Kelley, Neufeld, & Musher-Eizenman, 2010). Because the PCDEQ2 has not been tested on women before, we do not know if the applied questionnaire in the current study are better fitted for women than for men, but we should keep in mind that, specifically the seventh factor might be more relatable for women in line with the just-mentioned issues regarding the stigma associated with mental health issues for men.

In previous studies, the same distinction has partly been found: female soldiers were recognized as being more worried than men (Rones & Steder, 2017). One would might think that such a tendency is not preferable, but NORSOC recognized this discrepancy as desirable and as a characteristic they wanted in their soldiers. They associated a

certain degree of worry in their soldiers with better preparation habits and proactivity (Rones, 2017).

Due to the great impact mental illness can have on an individual, and the severity of the situation the soldiers will be in if they are to deploy, we can understand the need to have soldiers who are well-functioning mentally, and are showing little to no signs of clinical indicators.

Mental health

A sign of an individual's decreasing mental and physical health, is the phenomenon termed burnout. In a performance related setting, burnout has been defined as "a psychological syndrome compromising (1) emotional and physical exhaustion, (2) reduced athletic accomplishment, and (3) sport devaluation" (Hill et al., 2010, p. 415). These three factors are not unlike the items from factor 7, and a high score might be an indication to athletes in the danger zone of burnout. For example, there are obvious similarities between the first variable of burnout, emotional and physical exhaustion, and the items "I feel tired and have little energy more often than my peers" and "I often lack energy". As for the second variable, there are commonalities with the item worded "compared to my teammates, I often fail to complete a heavy training session". Finally the third variable, sport devaluation, and items "I struggle to get myself motivated" and "I socialize with my teammates less than I used to" clearly share similarities.

Studies performed on athletes argue that athletes can be vulnerable to the development of burnout, and experience chronic levels of psychological stress as a consequence of the burnout process (Hill et al., 2010). Personality factors such as perfectionism have been related to why some athletes develop burnout because perfectionism has been associated with anxiety in athletes (Hill et al., 2010). As argued, soldiers perform in settings similar to athletes, though often with greater stakes. We can understand that if athletes are vulnerable to the development of burnout, so are soldiers and the participants in this study, especially if they are prone to these symptoms.

As for eating disorders, few studies have been published on the association between eating disorders and soldiers. There has been growing interest in eating disorders in athletes, with studies showing indications of athletes being more prone to develop

eating disorders than nonathletes (Sundgot-Borgen, 1994). Both athletes and soldiers represent a unique population, where, for athletes factors such as training, eating pattern, extreme diets, restrictions of food intake and psychological profiles will have an impact on their mental health (Sundgot-Borgen & Torstveit, 2004). Arguments can be made that some of the same principals apply to soldiers as well, due to the fact that also they perform in high pressure environments, and that military field exercises are known to be high-demanding and often involves restricted access to food (Vikmoen et al., 2017).

The seventh factor is also designed to target issues related to anxiety, in addition to the beforementioned aspects. Anxiety can be displayed in an individual in several ways, both as a symptom of poor mental health, or in performance settings as performance anxiety. In high pressure situations some are affected by performance anxiety leading to drops in performance, or more commonly termed, choking under pressure (Beilock, 2011). Stress and anxiety are complex matters part of any high pressure setting. Accordingly, it is of great importance that performers, or in this case soldiers, learn to cope with these kinds of pressures. In addition to dealing with the external pressures and demands set by the environment, performers also have to handle internal pressure. Achievement Goal Theory (AGT) explains how part of what drives athletes when they enter performance settings, is their desire to demonstrate competence or avoid displaying incompetence (Abrahamsen & Pensgaard, 2012). As for the participants in the current study, showing competence is both an internal and an external source of experienced pressure. From AGT we understand the motivation some might have to portray competence, and as explained by Rones and Steder (2017), the selection process is designed to reveal the best of the best on every parameter. Hence, if the participants' anxiety levels were to be high during the time of testing, it would be understandable. However, instead of showing signs of anxiety related issues, the complete total of respondents showed little to no signs of being negatively affected by anxiety related issues. Again, the results identified in the current study support the fact that the participants have a well-developed set of psychological characteristics.

5.3.2 The remaining factors

A possible reason for the lack of other significant results on the rest of the factors might be explained by the Levene's Test for Equality of Variance. As stated in 4. Results the

test showed that several of the factors violated the assumption of homogeneity, meaning the variance within the factors were too great. Moreover, as argued, and in line with previous research (Rones & Steder, 2017), NORSOC is in a position where it can choose the best of the best, meaning that the 141 applicants who participated in the present study are in general a highly skilled group of applicants with regards to the factors they were tested on. If the participants were to be tested earlier, for example during the rough selection, and therefore with a greater total of participants in the study, we might have found additional differences between the non-selected and the selected applicants.

Notably, the non-aspirants scored high on factor 6 active coping (M = 4.36). The non-aspirants' score support the notion that NORSOC chooses the best of the best because also the deselected group appear to have well-developed active coping skills. Accordingly, the fact that we did not find additional differences to distinguish the groups might be a result of the level of homogeneity of the groups, and that, consequently, it is difficult to separate the admitted applicants from the not admitted. These similarities support the strength of the differences we did find, and the level of interest associated with the findings.

The current data compared to the data from the initial validation's pilot study

Two independent samples t-test were conducted to compare the data from [1]Hill (2016) data to the participants in the current study on factor 6 and 7 separately. Neither of the t-tests showed significant differences between the new factors and the initial findings (factor 6: $p = 0.48$; factor 7: $p = 0.33$). Accordingly, we can't distinguish our sample from previous samples tested on the factors from the PCDEQ2, but importantly, we have to keep in mind that Hill (2016)'s sample only contained men from team sports.

5.4 Stage 2

At first glance, the PCDE-literature might seem an odd choice to apply when targeting military conscripts. However, though designed for, and mostly used in relation to, talent development, the PCDE-framework was chosen due to its focus on psychological characteristics. In talent development, the PCDEQ2 can be applied to map an

[1] While the test protocol from the initial validation of the PCDEQ2 was presented in Collin's validation-article, the data from the pilot study was presented in Hill's PhD-thesis.

individual's psychological strengths and weaknesses and used as a guide to suggest which characteristics should be prioritized in training and further developed. As stated, these characteristics have been recognized as necessary to perform at elite levels in several domains. Moreover, because of that, it was interesting to see if it also could be utilized to distinguish two groups, in this case military, at the beginning of their adult careers, and not just post-career such as Collins et al. (2016b) did.

5.4.1 Examination of the Norwegian version of PCDEQ2

The PCDEQ2 is a new edition developed from the initial PCDEQ. Because this instrument is new and translated to Norwegian for the first time, we wanted to examine it further to test the Norwegian edition's validity. Specifically, we wanted to know if the same factor structure came forth in the Norwegian version of the questionnaire. Ideally, we would have tested the questionnaire on a pilot study with a larger pool of participants (preferably N >500). However, due to space and time limitations regarding the current study, a pilot study could not be performed. Nevertheless, because the questionnaire is new and have not been tested in Norwegian nor on a Norwegian sample, we decided to examine it further.

The same test protocol as Collins (to review) was performed on the questionnaire, but we were not able to produce the same factor structure as the original version. Though the scree plot broke clearly at three factors and moderately at six, only two factors could be retained if we were to be as strict as the test protocol. The two remaining factors were large with 35 and 19 items. A relatively large number of items ended up in the same factor as they initiated from. Yet, looking at it as a whole, the new factors were certainly different from the original ones. The items in both factors ranged greatly in theme, and naming the factors with one headline would not have made sense.

MANOVAs were meant to be conducted with the new factors, but as a result of the fact that we could not recreate the initial factor structure, and that the new factors were constructed of items of such a variety that not even naming them made sense, additional testing were not performed.

5.4.2 Strengths and weaknesses of the PCDEQ2

The PCDEQ2 is a versatile questionnaire, targeting seven characteristics known to be related to successful realization of talent. However, before the current study, it had only been tested on male participants involved in team sports, a fact to be considered a weakness regarding the trustworthiness of the questionnaire. Moreover, the validity was only moderate. When analyzing the questionnaire, we found the validity to be poor for the translated version as well. Furthermore, with its 88 items, the questionnaire might be too large. For example, one could argue that the first two factors with their 21 and 15 items consist of too many items. If you have to ask too many questions, you may not have asked the questions specific enough the first few times. Moreover, filling out a questionnaire consisting of 88 items can be considered a strain on the participant, due to its length. Additionally, the correlation analysis showing relatively high correlation between the factors support the notion that we want to decrease the length of the questionnaire, because the high correlation speaks to items being too similar of each other.

Moreover, one item appears two times, in two different factors. The item(s) is worded "the day-to-day setbacks can often get me down", and appear in both factor 1 adverse response to failure and factor 4 perfectionistic tendencies. Whether this double appearance is a conscious decision or not, is unknown.

Additionally, the creators of the questionnaire note that their theoretical framework, and the skills approach in general, needs to be supported by longitudinal studies (Collins, MacNamara, & McCarthy, 2016a). Hence, the findings in the current study should be considered in the light of this lack of research, and ideally also followed up by longitudinal studies when the questionnaire has been further validated.

6. Conclusion

In the current study we asked three questions: a) are there psychological differences between the ones who were selected to the platoons and those who were not, b) are there psychological differences between the male and female applicants, and c) does the Norwegian version of the PCDEQ2 measure what it claims to measure?

a) Based on our findings, we can state that, in the case of the participants in the current study, the applicants who are admitted to either the SR or the PR platoons are better at active coping. Accordingly, there is a greater chance of being admitted to one of the platoons if you score among the best on factor 6.

b) Both men and women score low on factor 7 regarding clinical indicators, meaning that none of the groups are not likely to develop mental health related issues. The female applicants scored higher on this factor than the men did, and at first glance appear to have more issues related to clinical indicators. However, we also know that women are known to report more honestly in similar settings, and that some questionnaires are better fitted for women than for men. Conclusively, we can say that yes, the women report more clinical issues than the male applicants, but they score low on the factor, and the discrepancy between the genders might be explained by other reasons than the simple fact that the women have more clinical issues than the men.

c) We are not able to recreate the same factor structure from the initial, English version of the questionnaire in the Norwegian version. Conclusively, it is apparent that a greater validation process is needed. Moreover, there is a need for a larger material, both for the Norwegian version as for the initial, English version. Before this work has been done, the PCDEQ2 is not the best choice of instrument for any sample, even though the findings we did find are interesting.

7. Limitations

There are several limitations to the present study. Most importantly maybe, is the fact that a pilot study was not conducted, in addition to the fact that the questionnaire only has been tested on male participants who competed in team sport ahead of this study. Accordingly, before the current study was conducted, we knew nothing about how the questionnaire played out with women or individuals participating in individual sports, nor in military groups.

As stated, our findings should be followed up by longitudinal studies to account for the apparent weaknesses. We found significant results, but only on the univariate tests, Furthermore, as we've seen, the variance within the factors are too great, and this might be a result of the questionnaire being new, not tested and refined enough, and as stated – too large.

A great deal of work was put into translating and examining the questionnaire. However, the PCDEQ2 was only back-translated once. A second back-translation might have made additional edits. The translation was used for the first time, and it is possible the Norwegian version isn't yet fine-tuned enough to target exactly what it is aiming at.

Finally, the questionnaire is designed to target talent development, and although the arguments to support utilizing the PCDEQ2 in the current study are quite firm, different questionnaires made for military personnel might have found other results.

8. Future research and practical implications

As stated, our findings should be supported by longitudinal studies. Because the Norwegian Armed Forces did not enroll a large amount of women before the decision to create a gender-neutral conscription in 2015, there have only been performed a scare amount of research illustrating women's mental health and their psychological capacity, in the Norwegian Armed Forces. It would be of great interest to gain additional knowledge about psychological characteristics in male *and* female military applicants, separately, due to the fairly new SR platoon and as a result of gender-neutral conscription. Additional knowledge might be beneficiary in the work performed to fine-tune women's role in the military and as supplementary information to build their selection process on.

Due to the apparent weaknesses of the questionnaire, the fact that it has not been tested on women before, and because it is the first time it's being used in the current setting, we can't generalize from our findings and state that all applicants should score above or below certain points on the Likert-scale. If we are to ever say something more specific, further studies are required.

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Table of tables

Appendices

Appendix A: The Psychological Characteristics of Developing Excellence Questionnaire v. 2

Psychological Characteristics of Developing Excellence
Questionnaire v.2

NAME: _____

DATE OF BIRTH: _____

1. I often seek advice from different people

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

2. The people around me expect me to be perfect at everything I do

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

3. When things are going wrong for me, my future seems uncertain

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

4. I often act without thinking through all the alternatives

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

5. Although they may not say it, other people get upset when I make mistakes

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

6. When we need to work hard I am first in the queue

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

7. I often lie awake at night thinking things over and over

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

8. I value and use the opinion of others about my performance

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

9. I include imagery in my preparation

Very unlike me					Very like me
☐	☐	☐	☐	☐	☐

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Psychological Characteristics of Developing Excellence Questionnaire v.2

10. If I encounter a problem I make a plan to get around it

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

11. I know who to go to to get things done

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

12. I like to take control when dealing with problems

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

13. After eating, I sometimes feel guilty about its effect on my body shape

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

14. I can deal with whatever comes my way

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

15. I use imagery to improve my physical performance

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

16. I am able to adapt and change when things aren't going right for me

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

17. The day-to-day setbacks can often get me down

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

18. I am keen to ask other people for help

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

19. I often lack energy

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

20. My preparation for competition has to be exactly the same each time

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

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21. My sleep is often disturbed by worrisome thoughts

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

22. Even minor setbacks disturb my focus

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

23. I have a carefully thought out plan of my pathway to the top

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

24. I imagine coping with setbacks

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

25. I regularly imagine what a good performance feels like

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

26. If I don't know something, I will find out who to ask

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

27. When I am failing at something, I hate the fact that I am not in control of the outcome

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

28. I often worry that bad things will happen

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

29. My life is well organised

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

30. I give myself treats even when I don't achieve my goals

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

31. People would say that I am very self-disciplined

Very unlike me Very like me

☐ ☐ ☐ ☐ ☐ ☐

32. I regularly set clear targets for myself

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

33. I like to try things out in my head first

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

34. When I fail, people are less interested in me

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

35. I sometimes forget items of equipment

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

36. I think asking other people for help is a sign of weakness

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

37. I often keep thinking about the mistakes I have made and let this interfere with my performance

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

38. I worry about putting weight on

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

39. I would usually blame other people or circumstances for failure

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

40. I find it difficult to overcome my feelings of anxiety when I perform

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

41. If I don't give my sport all of my attention, all of the time, my performances will suffer

Very unlike me — Very like me

☐ ☐ ☐ ☐ ☐ ☐

42. When things go wrong, I find it difficult to see a way forwards

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

43. I only feel happy when I win

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

44. I use mental rehearsing to focus myself on what I have to do

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

45. I often find it hard to talk to other people about things that are bothering me

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

46. When things are not going well, I get worried about what other people will think

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

47. I am lazy

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

48. The day-to-day setbacks can often get me down

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

49. If something unexpected happens I find it really hard to adapt

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

50. I find it hard to push myself to overcome difficulties

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

51. I am good at resisting temptation

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

52. When faced with a problem there is no one I can ask to help

Very unlike me Very like me

53. If I make a mistake I dwell on it and can't see the big picture

Very unlike me — Very like me

54. I socialise with my teammates much less than I used to

Very unlike me — Very like me

55. I often do things I know I shouldn't do

Very unlike me — Very like me

56. I can't be bothered with people who don't always strive to better themselves

Very unlike me — Very like me

57. Failures do not distract me from my pathway to success

Very unlike me — Very like me

58. I can clearly see my pathway to the top

Very unlike me — Very like me

59. I take time to clarify what is required

Very unlike me — Very like me

60. I often forget appointments or timings

Very unlike me — Very like me

61. When I am not succeeding, I feel like people lose interest in me

Very unlike me — Very like me

62. I tend not to worry about things

Very unlike me — Very like me

63. My teammates would describe me as a consistent person

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

64. I tend to run through things over and over again

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

65. Before attempting a skill, I imagine myself performing it

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

66. My mood depends entirely on my sporting success

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

67. I work through set backs

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

68. I wish I had more discipline

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

69. I incorporate mental rehearsal in my practice

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

70. Compared to my teammates I often fail to complete a heavy training session

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

71. When things seem hopeless, I still keep going

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

72. I struggle to get myself motivated

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

73. When I am failing, I worry most about what others think about me

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

74. I have lost interest in socialising with my training group

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

75. I prepare carefully for training sessions

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

76. I often feel nervous

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

77. I get annoyed very easily

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

78. I feel tired and have little energy more often than my peers

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

79. Before I arrive at a performance venue, I mentally rehearse my performance there

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

80. I sometimes feel down without really knowing why

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

81. When I have to do something that worries me, I imagine how I will overcome my anxieties and perform successfully

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

82. When I am failing, significant others are often disappointed in me

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

83. I dislike asking people for help and advice

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

84. When I make a mistake I find it difficult to get my focus back on task

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

85. I get distracted thinking about how other performers are doing

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

86. I do certain things that are bad for me if they are fun

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

87. When I am failing, I am afraid I might not have what it takes

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

88. I have a hard time breaking bad habits

Very unlike me ☐ ☐ ☐ ☐ ☐ ☐ Very like me

Psychological Characteristics of Developing Excellence Questionnaire 2 (PCDEQ2) Scoring Sheet

Enter scores from 1-6 into sheet and add up each box. Reversed items scores as 7 – ANSWER
Divide factor total by number of items for final Factor Average Score

Factor 1: Adverse Response to Failure (21 Items)

Item	#3	#5	#7	#17	#21	#22	#27	#28	Sub Total
Score									

Item	#37	#40	#42	#46	#53	#61	#62	#73	Sub Total
Score							7-		

Item	#76	#80	#84	#85	#87		
Score						TOTAL	
						FACTOR AVERAGE	

Factor 2: Imagery and Active Preparation (15 Items)

Item	#9	#15	#23	#24	#25	#32	#33	#44	Sub Total
Score									

Item	#58	#59	#64	#65	#69	#79	#81		
Score								TOTAL	
								FACTOR AVERAGE	

Factor 3: Self-Directed Control and Management (14 Items)

Item	#4	#29	#30	#31	#35	#39	#47	#51	Sub Total
Score	7-		7-		7-	7-	7-		

Item	#55	#60	#68	#75	#86	#88		
Score	7-	7-	7-		7-	7-	TOTAL	
							FACTOR AVERAGE	

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Factor 4: Perfectionistic Tendencies (10 Items)

Item	#2	#20	#34	#41	#43	#48	#56	#66	Sub Total
Score									

Item	#77	#82		
Score			TOTAL	
			FACTOR AVERAGE	

Factor 5: Seeking and Using Social Support (9 Items)

Item	#1	#8	#11	#18	#26	#36	#45	#52	Sub Total
Score						7-	7-	7-	

Item	#83		
Score	7-	TOTAL	
		FACTOR AVERAGE	

Factor 6: Active Coping (10 Items)

Item	#6	#10	#12	#14	#16	#50	#57	#63	Sub Total
Score						7-			

Item	#67	#71		
Score			TOTAL	
			FACTOR AVERAGE	

Factor 7: Clinical Indicators (9 Items)

Item	#13	#19	#38	#49	#54	#70	#72	#74	Sub Total
Score									

Item	#78		
Score		TOTAL	
		FACTOR AVERAGE	

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Appendix B: Consent form to the respondents

Er det kjønnsforskjeller i restitusjonen av fysisk prestasjonsevne og fysiologiske markører etter en krevende militær feltøvelse?, 23.06.2017, lang utgave

FORESPØRSEL OM DELTAKELSE I FORSKNINGSPROSJEKTET

ER DET KJØNNSFORSKJELLER I RESTITUSJONEN AV FYSISK PRESTASJONSEVNE OG FYSIOLOGISKE MARKØRER ETTER EN KREVENDE MILITÆR FELTØVELSE?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt for å undersøke om det finnes kjønnsforskjeller i hvordan en fysisk krevende militær feltøvelse påvirker soldaters fysiologi og prestasjonsevne, og hvordan disse faktorene restituerer i dagene og ukene etter. Det vil også undersøkes effekten av å gjennomføre 2 krevende øvelser med kort mellomrom.

Tidligere studier har vist at fysisk krevende feltøvelser fører til flere fysiologiske endringer, bl.a. vektnedgang, tap av muskelmasse, forbigående betennelser i muskulaturen, hormonelle forandringer og nedsatt fysisk prestasjonsevne. Av naturlige årsaker er det nesten utelukkende menn som har deltatt i disse studiene og det mangler derfor forskning på hvordan kvinner responderer på slike øvelser. Med en økende kvinneandel i Forsvaret og innføringen av «Jegertroppen» i FSK er det viktig å undersøke effekten av slike øvelser hos kvinner, og om det finnes kjønnsforskjeller i responsen til slike øvelser. Det er forsket lite på hvor lang tid man trenger for å komme seg etter slike krevende øvelser, dvs., hvor lang tid det tar før de fysiologiske endringene er normalisert.

Du blir forespurt om å delta siden du er aktuell for å gjennomføre det fysisk og psykisk krevende opptaket til fallskjermjegertroppen og jegertroppen i FSK. Forskningsprosjektet gjennomføres av Forsvarets forskningsinstitutt i samarbeid med Norges Idrettshøgskole og Forsvarets Høgskole

HVA INNEBÆRER PROSJEKTET?

Til studien vil det rekrutteres vernepliktige som gjennomfører opptak til Fallskjermjegertroppen og Jegertroppen i FSK. Deltagelse i studien vil innebære at du i forbindelse med opptaksuken vil gjennomgå diverse tester. Før opptaket vil vi måle din kroppsvekt og kroppssammensetning og teste din eksplosive styrke (svikthopp på kraftplattform og medisinballstøt), anaerobe kapasitet (evakueringstest (EVAC-test)) og kondisjon (Beep-test), samt ta blodprøver av deg.

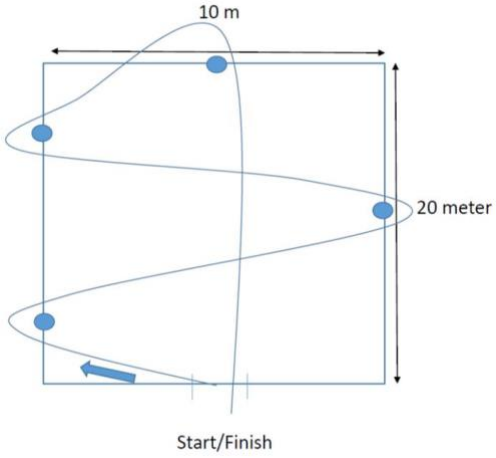
De som klarer å gjennomføre opptaket og blir tatt opp i fallskjermjegertroppen eller jegertroppen vil også gjennomføre de samme testene noen timer etter innkomst fra opptaket, 24 timer, 72 timer, 1 uke og 2 uker etter opptaket. I tillegg vil testene gjennomføres etter nok en krevende feltøvelse som starter ca. 2 uker etter opptaket. De som underveis faller fra opptaksprosessen blir tatt ut av studien.

Kroppssammensetningen vil bli målt ved hjelp av en maskin som kalles Inbody 720. Her står du på en plattform mens du holder i to håndtak. Et svakt strømfelt sendes gjennom kroppen (du merker ingenting) og basert på at ulikt kroppsvev har ulik motstand mot strøm vil denne kunne beregne hvor mye muskelmasse, fettmasse og beinmasse du har. Den finner i tillegg fettprosent.

Eksplosiv styrke i beina måles ved at du skal hoppe så høyt du kan på en spesiell plattform som måler hvor stor kraft du skaper mot bakken. Den regner da ut hvor høyt du hopper. Eksplosiv styrke i overkroppen måles ved medisinballstøt. Her skal du støte en 10 kg medisinball lengst mulig.

Anaerob kapasitet måles ved en test vi kaller evakueringstest (EVAC-test). Dette er en test som skal etterligne det å redde en skadet medsoldat. Du skal først løpe gjennom en sikksakk løype av kjegler alt du kan (se figuren). Du plukker så opp en evakueringsdukke som veier 70 kg for guttene og 50 kg for jentene som skal dras gjennom løypen

så fort som mulig. Totaltid på begge rundene blir ca 40-50 sekunder med maksimal innsats.



Figur 1. Figuren viser løypen man skal løpe 2 runder i EVAC testen. På den andre rundes dras en dokke gjennom løypen.

Aerob kondisjon måles ved hjelp av Beep-test. I denne testen løper du mellom to kjegler med 20 meters avstand. En høyttaler vil pipe jevnlig, og du må alltid rekke over til neste kjegle før neste pip. Hvert minutt vil farten øke ved at det blir kortere tid mellom pipene. Her er det om å gjøre å holde ut lengst mulig og man må presse seg hardt mot slutten. Beep-testen vil ikke gjennomføres ved testrunden rett etter opptaket.

Blodprøver vil tas fastende om morgenen før frokost dagene disse skal tas. De tas i armen slik som på de fleste legekontor.

Det vil også gjennomføres en spørreundersøkelse som har til hensikt å undersøke hvorvidt det er psykologiske og psykososiale forskjeller mellom de som blir tatt opp i henholdsvis fallskjermjegertropp og jegertropp, og de som ikke blir tatt opp. Du vil bli spurt om ulike motiver og strategier for prestasjon og mestring, og undersøkelsen tar 20-30 minutter å gjennomføre. Kvinnelige deltakere vil i tillegg bli bedt om å besvare et kort spørreskjema om menstruasjonssyklus og p-pillebruk.

Kvelden fredag 28. juli vil vi komme å holde et informasjonsmøte angående studien der mer detaljer vil bli gitt. Her vil dere for eksempel få vite tidspunkt for testene. Dette er kvelden før testene vil begynne, så det er fint om dere har tenkt gjennom om dere ønsker å være med og om det er ting dere lurer på. De første testene (testrunden før opptaket starter) vil gjennomføres 29-30. juli. Hver soldat skal bare testes en av disse dagene. Her vil det tas blodprøver om morgenen før frokost og fysiske tester senere på dagen. FSK støtter prosjektet, så dere vil få pause fra tjenesten når dere skal møte opp på test.

Under selve opptaket vil noen av dere blir bedt om å ha på seg et akselerometer på håndleddet. Dette veier bare 16 gram (ca som en klokke) og registrerer all aktivitet under øvelsen, slik at vi får et estimat på deres energiforbruk, søvnmønster og aktivitetsnivå.

Selve opptaket vil gjennomføres i regi av FSK og deltakelse i studien vil ikke påvirke gjennomføringen av selve opptaket eller påvirke deres muligheter for å bli tatt opp i fallskjermjegertroppen eller jegertroppen. Annet enn å bære akselerometer på håndleddet vil det ikke være noen testing under selve opptaksuken.

Er det kjønnsforskjeller i restitusjonen av fysisk prestasjonsevne og fysiologiske markører etter en krevende militær feltøvelse?, 23.06.2017, lang utgave

Blir du av FSK tatt ut av opptaket eller trekker deg fra opptaksprossesen vil din deltagelse i studien avsluttes. Opplysningene samlet inn om deg vil fortsatt kunne bli brukt i diverse analyser.

MULIGE FORDELER OG ULEMPER

Det er ingen direkte fordeler for deg som enkeltperson ved å delta i studien. Du vil få kartlagt din respons på en krevende militær øvelse som kan være nyttig hvis du senere skal gjennomføre lignende øvelser. Dette kan være veldig nyttig hvis du blir tatt opp i fallskjermjegertroppen eller jegertroppen som gjennomfører flere fysiske krevende øvelser i løpet av året. I tillegg får du testet din prestasjonsevne i ulike fysiske tester og målt din kroppssammensetning som mange synes er veldig spennende. I tillegg bidrar du til innsamling av viktig kunnskap. Deltakelse i studien medfører minimal risiko. Det vil likevel kreve litt av din tid, men testene vil som forklart gjennomføres i tjenestetiden. Noen synes blodprøvetagningen kan være noe ubehagelig og de fysiske testene kan oppleves anstrengende.

FRIVILLIG DELTAKELSE OG MULIGHET FOR Å TREKKE SITT SAMTYKKE

Det er fullstendig frivillig å delta i prosjektet. Dersom du ønsker å delta, undertegner du samtykkeerklæringen på siste side. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke. Dersom du trekker deg fra prosjektet, kan du kreve å få slettet innsamlede prøver og opplysninger, med mindre opplysningene allerede er inngått i analyser eller brukt i vitenskapelige publikasjoner. Dersom du senere ønsker å trekke deg eller har spørsmål til prosjektet, kan du kontakte Olav Vikmoen, 63807825, olav.vikmoen@ffi.no.

HVA SKJER MED INFORMASJONEN OM DEG?

Informasjonen som registreres om deg skal kun brukes slik som beskrevet i hensikten med studien. Du har rett til innsyn i hvilke opplysninger som er registrert om deg og rett til å få korrigert eventuelle feil i de opplysningene som er registrert.

Alle opplysningene vil bli behandlet uten navn og fødselsnummer eller andre direkte gjenkjennende opplysninger. En kode knytter deg til dine opplysninger gjennom en navneliste.

Prosjektleder har ansvar for den daglige driften av forskningsprosjektet og at opplysninger om deg blir behandlet på en sikker måte. Informasjon om deg vil bli anonymisert eller slettet senest fem år etter prosjektslutt.

HVA SKJER MED PRØVER SOM BLIR TATT AV DEG?

Prøvene som tas av deg analyseres kort tid etter prøvetakning og destrueres senest to måneder etter prøvetakning.

FORSIKRING

Du er som ellers dekket av Forsvarets egne forsikringsordninger for vernepliktige soldater. For den delen som omfatter forskningsdeltakelsen er du også dekket av ordningen med Norsk pasientskadeerstatning.

GODKJENNING

Prosjektet er vurdert av Regional komite for medisinsk og helsefaglig forskningsetikk og bedømt til å falle utenfor deres mandat, og kan derfor gjennomføres uten deres godkjenning. Spørreundersøkelsen er meldt til Personvernombudet for forskning ved FFI, som følger opp at forskerne ivaretar alle lovpålagte plikter for ivaretakelse av ditt personvern.

Er det kjønnsforskjeller i restitusjonen av fysisk prestasjonsevne og fysiologiske markører etter en krevende militær feltøvelse?, 23.06.2017, lang utgave

SAMTYKKE TIL DELTAKELSE I PROSJEKTET

JEG ER VILLIG TIL Å DELTA I PROSJEKTET

Sted og dato | **Deltakers signatur**

Deltakers navn med trykte bokstaver

Jeg bekrefter å ha gitt informasjon om prosjektet

Sted og dato | **Signatur**

Rolle i prosjektet

Appendix C: the Norwegian version of the PCDEQ2

Navn:

Fødselsdato:

1. Jeg søker ofte råd hos andre mennesker

2. Menneskene rundt meg forventer at jeg er perfekt i alt jeg gjør

3. Når ting ikke går min vei, føles fremtiden usikker

4. Jeg handler ofte uten å tenke gjennom alle alternativer først

5. Selv om de kanskje ikke sier det, blir andre mennesker opprørt når jeg gjør feil

6. Når det skal jobbes hardt, er jeg den første som stiller opp

7. Jeg ligger ofte våken om nettene og tenker gjennom ting igjen og igjen

8. Jeg både setter pris på og bruker andre menneskers mening om det jeg presterer

9. Jeg bruker visualisering som del av mine forberedelser

10. Hvis jeg støter på et problem, lager jeg en plan for å løse det

11. Jeg vet hvem jeg skal gå til for å få ting gjort

12. Jeg liker å ta kontroll når problemer skal løses

13. Når jeg har spist, hender det at jeg får skyldfølelse for hva maten kan gjøre med kroppsfasongen min

14. Jeg kan håndtere enhver utfordring som jeg møter

15. Jeg bruker visualisering for å bedre de fysiske prestasjonene mine

16. Jeg har evne til å endre og tilpasse meg når ting ikke går min vei

17. Regelmessig motgang gjør meg ofte nedstemt

18. Jeg er ivrig etter å spørre andre mennesker om hjelp

19. Jeg mangler ofte energi

20. Konkurranseforberedelsene mine må være nøyaktig like hver gang

21. Søvnen min blir ofte forstyrret av bekymringstanker

22. Selv små tilbakeslag kan forstyrrer fokuset mitt

23. Jeg har en nøye gjennomtenkt plan for hvordan jeg skal komme meg til topps

24. Jeg visualiserer hvordan jeg takler tilbakeslag

25. Jeg forestiller meg ofte hvordan en god prestasjon føles

26. Hvis jeg mangler svar på noe, finner jeg ut hvem jeg skal spørre

27. Når jeg mislykkes med noe, kan jeg ikke fordra at det ikke er jeg som kontrollerer utfallet

28. Jeg er ofte bekymret for at noe galt skal skje

29. Livet mitt er velorganisert

30. Jeg belønner meg selv, selv når jeg ikke når målene mine

31. Andre vil si om meg at jeg har sterk selvdisiplin

32. Jeg setter regelmessig tydelige mål for meg selv

33. Jeg liker å prøve ut ting i tankene først

34. Når jeg mislykkes, er folk mindre interessert i meg

35. Det hender jeg glemmer utstyr

36. Å be andre om hjelp, mener jeg er et tegn på svakhet

37. Jeg fortsetter ofte å tenke på de feilene jeg gjør, og lar dette virke inn på prestasjonen min

38. Jeg bekymrer meg for å gå opp i vekt

39. Jeg legger ofte skylden på andre eller på forholdene hvis jeg mislykkes

40. Jeg synes det er vanskelig å legge fra meg følelsen av nervøsitet og engstelse når jeg skal konkurrere/prestere

41. Hvis jeg ikke konsentrerer meg helt og fullt på sporten min hele tiden, vil resultatene mine bli dårligere

42. Når ting går galt, har jeg vanskeligheter med å se veien videre

43. Jeg føler meg glad bare når jeg vinner

44. Jeg bruker mental trening til å fokusere på det jeg må gjøre

45. Jeg synes ofte det er vanskelig å snakke med andre om ting som plager meg

46. Når ting ikke går bra, bekymrer jeg meg over hva andre vil tenke

47. Jeg er lat

48. Daglig motgang kan ofte gjøre meg nedtrykt

49. Jeg synes det er vanskelig å tilpasse meg når uventede ting skjer

50. Jeg synes det er vanskelig å presse meg selv til å overvinne vanskeligheter

51. Jeg er flink til å motstå fristelser

52. Jeg har ingen å snakke med når problemer oppstår

53. Når jeg gjør en feil, dveler jeg ved den og klarer ikke å se helheten

54. Jeg er mindre sammen med lagkameratene enn jeg brukte å være

55. Jeg gjør ofte ting jeg vet jeg ikke burde gjøre

56. Jeg orker ikke forholde meg til folk som ikke hele tiden er jobber med å bli bedre

57. Tilbakeslag distraherer meg ikke fra å fokusere på veien til suksess

58. Jeg ser klart for meg min vei til toppen

59. Jeg tar meg tid til å avklare hva som kreves

60. Jeg glemmer ofte avtaler eller tider

61. Jeg føler at folk mister interessen for meg når jeg ikke lykkes

62. Jeg bruker ikke å bekymre meg om ting

63. Mine lagkamerater vil beskrive meg som konsekvent

64. Jeg har en tendens til å gå gjennom ting om igjen og om igjen

65. Før jeg prøver meg på en ferdighet, ser jeg for meg at jeg utfører den

66. Humøret mitt avhenger fullstendig av hvordan jeg lykkes sportslig.

67. Jeg jobber meg gjennom tilbakeslag

68. Jeg skulle ønske jeg var mer disiplinert

69. Jeg inkluderer mentale øvelser inn i treningen min

70. Sammenlignet med lagkameraten mine klarer jeg ofte ikke å fullføre en tung treningsøkt

71. Når ting virker håpløst, fortsetter jeg likevel

72. Jeg sliter med å motivere meg selv

73. Når jeg feiler, bekymrer jeg meg mest over hva andre tenker om meg

74. Jeg har mistet interessen for å være sosial med treningsgruppen min

75. Jeg forbereder meg grundig til treningsøkter

76. Jeg føler meg ofte nervøs

77. Jeg blir svært lett irritert

78. Jeg blir sliten og har lite energi oftere enn mine jevnaldrende

79. Før jeg kommer til en konkurransearena/øvelse, øver jeg mentalt på det jeg skal gjøre der

80. Noen ganger føler jeg meg nedtrykt uten helt å vite hvorfor

81. Når jeg må gjøre noe jeg er redd for, ser jeg for meg hvordan jeg vil overvinne frykten og prestere bra

82. Når jeg mislykkes, blir mine nærmeste ofte skuffet over meg

83. Jeg liker ikke å spørre andre om hjelp og råd

84. Når jeg gjør feil synes jeg det er vanskelig å gjenvinne fokus på oppgaven(e)

85. Jeg blir distrahert av å tenke på hvordan andre konkurrenter presterer

86. Hvis det er moro, kan jeg gjøre ting som ikke er bra for meg

87. Når jeg mislykkes, er jeg redd for at jeg ikke har det som skal til

88. Jeg har vanskeligheter med å bryte dårlige vaner