



**LUND**  
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The Department of Psychology

*The Clinical Psychologist Program*

## **Boost & Balance**

*Boosting life quality and balancing stress  
with five minutes' daily yoga, mindfulness and positive psychology*

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## **Abstract**

The use of internet based psychology interventions as well as yoga and mindfulness interventions in order to improve psychological health has increased during the past decades. However, most interventions are time and resource demanding and there is a need for investigating short and easily accessible interventions. In this four-week randomized controlled pilot study I measured the effects of the “Boost & Balance online course”: an internet based intervention combining positive psychology, yoga and mindfulness practice for five minutes each weekday during four consecutive weeks. The intervention was meant to reduce aspects of psychological ill-being and increase aspects of psychological well-being as well as level of mindfulness in a group of office workers ( $n = 58$ ), compared to a control group assigned to a waitlist condition ( $n = 62$ ). The results showed that the intervention significantly increased life quality and marginally significantly decreased stress as well as increased mindfulness for all participants assigned to the intervention group ( $n = 58$ ). When excluding participants who failed to perform any of the intervention’s exercises ( $n = 9$ ) from the intervention group the results showed that the intervention significantly decreased stress and significantly increased life quality as well as mindfulness for all participants in the intervention group ( $n = 49$ ). No effects were found for anxiety, depression or life satisfaction in any of the analyses. The findings suggest that the Boost & Balance online course shows clear tendencies for improving psychological health.

Keywords: yoga, mindfulness, positive psychology, online, stress, life quality

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## Introduction

Yoga and mindfulness practices are increasingly popular methods for managing the stressful lifestyle many of us in the western world experience today. Research shows that these methods do have several positive effects on psychological health (which are reviewed below). But what if you don't have fancy yoga pants, the courage and flexibility to turn your body upside down in a head stand and time or money to join a one hour yoga class in a pricey yoga studio? Are there still ways to seize the health benefits from yoga and mindfulness in accessible, brief, easy, cost and time effective, user friendly ways? Recently, yoga and mindfulness sessions have started being delivered over the internet. However, are these sessions efficient? And what about time pressures – could even a short daily intervention be effective? Research is lacking on these questions, which inspired this study to take place. I created the intervention “Boost & Balance online course”, which is a four week internet based course of five minutes' daily practice in yoga, mindfulness and positive psychology. Furthermore, I tested out the intervention on office workers experiencing stress in their everyday life. In this study, I aim to explore the intervention's effects on psychological health; on aspects of both well-being and ill-being,

The need for effective and accessible interventions can be motivated by the increases in sick leaves due to psychiatric disorders, which in Sweden have doubled up over the past six years. On the 24<sup>th</sup> of March 2017 the Swedish Social Insurance Administration reported that the number of sick leaves due to psychiatric disorders had increased with 111% between 2011 and 2016 in Sweden. Today as much as 45 % of all actual sick leaves are constituted by psychiatric disorders (The Swedish Social Insurance Administration, 2017), of which stress disorders are the most common (The Swedish Social Insurance Administration, 2016) as well as the ones that lately have been increasing the most (The Swedish Social Insurance Administration, 2015).

The reasons for this increase in stress disorders may be complex, but according to Schenström (2007), it may have something to do with societal structure changes. Human basic needs important for well-being, such as sleep and time for recreation, are according to Schenström less supported by society to fulfill today. He argues that this places an increasing responsibility on the individuals themselves to pursue their own well-being and health, which may be challenging in a society that encourages us to do *more, faster and better*. Although we may have the actual time to rest and recreate from stress, as human beings we are privileged with the unique abilities to think back and forth in time and room, which allows us to evaluate our past



and plan our future. When we get stuck in patterns of ruminating about what already has happened or worrying about what may happen we suffer the risk of developing psychiatric disorders, such as depression, anxiety and stress disorders (Linton & Flink, 2011).

Because stress is a reaction that affects both our psychological and our physical health, there has lately been an increasing interest in evaluating interventions that focuses on these both aspects of health (Harkess, Delfabbro, Mortimer, Hannaford & Cohen-Woods, 2017). Research has through the past decade reported health benefits from several different types of mind-body interventions, of which yoga and mindfulness are examples (Wolever et al., 2012).

There is growing evidence supporting that yoga and mindfulness methods are effective for treating stress and increasing well-being (Lona, Aneesha & Giovanni, 2016; Ronghua & Xia, 2015; Köhn, Lundholm, Bryngelsson, Anderzén-Carlsson & Westerdahl, 2013; Gard et al., 2012; Hewett, Ransdell, Gao, Petlichkoff & Lucas, 2011; Kuyken et al., 2013; Kabat-Zinn, 1982; Grossman, Niemann, Schmidt & Walach, 2004; Boettcher et al., 2014; Krusche, Cyhlarova & Williams, 2013; Glück & Maercker, 2011; Spijkerman, Pots & Bohlmeijer, 2016; Hylander, Johansson, Daukantaitė & Ruggeri, 2017). However, most studies evaluate time and money consuming methods. Thus, there is a need to develop fast and inexpensive methods as well as scientifically test their effectiveness. Some of these methods spring from the field of positive psychology. Accordingly, this field provides evidence that integrating interventions like gratefulness practices into one's everyday life can be beneficial for increasing well-being as well (Sin & Lyubomirsky, 2009; Seligman et al., 2005; Emmons & McCullough, 2003; Lyubomirsky, Sousa & Dickerhoof, 2006). Cultivating a grateful outlook on life might go very well together with yoga and mindfulness practice, but few studies have evaluated the effectiveness of the combination of yoga, mindfulness and positive psychology interventions to increase well-being and reduce stress. In addition, most studies on these types of interventions have been done on interventions given on a weekly basis. This lay ground for an interest in investigating if we can use simple and small daily bits of yoga, mindfulness and positive psychology interventions to take meaningful steps towards achieving a sense of balance and well-being in a stressful lifestyle.

The bigger purpose of this study is not to try to find a solution for problems of structural, corporate or political responsibility. Its purpose is rather to explore if we can find new, accessible and user friendly ways to help people deal with everyday stress. This is urgent and important because an increasing number of people do suffer from psychological illness due to stress today.

## **Psychological health**

Psychological health is a wide concept, differently defined by different psychological traditions. The perspectives on psychological health that are used as a framework for this study are divided into two approaches to psychological health: one focusing on ill-being and the other one focusing on well-being. The present study defines psychological health as a balance between the two, including the absence of ill-being, the presence of well-being as well as a healthy acceptance for a certain degree of what could be seen as normal human suffering.

**Psychological ill-being.** Traditionally, psychological health has been defined as the absence of disease and the field of psychology has historically mainly focused on the diagnosis and treatment of mental illness (Seligman & Csikszentmihalyi, 2000). In Cognitive Behavioral Therapy (CBT), which is one of the most commonly used psychotherapy methods today, the main goal is most often to reduce symptoms of mental illness. Examples of such symptoms are stress, anxiety and depression, which also are factors that influence peoples' perception of well-being and health (Hayes et al., 2012).

Stress, which is a growing problem today since it is causing increasing numbers of psychiatric disorders leading to sick leaves (The Swedish Social Insurance Administration, 2016; The Swedish Social Insurance Administration, 2017), is not problematic per se. It is a healthy body-mind reaction that, seen from an evolutionary perspective, has helped us to survive dangerous situations over many years. Fundamentally, stress is a biological mechanism that prepares our bodies (e.g. alters pulse and blood flow) and our minds (e.g. sharpens our concentration) into performing actions of "fight" or "flight" in order to survive threats (Schenström, 2007). When an actual threat is present, the stress mechanism is thus useful, but when the threat is constituted by rumination or worrying it may not be as helpful. Stress becomes unhealthy if we are exposed to it over longer periods of time without sufficient time for rest and recreation. If we suffer from long term stress the risks for negative consequences on our health are many. To name a few, long term stress can lead to impaired immune system, headaches, stomach problems, sleep problems (Kroese, 2000), cognitive disabilities as impaired memory and ability to learn as well as physical difficulties such as physical pain (The Swedish Social Insurance Administration, 2016). In turn, these consequences may result in mental and physical exhaustion which can eventually lead to burnout and development of symptoms such as depression and anxiety disorders (Lin, Huang, Shiu & Yeh, 2015).

Above the individual suffering that stress is causing, it is becoming a growing problem at the workplace as well. Employees experiencing high stress levels are, above the health risks mentioned above, subject to increased costs for the company, such as decreased productivity and increased staff turnover (Wolever et al., 2012).

This view on psychological health highlights the importance of reducing psychological ill-being as a way of improving psychological health. In line with this approach this study defines psychological ill-being as symptoms of stress, anxiety and depression which should be decreased in order to improve psychological health. In this study expressions such as illness and ill-being, as well as mental and psychological, are being used interchangeably.

**Psychological well-being.** In contrast to the traditional view of psychological health, as the absence of mental illness, stands one of the more recent movements within psychology called Acceptance and Commitment Therapy (ACT). This therapy method offers a perspective on well-being and health as something wider than only the absence of illness. This view argues that human suffering is a natural part of living which emerges from normal psychological processes and should thus not be pathologized nor treated. In the ACT approach it is argued that it is psychologically healthy to have unpleasant, as well as pleasant, thoughts and feelings (Hayes et al., 2012). Instead of aiming at symptom reduction Hayes et al. (2012) argue that by increasing the level of acceptance of our inner experiences, including the unpleasant ones, we get fuller access to the width of our experiences. One of the core components of ACT is mindfulness training, in which the focus is on practicing becoming aware of, as well as, accepting one's current inner experience. The idea is that, by doing so, we become more aware of and thus less controlled by our inner experiences. In turn, this allows us to make more conscious and constructive decisions according to what we value the most, so that we can live in line with our personal values rather than our old habits (Schenström, 2007). In the ACT approach the emphasize is thus not on symptom reduction, but rather on living according to personal values and taking committed action against what matters the most to us (Hayes et al., 2012).

The idea of living our lives to the fullest brings us to another expanded view on psychological health and well-being that constitutes as a foundation for this current study. The movement called Positive Psychology (PP), has taken on a growing interest in gaining a deeper understanding of well-being and happiness (Seligman & Csikszentmihalyi, 2000). From a PP perspective it is often argued that well-being is now becoming increasingly viewed as something

bigger than the absence of mental disorder, rather also as the presence of life satisfaction, happiness and positive affect (Sin & Lyubomirsky, 2009). Research shows that subjective well-being has been shown to positively correlate with good health, fulfilling relationships, high income as well as high work performance (Lyubomirsky et al., 2005).

According to Gable and Haidt (2005) positive psychology is the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions. Rusk and Waters (2013) further suggest that positive psychology focuses on the strengths and virtues that already exists within us and that contribute to well-being and positive functioning. Accordingly, Seligman and Csikszentmihalyi (2000) describe it as a way of studying positive human functioning. Areas of focus are experienced well-being, contentment and satisfaction regarding the past, hope and optimism regarding the future and flow and happiness regarding the present.

Positive psychology has been criticized concerning ignorance of the negative aspects of life. According to Compton and Hoffman (2013) positive psychology does not deny the importance of negative emotions. Gable and Haidt (2005) emphasize that negative events tend to have higher impact on us, than do positive ones, and suggest that the new focus on human strengths is not a replacement of the earlier focus on dysfunction, but a complement to what we already know about that. When facing threats, emotions like fear and anxiety start a stress reaction that helps us to quickly adapt to the dangerous situation in order to survive (Seligman & Csikszentmihalyi, 2000). Although, Seligman and Csikszentmihalyi (2000) argue that, in the western world where most people are well-adapted and do not have to fight for survival on a daily basis, people are able to focus on higher qualities in life. By focusing on what goes right in life, Seligman and Csikszentmihalyi (2000) suggest that we can build positive qualities that can help both individuals and communities flourish. In addition, they suggest that by studying human strengths, we can learn how to buffer against mental and psychical illness and in that way prevent it. Gable and Haidt (2005) accordingly highlight that positive personal traits such as optimism and a sense of personal control, have shown to be protective factors for psychological health.

In line with this, in 2014 the World Health Organization (WHO, 2014) defined mental health 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”.

These views on psychological health highlight the importance of increasing psychological well-being, as well as accepting a healthy degree of psychological ill-being, as ways of improving psychological health. This is important because well-being has been shown to buffer, as a protective psychological strength, against psychological ill-being by helping individuals to constructively deal with stressful life events (Suldo & Huebner, 2004). In line with this approach this study defines psychological well-being as the presence of life quality and life satisfaction which thus should be increased in order to improve psychological health. In this study expressions such as mental health, psychological health and psychological well-being are being used interchangeably.

### **Positive psychology, yoga and mindfulness as psychological health interventions**

Interventions including positive psychology, yoga and mindfulness have lately become increasingly popular in order to care for one's psychological health. What started off mainly as an individual practice has lately started to become increasingly introduced to both health care and workplace settings as well (Hartfiel et al., 2012).

**Positive psychology.** The PP approach highlights that negative events have higher impact on us, than positive ones, and we therefore give more attention to negative things than to positive things which, seen from an evolutionary perspective, has been important for our survival. Although, even though our brains are wired to react more sensitively to negative life events, the PP approach suggests that we are able to change, because the brain is plastic and built to change based on the experiences we give it. Thus, even though the brain is programmed to react better to negative things, we can teach our brains to become more skilled and sensitive to, for instance, positive emotions and positive thoughts. This is an assumption that most methods of change rely upon, that including Positive Psychology Interventions (PPI) as well (Seligman et al., 2005).

PPIs are interventions of practices aiming to make people lastingly happier (Seligman et al., 2005) and treatment methods or intentional activities aimed at cultivating positive feelings, positive behaviors, or positive cognitions (Sin & Lyubomirsky, 2009) meant to increase psychological well-being (Seligman et al., 2005). There are different examples of PPIs, to name a few: writing gratitude letters, practicing optimistic thinking and replaying positive experiences (Sin & Lyubomirsky, 2009). Some of the PPIs are gratefulness oriented interventions where practitioners are instructed to particularly focus on what they are grateful for in life. Examples of such PPIs are "Three good things" carried out by Seligman et al. (2005) and an intervention

where participants were instructed to consciously focus on blessings, carried out by Emmons and McCullough (2003).

Previous research on the psychological effects of PPIs shows promising results on both ill-being and well-being. A meta-analysis from 2009 by Sin and Lyubomirsky on 51 different PPIs' effects on well-being and depressive symptoms revealed that PPIs significantly enhanced well-being and decreased depressive symptoms, with medium effects sizes. The authors argue that this indicates that not only do PPIs work but they work well, which they suggest should encourage clinicians to incorporate positive psychology techniques into their clinical work in order to improve well-being.

Findings from previous research on gratitude focused PPIs show promising results as well. Seligman et al. (2005) evaluated the benefits of the PPI called "Three good things" on a sample of 577 adults. The results showed that this practice significantly increased happiness and decreased depressive symptoms for six months (Seligman et al., 2005). Emmons and McCullough (2003) examined the effects of a grateful outlook on life on psychological well-being and found that a conscious focus on blessings may have emotional and interpersonal benefits. These benefits were shown as higher levels of positive affect, more gratitude, and more likeliness to report having offered somebody emotional support or help, as well as improved amount and quality of sleep (Emmons & McCullough, 2003).

Another study by Lyubomirsky et al. (2006) showed that participants who processed a negative experience through writing or talking about it reported improved life satisfaction and enhanced mental and physical health, compared to those who only thought quietly about it. Meanwhile, participants who processed their happiest moments through writing reported reduced well-being and physical health, compared to those who replayed these moments by thinking about them. The authors argue that this finding suggest that writing may be a process that organizes our thoughts in order to solve problems. They claim that this could be useful when directed at distressing life events, but may thus be destructive when applied to happy times. Accordingly, they argue that reviewing a happy event by thinking quietly about it in this way contributes to a person's overall well-being (Lyubomirsky et al., 2006).

Based on the empirical support that gratitude focused PPIs help to increase well-being, this study adapts the use of them as a way of improving psychological health. In line with the PP approach this study defines gratitude focused PPIs as practices of consciously turning awareness

and focus to something that one is grateful for in life.

**Yoga.** The practice of yoga is a holistic approach, originating from India (Ronghua & Xia, 2015), that typically involves physical activity, breathing exercises, relaxation techniques and meditation practices (Hartfiel et al., 2012). The definition of yoga is originally based upon Patanjali's definitions of the eight limbs of yoga (Jayadeva, Yogendra & Hansaji, 2011). One of these includes the so called "asanas", which are known in the western world as series of physical postures building strength, flexibility, and balance in the body. Another one includes the so called "pranayama", which is known as a deep and conscious way of breathing in order to coordinate the asanas (Amin & Goodman, 2014).

An important aspect of the practice of yoga, compared to other types of physical exercise, is that yoga is practiced with a focused attention to the present moment and attention is paid to one's bodily sensations, thoughts and feelings as they are changing over time throughout the practice. When performing yoga postures mindfulness is an essential part of the practice, which may explain why yoga has been called "meditation in motion" (Harkess et al., 2017).

When yoga has been compared to other types of physical activities it has been shown to provide health effects that extend beyond the physical benefits provided by regular types of physical workout, like for instance running (Harkess et al., 2017). Previous research on the psychological effects of yoga show promising results on both ill-being and well-being and has therefore lately been increasingly used in clinical settings for several different health issues, in particular issues related to stress (Riley & Park, 2015). A study by Li and Goldsmith (2012) reviewed 35 published articles on the effect of yoga on stress, and found that 25 of the 35 articles reported a significant reduction in stress after a yoga intervention (Li & Goldsmith, 2012). A study from Sweden compared a stress management program based on cognitive behavioral therapy principles to a 10 session yoga program and found that both the methods worked equally well for managing and decreasing stress (Granath et al., 2006). In line with this, several studies have shown results suggesting that yoga is beneficial for reducing stress (Lona et al., 2016; Ronghua & Xia, 2015; Köhn et al., 2013; Gard et al., 2012; Hewett et al., 2011).

Above reducing stress, research provides evidence that yoga has further positive effects on psychological health as well. Another Swedish study showed that a five week physical practice based program in yoga, mindfulness and psychoeducational training, called YOMI, resulted in decreased stress and worry, as well as in increased mindfulness (Hylander et al.,

2017). A study performed on young adults found that participation in a yoga-based program significantly predicted increases in quality of life and level of mindfulness, which the authors of the study suggest are indicators of the cultivation of subjective well-being (Gard et al., 2012). A study on 120 nurses receiving an 8 weeks yoga program found that yoga improved their sleep quality (Ronghua & Xia, 2015), and a study on patients in primary health care showed significant decreases in anxiety after receiving 12 weeks of yoga based treatment (Köhn et al., 2013).

Studies evaluating the effects of yoga performed within the work place setting accordingly provide promising evidence for improving psychological health as well. Findings suggest that yoga practiced in the work place show positive effects such as significant reduction in work-related stress and significant enhancement of stress adaptation (Lin et al., 2015). In addition, effects such as significant reductions in back pain and improved psychological well-being have also been found when assessing yoga practice at the workplace (Hartfiel et al., 2012).

Although there are several studies evaluating the psychological health effects of yoga, most of the studies are performed on rather time and money consuming ways of delivery, where the yoga practice normally is carried out during a time span from 8 to 12 weeks with each yoga session lasting for not less than an hour. As previously mentioned few studies have tested short yoga interventions, even though it has been argued that a common hindrance of not taking time to commit to stress-reducing practices are often time restrictions due to work and family life (Melville, Chang, Colagiuri, Marshall, & Cheema, 2012). However, a study that examined the effects of a 15 minutes yoga practice carried out seated in the office workspace, showed a significant decrease in stress immediately after the practice. In addition, the same study found that 15 minutes of audio file guided meditation practice in the office workspace gave the same results (Melville et al., 2012).

The effects of internet based psychotherapeutic interventions have been reviewed by Hanley and Reynolds (2009) who found that internet based psychotherapeutic interventions demonstrated no difference in effectiveness when compared with face-to-face interventions. A recent study published by Strid, Andersson, Forsell, Öjehagen, and Lundh (2016) on a sample of 879 participants showed results in line with this. Their findings suggested that internet based psychotherapy, as well as physical work out, gave similar effects on stress as well as better effects on psychological functioning and sleep disturbances than what treatment as usual delivered by the primary care did. Accordingly, Strid et al. (2016) argue that internet based



psychotherapy and physical work out can be effective in treating psychological ill-being and thus should be considered as a useful compliment or alternative to traditional treatment in the future.

Based on these findings it may seem surprising that few studies have been performed on internet based methods of delivering yoga. One exception is a study which evaluated two mind-body interventions aimed for workplace stress reduction, of which one was yoga based and the other one was mindfulness based. In addition, different ways of delivery of the mindfulness based intervention were examined: comparing internet based delivery with face-to-face delivery. The results showed that both interventions showed significantly decreased stress and improved sleep quality. In addition, the two delivery methods of the mindfulness program showed similar results. This demonstrates the effectiveness of integrating mind-body stress management programs into the workplace in highly accessible ways that require relatively short time duration. The authors of the study argue that it is essential to find ways to manage stress at the workplace in ways that are effective, practical and easy to implement (Wolever et al., 2012).

Based on the empirical support provided, this study will adapt principles of yoga practice. There are different types of yoga approaches, but since the main focus of yoga in the western world today is on the physical practice, the definition of yoga used in this study will follow the one called “hatha” yoga. Hatha yoga includes all types of physical yoga practice which incorporates a combination of work on breath awareness with physical postures as well as meditation practice (Lona et al., 2016).

**Mindfulness.** Mindfulness is a concept linked to both positive psychology and yoga that has lately received growing attention within the field of research related to psychological health. Although the practice of mindfulness has been existing for centuries within Buddhist traditions, it is only during the last few decades that it has become a therapeutic intervention for treating psychological problems such as stress, worry, anxiety and depression and thus increasingly implemented into clinical settings in the western world (Keng et al., 2011). Several different methods springing from the practice have lately been developed and used in different therapies within the field of mental health care. Examples of such methods are: Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), Dialectical Behavior Therapy (DBT; Linehan, 1993) and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999).

There are numerous definitions of what mindfulness is. For instance, Kabat-Zinn (1990)

defines it as paying attention in a particular way: on purpose, in the present moment, and non-judgmentally. Kuyken et al. (2013) describe it as a practice for learning to direct attention to the present moment with open-minded curiosity and acceptance. Schenström (2007) highlights that our conscious attention can only be directed to one thing at a time and suggests that mindfulness practice is a continuous practice of choosing where to direct and retain one's attention at. Our thoughts often wander back and forth in time between future, past and present and by practicing mindfulness one practices directing them to the present moment (Schenström, 2007).

Mindfulness can be practiced in different ways: both formally, by performing mindfulness exercises carried out by the use of a guide, audio file or book, and informally by incorporating a mindful approach or outlook on everyday life situations. Common focuses for the practice is directing one's attention to the breath or to any of the senses. By paying attention to the breath or to what one may hear, taste, smell, see or feel one practices being present (Schenström, 2007). Kabat-Zinn (1990) describes the breath as a constant, reliable focus to which individuals can return when their attention is distracted. Accordingly, he argues that awareness of the breath cycle cultivates a sense of control and power over the mind. Mindfulness practice is not the same as simply relaxing. There are specific relaxation practices targeted at practicing relaxing *from* one's experience. In mindfulness practice one actively practices being present *in* and aware of one's experience, although the practice often entails relaxing effects (Linton & Flink, 2011).

There is growing evidence supporting that mindfulness is an effective method for cultivating well-being and mental health. One example is a study on the effects of a school-based mindfulness intervention on students that showed significant decreases in depressive symptoms and stress, as well as significant increases in well-being (Kuyken et al., 2013).

A meta study on the effects of Mindfulness Based Stress Reduction (MBSR) interventions showed that all the studies reviewed reported significant decreases in stress, suggesting that mindfulness training might enhance abilities to cope with stress (Grossman et al., 2004). In addition to studies examining the effects on subjectively perceived stress, studies have also been performed using neurological measures. A study by Davidson et al. (2003) on the effects on brain and immune function of an eight week mindfulness program measured brain electrical activity and found increases in left-sided anterior activation. This is a pattern that has been associated with reductions in anxiety and negative affect as well as with increases in positive affect (Davidson et al., 2003).

In contrast to the field of research on yoga, where internet based studies are lacking, there are several studies on the psychological effects of internet based mindfulness interventions. A meta-analysis investigating the effectiveness of online Mindfulness Based Interventions (MBIs) showed that online MBIs have the potential to improve several aspects of mental health, including depression, anxiety, well-being, mindfulness and particularly stress for which the largest effect sizes were found (Spijkerman et al., 2016). Several studies on mindfulness interventions delivered online show similar results of decreased stress, anxiety and depression, compared to those investigating mindfulness courses delivered in person, suggesting that mindfulness advantageously can be taught online (Boettcher et al., 2014; Krusche et al., 2013; Glück & Maercker, 2011).

Based on the empirical support provided, this study will adapt principles of mindfulness. In this study mindfulness is defined, in line with how Kabat-Zinn (1990) defines it, as paying attention in a particular way: on purpose, in the present moment, and non-judgmentally.

### **Study aim and hypotheses**

The aim of this study is to test the effectiveness of the intervention Boost & Balance online course, primarily on measures of ill-being and well-being and secondarily on measures of mindfulness. The aspects of ill-being and well-being are considered as primary outcomes since the main interest of this study is to explore if the Boost & Balance online course intervention can be useful for improving aspects of psychological health. Thus, the level of mindfulness is considered as a secondary outcome as a way of validating the intervention as being a mindfulness based intervention.

**Hypotheses.** Based on the theoretical base and previous research, expectations are that participation in the Boost & Balance online course will (1) reduce the subjective experience of psychological ill-being including stress, anxiety and depression, (2) increase the subjective experience of psychological well-being including life satisfaction and life quality and (3) enhance the subjective experience of mindfulness.

## **Method**

### **Participants**

The sample of participants analyzed in this study consisted of 120 individuals (68% were

women, 32 % were men and less than 1 % declared unspecified gender): 58 in the intervention group and 62 in the control group. The mean age was 44 years (intervention group:  $M = 44$ ,  $SD = 10$ , range = 24 – 65; control group:  $M = 43$ ,  $SD = 10$ , range = 20 – 64). The majority of the participants were well-educated with 38 % of all participants having studied at the university for 3 years or more. No significant differences were found between groups on demographic variables. Demographic data for the sample of participants in this study is presented in Table 1.

Table 1

*Demographic data of the participants*

Variable	Intervention group ( $n = 58$ )		Control group ( $n = 62$ )	
	Frequency	Percent	Frequency	Percent
<b>Gender</b>				
Female	38	66 %	43	69 %
Male	20	34 %	18	29 %
Other	0	0%	1	2 %
Age ( $M$ , $SD$ , range)	44, 10, 24 – 65		43, 10, 20 – 64	
<b>Highest education</b>				
Elementary school	0	0 %	1	2 %
High school degree	20	35 %	30	48 %
University education shorter than 3 years	9	15 %	8	13 %
University education of 3 years or more	25	43 %	20	32 %
Other degree	4	7 %	3	5 %

**Recruitment procedure.** All participants were employed at a corporate company in Sweden and approved by the company management. Recruitment of participants was carried out within the whole company during January 2017. Emails including information about the study and the offer to participate were sent out to all office workers within the company. The email briefly presented the contents of the course; dates and time span required (five minutes of daily practice on each weekday over a four-week period), aims of the study, information about the measures carried out and, that participation was voluntary, free of charge and supposed to be carried out on paid working hours. In addition, it was mentioned in the email that this course would be a part of a scientific study conducted as a part of a Master's Thesis by a senior clinical psychology student at Lund University.

**Exclusion and randomization.** A total of  $N = 191$  employees signed up to participate in the study. All applicants were accepted to participate in the intervention. The participants were randomly divided into two groups; either receiving the intervention (intervention group) or to a waiting-list condition (control group). A total of  $N = 154$  employees gave their written consent to the conditions of participation in the study and performed the first data collection (T1). A total of  $N = 121$  participants performed both data collections (T1 and T2) of which one participant was excluded due to not reporting a valid id-number. Thus, a final total of  $N = 120$  were included in the analysis. The recruitment, randomization and exclusion processes are illustrated in Figure 1.

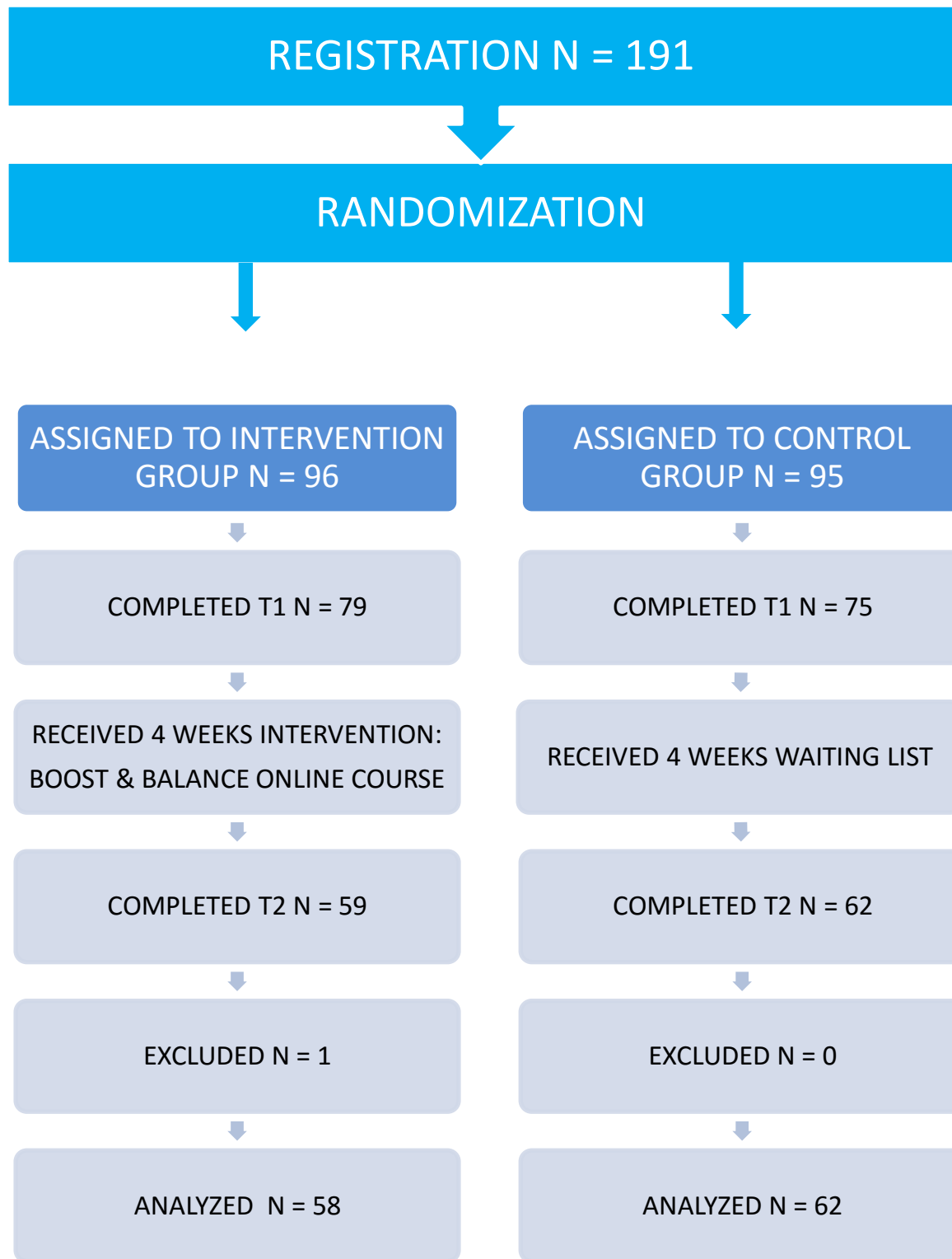


Figure 1. Flowchart of participants through each stage of the study.

## **The Boost & Balance online course**

The intervention tested in this study is called the *Boost & Balance online course*. This is a four-week internet based course in the practices of yoga, mindfulness and positive psychology designed for office workers experiencing stress. The course is based on psychological knowledge about well-being and stress, and is meant to provide participants with tools to handle stress in everyday life situations.

The course runs from Monday to Friday during four consecutive weeks, consisting of a total of 20 sessions; each requiring approximately five minutes of time per day, all delivered via email to each participant's email inbox at seven o'clock each weekday morning. No emails are sent out on the weekends since this course is supposed to be carried out on working hours, preferably in the beginning of each working day at the office, seated in an office chair in front of a computer using computer and headphones.

The first course email contains an attached course guide that is recommended to read before starting the course. Above this, all of the subsequent course emails share the same structure, containing the following:

- A short course **text** introducing the theme of the day. There are five different themes in the course; *breath* on Mondays, *senses* on Tuesdays, *body* on Wednesdays, *thoughts* on Thursdays and *feelings* on Fridays. The course themes are based on psychological knowledge from CBT (Cognitive Behavioral Therapy), ACT (Acceptance and Commitment Therapy) and PP (Positive Psychology) perspectives about how thoughts, emotions, body sensations and behaviors are interrelated and influence each other in human beings. The course texts offer daily bits of psychoeducation on these themes, providing participants to create a bank of knowledge on how stress and well-being works.
- **Photos** illustrating how the yoga position/positions of the day will be carried out.
- A five-minute-long **audio file** to listen and follow guided instructions to. There are five different audio files in the course, one for each weekday and theme, with exercises in positive psychology as well as yoga and mindfulness related to the themes. The audio files share the same structure, containing the following:
  - 30 seconds of *grounding* of the seated position (e.g.: guidance to sit with a straight back, relaxed shoulders, closed eyes and taking deep breaths through the nose).
  - two minutes of seated, beginner-friendly, *yoga* practice that varies each day

according to the day's theme (e.g.: a sitting spinal twist on Wednesdays, turning the upper body around looking behind, by using the breath to deepen the twist, turning the shoulders but grounding the sit bones into the office chair).

- one minute of *mindfulness check in* exercise to check in with oneself and turn one's awareness to what is going on in the here and now (e.g.: paying attention to how the breath is, how the body feels, what kind of thoughts that are present and what kind of emotions that are being experienced in the present moment).
- one minute of *mindfulness practice* exercise that varies each day according to the day's theme (e.g.: a body scan meditation on Wednesdays, exploring subtle body sensations throughout one's body, such as temperatures, tensions and the contact with the office chair).
- 30 seconds of *gratefulness* exercise as a practice of positive psychology (e.g.: guidance to direct one's attention to something that one is grateful for right now).

Throughout the course, the participants are repeatedly told only to do the exercises that they feel comfortable with doing. If they experience any exercise or movement as uncomfortable they are advised to skip that exercise. In addition, participants are also encouraged to try to be patient and kind to themselves throughout the course, since the practices can be difficult to grasp when new to execute. Participants are encouraged to use the course guide whenever they feel confused as well as contact the instructor over email whenever they have questions regarding the course. For more detailed information of the content of the Boost & Balance online course, see Appendix A illustrating the content of each daily course email, Appendix B displaying the first course email as well as Appendix C presenting the course guide.

## **Design and procedure**

This is a randomized controlled trial evaluating the effects of the Boost & Balance online course on different aspects of psychological health. The Boost & Balance online course was created by the author of this thesis. At the time of writing the thesis, the author was a senior clinical psychology student and a certified yoga instructor as well as a certified mindfulness instructor with personal experience of performing as well as teaching in both mindfulness and yoga practices.

Participants from the intervention group were assigned to receive the intervention during March 2017 and participants from the control group were assigned to receive a waitlist condition



during the same period, and the intervention during April 2017. The participants were informed that the intervention was held at different periods for different groups of participants, however the control group was not aware that they would function as a control group between T1 and T2.

A week before the start of the first round of the course, all participants received an email with an individual participation number and a digital link to T1, including a form for the participants to give their written consent to the conditions of participation. The intervention was conducted during the following four weeks (a total of 20 sessions, of five minutes each weekday for four weeks). It was all carried out online, delivered via email to each participant at seven o'clock each weekday morning. In addition, every Friday the email included a digital link to a form where participants were asked to report how many of the exercises they had performed during the past week.

Following the first round of the course, all participants received an email with a digital link to T2. After the completion of T2, the control group was given the same intervention as the experiment group, and was followed up with a third post measure after they had completed their round of the course, but which could not be analyzed in this study due to time limitations.

## **Variables and measures**

### **Primary outcomes.**

*Psychological ill-being.* In this study psychological ill-being was operationalized by measures of subjectively perceived stress, anxiety and depression.

*DASS.* The Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995) was used to measure psychological illness. In this study the Swedish translation (Paulsdottir & Åkerlund, 2011) of the short version was used. This is a 21-item self-report measure that consists of 21 statements assessing depression, anxiety and stress in the past week. The measure is using a Likert scale from 1 (does not describe me at all) to 4 (describes me very much, or most of the time). Examples of statements are: "I found it hard to relax" and "I had a tendency to overreact" (examples of item measuring stress), "I felt scared without any particular reason" and "I felt shaky, e.g. the legs would give way beneath me" (examples of item measuring anxiety), and "I could not experience any positive feelings at all" and "I felt worthless as a person" (examples of item measuring depression).

Henry and Crawford (2005) tested the measure on a British population and found that it had an adequate construct validity and good reliability with Cronbach's alpha at .93 for the

overall dimension, .90 for the stress, .82 for anxiety and .88 for depression (Henry & Crawford, 2005). In this study Cronbach's alpha was .90 (T1) and .91(T2) for the overall dimension, .85 (T1) and .84 (T2) for stress, .65 (T1) and .66 (T2) for anxiety and .89 (T1) and .92 (T2) for depression.

***Psychological well-being.*** In this study psychological well-being was operationalized by measures of subjectively perceived life quality and life satisfaction.

***BBQ.*** The Brunnsviken Brief Quality of Life (BBQ; Lindner et al., 2016) was used to measure psychological well-being as quality of life. This is a 12-item self-report measure that consists of 12 statements in six different areas of life: Leisure time, View on life, Creativity, Learning, Friends and friendship, and Myself as a person. Each life area consists of two item, one estimating how satisfied the respondent is with the life area and the other one estimating how important this area of life is considered to be. The measure is using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Examples of statements are: “I am satisfied with my leisure time. I have an opportunity to do what I want in order to relax and enjoy myself” (example of item estimating how satisfied the respondent is with the life area Leisure time) and “My leisure time is important for my quality of life” (example of item estimating how important the life area Leisure time is considered to be).

Frykheden (2014) tested the measure on Swedish university students and found that it had a good validity, excellent test-retest reliability of .89 and relatively high internal consistency with a Cronbach's alpha of .68. In this study Cronbach's alpha was .75 (T1) and .83(T2).

***SWLS.*** The Satisfaction With Life Scale (SWLS; Diener et al., 1985) was used to measure psychological well-being as satisfaction with life. This is a five-item self-report measure that consists of five short statements that measure the individual's own perception of their general satisfaction with life. The test is using a Likert scale from 1 (strongly disagree) to 7 (agree). Examples of statements are: “In most ways my life is close to my ideal” and “So far I have gotten the important things I want in life”.

The SWLS is shown to have favorable psychometric properties, including high internal consistency and high temporal reliability. Scores on the SWLS correlate moderately to highly with other measures of subjective well-being, and correlate predictably with specified personality characteristics (Diener et al., 1985). Diener et al. (1985) reported a Cronbach's alpha of .87 for the scale. In this study Cronbach's alpha was .85 (T1) and .89 (T2).

## **Secondary outcome.**

**Mindfulness.** In this study aspects of mindfulness were measured both as a global measure of mindfulness and as measures of different sub scale facets of mindfulness.

**FFMQ.** The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008) was used to measure different aspects of mindfulness, using the Swedish translation (Lilja et al., 2011) of the short version. This is a 29-item self-report measure that consists of 29 statements designed to measure five distinct facets of mindfulness: Observing, Describing, Acting with awareness, Non-judging of inner experience and Non-reactivity to inner experience. The test is using a Likert scale from 1 (never or very rarely true) to 5 (very often or always true). Examples of statements are: “When I’m walking, I deliberately notice the sensations of my body moving” (examples of item included in the Observing scale, to measure the extent to which the respondent notices internal or external experiences, including sensations, cognitions and emotions), “I am good at finding words to describe my feelings” (examples of item included in the Describing scale, to measure how well the respondents can label their internal experience with words), “I find myself doing things without paying attention” (examples of item included in the Acting with awareness scale, to measure how the respondents attend to their activities at each given moment), “I tell myself that I shouldn’t be thinking the way I’m thinking” (examples of item included in the Non-judging of inner experience scale, to measure the extent to which the respondent is being non-evaluative towards one’s experienced thoughts and feelings) and “When I have distressing thoughts or images I am able just to notice them without reacting” (examples of item included in the Non-reactivity to inner experience scale, to measure the tendency to let one’s thoughts and feelings sail by without reacting to them or getting caught up in them).

Baer et al. (2008) have evaluated the test and found that it has good validity and good internal consistency with Cronbach's alpha ranging from .72 to .92 (Baer, 2006; Baer et al., 2008). Alphas obtained in the Swedish 29-item version were: Observe .75, Describe .85, Act with awareness .82, Non-judge .82, Non-reactivity .75 (Lilja et al., 2011). In this study Cronbach's alpha was: global scale .87 (T1) and .89 (T2), Observe .77 (T1) and .84 (T2), Describe .86 (T1) and .88 (T2), Act with awareness .88 (T1) and .84 (T2), Non-judge .82 (T1) and .89 (T2) and Non-reactivity .75 (T1) and .83 (T2).

## **Ethical considerations**

To ensure ethical considerations for the participants in this study a local ethical committee

at the Department of Psychology at Lund University approved to the following; before participation in the study all participants were informed about the purpose and the content of the study, the time span and time required for the participation, the confidentiality of the data and that participation was voluntary, free of charge and that participants could withdraw from the study at any point without giving explanations. All participants gave their written consent to these conditions before participating in the study.

Regarding the confidentiality of the participants, individual participation numbers were created and were used throughout all the collection of data. The participants' names could therefore not be directly connected to the any of the data collected throughout the course. The collection of data was carried out through a web-based program (Sunet Survey) administrated by Lund University. The list of participants' names and individual participation numbers was kept in a locked cabinet at the Department of Psychology at Lund University throughout the study and was only accessible to the study conductor. It was shredded after the completion of the study.

The risks for physical injuries or psychiatric illness due to the intervention were considered as low. Accordingly, participants were told to only perform the exercises that they felt comfortable performing and were encouraged to email the study conductor anytime questions regarding the course arose. In addition, half way through the course, the study conductor visited the workplace in order to answer questions and meet the participants' reflections in person.

### **Statistical analyses**

The Statistical Package of Social Sciences (SPSS) version 23 was used to analyze data. To investigate the effects of the intervention on measures of psychological ill-being, psychological well-being and aspects of mindfulness the following analyses were carried out.

To compare the scores of intervention group and control group, while controlling for pre test scores, analyses of covariance (ANCOVA) were conducted. In order to evaluate the differences between pre and post test scores, two-tailed paired samples *t*-tests were performed on all measures. In addition, to investigate mean differences between the two groups prior to the start of the intervention, *t*-tests for independent samples were performed on all pre test scores.

As measures of effect size, Partial Eta Squared (partial  $\eta^2$ ) was used to determine effect sizes for the ANCOVAs and Cohen's *d* was used to determine effect sizes for the *t*-tests. In accordance with guidelines by Cohen (1988), Partial Eta Squared values of .01 were interpreted as representing a small effect size, .06 a medium effect size and .14 a large effect size. Cohen's *d*

values were calculated separately, and interpreted as 0.2 representing a small effect size, 0.5 a medium effect size and 0.8 a large effect size (Cohen, 1988).

**Preliminary analyses.** Preliminary data checks were performed in order to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, and homogeneity of regression slopes and reliable measurements of covariates. When testing for homogeneity of variance, a Levene's test carried out for DASS depression showed  $p = .02$ . However, according to Howell (2010), because the largest variance was no more than four times the smallest, the analysis is most likely to be valid even then.

## Results

### Randomization check

A  $t$ -test for independent samples revealed no significant differences between the intervention group and control group on pre test scores of any of the variables measured in this study. This suggests that the control group and the intervention group were not significantly different and that the randomization process thus was successful.

### Attrition analysis

The attrition analysis was made in two steps. In the first step the attrition between pre and post measures for all participants was analyzed. Out of the 154 participants who completed T1, 33 participants failed to complete T2, due to unknown reason. When analyzing this attrition by using  $t$ -tests for independent samples no significant differences between the participants completing both measures and the participants not completing both measures were found. This suggests that the attrition between pre and post measures was not systematic.

In the second step the attrition within the intervention group was analyzed. Out of the 58 participants in the intervention group who completed both T1 and T2, 9 participants reported that they had failed to perform any of the intervention's exercises. When analyzing this attrition by using  $t$ -tests for independent samples significant differences were found, showing that participants from the intervention group who did not perform any of the intervention's exercises reported significantly lower stress compared to the rest of the intervention group,  $t(26, 8) = 2.11$ ,  $p = .04$  at T1 (the 9 participants:  $M = 11.00$ ,  $SD = 2.21$ , the rest of the intervention group:  $M = 13.00$ ,  $SD = 4.48$ ). However, at T2, the 9 participants who had not performed any of the

intervention's exercises reported higher stress ( $M = 13.00$ ,  $SD = 4.48$ ) than the rest of the intervention group ( $M = 11.20$ ,  $SD = 3.33$ ). Therefore, two analyses were carried out in this study; one including the whole intervention group ( $n = 58$ ) and one including a subsample of the intervention group where the 9 participants who failed to perform any of the intervention's exercises were excluded ( $n = 49$ ).

### **Intervention effects on psychological ill-being**

After adjusting for pre test scores, using a one-way ANCOVA, tendencies towards significant differences were found between the intervention group and the control group on post test scores for stress,  $F(1, 117) = 3.11$ ,  $p = .08$ , partial  $\eta^2 = .03$ , but not for anxiety,  $F(1, 117) = .69$ ,  $p = .41$ , partial  $\eta^2 = .01$ , nor depression  $F(1, 117) = .45$ ,  $p = .50$ , partial  $\eta^2 = .00$ . When the 9 participants from the intervention group who failed to perform any of the intervention's exercises were excluded from the analysis, significant differences were found between the intervention group and the control group on post test scores for stress,  $F(1, 108) = 5.42$ ,  $p = .02$ , partial  $\eta^2 = .05$ , but not for anxiety,  $F(1, 108) = .55$ ,  $p = .46$ , partial  $\eta^2 = .01$ , nor depression  $F(1, 108) = .37$ ,  $p = .54$ , partial  $\eta^2 = .00$ . The results indicate that the Boost & Balance online course contributes to decreased levels of perceived stress with a small effect size, however not to decreased levels of perceived anxiety and depression.

When assessing changes within the whole intervention group and the control group, a two-tailed paired samples  $t$ -test showed significant changes for the intervention group on scores for stress,  $t(57) = 3.07$ ,  $p < .001$ ,  $d = .41$ , and for depression,  $t(57) = 2.41$ ,  $p = .02$ ,  $d = .32$ , as well as for anxiety,  $t(57) = 2.40$ ,  $p = .02$ ,  $d = .32$ . Cohen's  $d$  for all measures indicated small effect sizes. No significant within-groups changes were found for the control group. When the 9 participants from the intervention group who failed to perform any of the intervention's exercises were excluded the two-tailed paired samples  $t$ -test accordingly showed significant changes for the intervention group on scores for stress,  $t(48) = 3.70$ ,  $p < .001$ ,  $d = .53$ , and for depression,  $t(48) = 2.21$ ,  $p = .03$ ,  $d = .32$ , as well as tendencies towards significance for anxiety,  $t(48) = 1.87$ ,  $p = .07$ ,  $d = .27$ . Cohen's  $d$  (.53) indicated a medium effect size for the significant decrease in level of perceived stress for the intervention group. No significant within-groups changes were found for the control group.

Results are presented in Table 2 and 3, and illustrations of changes between the pre and post intervention mean scores for all groups are shown in Figure 2.

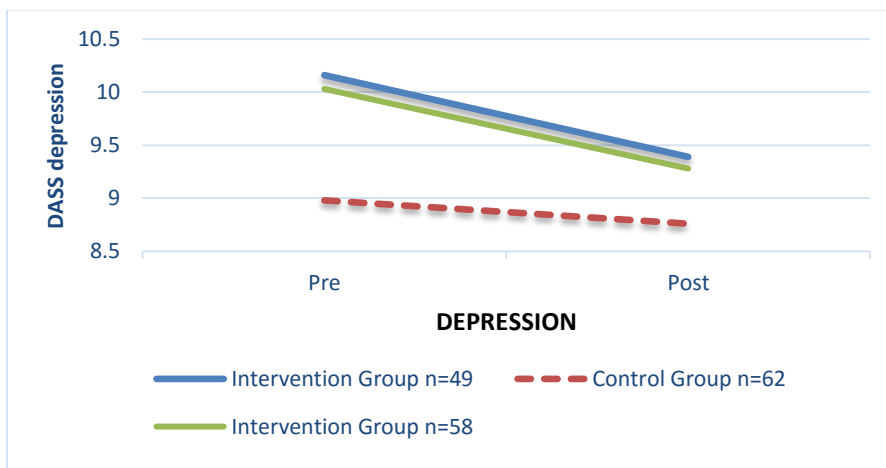
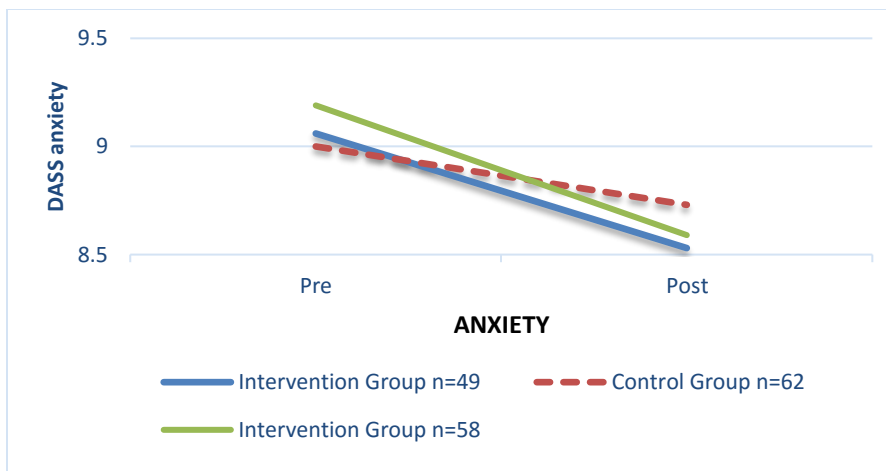
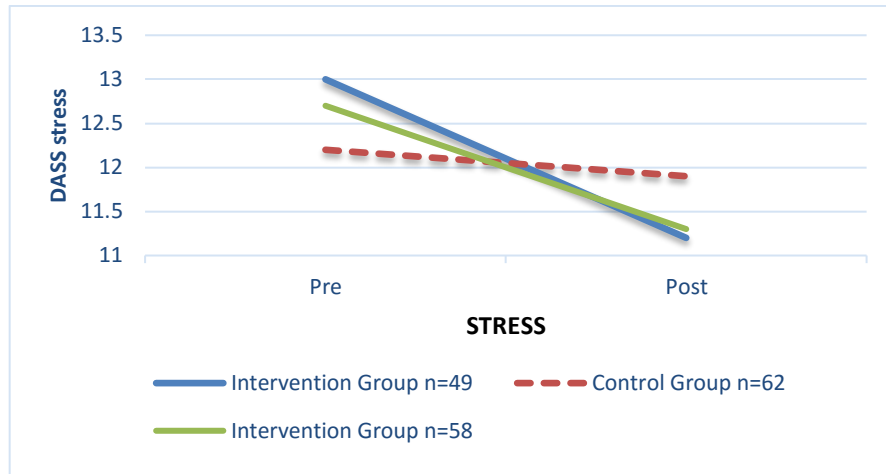


Figure 2. Changes in scores from pre to post intervention for intervention group ( $n = 49$ ; solid blue lines,  $n = 58$ ; solid green lines) and control group ( $n = 62$ ; dotted red lines) for all psychological ill-being measures. DASS = Depression Anxiety Stress Scales.

### **Intervention effects on psychological well-being**

After adjusting for pre test scores, using a one-way ANCOVA, significant differences were found between the whole intervention group and the control group on post test scores for life quality,  $F(1, 117) = 6.07, p = .02$ , partial  $\eta^2 = .05$ , but not for life satisfaction,  $F(1, 117) = 1.95, p = .17$ , partial  $\eta^2 = .02$ . When the 9 participants from the intervention group who failed to perform any of the intervention's exercises were excluded from the analysis significant differences were accordingly found between the intervention group and the control group on post test scores for life quality,  $F(1, 108) = 4.10, p < .05$ , partial  $\eta^2 = .04$ , but not for life satisfaction,  $F(1, 108) = 1.02, p = .32$ , partial  $\eta^2 = .01$ . The results indicate that the Boost & Balance online course contributes significantly to increased levels of perceived life quality with a small effect size, however not to increased levels of life satisfaction.

When assessing changes within groups a two-tailed paired samples *t*-test also showed significant changes for the whole intervention group on scores for life quality,  $t(57) = -2.24, p = .03, d = -.30$ , but not for life satisfaction,  $t(57) = -1.11, p = .27, d = -.15$ . Cohen's *d* ( $-.30$ ) indicated a small effect size for the significant increase in levels of perceived life quality for the intervention group. No significant within-groups changes were found for the control group. When the 9 participants from the intervention group who failed to perform any of the intervention's exercises were excluded the two-tailed paired samples *t*-test showed marginally significant changes for the intervention group on scores for life quality,  $t(48) = -1.82, p = .08, d = -.26$ , as well as no significant changes for life satisfaction,  $t(48) = -.73, p = .47, d = -.11$ . Cohen's *d* ( $-.26$ ) indicated a small effect size for the marginally significant increase in levels of perceived life quality for the intervention group.

Results are presented in Table 2 and 3, and illustrations of changes between the pre and post intervention mean scores for all groups are shown in Figure 3.



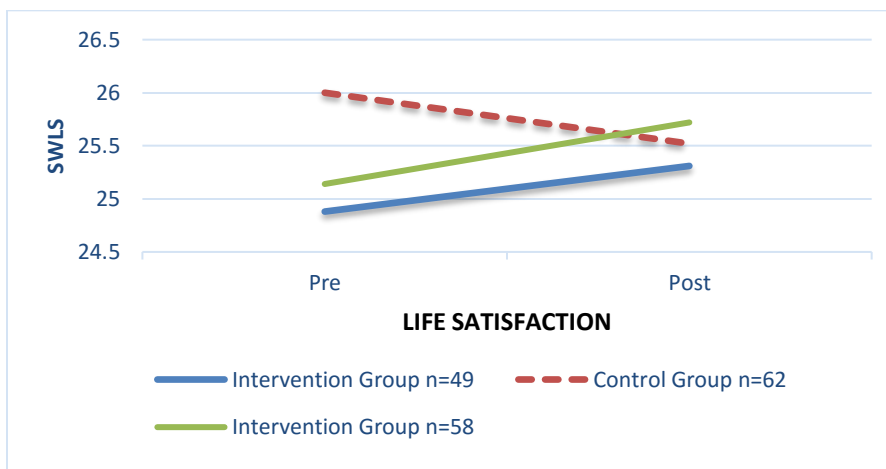
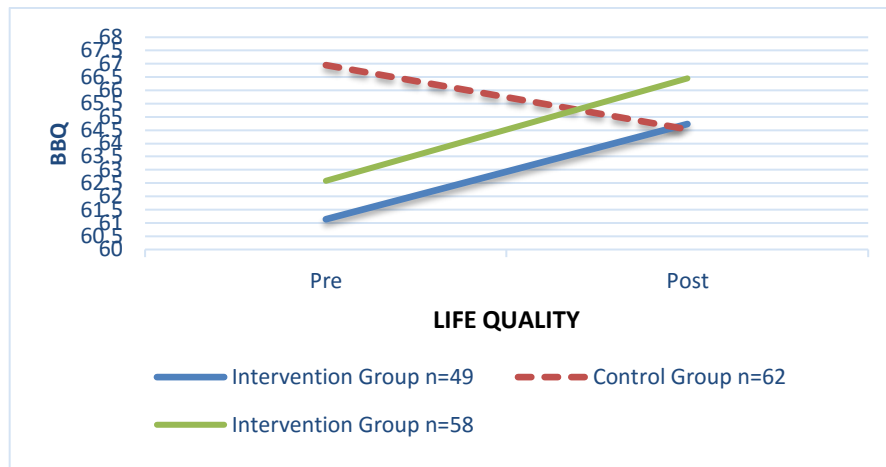


Figure 3. Changes in scores from pre to post intervention for intervention group ( $n = 49$ ; solid blue lines,  $n = 58$ ; solid green lines) and control group ( $n = 62$ ; dotted red lines) for both psychological well-being measures. BBQ = Brunsviken Brief Quality of Life; SWLS = Satisfaction With Life Scale.

### Intervention effects on mindfulness

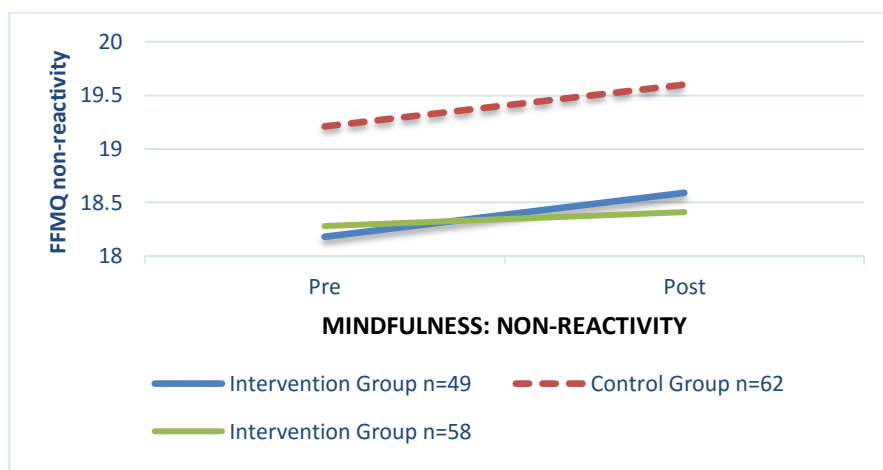
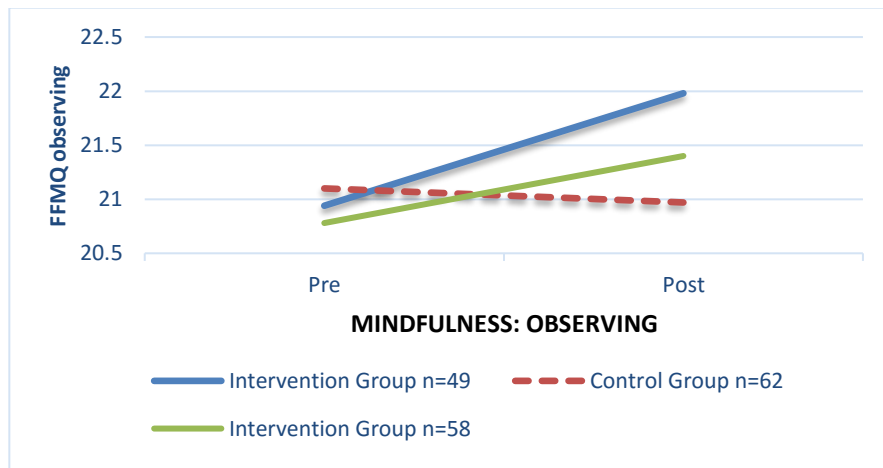
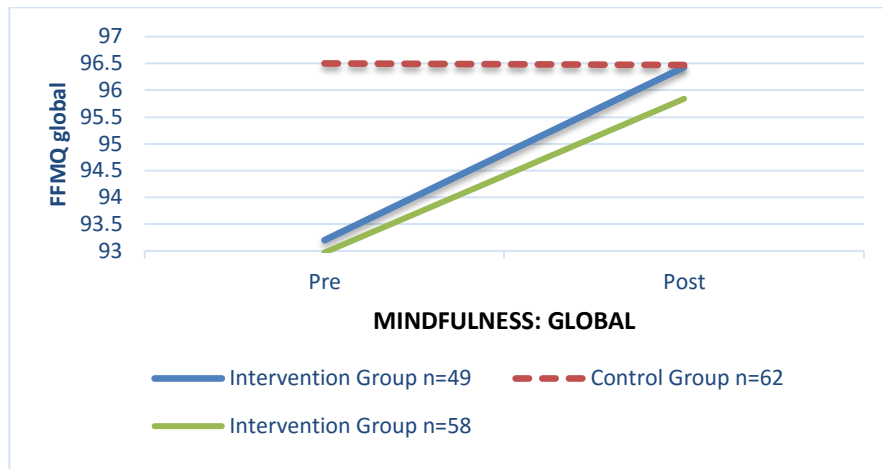
After adjusting for pre test scores, using a one-way ANCOVA, tendencies towards significant differences were found between the whole intervention group and the control group on post test scores for a global measure of mindfulness,  $F(1, 117) = 3.00, p = .09$ , partial  $\eta^2 = .03$ , but not for the mindfulness facets: Non-reactivity,  $F(1, 117) = .77, p = .38$ , partial  $\eta^2 = .01$ , Observing,  $F(1, 117) = 1.01, p = .32$ , partial  $\eta^2 = .01$ , Acting with awareness,  $F(1, 117) = 1.43, p = .23$ , partial  $\eta^2 = .01$ , Describing,  $F(1, 117) = 1.71, p = .19$ , partial  $\eta^2 = .01$ , or Non-judging,

$F(1, 117) = 2.66, p = .11, \text{partial } \eta^2 = .02$ . When the 9 participants from the intervention group who failed to perform any of the intervention's exercises were excluded from the analysis significant differences were found between the intervention group and the control group on post test scores for a global measure of mindfulness,  $F(1, 108) = 3.99, p < .05, \text{partial } \eta^2 = .04$ , and marginally significant differences for the mindfulness facet Observing,  $F(1, 108) = 3.12, p = .08, \text{partial } \eta^2 = .03$ , but not for the mindfulness facets: Non-reactivity,  $F(1, 108) = .14, p = .71, \text{partial } \eta^2 = .00$ , Acting with awareness,  $F(1, 108) = 1.29, p = .26, \text{partial } \eta^2 = .01$ , Describing,  $F(1, 108) = .86, p = .36, \text{partial } \eta^2 = .01$ , or Non-judging,  $F(1, 108) = 1.51, p = .22, \text{partial } \eta^2 = .01$ . The results indicate that the Boost & Balance online course contributes to increased levels of global mindfulness with a small effect size, however not to increased levels of any of the mindfulness sub scale facets alone.

When assessing changes within groups a two-tailed paired samples *t*-test showed significant changes for the whole intervention group on scores for the global measure of mindfulness,  $t(57) = -2.53, p = .01, d = -.34$ , and for the mindfulness facet Acting with awareness,  $t(57) = -2.28, p = .03, d = -.30$ , as well as for the mindfulness facet Non-judging,  $t(57) = -3.19, p = .00, d = -.42$ , but not for the mindfulness facets: Observing,  $t(57) = -1.05, p = .30, d = -.14$ , Non-reactivity,  $t(57) = -.35, p = .73, d = -.05$ , and Describing,  $t(57) = -.48, p = .63, d = -.06$ . Cohen's *d* ( $-.34$ ) for the global measure of mindfulness and Cohen's *d* ( $-.30$ ) for the mindfulness facet Acting with awareness as well as Cohen's *d* ( $-.42$ ) for the mindfulness facet Non-judging indicated small effect sizes. No significant within-groups changes were found for the control group. When the 9 participants from the intervention group who failed to perform any of the interventions exercises were excluded the two-tailed paired samples *t*-test showed significant changes for the intervention group on scores for the global measure of mindfulness,  $t(48) = -2.75, p = .01, d = -.40$ , and for the mindfulness facet Non-judging,  $t(48) = -2.39, p = .02, d = -.34$ , and marginally significant differences for the mindfulness facets Observing,  $t(48) = -1.83, p = .07, d = -.26$ , and Acting with awareness,  $t(48) = -1.99, p = .05, d = -.29$ , but not for the mindfulness facets: Non-reactivity,  $t(48) = -.96, p = .34, d = -.14$ , and Describing,  $t(48) = -.05, p = .96, d = -.01$ . Cohen's *d* ( $-.40$ ) for the global measure of mindfulness as well as Cohen's *d* ( $-.34$ ) for the mindfulness facet Non-judging indicated small effect sizes. No significant within-groups changes were found for the control group.

Results are presented in Table 2 and 3, and illustrations of changes between the pre and

post intervention mean scores for all groups are shown in Figure 4.



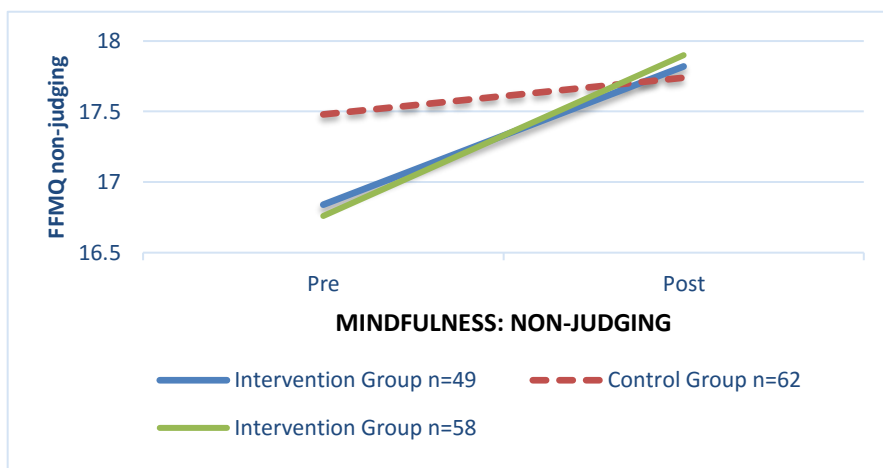
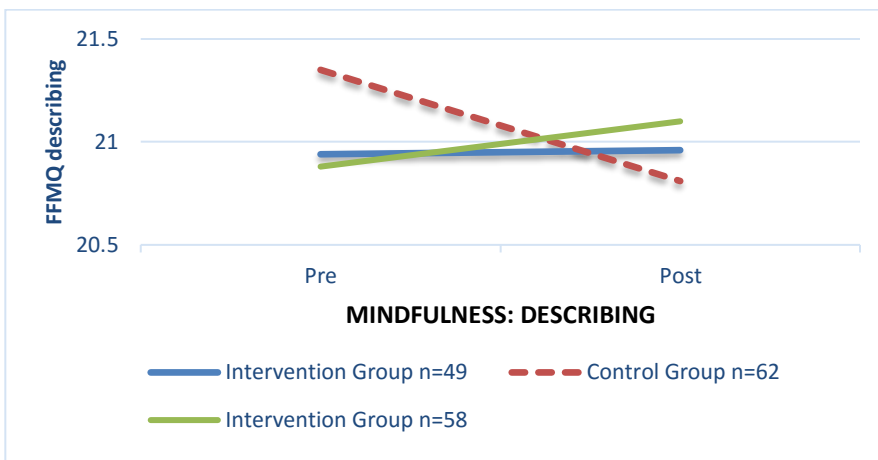
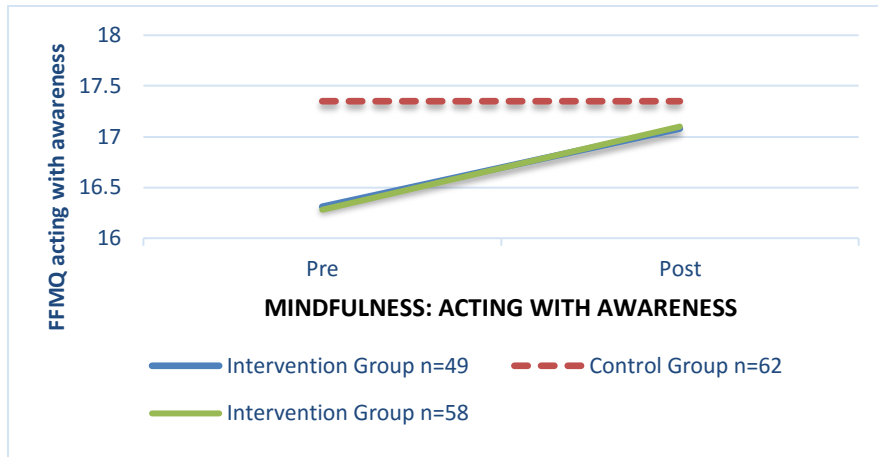


Figure 4. Changes in scores from pre to post intervention for intervention group ( $n = 49$ ; solid blue lines,  $n = 58$ ; solid green lines) and control group ( $n = 62$ ; dotted red lines) for all mindfulness measures. FFMQ = Five Facet Mindfulness Questionnaire.

Table 2

*Results from the analyses with all participants from the intervention group included*

Variable	Intervention group ( <i>n</i> = 58)				Control group ( <i>n</i> = 62)				ANCOVA	
	Pre	Post	<i>t</i>	<i>d</i>	Pre	Post	<i>t</i>	<i>d</i>	<i>F</i>	$\eta^2$
DASS stress	12.69 (4.27)	11.33 (3.30)	<b>3.07**</b>	.41	12.24 (3.74)	11.90 (3.73)	.98	.13	<b>3.11</b> *	.03
DASS anxiety	9.19 (2.32)	8.59 (1.80)	<b>2.40**</b>	.32	9.00 (2.26)	8.73 (2.15)	1.14	.15	.69	.01
DASS depression	10.03 (3.82)	9.28 (3.50)	<b>2.41**</b>	.32	8.98 (2.64)	8.76 (2.84)	.85	.11	.45	.00
BBQ	62.59 (17.13)	66.45 (19.74)	<b>-2.24**</b>	-.30	66.95 (18.72)	64.53 (17.45)	1.63	.21	<b>6.07</b> **	.05
SWLS	25.14 (5.55)	25.72 (6.04)	-1.11	-.15	26.00 (5.01)	25.52 (4.84)	1.18	.15	1.95	.02
FFMQ global	92.97 (11.49)	95.84 (13.13)	<b>-2.53**</b>	-.34	96.50 (14.91)	96.47 (15.12)	.04	.01	<b>3.00</b> *	.03
FFMQ non-react	18.28 (3.87)	18.41 (4.18)	-.35	-.05	19.21 (3.52)	19.60 (3.84)	-1.10	-.14	0.77	.01
FFMQ observing	20.78 (4.80)	21.40 (5.18)	-1.05	-.14	21.10 (5.15)	20.97 (5.32)	.33	.04	1.01	.01
FFMQ act w. awar.	16.28 (3.49)	17.07 (3.25)	<b>- 2.28**</b>	-.30	17.35 (4.04)	17.35 (3.66)	.00	.00	1.43	.01
FFMQ describing	20.88 (4.16)	21.07 (4.22)	-.48	-.06	21.35 (4.94)	20.81 (4.64)	1.62	.21	1.71	.01
FFMQ non-judging	16.76 (4.08)	17.90 (4.70)	<b>-3.19**</b>	-.42	17.48 (3.86)	17.74 (3.97)	-.78	-.10	2.66	.02

*Note.* Standard deviations are in parentheses. DASS = Depression Anxiety Stress Scales; BBQ = Brunnsvikien Brief Quality of Life; SWLS = Satisfaction With Life Scale; FFMQ = Five Facet Mindfulness Questionnaire.

\*  $p < .1$ , \*\*  $p < .05$ , \*\*\* $p < .001$

Table 3

*Results from the analyses with 9 participants from the intervention group excluded*

Variable	Intervention group ( <i>n</i> = 49)				Control group ( <i>n</i> = 62)				ANCOVA	
	Pre	Post	<i>t</i>	<i>d</i>	Pre	Post	<i>t</i>	<i>d</i>	<i>F</i>	$\eta^2$
DASS stress	13.00 (4.48)	11.20 (3.33)	<b>3.70***</b>	.53	12.24 (3.74)	11.90 (3.73)	.98	.13	<b>5.42</b> **	.05
DASS anxiety	9.06 (2.38)	8.53 (1.85)	<b>1.87*</b>	.27	9.00 (2.26)	8.73 (2.15)	1.14	.15	.55	.01
DASS depression	10.16 (4.00)	9.39 (3.68)	<b>2.21**</b>	.32	8.98 (2.64)	8.76 (2.84)	.85	.11	.37	.00
BBQ	61.14 (17.39)	64.73 (19.96)	<b>-1.82*</b>	-.26	66.95 (18.72)	64.53 (17.45)	1.63	.21	<b>4.10</b> **	.04
SWLS	24.88 (5.81)	25.31 (6.14)	-.73	-.11	26.00 (5.01)	25.52 (4.84)	1.18	.15	1.02	.01
FFMQ global	93.20 (11.87)	96.43 (13.56)	<b>-2.75**</b>	-.40	96.50 (14.91)	96.47 (15.12)	.04	.01	<b>3.99</b> **	.04
FFMQ non-react	18.18 (4.01)	18.59 (4.27)	-.96	-.14	19.21 (3.52)	19.60 (3.84)	-1.10	-.14	0.14	.00
FFMQ observing	20.94 (4.69)	21.98 (4.80)	<b>-1.83*</b>	-.26	21.10 (5.15)	20.97 (5.32)	.33	.04	<b>3.12</b> *	.03
FFMQ act w. awar.	16.31 (3.73)	17.08 (3.48)	<b>-1.99*</b>	-.29	17.35 (4.04)	17.35 (3.66)	.00	.00	1.29	.01
FFMQ describing	20.94 (4.38)	20.96 (4.37)	-.05	-.01	21.35 (4.94)	20.81 (4.64)	1.62	.21	.86	.01
FFMQ non-judging	16.84 (4.21)	17.82 (4.87)	<b>-2.39**</b>	-.34	17.48 (3.86)	17.74 (3.97)	-.78	-.10	1.51	.01

*Note.* Standard deviations are in parentheses. DASS = Depression Anxiety Stress Scales; BBQ = Brunnsvikien Brief Quality of Life; SWLS = Satisfaction With Life Scale; FFMQ = Five Facet Mindfulness Questionnaire.

\*  $p < .1$ , \*\*  $p < .05$ , \*\*\* $p < .001$

## Discussion

### Intervention effects on psychological health

This randomized controlled trial evaluated the effectiveness of the Boost & Balance online course on office workers' psychological health, seen as aspects of psychological ill-being and psychological well-being as well as level of mindfulness.

The results from the paired samples *t*-tests show several improvements within the whole intervention group ( $n = 58$ ) from pre to post measures, of which the changes in stress, anxiety, depression, life quality, global level of mindfulness as well as the mindfulness subscales Acting with awareness and Non-judging are statistically significant. Since no significant changes on any measures are found within the control group it can thereby be suggested that the Boost & Balance online course seems to effect several aspects of psychological health in positive ways.

When investigating the intervention effects of the Boost & Balance online course, using ANCOVAs to adjust for pre test scores, the results are promising as well. When including the whole intervention group ( $n = 58$ ) in the analysis the results show that the intervention has significant effects for life quality and tendencies towards significant effects for stress and global level of mindfulness. Moreover, when excluding the 9 participants from the intervention group who received the intervention but failed to perform any of the intervention's exercises (which they had agreed to perform when signing up to participate in the study) the results show that the intervention has significant effects for stress, life quality and global level of mindfulness as well. This indicates that participants who received *and performed* exercises of the Boost & Balance online course did experience several psychological health benefits such as significantly decreased stress, significantly increased life quality as well as significantly increased level of mindfulness.

The effects on each different aspects of psychological health examined in this study are discussed in more detail below. However, it may be relevant to mention straight away that the lack of significant results for some measures as well as the findings of small effect sizes only, may share mutual explanations. As referred to above, different levels of significance as well as different results were found depending on if the participants had been performing the intervention's exercises or not, however no distinctions regarding having performed a certain number of exercises were made. For instance, requiring participants to perform a certain number of the intervention's exercises in order to participate in the study may have led to even stronger results, since the analyses showed higher levels of significance when the 9 participants who

received all but failed to perform any the intervention's exercises were excluded.

Other possible reasons for lack of significance for some measures as well as the small effect sizes found may be related to the intervention's time span, length and duration, which is considerably briefer and shorter than similar interventions evaluated previously. Previous research has mostly been evaluating longer interventions than the current intervention. For instance, the well-established MBSR program that has shown positive results on psychological health requires participants to invest 30 hours of group treatment as well as daily individual mindfulness practice for 45 to 60 minutes each day during the program (Kabat-Zinn, 1990). The intervention evaluated in this study was restricted to as little as five minutes of daily practice during each weekday for four consecutive weeks. Considering this contrast, in the light of the argument put forward by previous research that brief interventions may not be efficient enough in order to produce effects (Lin et al., 2015), may offer an explanation to why significant changes in some outcomes were not found as well as that only small effect sizes were found.

Taken together, despite the small effect sizes found in this study, it can be interpreted as promising that this short and brief intervention show clear tendencies to reduction of stress as well as enhancement of life quality and level of mindfulness for all participants receiving the Boost & Balance online course. Furthermore, what is even more promising is that the Boost & Balance online course did produce a significant reduction of stress, a significant enhancement of life quality as well as a significant enhancement of level of mindfulness for all participants who received and performed any of the exercises of the intervention. Thus, it can be suggested that the Boost & Balance online course has positive effects on office workers' psychological health.

**Intervention effects on psychological ill-being.** The findings from this study indicated that the intervention can be useful for decreasing stress. However, it did not show to decrease anxiety and depression. Thus, hypothesis 1 was only partly supported.

The promising results regarding the decrease of stress are in line with what previous research has shown (Lona et al., 2016; Ronghua & Xia, 2015; Köhn et al., 2013; Gard et al., 2012; Hewett et al., 2011; Kuyken et al., 2013; Kabat-Zinn, 1982; Grossman et al., 2004; Boettcher et al., 2014; Krusche et al., 2013; Glück & Maercker, 2011), especially since the most robust findings for similar interventions have been found for stress (Spijkerman et al., 2016).

In contrast to previous research, that has shown promising effects of yoga and mindfulness interventions for anxiety and depression as well (Hylander et al., 2017; Köhn et al.,



2013; Spijkerman et al., 2016; Boettcher et al., 2014; Krusche et al., 2013; Glück & Maercker, 2011), this study does not show similar results.

Possible reasons for this may have to do with the differences in time span, length, duration and frequency of interventions compared, which has been discussed above.

Furthermore, this intervention was not tested on a clinical sample. Spijkerman et al. (2016) argue that healthy populations are likely to have lower baseline scores on psychological symptoms, such as depression and anxiety, which they suggest leaves less room for improvement compared to as for clinical populations. In other words, another explanation for the lack of significant changes for depression and anxiety may be attributed to such floor effects.

**Intervention effects on psychological well-being.** Based on the findings from this study it can be interpreted that the Boost & Balance online course intervention can be useful for increasing life quality. However, it did not show to increase life satisfaction and hypothesis 2 was thus only partly supported.

Some results are in line with previous research. The finding of increased life quality was expected since that is what previous research on similar treatment methods has been presenting as well (Gard et al., 2012). However, this finding should be considered with some caution, since the measure BBQ (The Brunnsvikien Brief Quality of Life) previously has reported a Cronbach's alpha of .68, which is lower than the recommended minimum level of a Cronbach's alpha at .7 (Pallant, 2010). Thus, it should be noted too, that the Cronbach's alpha for BBQ in this study was ranging between .75 (T1) and .83(T2), which could be considered as satisfactory (Pallant, 2010).

Furthermore, it is surprising that no significant effect was found for life satisfaction, since previous research has shown that measures of life satisfaction have been found to positively correlate with other measures of subjective well-being (Diener et al., 1985).

As mentioned above, possible reasons for the lack of significant changes may be that this intervention is briefer and shorter than similar interventions evaluated previously.

Another explanation for the lack of effect, may be the fact that peoples' perception of life satisfaction is difficult to influence and significantly change over time, since it is a concept that have shown to correlate predictably with personality characteristics (Diener et al., 1985).

Accordingly, it has been argued that people are characterized by baseline levels of happiness which are related to the individuals' personality traits (Diener & Diener, 1996; Lykken, 1999).

With that said a question worth considering when interpreting the results of this study is to what

degree psychological well-being really can be altered, and sustained over time, through short-term psychological interventions like the Boost & Balance online course.

**Intervention effects on mindfulness.** The results indicated that the intervention can be useful for increasing the global level of mindfulness by increasing some of the sub scale facets of mindfulness, which partly confirms hypothesis 3.

The finding of increase in mindfulness is in line with previous research (Hylander et al., 2017; Gard et al., 2012; Spijkerman et al., 2016). Although previous research has shown effects on most of the facets of mindfulness, it is not surprising that these effects were not found in this study. As discussed above, this was expected since the intervention evaluated in this study is shorter and briefer than similar interventions evaluated previously. However, the significant change in global measure of mindfulness found in this study is interpreted as a result that is constituted by the smaller changes of all the facets taken together as a whole.

Another possible explanation of why there were no significant changes for each of the facets of mindfulness may be in regard to adherence. It has been argued that adherence is especially relevant in mindfulness training, since its regular practice is essential for developing mindfulness skills (Spijkerman et al., 2016). Moreover, non-adherence has been shown to be a common issue in online psychological interventions which Spijkerman et al. (2016) argue may, in turn, diminish the effectiveness of the intervention. Since the current study evaluates an online intervention and has limited control of participants' level of adherence, the matter of non-adherence may be important to consider when interpreting the findings. Accordingly, this may serve as an explanation of why significant effects for the mindfulness sub scale facets were not found.

However, since level of mindfulness was considered as a secondary measure in this study the main focus was not on the facets of mindfulness but rather on the intervention's effects on the concept of mindfulness as a whole. Measuring the effects on mindfulness was a way of validating the intervention itself as being a functional way of practicing mindfulness, as it thus seems to be.

### **Strengths and limitations**

Interventions integrating yoga and mindfulness have lately received critique for their methodological limitations. Riley and Park (2015) suggest that future research on these intervention methods should include more rigorous methodology, that including for instance study randomization as well as appropriate control groups. Thus, a strength of this study lies in its

experimental design, which includes both pre measures and post measures, as well as both an intervention group and a control group that were created by a successful randomization procedure. However, a limitation regarding the methodological design might be the lack of an active control group, since the control group in this study was assigned to a wait-list-condition only. This may imply possible risks of placebo effects, which could have been solved by the use of active control group conditions. Although, identifying and operationalizing suitable active control group conditions may be problematic and yet imply risks for placebo effects as well. A few examples of control group conditions that have been carried out in previous research are: wait list control, movement control, passive video control, African dance as well as biology lecture (Riley & Park, 2015).

The sample of participants in this study included a wide range of ages (with ages ranging from 20 to 65 years) with participants represented from different locations in Sweden, with both genders represented, even though the majority of the participants were female. A limitation regarding the sample that may threaten the study's internal and statistical validity is the relatively high attrition rate (N=43). In order to assure that the results were likely to be valid even then, an attrition analysis was performed to investigate if the attrition was systematic or not. The results showed that the attrition between pre and post measures for all participants was not systematic.

However, the attrition within the intervention group between participants who did succeed versus fail to perform any of the intervention's exercises was systematic. The results showed that participants from the intervention group who had not performed any of the intervention's exercises, reported significantly lower stress compared to the rest of the intervention group at T1 as well as higher stress at T2. This may suggest that participants with a subjective experience of not feeling stressed may be less motivated to engage in a stress management program, compared to participants whose subjective experience of stress is higher. Thus, it may be that the matter of fact that participants had signed up for a study they did not attend to, did create higher stress since they did not do what they had agreed to do. However, these possible explanations are only speculations. In addition, a high attrition rate was expected since issues with non-adherence have been shown to be common for online psychology interventions (Spijkerman et al. 2016).

In the light of this, a limitation with this study important to consider when interpreting its findings, since it might be threatening its internal validity, is the phenomenon of regression towards the mean. The threat of regression towards the mean is caused if a variable is extreme on

its first measurement, hence it will naturally tend to be closer to the average on its second measurement (Shadish, Cook & Campbell, 2002). Since the participants in the intervention group in the current study reported to experience worse psychological health (e.g. higher stress, lower life quality and level of mindfulness) at the first measurement, there is a possibility that the changes found in this study could possibly have been caused by regression towards the mean on the variables investigated rather than being a result of the treatment intervention itself. Accordingly, the differences found in stress level within the intervention group between participants who succeeded versus failed to perform any of the intervention's exercises could thereby also be due to natural fluctuations in stress level. The finding that participants who did not perform any of the intervention's exercises tended to be less stressed at the start of the treatment but more stressed at the end of the treatment compared to the participants who did perform at least one of the intervention's exercises could thus be part of such natural fluctuations.

To avoid making incorrect interpretations regarding to this threat against the internal validity, the phenomenon of regression towards the mean was taken into consideration by conducting two analyzes; one where all participants from the intervention group were included and one where the participants from the intervention group who failed to perform any of the intervention's exercises were excluded. Since both these analyses showed promising results, with several improvements of psychological health, regression towards the mean could be considered less of a threat to the internal validity of the study.

Another limitation threatening the internal validity of the study is the relatively high risk of participants from the intervention group affecting the control group on measured variables since participants from both groups worked at the same workplace and thus may have discussed the course material between the two groups. This risk could have been prevented if information about not sharing course related information within colleagues at the workplace had been given. This was not done in the current study, and is thus recommended to be done in future studies.

The measures used in this study were well-established, validated instruments with Cronbach's alphas indicating good reliability (except the BBQ indicating relatively good reliability, which has been discussed above and thus assuring valid results). A limitation concerning the measurement method may be that all measures were constituted by self-reports measures, suggesting that issues like social desirability could have affected the results. For instance, it could be a possibility that the participants rated their answers in a way that they

believed would benefit the research leader in order to make her satisfied with the study, since it was known by all participants that the intervention was created by her and that the study was a part of her education. However, all the measures in this study were anonymous since participants registered with an individual participation number throughout the collection of data, which could be seen as lowering the risk for such social desirability when performing the self-rate measures.

Since there are various types of yoga styles and mindfulness interventions a strength regarding the development of this intervention is that it was created on a foundation of psychological knowledge and with consideration to previous psychology research. The choice of including hatha yoga was made based on the assumption that it would go well together with the non-judgmental approach of mindfulness (Lona et al., 2016). The choices of mindfulness exercises were made based on what was presented as most commonly used exercises, with the breath and the senses as different focuses (Schenström, 2007; Kabat-Zinn, 1990). The choice of adapting a gratefulness based exercise from the field of positive psychology was made based upon the assumption that it seemed to go well together with the parts of the intervention carried out as thought processes (Lyubomirsky et al., 2006). Lastly, the choices of themes were made in line with the well-established theories and areas of focus brought forward by the current commonly used psychotherapy method CBT (Cognitive Behavioral Therapy).

In sum, what is prominent regarding this study's strengths is its experimental design, in the light of previous critique regarding methodology within this field of research. However, the study has several limits. It is a single study made on a relatively small sample. It is thus important to remember that this is the first study on this kind of intervention and in order to draw any conclusions about its effects on psychological health the results found in this study need to be replicated.

### **Future research**

In order to validate the intervention and its effects on psychological health future research is needed to replicate the results. The limitations identified with this study could be solved in future research. This suggests that efforts should be made in order to find and implement suitable active control group conditions, ways to decrease the attrition rate as well as encouraging participants from different research groups not to discuss the intervention material between groups. It would be interesting to explore if efforts such as weekly discussion groups, lectures or meetings could help to motivate participants to a higher level of adherence.

Considering taking advantage of the availability of the intervention tested in this study it would be interesting to explore if the intervention could be beneficial for other samples than the sample in this study. The Boost & Balance online course could possibly be beneficial not only for office workers in front of computers, but also for young people spending much time online, for people travelling long hours and for people finding it hard to fall asleep at nights, just to name a few of the samples that could be interesting to carry out future research on the intervention for.

Different variations of the exercises and methods included in this intervention could be studied in detail as well, exploring if different kinds of mindfulness, yoga and positive psychology interventions may lead to different outcomes. Considering that the effects sizes found in this study all were small, it would be interesting to explore if this intervention in combination with other methods and interventions could increase the effect sizes. What if the Boost & Balance online course in combination with workshops, lectures or group exercises on the methods practiced would work even more efficiently?

Another consideration worth taking into account regarding future research is the length of the intervention and the time between the measurements. In this study only pre and post measures were conducted, thus not providing any information on how the effects would last over time. Therefore, future research could explore longitudinal effects as well as different time duration spans of intervening. The intervention tested in this study was only five minutes per day during four weeks, and it is yet unknown if a longer time span with same exercises could produce further positive effects on psychological health as well as greater effect sizes for the results. Additionally, as already discussed above, no distinctions between different amounts of performed exercises were made in the analyses of this study. In future studies it would be interesting to explore if a certain amount of performed exercises would lead to different results as well as to explore if there may be some kind of a critical lowest number in order to produce effects.

In addition to exploring further areas of implementation, future research should also investigate the questions not answered by this study. For instance, the underlying mechanisms producing the results found in the study is yet to be explored. Thus, future research could explore the potential mediating factors between the parts of the intervention and the outcomes found.

### **Practical implications**

The most valuable aspect of this study might be the possible practical implications of its findings. This study implies that combining parts of positive psychology, yoga and mindfulness

into a course carried out as short daily sessions in the work place can have positive effects on office workers' psychological health. This indicates that the Boost & Balance online course does provide tools useful for reducing stress as well as enhancing life quality and mindfulness. Tools like such could be taken into account as meaningful in a time when stress is a growing problem, causing increasing numbers of sick leaves and psychiatric disorders, leading The Swedish Social Insurance Administration (2016) to highlight the importance of developing and using preventive stress interventions.

Compared to the costs companies need to face in the light of increasing numbers of sick leaves (Wolever et al., 2012), the costs for investing in an intervention such as this could be considered as minimal. Therefore, the possibility of using this type of intervention for preventative purposes could be seen as a cost and time effective way of taking a step against achieving both health-related and financial benefits for individuals as well as for organizations.

Considering its availability, since it is delivered via email, the Boost & Balance online course is also a highly accessible way of targeting psychological ill-being at the work place. This could be seen as positive since it has been argued that it is crucial that stress management programs aimed for work place settings are accessible and convenient in terms of scheduling, time requirements and locations (Wolever et. al., 2012).

Regardless of the many possible practical implications of the findings of this study, it is important to keep in mind that yoga or mindfulness training can never compensate for an excessive workload that might require organizational or structural changes in order to prevent negative consequences such as problems of stress.

## **Conclusions**

The results from this study suggest that the Boost & Balance online course has positive effects on office workers' psychological health, since the intervention significantly increased life quality and produced clear tendencies towards significantly decreased stress as well as increased mindfulness in a group of office workers ( $n = 58$ ) compared to a control group assigned to a waitlist condition ( $n = 62$ ). In addition, when 9 participants from the intervention group who failed to perform any of the intervention's exercises were excluded from the analysis significant decreases in stress and significant increases in life quality as well as mindfulness were found for the intervention group ( $n = 49$ ) compared to the control group ( $n = 62$ ). Thus, despite the limitations of the study and despite the small effect sizes found, conclusions can be drawn that it

can be beneficial for office workers' psychological health to practice yoga, mindfulness and positive psychology interventions for five minutes on a daily basis in the work place setting.

Finally, the Boost & Balance online course seems to be a cost and resource effective as well as a highly accessible way of targeting psychological health problems at work places. Organizations, as well as individuals themselves, who are experiencing problem as such, could consider implementing the Boost & Balance online course into their daily schedule. This could be a potential way of taking a meaningful step in the direction of preventing the growing numbers of sick leaves due to stress, as well as, promoting a psychologically healthy lifestyle comprising a sense of mindfulness and life quality in everyday life situations.



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## Appendix A

### Outline of the content of each daily course email, including course themes

# BOOST & BALANCE

online course

## COURSE THEMES:

- Mondays: *breath*
- Tuesdays: *senses*
- Wednesdays: *body*
- Thursdays: *thoughts*
- Friday: *feelings*

## DAILY TEXT

- Short course **texts** introducing the session of the day, explaining what is going to be done and why, including the following:
  - The *theme* of the day
  - The *yoga exercises* of the day
  - The *mindfulness exercises* of the day

## DAILY PHOTOS

- **Photos** illustrating the yoga positions of the day's exercises

## DAILY AUDIOFILE

- A 5 minute **audiofile**, including the following guided exercises:
  - *Grounding* exercise (30 secs)
  - *Yoga exercises* of the day (2 mins)
  - *Mindfulness exercises* check-in (1 min)
  - *Mindfulness exercise* of the day (1 min)
  - *Gratefulness exercise* (30 secs)

## Appendix B

### Illustration of the first course email out of the total of 20 course emails

Boost & Balance online-kurs, del 1 av 20 [View this email in your browser](#)

Om du inte ser bilderna i detta mail, högerklicka på informationsraden längst upp i mailet och välj "lägg till avsändare i listan Betrodda avsändare"

# BOOST & BALANCE

## online-kurs

### YOGA & MINDFULNESS MED HANNA BELLMAN


Klicka här för att läsa kursguiden innan du startar kursen

## ANDNING

**Dagens tema: andning**  
I våra fartfyllda, uppkopplade och effektiva liv där vi planerar framtid och utvärderar dåtid riktas ofta fokus mot annat än det som händer här och nu. Att rikta vår uppmärksamhet till det som händer här och nu är precis vad vi ska träna på i denna kurs och vi kommer ta hjälp av vår andning. Våra tankar kan vara i framtid, dåtid och på andra sidan jorden, men vår andning sker här och nu. Vi kommer använda den som ett konkret verktyg som vi alltid har med oss att aktivt rikta fokus mot, som ett sätt att förankra vår uppmärksamhet i nuet.

**Dagens yoga-övning: andnings-flow**  
Vi rör på kroppen på ett medvetet sätt i takt med vår andning. Övningen riktar uppmärksamheten mot nuet. Rörelsen mjukar upp ryggraden och släpper på spänningar i rygg och nacke som vi tenderar att samla på oss när vi jobbar mycket framför datorn.

**Dagens mindfulness-övning: andnings-ankare**  
Vi tar hjälp av andningen som ankare i nuet och tränar på att rikta och behålla uppmärksamheten på den. Genom att uppmärksamma vad som händer här och nu tränar vi vår förmåga att släppa taget om oro för det som komma ska och "ältande" av det som varit.



Grundposition      Inandning      Utandning

Klicka här för att lyssna på dagens övning

[e](#) [f](#) [i](#) [in](#) [m](#)

## Appendix C

### *Course guide introducing the Boost & Balance online course*

# Kursguide till *Boost & Balance* online-kurs

*Kursguiden introducerar dig till Boost & Balance online-kurs. Läs den gärna före kursen.*

#### **Vad är Boost & Balance online-kurs?**

Boost & Balance är en online-kurs skapad för yoga och mindfulness träning i kontorsmiljö. Den är grundad på psykologisk kunskap om välmående och stress.

#### **Varför finns Boost & Balance online-kurs?**

Jag som skapat kursen är utbildad yogainstruktör, certifierad mindfulnessinstruktör och snart färdigutbildad psykolog. Som examensarbete på psykologutbildningen ville jag skapa ett lättillgängligt och användbart verktyg för att hantera vardagens stress. Resultatet är denna kurs, vars namn kommer av att mitt yoga och mindfulness företag heter just *Boost & Balance*.

#### **Hur fungerar Boost & Balance online-kurs?**

Under 4 arbetsveckor levereras dagens kursdel varje vardagsmorgon kl 7 till din mejladress. De totalt 20 mejlutskickarna är uppbyggda på samma sätt och innehåller det följande:

1. En introduktion till dagens: *tema, yogaövning* och *mindfulnessövning*.
2. Foton som exemplifierar hur dagens yogaövning kommer att gå till.
3. En länk till en 5 minuters lång ljudfil, att lyssna till med hörlurar, med:
  - ❖ *grundning av sittpositionen*
  - ❖ *yogaövning*
  - ❖ *mindfulnessövningar*
  - ❖ *tacksamhetsövning*

Tanken är att du ska genomföra övningarna på kontoret under arbetstid, gärna i början av arbetsdagen. Skapa din egen rutin för vad som fungerar för dig. Avsätt 5-10 minuter per dag. Varje fredag får du en länk där du fyller i hur många övningar du gjort under veckan som gått. Jag behöver den informationen för att utvärdera kursen vetenskapligt.

#### **Kursens teman**

Kursen har 5 olika teman, ett per vardag:

- *Måndagar: Andning*
- *Tisdagar: Sinn*
- *Onsdagar: Kropp*
- *Torsdagar: Tankar*
- *Fredagar: Känslor*

Kursens teman grundar sig på psykologisk kunskap om hur människan fungerar och utgår från ett KBT- (Kognitiv Beteende Terapi) perspektiv som handlar om hur tankar, känslor, kroppsförändringar och beteenden hänger ihop och påverkar varandra. Du kommer att lära dig mer om varje tema i kurstexterna som dagligen bjuder på någon ny kunskap.

### Kursens övningar

Kursen har 5 olika övningar, några återkommer och några varierar med dagens tema.

- *Grundning av sittpositionen – samma varje dag*
- *Yogaövning – varierar med dagens tema*
- *Mindfulnessövning 1 – samma varje dag*
- *Mindfulnessövning 2 – varierar med dagens tema*
- *Tacksamhetsövning – samma varje dag*

### Några tips att ta med under kursen

- Yoga handlar om att röra sin kropp med medvetenhet och fokus på hur det känns i stunden. Försök att träna på detta och anpassa ditt utövande därefter. Jag guidar dig med förslag. Det är viktigt att du gör det som känns bra och fungerar för dig. Om det inte känns bra ska du inte göra rörelsen.
- Mindfulness, eller medveten närvaro, är uppmärksamhetsträning och handlar om att aktivt rikta sin uppmärksamhet mot något som sker här och nu. Om vi är ovana vid denna typ av träning så kräver detta tålamod och träning, träning och åter träning.
- Försök att gå in i övningarna med nyfikenhet och en utforskande inställning till det du möter. Träna på att vara öppen och inte dömande inför vad du upplever.
- Var snäll mot dig själv under kursen, så länge du startar ljudfilen så kan du inte misslyckas med träningen, du kan lära dig något av allt som sker. Försök att ha tålamod att se vad som händer under dessa 4 kursveckor.

Jag önskar dig ett **stort lycka till** med din dagliga träning och välkomnar dig att höra av dig till [boostandbalance@hotmail.com](mailto:boostandbalance@hotmail.com) om frågor eller funderingar uppstår under kursens gång!



*Bästa Hälsningar från,  
Hanna Bellman*

**BOOST & BALANCE**  
*online-kurs*

[www.boostandbalance.com](http://www.boostandbalance.com)