

Burnout in competitive and elite athletes



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and elite athletes**

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## **Abstract**

Intensified training regimes and increasing competitive pressure make some athletes leave sports with shattered hopes and dreams. A number of these athletes drop out of sports due to burnout, which is characterized by an enduring experience of emotional and physical exhaustion, reduced sense of accomplishment and devaluation of sport participation as a consequence of prolonged chronic stress. Loss of engagement and diminished motivation also characterize burnout. But burnout is more than just a simple stress reaction, as not all athletes who experience stress burn out. Study I investigates the prevalence of burnout among competitive athletes. The number of athletes showing high levels of burnout was found to be between 1 and 9%. The number of athletes suffering from severe burnout was estimated at 1-2%. Contrary to what has been speculated, burnout was not more common in individual sports than in team sports. Study II investigated the burnout process using a case-study approach. It was found that burnout can evolve with different levels of severity, time perspectives and characteristics. There appears to be a relationship between overtraining syndrome and burnout, and the study gave support to the notion that burnout is the most severe outcome on the training fatigue continuum. Early success might lead to high expectations and an inner pressure to train, which in the three cases made the athletes ignore signs of maladaptation. Performance-based self-esteem appears to be a “driving force” in the burnout process. In Study III the burnout experience was investigated using qualitative interviews. Lack of recovery, “too much sports” and high external demands were described as causes of burnout. A stressful situation with multiple demands from sport, school and social relationships leads to a total overload, which has both physiological and psychological consequences. Critical factors were a unidimensional identity, performance-based self-esteem, an inflexible organization and feelings of entrapment. These restraining factors made the athletes remain in sports despite negative outcomes. Thus the three studies indicate that burnout is a serious problem in competitive and elite sports, that restraining factors offer an explanation for why athletes remain in sport despite negative outcomes, and that striving for self-esteem is crucial in the development of burnout.

Key words: athlete identity, burnout, case-study, elite athletes, overtraining, self-esteem, stress

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## Original publications

This dissertation is based on the following studies, which will be referred to in the text by their Roman numerals:

- I. Gustafsson, H., Kenttä, G., Hassmén, P., & Lundqvist, C. (2007). Prevalence of burnout in competitive adolescent athletes. *The Sport Psychologist*, 21, 21-37.

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- II. Gustafsson, H., Kenttä, G., Hassmén, P., Lundqvist, C., & Durand-Bush, N. (in press). The process of burnout: A multiple case study of three elite endurance athletes. *International Journal of Sport Psychology*.

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- III. Gustafsson, H., Hassmén, P., Kenttä, G., & Johansson, M. (in press). A qualitative analysis of burnout in elite Swedish athletes. *Psychology of Sport & Exercise*.

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## Sammanfattning

### Utbrändhet hos tävlings- och elitidrottare

*”Många har den åsikten, att är man utbränd då är man slö och vek och det vill inte idrottare vara”*

#### Kvinnlig elitskidåkare

#### Bakgrund

Utbrändhet eller utmattningsyndrom (”burnout” på engelska) är ett fenomen som först beskrevs i början av 1970-talet hos volontärer som arbetade med drogmissbrukare. Idrottsrelaterad utbrändhet började diskuteras i början av 1980-talet i USA som ett led i en ökad debatt om stressen inom ungdomsidrotten. Fenomenet kan beskrivas som ett tillstånd som är slutet på en långvarig stressprocess och karakteriseras av stor emotionell och fysisk utmattnings, känslor av brist på framsteg/resultat och minskad motivation. Även om utbrändhet är ett resultat av långvarig stress anses det vara mer än en stressreaktion då det är vanligt att idrottaren tappar sin motivation och glädje till idrottandet. Alla idrottare som upplever stress blir heller inte blir utbrända. Utbrändhet bland idrottare anses ha kopplingar till överträningssyndrom, men eftersom utbrändhet främst har undersökts av psykologiska forskare och överträningssyndrom företrädesvis av fysiologer så är relationen mellan dessa syndrom till stor del okänd.

Även om utbrändhet bland idrottare anses som ett problem är kunskapen om hur vanligt förekommande fenomenet är bristfällig. Det har hävdats att utbrändhet är vanligare hos individuella idrottare än hos lagidrottare, bland annat p.g.a. högre träningsdos hos individuella idrottare. Dessa spekulationer har däremot inte undersökts empiriskt. Ett av problemen med forskningen kring utbrändhet är bristen på en allmänt accepterad definition. Som en konsekvens så saknas forskning på idrottare med svår eller ”äkta” utbrändhet. Istället så har konsekvenserna av kortvarig stress studerats eller idrottare som hoppat av på grund av andra anledningar än utbrändhet. Mycket av den forskning som är gjord baseras på studier av idrottare som till stor del anses som ”friska” eller endast visar på låga nivåer av utbrändhetsymtom. En ytterligare orsak till att forskning saknas är naturligtvis att det är oetiskt att framkalla utbrändhet hos friska idrottare. Det fattas därför kunskap om hur vanligt utbrändhet är, vilka faktorer som

ligger bakom, hur utbrändhet utvecklas och vad som driver processen. Det fattas även kunskap om vad som kännetecknar upplevelsen av utbrändhet hos elitidrottare med fullt utvecklad utbrändhet.

## **Syfte**

Det övergripande syftet med avhandlingen är att öka kunskapen och förståelsen för utbrändhet hos idrottare. I forskningsprojektet ingår tre delstudier med följande syften:

1. Att undersöka förekomsten av utbrändhet hos tävlingsidrottare. Studien syftar även till att undersöka validiteten hos instrumentet Eades Athlete Burnout Inventory (EABI) samt undersöka om utbrändhet är vanligare hos individuella idrottare än lagidrottare.
2. Att få ökad kunskap om utbränningsprocessen genom att undersöka hur utbrändhet utvecklas över tid och vad som driver processen.
3. Att öka kunskapen om bakomliggande faktorer och vad som karakteriserar utbrändhet hos en grupp elitidrottare.

## **Material och metod**

Ett flertal datainsamlingsmetoder användes i projektet. Till *delstudie I* användes en tvärsnittsstudie där eleverna vid landets Riksidrottsgymnasier medverkade. För att mäta graden av utbrändhet användes Eades Athlete Burnout Inventory. Validiteten hos detta instrument analyserades med konfirmatorisk faktoranalys samt invarianstestning. För att undersöka skillnaderna mellan individuella idrottare och lagidrottare användes multivariat variansanalys samt Scheffé post-hoc test. För att studera processen användes i *delstudie II* fallstudieteknik där tre uthållighetsidrottare på elitnivå som utvecklat utbrändhet studerades ingående. Fallstudierna baserades på retrospektiva intervjuer, frågeformulär (the Athlete Burnout Questionnaire), träningsdagböcker samt en intervju med en tränare med god insyn i de tre fallen. För att studera bakomliggande orsaker och vad som kännetecknar upplevelsen av utbrändhet valdes av totalt 628 de 10 idrottarna med högst värden på the Athlete Burnout Questionnaire ut för intervju till *delstudie III*. Intervjuerna var semi-strukturerade och analyserades med hjälp av kvalitativ innehållsanalys.

## Resultat

I studie I visade Eades frågeformulär för utbrändhet på acceptabel faktoriell validitet för jämförelser inom respektive kön, men några jämförelser mellan kvinnor och män gick inte att genomföra då kvinnor och män verkar tolka skalan olika. Mellan 1 och 9 % av idrottarna vid riksidsrottsgymnasierna visade på höga symtom av utbrändhet. Även om ingen diagnos kan ställas så uppskattades mellan 1-2 % lida av mer allvarlig grad av utbrändhet. Det fanns inget stöd för att utbrändhet skulle vara vanligare hos individuella idrottare, snarare verkar det vara en tendens att lagidrottare skattade högre symtom.

Studie II visade att utbränningsprocessen kan upplevas med olika grad av allvarlighet och ha olika symtom, tidsperspektiv och kännetecken. Gemensamt för de tre idrottarna var stark idrottsidentitet, inre press att träna, hög initial motivation, tecken på depression och minskad prestationsförmåga. Studien visar på samband mellan överträningssyndrom och utbrändhet, där utbrändhet verkar vara slutpunkten på en långvarig process med olika orsaker. Tidig framgång ledde till höga förväntningar och en inre press att träna. Som en konsekvens ignorerades tecken på bristande återhämtning. Prestationsbaserad självkänsla och konstant strävan efter att uppnå framgångar var viktiga drivkrafter i utbränningsprocessen.

Studie III gav stöd för utbrändhet som ett multidimensionellt fenomen bestående av emotionell och fysisk utmattnings, nedvärdering av idrottens betydelse och frustration över uteblivna resultat. Brist på återhämtning, ”för mycket idrott”, och höga förväntningar beskrevs som orsaker till utbrändheten. Idrottarna beskrev en situation av multipla krav från idrotten, skolan och det sociala livet som ledde till överbelastning. Kritiska faktorer för utbrändheten var en smal idrottsidentitet, prestationsbaserad självkänsla, resultatintriktade mål, brist på flexibilitet i organisationen och en känsla av att vara ”fångad”. Detta kallades för ”kvarhållande faktorer” då det fick idrottarna att vara kvar i idrotten trots negativa konsekvenser som utmattnings, tappad motivation och tecken på depression.

## Slutsats

Studierna i avhandlingen ger fördjupade kunskaper om förekomsten av utbrändhet bland idrottare. Vidare så ger fynden ökad kunskap om utbränningsprocessen och vad som driver denna, med speciellt fokus på elitidrottare och deras utsatta situation. Till sist så ökar denna avhandling kunskapen om bakomliggande faktorer och vad som karakteriserar upplevelsen av utbrändhet hos idrottare, samt varför de stannar kvar i

idrotten trots negativa konsekvenser. Denna ökade kunskap om utbrändhet erbjuder viktig information som kan användas i arbetet med talangutveckling av unga idrottare och förebygga utbrändhet bland mer etablerade idrottare.



# **I. Introduction**

*“Many have the view that being burned out is the same as being lazy and mentally weak, and that is not something an athlete wants to be”*

**Female elite cross-country skier**

## **Setting the stage – burnout in athletes**

Participation in sports is a source of great enjoyment for most athletes. Unfortunately, too-intense demands may in some cases lead to burnout as a consequence of chronic stress (Schaufeli & Buunk, 2003; R. E. Smith, 1986). Burnout has been described as “an erosion of the human soul” (Maslach & Leiter, 1997) whereby the individual loses dignity, spirit and will. It develops due to a discrepancy between the individual’s expectations, strivings and the harsh reality (Schaufeli & Enzmann, 1998). Further, an imbalance between demands and the sources for meeting the demands can lead to chronic stress and is a distinguishing feature of burnout (Maslach & Goldberg, 1998). It is also vital to emphasize that burnout occurs in ‘normal’ individuals without psychopathology and develops gradually over time into a downward spiral from which it is hard to recover (Maslach & Leiter, 1997; Schaufeli & Buunk, 2003).

From initial attention given to the helping professions (Maslach, 1982), Pines (1993) widened the focus and suggested that all individuals who are very highly motivated are at risk for burnout. According to this view you have to be “on fire” to burn out; people who are not on fire (i.e., not highly motivated) can feel stressed, depressed and fatigued but do not burn out. This makes athletes particularly vulnerable, as commitment is considered a hallmark of athletic success (Durand-Bush, Salmela, & Green-Demers, 2001). However, when someone is burned out this involvement and commitment gradually develops into the opposite, namely a lack of commitment and absenteeism (Schaufeli & Enzmann, 1998). Interestingly, it has been suggested that burnout is caused by the relentless pursuit of success (Freudenberger & Richelson, 1980). It appears that people with high ambitions and “overcommitment” are vulnerable, but at the same time this is something that is desirable in sport. Thus, the great enthusiasm found in many young prospering athletes can develop into a maladaptive attribute and lead to a loss of zeal.

Burnout leads to both psychological and physiological consequences. Chronic fatigue is the core component of burnout (Schaufeli & Buunk, 2003); burned-out individuals feel extremely emotionally and physically exhausted. Burnout also leads to affective, cognitive, motivational and behavioral consequences. A person who is burned out often experiences a depressed mood, feelings of helplessness and loss of motivation, and withdraws from friends and colleagues (Schaufeli & Enzmann, 1998). Recent research also shows that burnout leads to physiological consequences caused by the wear and tear of energetic resources. There is evidence that burnout increases the risk of cardiovascular disease, leads to impaired immunity functions and is related to chronic inflammation (Melamed, Shirom, Toker, Berliner, & Shapira, 2006). These new findings and a greater focus on the physiological aspects of burnout are highly relevant in athletic burnout research due to their relationship with overtraining syndrome (Lemyre, Roberts, & Stray-Gundersen, 2007). Overtraining syndrome is described as an impaired state of health and is a result of a stress-recovery imbalance, that is, too much stress in combination with insufficient regeneration (Lehmann, Foster, Gastmann, Keizer, & Steinacker, 1999). The main focus in this thesis will be on the psychological aspects of the phenomenon burnout, but the physiological side is acknowledged and briefly described.

The interest in burnout in athletes started in the early 1980s, but initial reports were based on anecdotal evidence or made claims from research in occupational settings (e.g., Feigley, 1984; Fender, 1989; Rotella, Hanson, & Coop, 1991). An important contribution was the conceptual paper by R. E. Smith (1986), who outlined a stress-based model of burnout to guide further research. R. E. Smith's model later received empirical support (Gould, Tuffey, Udry, & Loehr, 1996), but research and knowledge about athlete burnout is still not extensive. It has been hypothesized that burnout is on the rise due to increasing training loads and pressure in sports (Gould & Diffenbach, 2002). The main argument is that elite sports have evolved into a never-ending endeavor with a blurring between the season and off-season (Weinberg & Gould, 2003). These claims of an increasing prevalence of burnout in athletes have not been established, but are intuitively appealing and demand further investigation.

The athletes investigated in the studies included in this dissertation were all students or had recently been studying. The Swedish sport talent program is based largely on sport-specific high-schools ("Riksidrottsgymnasier" in Swedish), with the most talented students being selected for these special schools. The schools are under

the supervision of the Swedish National Sport Federation. Often, the athletes are boarded and lodged at their schools and have to move away from their parents at the age of 16. Even if the “Swedish model” has unique features, there are many similarities with talent development programs in other countries, and also with the American college sport system (cf. Andersen, 2002; Humphrey, Yow, & Bowden, 2000).

### **The context of elite sports**

The situation of elite sports has some unique features in comparison with occupational settings, which is where most of the stress and burnout research has been conducted. First, the at times very high physiological stress (i.e., training stress) is not evident in ordinary occupational settings but is a fundamental part of many athletes’ everyday life (D. J. Smith, 2003). Athletes and coaches are continuously seeking to improve human performance. Despite improvements and innovations in nutrition, clothing, equipment and supplementation, training is still regarded as the most important factor for enhanced sport performance (Rowbottom, 2000). Further, athletes are evaluated continuously during competition and training, which can be very stressful, especially if the athlete or team does not perform as expected (Pensgaard & Ursin, 1998; Scanlan, Stein, & Ravizza, 1991). Athletes also experience a fear of deselection. The risk of being dropped from the team or not making it to the Olympics is a potential stressor in athletes, especially since many are professional or semiprofessional and therefore might lose their jobs if they do not perform well enough (Hackfort & Huang, 2005; Noblet & Gifford, 2002). The athlete career is considerably shorter than other occupations, often being no longer than 10-15 years for a professional athlete and in some sports such as professional baseball, basketball and American football only four to five years (Taylor, Ogilvie, & Lavalley, 2006; Stambulova, in press). One reason for the short career spans is injuries and worrying about the risk of injury is a quite unique aspect of elite sports in comparison with other occupations (Hanton, Fletcher, & Coughlan, 2005; Taylor et al., 2006). Many of the described stressors and features are unique to the athletic setting, compared with the stress found in job settings. Knowledge and an understanding of the environment of elite sports and the stressors athletes are exposed to must be taken into consideration, as contextual factors are considered the most prominent causes in the development of burnout (Maslach, Schaufeli, & Leiter, 2001).

The main purpose of elite training is to obtain positive training adaptation using an optimal training load and thereby enhance an athlete's performance level (O'Toole, 1998). However, in order to avoid maladaptation all the stressors in the athlete's life must be considered. It has been suggested that athletes experience three basic stress sources: physiological, psychological and social (Kenttä & Hassmén, 2002). Physiological stress or training stress is the most obvious in relation to training, and is considered the main antecedent of training maladaptation and the dominant cause of underperformance (Kuipers & Keizer, 1988; Morgan, Brown, Raglin, O'Connor, & Ellickson, 1987). Even if the research is far less extensive, social-psychological or nontraining stressors have also been recognized as contributing to underperformance among athletes (Brown, Wilson, & Sharp, 2006; Meehan, Bull, Wood, & James, 2004). Demanding life events such as school or work, financial problems, relationships and social activities will affect an athlete's adaptation capacity and increase the risk of underperformance (Miller, Vaughn, & Miller, 1990). Since stress has an accumulative effect, it can become chronic (McEwen, 1998; Semmer, McGrath, & Beehr, 2005). Even small daily hassles can build up and lead to the impairment of training adaptation, development of overtraining syndrome and possibly burnout (Etzion, 1987; Rowbottom, 2000).

In conclusion, training should not be viewed in isolation, independent of the context in which the athlete lives. Already in the 1960s, Doherty (1964) highlighted the need for a holistic approach toward the training process. He stated that most training methods "limit their attention to what happens during the few training hours each day and ignore the remaining 20 or more hours, which often are just as effective in determining success in running" (p.121). Coach and athlete alike must consider not only the training stress (training load), but also the total stress load to which the athlete is exposed.

### **Stress – a conceptual overview**

During the past two decades, stress has been used as an example of mind-body connections and how the environment, behaviors and biological changes are linked to health (Liegely-Dougall & Baum, 2003). The stress concept is elusive, however. Researchers have tried to define stress, and on a general level five different stress concepts can be differentiated: (a) the stimulus model, (b) the response model, (c) the

transactional model, (d) the allostatic load model and (e) the Cognitive Activation Theory of stress. These conceptualizations will be outlined briefly below.

#### *The stimulus model*

The stimuli perspective is based on the early work of Cannon (1939), who was one of the first to study stress and argued that the body needed to maintain a state of equilibrium. Any event that disturbs the inner balance of the body would immediately initiate a process to restore the balance (homeostasis). Some situations would produce negative emotions, such as anger or fear. These emotions would then activate the sympathetic nervous system to release hormones, preparing the organism for two different behavioral situations: fight or flight.

#### *The response model*

In contrast to the stimuli concept, others have viewed stress as a response to a change in environment. Selye has defined stress as the “result of any demand placed on the body” (1993, p. 7). In the General Adaptation Syndrome (GAS), Selye (1956) described three different stages in the stress process. In the initial one, called the alarm stage, the body is in a state of shock and tries to adapt to the stressor/s. In the second stage, called the resistance stage, the organism tries to cope with and overcome the stressor, and a state of equilibrium sets in. If this is not accomplished the final stage occurs: exhaustion. This final stage is characterized by a depletion of resources and can lead to illness or death.

#### *The transaction model*

Psychological theories of stress developed individually from these biological theories. Lazarus (1966) argued that stress does not exist in an event but is the product of the transaction between individual and environment. For a stress response to happen, the situation must be appraised as stressful. In Lazarus’ model the individual is not just passively responding to situations happening but is a psychological human being appraising the external world. In the transactional model, stress is defined as “the particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984, p. 19). Before Lazarus, stress research focused on stress as a general reaction (i.e., Selye, 1956). Lazarus’ research was valuable because

of its emphasis on the cognitive aspects and the importance of the individual's interpretation of the stress.

### *Allostatic load model*

A more recent physiological conceptualization of stress is the allostatic load model. The mobilization of the body in association with an acute stressful situation is crucial to survival. However, a chronic mobilization leads to an increased risk of stress-related illness. In order to explain the relationship between stress and illness, McEwen (1998; McEwen & Stellar, 1993) suggested the allostatic load model. According to this model, the body's physiological systems fluctuate as the individual responds to and recovers from stress. Changes in these regulatory systems are achieved to manage the stress, a process called allostasis, which means maintaining stability or homeostasis through change (McEwen, 2004). "Turning on" these systems leads to the release of catecholamines and cortisol. It is proposed that extended periods of activation of these physiological systems can lead to overexposure to stress hormones and to illness. The extended activation can be caused by intermittent or repeated activation or a lack of adaptation. It can also be caused by a failure of the body to shut down the activation (McEwen, 2004). As this process progresses, recovery is more and more incomplete. This causes "wear and tear" on the body and is called allostatic load (McEwen, 1998). According to the theory, an individual is more likely to become ill if his or her allostatic load is high and he or she exposed to a new stressor.

The dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and the inability to shut down the stress system offers a potential physiological explanation for the connection between chronic stress and burnout (Melamed et al., 2006). The HPA axis dysregulation is also associated with sleeping disturbances (Söderström, Ekstedt, Åkerstedt, Nilsson, & Axelsson, 2004). During overreaching and overtraining athletes can experience problems with insomnia (Wall, Mattacola, Swanik, & Levenstein, 2003), leading to impaired recovery, which is sorely needed among athletes suffering from underrecovery. This creates a vicious circle and the athlete becomes progressively more fatigued, which potentially increases the risk of burnout. These sleeping disturbances and a dysregulation of the HPA axis might offer a potential physiological explanation for burnout.

### *The Cognitive Activation Theory of stress*

In the literature, definitions of stress have been criticized for being too general and unspecific (Davis-Martin & Brantley, 2004). Stress as a term is in itself problematic, because it has been referred to as a stimulus, a response to a stimulus, and the physical consequences of that response (Kemeny, 2003). A more recent conceptualization is the Cognitive Activation Theory of Stress (CATS; Ursin & Eriksen, 2004). This theory offers a formal system of systematic definitions of the terms used in most stress research. In this system the term “stress” is used to describe four different aspects of this concept: stress stimuli, stress experience, the non-specific general stress response and experience of the stress response. These four meanings of stress can be measured separately (Levine & Ursin, 1991). According to the Cognitive Activation Theory, the stress stimuli are pleasant or threatening depending on the interpretation of the situation, which is based on earlier expectations and expectancies. The stimuli are filtered through the brain and must be perceived as threatening or negative to be interpreted as stress. The non-specific stress response is regarded as an alarm and raises neurophysiological activation. This activation occurs when something is missing; a common example of this is the disturbance of homeostatic balance. Finally, the last link in this stress concept is the feedback loop from peripheral parts of the body back to the brain. The experience of the stress response adds to the feelings of being stressed. Even if this reaction might be an unpleasant experience, it is natural and healthy if it is not sustained. If sustained, however, it might lead to illness due to allostatic load (McEwen, 1998). The expectancy of both the outcome of stimuli and specific responses available for coping will affect the level of alarm. Thus, the expectancies have a significant influence on the response and are the main cause of individual differences in stress responses.

The Cognitive Activation Theory adds essential aspects to the conceptualization of stress. First, it offers logical and systematic definitions for the stress concept. It also adds a cognitive aspect to the physiological conceptualization of stress theory. Further, it provides an explicit definition of coping. According to Lazarus (Lazarus & Folkman, 1984), coping is a way of using different strategies, among which active coping is suggested to be more adaptive. In the view of the Cognitive Activation Theory, it is not the type of strategy used that is important, but whether or not the athlete has a positive response outcome expectancy (Eriksen, Murison, Pensgaard, & Ursin, 2005). This provides an interesting theoretical framework for research on stress and competitive pressure in athletes.

## **Physiological responses to stress**

Three systems are directly involved in the physiological reactions to stress; the nervous, endocrine and immune systems. During acute stress, the body responds to handle the situation and maintain homeostasis. One aspect of the stress response is an emergent need for energy. Activation of the stress system therefore leads to physical changes such as the promotion and direction of oxygen and nutrients to the central nervous system and to stressed parts of the body (Chrousos & Gold, 1992). This includes increased breathing to facilitate the oxygen exchange in the lungs, increased cardiovascular tone (i.e., increased heart rate and blood pressure) to enhance blood flow and delivery capacity, and increased intermediate metabolism to meet the emergent need for energy (Tsigos, Kyrou, & Chrousos, 2005). The hypothalamus is a central part of the stress system since it is the top-level controller of more basic homeostatic processes and communicates with other parts of the brain regarding larger goals related to survival (Lovallo, 2005).

There are two neuroendocrine systems under the control of the hypothalamus, and are responsible for most physiological reactions to stress and considered the peripheral limbs of the stress system. The first is the sympathetic adrenomedullary (SAM) system, which was emphasized by Cannon (1939) and includes the two catecholamines epinephrine and norepinephrine. Second is the HPA axis, emphasized by Selye (1956), which produces adrenocorticosteroids, primarily cortisol. Activation of the SAM system prepares the body for battle and is activated through sympathetic innervations, which stimulate the adrenal medulla to release epinephrine and norepinephrine into the bloodstream, resulting in an increased release of energy including glucose and free fatty acids (Lundberg, 2005). The release of catecholamines also leads to an increased heart rate, improved blood coagulation capacity, increased attention and reduced sensitivity to pain, which all increase our chances of survival (Chrousos & Gold, 1992; Lundberg, 2000; Sapolsky, 2002). The SAM system has a very rapid response rate and can be activated within a few seconds after an encounter with an unexpected threat (Kemeny, 2003). The HPA system can be activated in response to a range of different stressors. The initiation of the stress response in the HPA system is mediated through the release of a corticotrophin-releasing hormone. This hormone is released from the hypothalamus and stimulates the pituitary gland and the secretion of adrenocorticotropin. Through the bloodstream, adrenocorticotropin is distributed to the adrenal cortex to release cortisol.



Cortisol affects the metabolism in the cells, fat distribution and the immune function (Lundberg, 2005). This system is activated within a few minutes of an encounter with a stressor, and the peak level of cortisol occurs 20 to 40 minutes after the encounter (Kemeny, 2003). Recovery and return to baseline levels after the encounter occurs in general within 40 to 60 minutes (Dickerson & Kemeny, 2004). By acting in concordance, cortisol and epinephrine connect the different actions of separate organs and systems, thereby coordinating the peripheral stress response throughout the body (Lovallo, 2005).

Encounters with stressful experiences can also alter different immune functions. Cortisol can reduce the production of certain cytokines (Kemeny, 2003), which are produced by the immune system and are a type of messenger (Lovallo, 2005). The reduction of these cytokines can suppress the immune function. Interestingly, the immune system can also affect the autonomic nervous system and the HPA axis. By affecting the hypothalamus, cytokines can induce illness-related behavior such as increased sleep, reduced movement and negative mood, as well as loss of appetite and sexual function (Lovallo, 2005). As cytokines can induce a negative mood, they might explain why depressive symptoms are frequently associated with stress (Maier & Watkins, 1998).

### **Psychological aspects of stress**

People experience stress differently; one athlete might experience a competition as very stressful whereas an opponent might not feel any stress at all. According to Lazarus (1966), the reason for this is that individuals interpret situations differently; their appraisals diverge. Lazarus and Folkman (1984) define two forms of cognitive appraisal: primary and secondary. Primary appraisal is the initial conclusion an individual makes about a situation – if the event is irrelevant, benign and positive, harmful and a threat, or harmful and a challenge. The second appraisal involves the individual determining what coping resources or behaviors are available for handling the threat. In this process, the individual is constantly acquiring new information and reappraising the situation. Thus, both the environment and the athlete's appraisal will affect whether the situation is interpreted as stressful.

Whether or not an individual perceives a situation as a threat or a challenge will have significant physiological implications. The situation must exceed the athlete's

resources, and he or she must interpret the situation as stressful (i.e., as a threat). When the resources are perceived as approximating or exceeding the demands, the situation will be interpreted as a challenge instead of a threat. In both conditions the athlete will experience increased arousal, but experiencing the situation as a threat instead of a challenge is associated with different autonomic nervous system alterations, which can have essential health implications (Kemeny, 2003). The fear of failure or a threat to the individual's self-esteem elicits HPA axis activation, but these effects are reduced when self-esteem is not at stake (Dickerson, Grunewald, & Kemeny, 2004). In addition, the perception of control will greatly influence how we experience a situation (Karasek & Theorell, 1990). In an uncontrolled situation it is significantly more likely that an individual will experience HPA activation (Dickerson & Kemeny, 2004). Thus, it is more likely that the individual will interpret the situation as stressful if the level of control is perceived as low or if self-esteem is at stake. These circumstances and interpretation will then lead to greater physiological activation.

In order to understand stress and stress reactions, the concept of coping must be included. In the most common definition of coping is the "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Lazarus and Folkman also differentiated between problem-focused and emotional-focused coping. Problem-focused coping is directed at managing the problem or situation, whereas emotional coping is directed at managing cognitions or emotions. These two forms of coping are not reciprocally exclusive, but are instead often used together or sequentially to handle stress (Liegey-Dougall & Baum, 2003). A person's choice of coping can be influenced by his or perceived level of control over the situation and many other factors, such as personality characteristics and the character of the event (Anshel, 2005). The efficiency of coping skills has important influence over the stress reactions found in different individuals.

Coping skills and optimistic traits also have potential effects on burnout. Being optimistic appears to have a mediating role; unpublished data shows that athletes who are optimistic show lower levels of devaluation, exhaustion and reduced sense of accomplishment when experiencing stress (Gustafsson & Skoog, 2007). In an investigation of coping and stress in athlete burnout, it has been shown that internal coping behaviors had a stronger relationship with stress and burnout than did social support (Raedeke & Smith, 2004). The suggestion by Raedeke and Smith (2004), that

having good coping resources such as lifestyle management skills for handling the demands of elite sports and reducing the risk of burnout, seems appropriate.

Stress does not have to be negative; it can actually have positive outcomes. In order to understand the stress process, it is vital to understand that stress can be divided into different levels of complexity. It can be viewed as a single stress event, as cycles of stress and recovery, or as an ongoing process or chronic stress (Semmer et al., 2005). Stress research has been criticized for being too focused on the negative sides of stress and ignoring positive aspects (cf. Antonovsky, 1987; Seligman & Csikszentmihaly, 2000). The negative experience of stress does not have to transform into negative outcomes, but instead can lead to an increase in self-esteem and the individual attaining effective coping skills (Semmer et al., 2005). However, if the stress is ongoing or too intense it can lead to harmful effects on health, such as cardiovascular disease (Kop, 1997), immune deficiency (Cobb & Steptoe, 1996), diabetes (Goetsch, 1989) or burnout (R. E. Smith, 1986). Thus, a single event is seldom enough to elicit negative health effects; instead, stress becomes negative and harmful when the individual fails to cope with demands or if the activation of the psychological, behavioral and physiological response systems is too intense or continues for a long time.

### **Physiological stress – training in elite sports**

The training process is based on the replication of exercises and training regimes to induce automatization of motor skills and to enhance structural and metabolic functions that lead to increased physical performance (Viru, 1995). Even if research shows that the performance of elite athletes is dependent on genetic potential (Bouchard, Wolfarth, Riviera, Gagnon, & Simoneau, 2000; Gyagay et al., 1998), others have claimed that performance in sports is a result of training, motivation and self-confidence (Erickson, Krampe, & Tesch-Romer, 1993; Howe, Davidson, & Sloboda, 1998). According to the theory of deliberate practice, it is the amount of time that the athlete is involved in focused, effortful and not inherently joyful practice that will be the foundation of the results (Ericsson et al., 1993). In this view, the more time athletes are able to practice deliberately with full concentration, the further they will develop their performance levels. The exclusion of the importance of innate factors seems incorrect, but even if the maximum performance level athletes achieve may partly be inherited, their performance capacity is nonetheless mostly due to hard training over a number of years (Keul et al.,

1996). Training volume is therefore one of the most important aspects of elite sports and has high priority, especially in endurance sports (Bompa, 1999).

In order to achieve an international level in elite sports, long-term training spans of 10-12 years are required (Viru & Viru, 2001). In endurance sports it is common to perform between 700 and 800 training hours a year for an athlete competing on an international level, with an upper limit of approximately 1200 hours a year (Berg & Forsberg, 2000; Cipriani, Swartz, & Hodgson, 1998; Sleamaker & Browning, 1996). It has been argued that training volume is on the rise (Raglin & Wilson, 2000). These claims have been supported in a recent study of Norwegian international-level rowers that shows that there has been an increase in training volume from the 1970s to 1990s (Fiskerstrand & Seiler, 2004). The annual training volume for rowers increased from 924 hours (range 600-1020) per year during the 1970s, to 966 hours (range 840-1140) in the 1980s and to 1128 hours (range 1104-1200) in the 1990s. Over these three decades, maximum oxygen uptake ( $VO_2\text{max}$ ) has increased by 12% without any increase in body mass, indicating a higher aerobic performance capacity. Thus, high levels of training stress are a necessity for becoming an elite athlete in most sports, and the fiercer competition seems to push athletes and coaches to further increase the training load to win gold medals. This might increase the risk of training maladaptation and, consequently, burnout (Gould & Dieffenbach, 2002; Raglin & Wilson, 2000).

The human body has developed through evolution to maintain an inner balance, also referred to as homeostasis (McEwen, 2000). If training disturbs this balance, the body momentarily reacts to maintain homeostasis and if the imbalance continues the body adapts to a higher performance level in order to meet the demand. The theoretical foundation of training originates from the works of Cannon (1939) and Seyle (1956). Seyle's General Adaptation Syndrome (GAS) has transferred sport and training methodology into the supercompensation cycle. The supercompensation cycle can be divided into five parts (see Figure 1): First, the individual is exposed to a stimulus (exercise); during exercise the energy supplies of the muscles are depleted, and together with the formation of lactic acid and other byproducts this leads to fatigue, constituting the second phase. After exercise the homeostasis must be restored, including replenishing energy stores and removing byproducts. This is the recovery, or compensation, phase. But the biochemical stores are not only replenished but are also exceeded beyond normal levels if sufficient recovery is permitted. This leads to supercompensation, whereby the body compensates over the initial level, resulting in a

higher state of fitness. If the athlete does not apply another stimulus within an appropriate amount of time this will cause involution and a loss of the benefits obtained during the supercompensation phase.

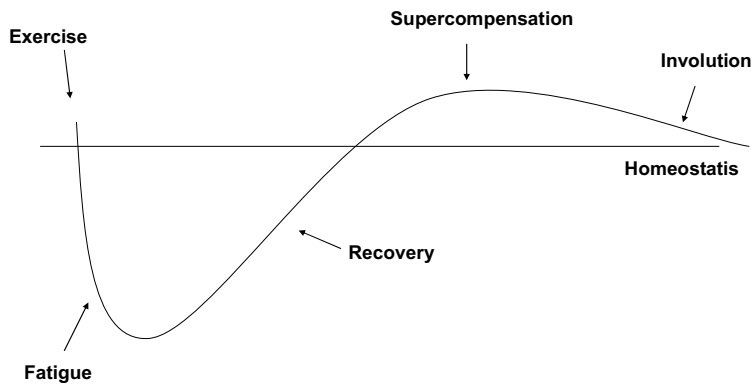


Figure 1. The supercompensation cycle (adapted from Bompa 1999).

Since training and the training load are fundamental in elite sports, it is crucial to monitor their impact. Training load is the combination of training intensity, frequency and duration (D. J. Smith, 2003). Depending on the outcome and aim, training load can be categorized into different levels, which will be described here briefly. Excessive load involves training that exceeds the body's adaptive capacity and can lead to negative outcomes such as training maladaptation (Fry, Morton, & Keast, 1991). Tolerable load results in a specific training effect; this often means supercompensation (see Figure 1) and increased performance (Virus & Virus, 2001). Maintenance load is a load that is sufficient for avoiding detraining and a decline in performance. Recovery load is used to promote the recovery process after excessive or trainable load. Finally, with insufficient load the intensity is below the level needed to obtain any of the previously mentioned effects. To enhance performance, the training load must be gradually increased in consideration of the individual's psychological and physiological capacity (Bompa, 1999). Suitable changes in training volume and/or intensity and restitution in daily

practice, which include temporary short-term fatigue and exertion followed by recovery, lead to optimal adaptation and long-term performance enhancement (O'Toole, 1998). An imbalance between training and recovery may result in impaired instead of improved performance, and if proper measures are not taken this imbalance can lead to an overtraining syndrome (Rowbottom, Morton, & Keast, 2000) and possibly burnout (Gould, Tuffey et al., 1996; Silva, 1990). A common mistake is to focus on the absolute demand of the load instead of its relative biological or psychological impact (Raglin, 1993; D. J. Smith & Norris, 2002). It is therefore crucial to estimate the actual load on the athlete in order to monitor the adaptation process.

### **The continuum of training**

Many different terms and definitions have been used to describe maladaptation caused by overly intensive sports participation and excessive training. Terms like overreaching, over stressed, overtraining, staleness, overtraining syndrome, chronic fatigue syndrome and burnout have been used interchangeably in the literature (Kenttä & Hassmén, 1998; Raglin & Wilson, 2000). This has been a cause of confusion and has hampered knowledge development. One problem with the term overtraining syndrome is that it implies causation, that too much training is the cause of underperformance. Even if excessive training is an important cause of overtraining syndrome, other factors such as non-training stress and lack of recovery are also important antecedents (Lehmann et al., 1999). Decreased performance together with severe fatigue and depressed mood has been suggested as being important diagnostic criteria (Halson & Jeukendrup, 2004). But it is difficult to make a diagnosis of overtraining syndrome, and because not all athletes suffering from depressed mood, underperformance and fatigue have trained too much, a broader conceptualization called “the unexplained underperformance syndrome” has been suggested (Budgett et al., 2000). This definition has not, however, been widely accepted in the research community. Despite attempts to establish a consensus regarding the definitions of overtraining syndrome and burnout (Kreider, Fry, & O'Toole, 1998; Lehmann et al., 1999; Meussen et al., 2006; Raglin & Wilson, 2000), no consensus has yet been established.

Due to this lack of consensus, and in order to avoid confusion, the concepts used in this thesis related to training maladaptation will be defined briefly here. Overload training is a process by which the athlete is exposed to slightly greater exercise levels

than he or she has previously encountered, and is a necessity if performance is to improve (Fry et al., 1991). Training overload leads to a disturbance of homeostasis and a temporary performance decrement (O'Toole, 1998). Whereas overload training is a normal training principle, overtraining is an abnormal extension of the normal training process (Hackeny, Pearman, & Nowacki, 1990). This kind of intensified training can lead to overreaching, which is a state of temporary performance decrement, but will result in performance enhancement if appropriate recovery is provided (Kreider et al., 1998). Overreaching might be a part of a planned training programme in order to stimulate adaptation, and if suitable measures are implemented recovery is often accomplished within one to two weeks (Budgett, 1990; Gustafsson, Holmberg, & Hassmén, 2007). However, a common reaction of many athletes and coaches to a period of bad performances is to increase the training load (Lehmann, Foster, & Keul, 1993). This is can be hazardous because if the intensified training continues the athlete can develop a more severe condition called overtraining syndrome (a.k.a. staleness), which is characterized by a long-term performance decrement and mood disturbance from which recovery may take several weeks or months (Kreider et al., 1998). The training process can therefore lead to different outcomes (see Figure 2).

A hypothesized training continuum with separate but linked stages, with normal training fatigue constituting the first stage and overreaching and overtraining syndrome as subsequent stages, has been suggested (Fry et al., 1991). Some scholars consider burnout the end-point on this training continuum and as the most severe outcome (Gould, Tuffey et al., 1996; Kenttä, 2001). The most common definition describes athlete burnout as a phenomenon consisting of physical and emotional exhaustion, devaluation of sports participation and a reduced sense of accomplishment (Raedeke, 1997). Because overtraining is a process that can lead to both positive and negative outcomes, and it is not until after training that we can evaluate the effects of an overtraining load (see Figure 2), this process is very complex (Kenttä, 2001; Kenttä & Hassmén, 1998; Raglin, 1993).

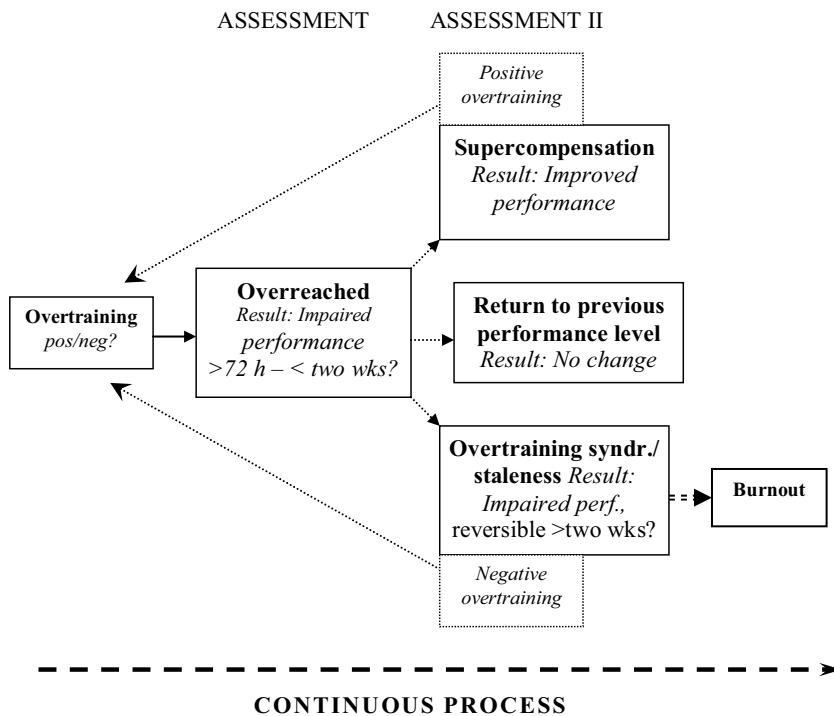


Figure 2. The overtraining process (from Kenttä, 2001).

### Psychological stress – Psychosocial aspects of elite sport

Even if being an elite athlete involves a great amount of training, this is not the only stressor that can affect well-being and performance. Psychosocial stressors have a great impact and are important to consider in elite sports. Much research on stress in athletes has focused on competition-induced stress. This includes stress experienced before, during and after competition (Feltz, Lirgg, & Albrecht, 1992; Jones & Hardy, 1990). But competition-related stress is only a small part of the non-training stress experienced by athletes. Other researchers have gone beyond the competition and investigated the whole sporting experience. Constantly having to perform well, the fear of failure or not being accepted by peers, balancing sports and school/work commitments, lack of feedback from coaches and having a reduced social life due to intensive training



demands were found to be important stressors (Gould, Jackson, & Finch, 1993; Noblet & Gifford, 2002; Scanlan et al., 1991). Elite athletes are exposed to a wide range of stressors, which all must be considered in order to avoid maladaptation and promote well-being and performance.

### *Being a student athlete*

Most athletes in this thesis were or had been student athletes, combining elite sports with their studies; thus a description of this context is important. Social relations such as coach and peer relations are important for young athletes and can influence the risk of burnout. Starting at a new school is a substantial change in the social life of the athletes (Finch & Gould, 1996). The transition from being a star on their team back home to being one among many talented athletes can cause stress. This can be aggravated by their moving away from home to a new environment, probably with less social support (Pearson & Petitpas, 1990). Other important sources of stress despite high-intensity training demands are high performance expectations, interpersonal relationships and the pressure to succeed in academia (Donnelly, 1993; Giacobbi et al., 2004; Humphrey et al., 2000). The athlete-student role conflict is evident in many student athletes. This conflict occurs when the demands of two roles are incompatible (Chartrand & Lent, 1987). The fact that the athletes have both academic and athletic demands can cause stress due to pressure to succeed in both areas, but also because the athletes experience a lack of time (Humphrey et al., 2000). Their relationship with their coach has also been described as a source of stress (Donnelly, 1993). The athletes are very vulnerable in this relationship because they are dependent on the coach to succeed in sport (cf. Jowett, 2007). The lack of autonomy and the exclusion from decision-making have also been described as major sources of stress and burnout in young athletes (Coakley, 1992). Social relationships and interpersonal conflicts with significant others such as parents, coaches, partners and friends form a potentially contributing factor of burnout in athletes, and need closer inspection.

### **Burnout – A historical overview**

Although Bradley (1969) was the first to use the term staff burnout, it is Herbert Freudenberger (1974) who is considered the founder of the term burnout. As a clinician, he introduced the term in his paper on volunteers working with drug addicts.

Almost at the same time, social psychologist Christina Maslach (1976) investigated how human service employees coped with the emotional demands of their job.

A wide range of occupations has been included in the more than 30 years of research on burnout, although the majority of studies have included people in helping professions such as social workers, nurses, teachers and police officers (Schaufeli & Enzmann, 1998). The original and still most widely cited definition of burnout excludes many professions by citing a required provider-recipient relationship, stating that burnout is something that occurs among individuals who do “people work” of some kind (Maslach & Jackson, 1986. p. 1).

Traditionally, burnout has been viewed as a prolonged response to chronic emotional and interpersonal stressors (Maslach et al., 2001). Burnout syndrome is considered a dysfunctional condition, which develops gradually and may long remain unnoticed by those afflicted (Schaufeli & Enzmann, 1998). Detection of burnout syndrome is thereby vital, and it has been suggested that it can be identified and measured by three core components (Maslach et al., 2001): *Exhaustion*, the feeling of being depleted of one’s emotional and physical resources; *Cynicism (depersonalization)* in the initial conceptualization), referring to a negative, hostile or excessively detached response to the job; and *Professional Efficacy*, with an emphasis on effectiveness and competence. A high degree of burnout is then reflected in high scores on Exhaustion and Cynicism, and low scores on Professional Efficacy, as measured by the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996).

### **Burnout - a process or a state?**

An important question is whether burnout is a continuous condition or a state. According to the early descriptions of burnout (e.g., Freudenberg, 1974) it was defined by simply adding together the most prominent symptoms. This is problematic because it becomes a rather selective process, since a large number of different symptoms have been identified and the burnout experience appears to be individual (Schaufeli & Enzmann, 1998). It also overlooks the dynamic characteristic of burnout (Schaufeli & Buunk, 2003). Using a state definition using the key characteristics of burnout overcomes these limitations (Schaufeli & Buunk, 2003). The definition by Raedeke (1997) implies, in the same manner as the definition by Maslach and colleagues (1996), that athlete burnout is a state including three key dimensions:

physical/emotional exhaustion, sports devaluation and a reduced sense of accomplishment.

The first attempt to describe burnout as a process was made by Cherniss (1980). In his view, burnout refers to “a process in which the professionals’ attitudes and behavior changes in negative ways in response to job strain” (p.5). Maslach and Leiter (1997) described burnout as the erosion of the soul. They argue that burnout represents “erosion in values, dignity, spirit, and will – an erosion of the human soul. It is a malady that spreads gradually and continuously over time, putting people into a downward spiral from which it’s hard to recover” (p.17). In the same venue, Etzion (1987) has viewed burnout as psychological erosion and defines it as a “continuous, barely recognizable, and for the most part denied misfit between personal and environmental characteristics are the source of a slow and hidden process of psychological erosion. Unlike other stressful phenomena, the misfit does not cause alarm and rarely are subject to any coping efforts. Thus the process of erosion can go on for a long time without being detected” (pp. 16-17). This definition is interesting because it focuses on the problems associated with the detection of burnout. In addition to the difficulties of subtle and vague signs of burnout, the term carries a negative connotation in the athletic community and athletes are at times afraid of stigmatization if they express feelings of burnout (Cresswell & Eklund, 2006a; Gould, Tuffey et al., 1996). This might make an early detection of burnout in athletes even harder because they might avoid talking about their symptoms in order to escape negative reactions among their coaches and teammates.

In an attempt to incorporate both the process and state characteristics of burnout, Schaufeli and Enzmann (1998, p. 36) suggested the following definition:

“Burnout is a persistent, negative, work-related state of mind in ‘normal’ individuals that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced accomplishment, decreased motivation and the development of dysfunctional attitudes and behaviors at work. This psychological condition develops gradually but remains unnoticed for a long time by the individual involved. It is a result from a misfit between intention and reality in the job. Often burnout is self-perpetuating because of inadequate coping strategies that are associated with the syndrome.”

This definition has many interesting features, such as exhaustion as a core component and burnout evolving gradually and initially while going unnoticed by the individual. However, it claims that burnout is a work-related and a psychological condition. There has been minor focus on physical stress in the occupational burnout literature (Maslach et al., 2001), and stress in many sports is highly, or at least to a certain extent, physical. Since this definition is based on research in occupational settings, its features need to be investigated in the sport context since it is argued that burnout only occurs in work-like settings and contextual aspects are considered important (Maslach & Leiter, 2005; Schaufeli & Taris, 2005). It can be concluded that burnout is both a state and a process, and that there are different levels of burnout (i.e., mild and severe; Schaufeli, 2003). Further, these two kinds of definitions are complementary; state definitions describe the end-state of the burnout process (Schaufeli & Buunk, 2003). Even if the definition has many features that are potentially adoptable in athletes, more knowledge about the characteristics of the burnout experience in athletes as well as about the burnout process is needed.

### **Differentiating burnout from related concepts**

Burnout has been associated with a great number of different terms such as tedium, stress, over-strain, depression, overtraining syndrome, chronic fatigue, staleness, “worn-out” and vital exhaustion (Kenttä & Hassmén, 1998; Maslach & Schaufeli, 1993). It has even been questioned whether burnout is a unique phenomenon or simply “old wine in new bottles” (Schaufeli & Enzmann, 1998). It has even been questioned whether burnout can be differentiated from stress, depression, chronic fatigue syndrome and overtraining syndrome. These terms and concepts will therefore be described briefly below.

#### *Burnout and stress*

There is important evidence that burnout is more than just a common stress reaction. Brill (1984) differentiated between stress and burnout, describing stress as a temporary adaptation process accompanied by mental and physical symptoms. Burnout, on the other hand, refers to a breakdown in adaptation to which the individual is unable to adapt without outside help or environmental rearrangement. Thus, in this view burnout is a specific long-term consequence of stress. Another important distinction is that

burnout is a multidimensional syndrome. It includes energy depletion and exhaustion, which are closely related to physical and psychological stress, whereas the devaluation of sport (cynicism/depersonalization in job settings) and the perceived sense of reduced accomplishment are specific attributes of burnout (Cordes & Dougherty, 1993; Raedeke, 1997). There is empirical support for this view. In investigation of the discriminant validity of the Maslach Burnout Inventory it has been shown that emotional exhaustion shares about 30% of the variance with psychological and physical symptoms of job stress (Schaufeli & Van Dierendonck, 1993). Cynicism/depersonalization and the perceived sense of reduced accomplishment shared only 14% and 10%, respectively. Further, Pines (1993, Pines & Keinan, 2005) asserted that people at risk of burnout are those who expect to gain a sense of existential significance from their work. These people are initially idealistic and motivated, and have high expectations. When they feel their work is insignificant, this leads to feelings of hopelessness and they eventually burn out. Those who do not have these expectations will experience stress but will not burn out. Thus, burnout is therefore more than simply stress but is instead a multidimensional syndrome that is a result of a breakdown in adaptation as a consequence of prolonged stress modified by personal judgments and strivings.

#### *Burnout and depression*

Burnout shares striking similarities with depression (Iacovides, Fountoulakis, Kaprinis, & Kaprinis, 2003) and it has even been argued that burnout is actually a special form of depression (Åsberg, Nygren, Rylander, & Rydmark, 2002). In contrast, it has also been argued that depression is context-free and affects all spheres of life, whereas burnout is at least initially job-related (Freudenberger, 1983; Warr, 1987). For example, lack of reciprocity in the relationship with one's partner leads to depression but not to burnout, whereas lack of reciprocity in one's relationship with work leads to burnout but not to depression (Bakker, Schaufeli, et al., 2000). Some research indicates that burnout might develop into depression but not the opposite (Glass, McKnight, & Valdimardottir, 1993). Considerable support has been found for the argument that burnout and depression are different phenomena when scholars have investigated discriminant validity between the Maslach Burnout Inventory with various measures of depression (Bakker, Schaufeli et al., 2000; Glass & McKnight, 1996; Leiter & Durup, 1994), although there is a considerable overlap, especially with exhaustion (Schaufeli &

Enzmann, 1998). Recent research on rugby players further showed that a sport-specific burnout questionnaire (the Athlete Burnout Questionnaire; Raedeke & Smith, 2001) could adequately discriminate between athlete burnout and general depression (Cresswell & Eklund, 2006b). It can be concluded that burnout and depression are two different, albeit related, phenomena.

#### *Burnout and chronic fatigue syndrome*

There are similarities between these two syndromes, such as prominent fatigue. Although physical symptoms occur in burnout, the symptoms are mainly psychological whereas chronic fatigue syndrome consists primarily of physical symptoms with some psychological symptoms (Schaufeli & Buunk, 2003). Common symptoms of chronic fatigue are mild fever, muscle weakness, headaches, sore throat and joint pain (Fukuda et al., 1994). Burnout also develops during a long-term process, whereas chronic fatigue often has an acute onset with symptoms very similar to an infection (Maslach et al., 2001; Wyller, 2007). Another difference is that the fatigue of chronic fatigue syndrome is unexplained whereas the fatigue of burnout is associated with one's job (Schaufeli & Enzmann, 1998). People suffering from burnout develop negative and dysfunctional attitudes and behaviors, something that is not associated with the chronic fatigue syndrome (Schaufeli & Buunk, 2003). Despite these similarities, burnout and chronic fatigue syndrome appear to be related, yet distinct, phenomena.

#### *Burnout and the overtraining syndrome*

As mentioned earlier, these two syndromes have been used interchangeably in the literature. Burnout and overtraining syndrome share many similarities. Foremost, they share diagnosis characteristics such as performance loss, mood disturbance and exhaustion (Fry et al., 1991; Gould, Tuffey et al., 1996). Overtraining research has traditionally investigated signs and symptoms of maladaptive responses to excessive training (Fry et al., 1991; Kuipers & Keizer, 1988) whereas athlete burnout research on the other hand has focused on social-psychological factors such as high external pressure, lack of control and entrapment (Gould, Tuffey et al., 1996; Gould, Udry, Tuffey, & Loehr, 1996; Raedeke, 1997). However, researchers acknowledge that non-training stressors influence overtraining syndrome (Kreider et al., 1998) and that overtraining has been suggested as an antecedent to burnout (Gould, Tuffey et al., 1996;

Lemyre, Roberts, & Stray-Gundersen, 2007). Thus, the boundaries between these phenomena are blurred.

Overreaching, overtraining syndrome and burnout have thus far mostly been studied separately, resulting in limited knowledge regarding when and how normal training develops into overreaching, overtraining syndrome, and ultimately burnout. It has been argued that they constitute different entities (Raglin, 1993) and that burnout denotes a negative emotional reaction to sport participation, while staleness (or overtraining syndrome) denotes a disorder combining affective and physiological maladaptive responses to intense training (Raglin & Wilson, 2000). In this view, an athlete suffering from overtraining syndrome can be extremely motivated whereas a burned-out athlete will have no motivation whatsoever (Cresswell & Eklund, 2005a; Gould, Tuffey et al., 1996). Thus, burnout and overtraining syndrome might be differentiated with regard to motivational aspects, but to be able to understand the development of burnout the whole process must be investigated.

Despite the possibility to differentiate between burnout and overtraining syndrome through motivational aspects, some scholars have suggested that motivational loss may also be present in athletes suffering from overtraining syndrome (Fry et al., 1991). This is based primarily on anecdotal evidence, as experimental research on overtraining syndrome is lacking and empirical data are based mainly on overreaching research due to ethical limitations, as mentioned earlier (Halson & Jeukendrup, 2004). Studies using self-report questionnaires have found that athletes suffering from overtraining syndrome can be highly motivated or have no motivation at all (Kenttä, Hassmén, & Raglin, 2001). Apparently, the dynamics of motivation in overtraining syndrome and burnout need further investigation.

### **Athlete burnout**

Already in the 1970s, Freudenberger (1975) noted athletes as a group that could potentially be afflicted. Burnout in sport has been under debate for a considerable period of time and has even been described as a “hot topic” in the sport community (Gould, Udry et al., 1996). Even if the research interest in burnout in sports started in the early 1980s, initial published articles were based on anecdotal evidence or research from occupational burnout (e.g., Feigley, 1984; Fender, 1989; Rotella, Hanson, & Coop, 1991) and empirical research was initially conducted with coaches (Caccese &

Mayerberg, 1984; Capel, Sisley, & Desertrain, 1987). It is possible that the limited original definition by Maslach, which was aimed with special reference to the helping professions, was the cause of this (Maslach & Jackson, 1981). Coaches fit the traditional provider-recipient relationship and athletes do not (Gould, 1996). Even if research interest has grown, a recent review stated that less than 30 studies had investigated burnout in athletes (Goodger, Gorely, Lavalle, & Harwood, 2007); thus the research is still in its infancy (Eklund & Cresswell, 2007).

It has been argued that without a precise and consensual definition, the term burnout might become too broad and undifferentiated (Raedeke, Lunney, & Venables, 2002). There is thus an obvious risk that the term will slide into general stress and lose its meaning (Brill, 1984). One problem with the research on athlete burnout has been the lack of agreement on a definition – or even the complete lack of a definition, in some studies (e.g., Coakley, 1992; Cohn 1990; Gould, Udry et al., 1996; Silva, 1990).

In an early definition (R. E. Smith, 1986), athlete burnout was defined as a psychological, emotional and at times physical withdrawal from a formerly pursued and enjoyable activity, as a result of chronic stress. This definition has been influential but is problematic since it focuses on withdrawal. Withdrawal is an important feature of burnout (Gould, Tuffey et al., 1996; Raedeke et al., 2002) but does not differentiate from other forms of sport discontinuation (i.e., dropout). Even if there are many reasons athletes drop out of sport, the main reasons for discontinuation are conflicts with other interests or a desire to pursue other activities (Weiss & Chaumont, 1992). What differentiates burnout from dropout is emotional and physical exhaustion (Dale & Weinberg, 1990). Athletes who drop out of sport due to burnout are experiencing severe exhaustion (Gould, Tuffey et al., 1996; Raedeke & Smith, 2001), as a consequence of prolonged and excessive stress (Gould, 1996). An athlete who withdraws from sport without feelings of severe exhaustion cannot be regarded as suffering from burnout. Thus, burnout is one reason athletes discontinue their sport participation, but there are a number of other rationales for leaving sport that are unrelated to burnout.

More recently, athlete burnout has been defined within a multidimensional and psychosocial framework. In this view, burnout is defined by the three dimensions of physical and emotional fatigue, reduced sense of personal accomplishment, and devaluation of sport participation (Raedeke, 1997; Raedeke et al., 2002). This multidimensional definition is modified from Maslach and Jackson (1984) and the research on job burnout, with the exception that Raedeke emphasizes devaluation



instead of the original depersonalization. Depersonalization refers to negative and detached feelings toward other people and is found among individuals in human service occupations. Raedeke argues that athletes, as a consequence of burnout, experience devaluation from sport itself instead of depersonalization due to contextual differences. It has been questioned, however, whether the definition of job burnout can be applied to athlete burnout (Fender, 1989; Garden, 1987; R. E. Smith, 1986). There is little empirical support for the multidimensional conceptualization of athlete burnout proposed by Raedeke (1997). Only two studies have specifically investigated these dimensions in athletes (Cresswell & Eklund, 2006a; 2007), and even if support for this conceptualization was found the empirically based knowledge from the sport context is meager. The use of a multidimensional conceptualization of burnout is promising, although some caution is warranted until more research has been conducted.

## **Measurement of burnout**

### *The measurement of occupational burnout*

The single most used instrument is the *Maslach Burnout Inventory* (MBI; Maslach et al., 1996). This instrument has been used in more than 90% of the research on job burnout (Schaufeli & Enzmann, 1998). It was initially adopted for the helping professions (e.g., nurses, teachers and social workers), as burnout was considered a matter in occupations doing “people work” (Maslach & Jackson, 1986). More recently a new version, the Maslach Burnout Inventory-General Survey has been published (MBI-GS; Maslach et al., 1996). The MBI-GS was developed as a consequence of a broader definition whereby burnout is considered a result of a crisis in one’s relationship with work in general and not only a crisis with people at work. This version can be used in all kinds of occupational settings.

The second most used measurement of burnout is Pines and Aronson’s *Burnout Measure* (BM; 1988). This questionnaire is based on a broader definition of burnout that is not restricted to the work domain, making this instrument interesting for applications in sport. For example, the Burnout Measure has been used, with small adaptations, to measure “couple burnout” (Pines, 1996). Although Pines and Aronson consider burnout to be a three-dimensional construct including physical, emotional and mental exhaustion (Pines & Aronson, 1988; Pines, Aronson, & Kafry, 1981), the Burnout Measure is constructed as a one-dimensional questionnaire with a single

burnout composite computed. Its internal reliability is very high, with internal consistency coefficients (Cronbach's alpha) above .90 (Schaufeli & Enzmann, 1998). However, the factorial validity is more questionable. Instead of one dimension, this instrument seems to consist of three dimensions (Enzmann, Schaufeli, Janssen, & Rozeman, 1998): demoralization, exhaustion and loss of motive. Thus, further validation must be conducted before this instrument is to be useful in sport.

The core dimensions of burnout have been a matter of debate. Even if the three dimensions postulated by Maslach (e.g., emotional exhaustion, lack of personal accomplishment and depersonalization/cynicism; Maslach et al., 2001) are the most widely accepted, it has been suggested that the dimension of exhaustion is sufficient for defining burnout (cf. Shirom, 1989). Especially depersonalization has been criticized because of its low correlation with the two other dimensions (Garden, 1987). Therefore, two new measurements have recently been initiated: the *Copenhagen Burnout Inventory* (Kristensen, Borritz, Villadsen, & Christensen, 2005) and the *Shirom-Melamed Burnout Measure* (Melamed et al., 1999; Shirom, 2003). Both these measures focus on the exhaustion component of burnout. However, other scholars have argued that eliminating the dimensions of perceived lack of accomplishment and cynicism/depersonalization will cause us to miss the phenomenon of burnout entirely (Maslach & Leiter, 2005; Schaufeli & Taris, 2005).

If we are to be able to draw valuable conclusions in burnout research or in the monitoring of athletes, valid and reliable measurements are crucial. The mere fact that there are several valid instruments for measuring job burnout that have been used to measure burnout in athletes (e.g., Bar-Eli, Shirom, Nir, & Pines, 2004; Kjörmo & Halvari, 2002) does not mean that this is appropriate. Since the instruments are based on the work context and contextual factors are important in burnout (Maslach & Leiter, 2005), these measures are therefore not fully appropriate for use with athletes (Beckmann & Kellmann, 2003; Weinberg & Gould, 2003). Also, burnout has been confused with dropout (Lai & Wiggins, 2003), which might blur rather than bring clarity to the field. Therefore, suitable measures developed for sport and athletic settings are of great importance in increasing the knowledge about athlete burnout.

#### *The measurement of athlete burnout*

Research on athlete burnout has been hampered due to a lack of validated instruments (Raedeke & Smith, 2001). The first instrument developed exclusively for measuring

athlete burnout was the *Eades Athlete Burnout Inventory* (Eades, 1990). Eades' inventory originated from an unpublished master's thesis based on the work of Maslach and colleagues (1976, 1981, 1984) and interviews with athletes suffering from burnout as well as with experienced sport psychologists. Although early research (Gould, Udry et al., 1996; Vealey, Armstrong, Comar, & Greenleaf, 1998) has used the instrument, the psychometric validation is insufficient. The initial validation performed by Eades was promising, and the only published validation by other researchers (Vealey et al., 1998) was equally supportive. However, five items of the original 36 were deleted due to low reliability in relation to the proposed factor structure. Other studies (Gould, Udry et al., 1996) have also found low internal consistency for two of the subscales, *Personal and Athletic Accomplishment* and *Congruent Athlete-Coach Expectations*. Because of these psychometric problems, the Eades Athlete Burnout Inventory has been rightfully criticized (Cresswell & Eklund, 2006b). In order to evaluate the scientific merit of the studies that have used this instrument, further psychometric validation is needed.

A new measurement has been developed more recently: the *Athlete Burnout Questionnaire* (ABQ) (Raedeke, 1997; Raedeke & Smith, 2001). This instrument was initially developed based on the Eades Athlete Burnout Inventory (11 of 21 items are identical), but is more closely related to the burnout dimensions proposed by Maslach and colleagues (Maslach & Jackson, 1984; Maslach et al., 1996). The most recent version of the Athlete Burnout Questionnaire consists of 15 items measuring the dimensions of *Physical/emotional exhaustion*, *Reduced sense of accomplishment* and *Sports devaluation*. Validation shows good convergent and discriminant validity of the subscales (Cresswell & Eklund, 2006b; Raedeke & Smith, 2001), and the questionnaire appears to be a promising tool for measuring and monitoring burnout.

The *Recovery-Stress Questionnaire for Athletes* was developed to measure stress-recovery states in athletes (Kellmann & Kallus, 2001). This questionnaire contains 12 general stress scales and 7 sport-specific stress and recovery scales. Two of the scales measure burnout (emotional exhaustion and personal accomplishment). Chronbach's alphas are acceptable, ranging from .72 to .91 (Kellmann & Kallus, 2001), and it has been successfully used to identify the prevalence of stress and underrecovery before and during major competitions (Kellmann & Gunther, 2000). Even if thorough validation has not yet been accomplished, the initial validation is promising. Since the questionnaire measures both general and sport-specific aspects of stress and recovery, it has good potential as a useful instrument in applied settings. One problem, though, is

how to differentiate between the fatigued and the burned-out athlete if only measuring exhaustion and reduced sense of accomplishment. According to the multidimensional view of burnout (i.e., Maslach et al., 2001; Raedeke, 1997), athletes can be fatigued and experience reduced accomplishment without suffering from burnout. This measurement has good potential as a useful instrument in practical settings, but has limitations in burnout research.

In a comparison of the three instruments, the Athlete Burnout Questionnaire has the most potential. The Athlete Burnout Questionnaire shares many similarities with the Eades Athlete Burnout Inventory, mainly because it is based largely on the work of Eades (1990). Eades' instrument, however, lacks thorough validation. Validation is needed because earlier research has used Eades instrument (i.e., Gould, Udry et al., 1996; Vealey et al., 1998). The Recovery-Stress Questionnaire for Athletes shows good potential as an important instrument in monitoring stress in athletes, but lacks the devaluation of sport aspect, which has been considered an important aspect of burnout (Raedeke, 1997), and is therefore less suitable for burnout research purposes. The Athlete Burnout Questionnaire appears to be the most obvious choice in research on athlete burnout. However, more research regarding the multidimensional conceptualization of athlete burnout is needed.

### **Symptoms and consequences of burnout**

The list of symptoms associated with occupational burnout is extensive; 132 different symptoms have been reported in the literature (Schaufeli & Enzmann, 1998). These symptoms, found during more than 25 years of research, have been classified into five categories (Schaufeli and Buunk, 2003): (1) affective (e.g., gloomy, depressed and tearful); (2) cognitive (e.g., feelings of powerlessness, helplessness and hopelessness), (3) physical (e.g., exhaustion and somatic complaints); (4) behavioral (e.g., smoking, impaired performance and absenteeism); and (5) motivational (e.g., lack of interest, zeal and enthusiasm). The burnout experience is individual and the symptoms can remain unnoticed by the individual for a long period of time (Schaufeli & Enzmann, 1998). This makes the early detection of burnout difficult, especially because the negative attitude toward burned-out athletes found in sports might prevent athletes from revealing their symptoms (Cresswell & Eklund, 2006a; Gould, Tuffey et al., 1996).

### *Symptoms found in athletes*

The number of studies conducted to investigate factors causing athlete burnout is low. This can possibly be explained by the ethical considerations. As mentioned earlier, due to the negative consequences it would be unethical to induce burnout in healthy athletes. Research has therefore largely been conducted using cross-sectional design (72.7%; Goodger et al., 2007) or using *post-hoc* interviews.

Positive associations have been found between burnout and amotivation (Cresswell & Eklund, 2005a), stress (Raedeke & Smith, 2001), overtraining (Lemyre, Roberts, & Stray-Gundersen, 2007), role conflict (Kjørmo & Halvari, 2002), anxiety (Vealey et al., 1998), maladaptive perfectionism (Gould, Udry et al., 1996), parental pressure (Harlick & McKenzie, 2000) and negative affect (Lemyre, Treasure, & Roberts, 2006). Negative associations have been found for commitment (Raedeke & Smith, 2001), coping (Raedeke & Smith, 2004), enjoyment (Raedeke & Smith, 2001), intrinsic motivation (Cresswell & Eklund, 2005), perceived control (Raedeke, 1997), self-confidence (Kjørmo & Halvari, 2002) and social support (Raedeke & Smith, 2001). Variables such as training volume, identity and extrinsic motivation show contradicting results (i.e., Cresswell & Eklund, 2005a; Gould, Udry et al., 1996; Kenttä, Hassmén, & Raglin, 2001; Raedeke, 1997). Even if research shows positive and negative associations between burnout and variables such as perfectionism, anxiety, intrinsic and extrinsic motivation, these studies are mainly of a cross-sectional design. Other research approaches are thereby needed.

Cresswell and Eklund (2003) presented a model adapted from the work of Maslach and Leiter (1999) in an attempt to guide practitioners such as medical doctors, sport psychologists and coaches. In their description, the burned-out athlete is mentally and physically exhausted, feels moody and has low confidence. The athlete feels that he or she is not contributing to the team, does not feel valued and is isolated from teammates. The burned-out athlete also has concentration problems in the sport setting, exhibits inflexible thinking and has an unbalanced approach to life. It is important to remember that this model was generated through a literature review and a case study in rugby. It should therefore be used only to inform practitioners and not for diagnostic purposes, as also stressed by Cresswell and Eklund (2003).

## **Models of athlete burnout**

Several attempts have been made to describe and explain athlete burnout. This includes R. E. Smith's (1986) *Cognitive-Affective Stress Model*, Silva's (1990) *Negative Training Stress Response Model*, Coakley's (1992) *Unidimensional Identity Development and External Control Model*, and Schmidt and Stein's (1991) and Raedeke's (1997) *Commitment Model*. All models have empirical support; however, the number of studies specifically investigating each model is few (see Table 1), indicating a need for theory-based research in this area. A brief description of the most influential models of athlete burnout will be outlined below.

### *Smith's (1986) Cognitive-Affective Stress Model*

R. E. Smith (1986) proposed a stress-induced model of burnout, which is based on social exchange theory (Thibaut & Kelley, 1959). According to this theory, human behavior is directed by the desire to maximize the positive experiences and minimize the negative ones. Athletes therefore drop out from sport based on a cost-benefit analysis, withdrawing from sport when the costs outweigh the outcome and they feel that other alternatives are more favorable. As a consequence, R. E. Smith defined burnout as psychological, emotional and at times physical withdrawal from a formerly enjoyed activity. As mentioned earlier, this definition is problematic as it does not differentiate burnout from dropout.

In R. E. Smith's model, burnout is hypothesized as developing via a four-stage process during which stress and burnout evolve in parallel. In the first phase, demands such as high training load, extreme expectations and parental pressure are placed on the athlete. The second stage involves a cognitive appraisal of the situation. All athletes will not interpret the demand similarly; some will perceive the situation as more overwhelming than others will and experience feelings of helplessness. Third, if the demand is perceived as overwhelming or threatening, a physiological response will arise (e.g., arousal). The burnout symptoms here are typically tension, fatigue and insomnia. Finally, the physiological response will lead to behavioral responses or coping such as decreased performance, avoidant behavior or withdrawal from the activity. R. E. Smith also proposed that the model is circular and continuous, which means that the coping and behavioral responses will affect subsequent stages of

demands and appraisal. All four stages are also influenced by personality and motivational factors.

Much of the early research on athlete burnout adopted a stress perspective (Cohn, 1990; Silva, 1990). Gould, Tuffey and colleagues (1996) have viewed athlete burnout within a stress-related strain model that includes both a physically driven strain (i.e., burnout is related to too much training) and a social-psychologically driven strain. The physiological strain has support, with recent studies showing that overtraining is positively related to burnout (Lemyre, Roberts, & Stray-Gundersen, 2007). The psychological strain includes two sub-strains, one including vulnerable personality dispositions to developing burnout such as maladaptive perfectionism, while the other focuses on situational demands such as pressure from parents, coaches or significant others; both these sub-strains have support (Gould, Tuffey et al., 1996; Gould, Tuffey et al., 1997). The stress-based studies lend support to the model proposed by R. E. Smith. However, as mentioned earlier it is important to note that everyone who experiences stress does not burn out (Raedeke, 1997). Burnout is therefore more than simply a reaction to prolonged stress.

#### *Silva's (1990) Negative Training Stress Response Model*

Silva developed a model with a strong focus on physical and training factors, although he recognized the importance of psychological aspects. This model states that burnout is a product of excessive training and that the training load can have both positive and negative effects. If a positive adaptation to the training load takes place this will lead to enhanced performance, which is the goal of the training, but a negative adaptation will eventually lead to burnout and withdrawal from sport.

According to Silva, the negative adaptation can be described on a continuum from an initial failure of the body's adaptation to cope with psychophysiological stress called staleness, to overtraining, which is manifested in "detectable psychophysiological malfunctions characterized by easily observed changes in the athletes' mental orientation and physical performance" (Silva, 1990, pp. 10). The final step is burnout, which Silva defined as "an exhaustive psychophysiological response exhibited as a result of frequent, sometimes extreme, but generally ineffective efforts to meet excessive training and sometimes competitive demands" (Silva, 1990, pp. 11). Silva was not the first to address excessive training stress as a cause of burnout. It had been mentioned by Rowland (1986), but Silva described burnout within a broader concept he

called training stress syndrome, and described how overtraining and burnout might be linked. Recent research also shows that overtraining is related to burnout (Lemyre, Roberts, & Stray-Gundersen, 2007). However, the use of the term staleness as the initial stage in the maladaptation process is a bit confusing as other American scholars have traditionally (e.g., Morgan et al., 1987) used this as the end product. Also, the term overtraining is used as a state whereas others have used it to refer to the process and overtraining syndrome as the outcome (see Kellmann, 2002). The use of the terms and definitions that Silva applied has several positive aspects, but because there are some mixtures with earlier definitions they can unfortunately seem confusing.

Silva also conducted a descriptive survey of 68 university athletes, and 47% of these athletes reported that they had been burned out. This number of burned-out athletes seems extremely high. Due to the small sample size and because there was no description of how the athletes defined burnout and overtraining syndrome, Silva's results must be interpreted cautiously. In comparison, Gould and Dieffenbach (2002) estimated the prevalence of burnout as being between 1-5% in a sample of 236 swimmers.

#### *Coakley's (1992) Unidimensional Identity Development and External Control Model*

The models of R. E. Smith (1986) and Silva (1990) have a mainly stress-based focus. Another perspective has suggested that the social organization of high-performance sports is causing burnout in athletes due to a lack of control and identity constrictions (Coakley, 1992).

Coakley based his model on informal interviews with young high-level athletes, and argued that stress is not the cause of burnout but only a sign. Coakley proposed that the amount of time the athletes commit to sports limits their ability to develop a multifaceted identity. They have no time to spend with friends or activities outside sport. Moreover, the social world of sport is organized in ways that inhibit athletes' decision-making ability and their control over career and life in general. Coakley contends that at some point in a young person's life he or she desires an alternative identity and personal control over life, and this forces them to leave sport. Leaving sport is a painful experience; this is the symptom that is associated with burnout, according to Coakley. Restructuring the social organization of elite sport would therefore reduce burnout among athletes. Even if the empirical support for this model is not extensive, research in occupational burnout has shown that participation in decision-making and



autonomy is negatively related to burnout (Schaufeli & Enzmann, 1998). A recent study (Black & Smith, in press) investigated Coakley's perspective and gave partial support to the notion that perceived control and identity exclusivity contribute to athlete burnout. However, identity being negatively related to burnout does not fully support Coakley's assumptions. The results from Coakley's interviews must be viewed cautiously since a sample of convenience was used and the conceptualization of burnout was unclear, possibly being confused with dropout.

*Schmidt and Stein's (1991) and Raedeke's (1997) Commitment Model*

Earlier research on athlete burnout has predominantly applied a stress perspective, but as mentioned earlier not every athlete who experiences stress burns out (Raedeke, 1997). In addition to the predominantly stress-induced models, commitment was added as an important factor in the development of burnout (Raedeke, 1997; Schmidt & Stein, 1991).

Commitment is defined as "psychological construct representing the desire and resolve to continue sport participation" (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993, p.6). Three categories of "causal conditions" for commitment have been proposed (Kelley, 1983). The first category is how attractive or enjoyable the activity is perceived, and the second involves which alternatives to the activity are viewed as attractive to a greater or lesser degree. The last category contains the restrictions the athlete perceives as preventing a withdrawal from sport, such as personal investment and social constraints (e.g., social pressure). How the athletes interpret these categories determines whether their commitment is based on enjoyment or entrapment. The athlete whose sport commitment is based on entrapment can be described as participating in sport "because I have to" in contrast to "because I want to." According to this perspective, athletes who burn out do so because they are committed solely for entrapment reasons (Raedeke, 1997). There is empirical support for this model (Raedeke, 1997), and the concept of commitment and entrapment gives valuable insight into burnout as well more stress-based perspectives.

Table 1. Description of the most influential athlete burnout models including empirical support. The empirical support includes the studies that have explicitly investigated the specific model.

	Smith	Silva	Coakley	Schmidt & Stein Raedeke
Theoretical perspective	Stress-based	Stress-based/ overtraining	Sociological/ identity	Commitment theory
Empirical support	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Quantitative data (Number of studies)	<b>Yes (1)</b> Gould, Udry et al. (1996)	<b>Yes (2)</b> Silva (1990) Lemyre, Roberts, & Stray- Gundersen. (2007)	<b>Yes (1)</b> Black & Smith (in press)	<b>Yes (1)</b> Raedeke (1997)
Qualitative data (Number of studies)	<b>Yes (2)</b> Cohn (1990) Gould, Tuffey et al. (1996)	<b>Yes (1)*</b> Gould, Tuffey et al. (1996)	<b>Yes (2)</b> Coakley (1992) Gould, Tuffey et al. (1996)	<b>Yes (1)*</b> Raedeke, Lunney & Venables (2002)

Note: \*Partial or limited support.

#### *Summary of the athlete burnout models*

Although the research is not extensive, all four models have received some support. They also seem complementary in regard to increasing our understanding of burnout as a phenomenon afflicting athletes. From a stress perspective, R. E. Smith (1986) provides a theoretical model of how chronic stress leads to burnout. Furthermore, Silva (1990) has emphasized the overtraining perspective, which is salient in many sports. These two perspectives do not, however, satisfactorily explain why some athletes develop burnout and some do not. R. E. Smith (1986) mentioned that motivational and personality factors play a role, but not how these factors affect the risk of burnout. Coakley added a quite different perspective, with identity development and lack of

control as important aspects and burnout merely as a symptom of the process of leaving sport. The commitment perspective (Raedeke, 1997; Schmidt & Stein, 1991) adds a potential explanation for why some athletes burn out and some do not. Raedeke (1997) made an important contribution by integrating the commitment perspective and the ideas related to identity development proposed by Coakley, launching the entrapment concept. However, even if feelings of entrapment are correlated with burnout, it is not fully known what shapes these feelings and why these athletes remain in sport despite symptoms of burnout. Thus, even if there is some support for all four models, more specific research investigating these different perspectives is needed.

## **Psychological concepts related to burnout**

### *Motivation*

Motivation can be defined as psychological constructs that “energize, direct and regulate achievement behavior” (Roberts, 2001, p.3), and knowledge about motivation is fundamental in understanding elite sports and why athletes devote themselves to intensive training for a number of years. As evident in the previous text, exact reasons why only some athletes develop overtraining syndrome or burnout are not fully known, but several scholars have suggested that highly motivated athletes are more susceptible and at greater risk than others who have a lower level of motivation (Fry et al., 1991; Gould, 1996). Motivation is therefore presented from a social-cognitive framework through two important motivational theories related to burnout, the *Achievement goal perspective* (Nicholls, 1989) and *Self-determination theory* (Ryan & Deci, 2000; 2007), which will be outlined briefly below.

*Achievement goal perspective.* Descending from the work of educational psychologists in the late 1970s and early 1980s, achievement goal theory was adapted to sport psychology (see Roberts, 2001). It has since become the most popular theory of motivation in a sport and exercise context (Roberts, Treasure, & Conroy, 2007). According to this theory, there are two central achievement goal orientations: ego and task (Nicholls, 1989). These two directions will influence how athletes think of achievements and guide their decisions and behavior. When an athlete is task-involved, perceived competence is self-referenced and dependent on the athlete’s own demonstration of performance improvement, effort, learning new skills or task mastery.

If ego-involved, the athlete feels competent if he or she can demonstrate an ability superior to that of other athletes. Ego-involved athletes can also feel competent if they are as good as their opponent, but can manage with less effort. The desire to demonstrate competence and avoid incompetence is the energizing factor in the motivational processes associated with achievement goals (Roberts, 2001). Further, the two dimensions are thought to be independent or orthogonal (Roberts et al., 2007). Thus, there are athletes who are both ego and task-oriented and others who have one main goal orientation.

It is assumed that when athletes are highly task-oriented they will devote themselves to adaptive achievement behaviors such as engaging in training, giving their best in both training and competition, exhibiting persistence even if not performing well and continually working on improving their skills (Duda & Balaguer, 2007). These behaviors are expected, regardless of whether the athlete perceives his or her competence as high. Athletes with an ego-goal orientation, on the other hand, might show the same behavior if they perceive their competence as high (Roberts, 2001). But if ego-oriented athletes have doubts about their ability it is predicted that they will adopt a maladaptive achievement behavior that includes avoiding challenges, holding back their effort in training or dropping out of sport (Duda & Balaguer, 2007).

Situational factors are thought to be important in mediating athletes' goal orientation. This is called *the Motivational Climate* and refers to the perceived structure of the achievement environment (Ames, 1992). Two types of climate have been identified: mastery and ego-oriented. In a mastery climate, mistakes are regarded as a part of the learning process and a source of feedback. Moreover, the coach emphasizes effort and personal skill development. In an ego-oriented climate athletes are compared with each other and mistakes are criticized and punished (Duda & Pensgaard, 2002). Whether the climate is task or ego-oriented is determined by coaches, managers, parents and peers. A mastery climate is correlated with lower levels of anxiety, higher intrinsic motivation and athlete enjoyment, whereas an ego-oriented climate is negatively correlated with satisfaction and enjoyment (Duda & Balaguer, 2007; Harwood & Biddle, 2002).

The positive effects found in the literature imply that coaches should endorse a task-orientated climate (Duda & Pensgaard, 2002). However, well renowned sport psychology researchers and practitioners argue that it is doubtful that athletes at an elite level could succeed without a strong ego-involvement (Hardy, Jones, & Gould, 1996).

On the other hand, Olympic-level athletes seem to experience less stress when also being highly task-oriented, and emphasize the importance of a supportive and caring climate (Pensgaard & Roberts, 2000, 2002). From a theoretical standpoint, the maladaptive nature of ego goals has been suggested as an antecedent of burnout (Hall, Cawthra, & Kerr, 1997). According to this view, athletes with an ego orientation who first experience success will experience sport as very positive. They attribute their success to high ability and continue their effort to improve. However, because their perception of competence is normative they initially respond to failure with higher effort. Normally low ability ego-oriented athletes will drop out of sport and avoid this stressful experience. But if these athletes have invested too much in sport or do not have other alternatives, they will remain in sport (i.e., high commitment: Schmidt & Stein, 1991) and subsequently burn out. Recently Lemyre, Hall and Treasure (2007) found that motivational profiles of maladaptive perfectionism, ego goals and an ego-oriented motivational climate can predict burnout.

*Self-Determination Theory.* Recently, Self-Determination Theory (Ryan & Deci, 2000; 2007) has been used to explain burnout (Cresswell & Eklund, 2005a; Lemyre, Roberts, & Stray-Gundersen, 2007). According to this theory, satisfaction of the core human needs of relatedness, autonomy and competence is fundamental for well-being, whereas frustration of these needs contributes to ill health (Ryan & Deci, 2000). Studies using this theoretical framework have shown that burnout is associated with amotivation and that intrinsic motivation is negatively correlated with burnout (Cresswell & Eklund, 2005a). It is therefore suggested that chronically frustrated or unfulfilled psychological needs will lead to athlete burnout and that Self-Determination Theory can serve as a conceptual framework to explain athlete burnout (Cresswell & Eklund, 2005a, 2006a).

Studies of burned-out junior tennis players have shown that the crucial factors in burnout were psychological, including motivational aspects but not physical training (Gould, Udry et al., 1996). There also seems to be a seasonal variation in the key characteristics of burnout and motivation (Cresswell & Eklund, 2005b). Further, it has been shown that self-determined motivation is negatively related to burnout (Lemyre, Roberts, & Stray-Gundersen, 2007). In an investigation of motivation and burnout in swimmers during the season, it was found that motivational changes toward less self-determined motivation were associated with higher burnout levels at the end of the season (Lemyre et al., 2006). Based on these findings, it has been argued that coaches

should support autonomy and self-determination in athletes, thereby satisfying their basic needs, and that this could have a preventive effect on burnout (Treasure, Lemyre, Kuczka, & Standage, 2007). The motivational aspects of burnout have not been well investigated, and this is clearly an important matter in the future study of athlete burnout. For example, it is necessary to establish the suggested relationship between the frustration of basic psychological needs in accordance with Self-Determination Theory and burnout, because the amotivation found in burned-out athletes can also be a consequence or symptom of other processes. So, even if Self-Determination Theory appears to be a potential framework, more research is needed.

### *Athlete identity*

As mentioned earlier, Coakley (1992) argued that burnout has its roots in the social organization of sports and is related to identity development in young athletes, in contrast to the earlier stress-based models suggested for explaining burnout (R. E. Smith, 1986). The concept of athlete identity will therefore be explained in more detail here.

In its narrowest sense, self-concept or identity can be defined as the answer to the question “Who am I?” (Myers, 2005). The elements of our identity are called self-schemas and are specific beliefs about how we define ourselves (Marcus & Wurf, 1987). These schemas help us organize our world, and if a person perceives him or herself as an athlete this will have a powerful effect on how he or she processes social information (Myers, 2005). The way an athlete identifies with the athletic role is called athlete identity (Brewer, Van Raalte, & Linder, 1993), and is a social role that is heavily socialized by the influence of family, friends, coaches, teachers and the media (Brewer et al., 1993). Athlete identity is proposed to be formed early in one’s life when a child is recognized for his or her talent in sport, and during childhood this identity as a successful athlete is internalized (Webb, Nasco, Riley, & Headrick, 1998). For athletes, participating in sport is often essential to their self-worth and is sometimes the most important source of self-esteem and self-definition (Brewer et al., 1993).

A strong athlete identity may be beneficial in sport. A high athlete identity is associated with better performance, greater commitment and an expanded social network in marathon runners (Horton & Mack, 2000). But runners with high athlete identity also reported both negative and positive aspects of running in comparison with runners with a lower level of athlete identity, which indicates mixed effects. Athletes

with a strong and exclusive athlete identity are likely to suffer from more negative affect in relation to a negative or stressful sporting outcome such as injury (Brewer et al., 1993). Because athletes are involved in sport from a very young age and often totally immerse themselves, they are less likely to explore other career, education and lifestyle options because of their total commitment to sport (Taylor et al., 2006). It has also been established that athletes who attribute greater importance to their involvement in sport are more at risk of experiencing retirement-related difficulties than are athletes who place less importance on sport in their identity (Webb et al., 1998).

It has been suggested that a strong and exclusive athlete identity is related to overtraining syndrome and burnout (Brustad & Ritter-Taylor, 1997; Coakley, 1992). In this view it is hypothesized that strong identification might oblige athletes to train excessively and thereby jeopardize their health (Brewer et al., 1993). Surprisingly, Gould and colleagues did not find any differences between burned-out players and their non-burned-out peers in their level of athlete identity (Gould, Udry et al., 1996). Even more surprisingly, Raedeke (1997) found a negative relationship between identity and the three burnout dimensions. It is important to note that these findings are based on discriminant analysis between burned-out and healthy athletes (Gould, Udry et al., 1996) and cross-sectional data (Raedeke, 1997). Therefore burned-out athletes could initially have strong athlete identity, which progressively weakens because devaluation of sport participation is part of the burnout syndrome (Raedeke, 1997).

### *Perfectionism*

There is a debate over whether perfectionism is a positive or a negative attribute in athletes; however, it is clear that perfectionism is related to burnout in athletes (Gould, Udry et al., 1996; Lemyre, Hall, & Roberts, 2007) and it will therefore be described briefly here.

Perfectionism is a multidimensional personality construct that can be described as the strive for perfection (Flett & Hewitt, 2005). Setting up high goals and standards for oneself does not have to be negative; this is the foundation for all human achievements in, for example, art, music, science and sport. It becomes problematic, however, when it is combined with too much self-criticism (Frost, Marten, Lahart, & Rosenblate, 1990). Individuals who practice this are often engaged in thinking patterns such as “all or nothing”; performance must be perfect otherwise it is a failure (Burns, 1980). Extreme perfectionists also want to be perfect in all aspects of their life (Flett & Hewitt, 2002).

It has been observed that many elite athletes have perfectionist traits, and it has been suggested that these traits are an underlying cause of their achievement strivings and athletic accomplishments (Gould, Dieffenbach, & Moffat, 2002; Hardy et al., 1996). But perfectionism is also associated with negative affective responses such as anxiety, decreased self-esteem and burnout (Frost & Henderson, 1991; Gould, Udry et al., 1996; Hall, Kerr, & Matthews, 1998). Thus the influence of perfectionism in athletes is not fully clear.

The mixed results of perfectionism in sport might be due to confusion about its definition and the suggestion that it can be both adaptive and maladaptive (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hamacheck, 1978). Adaptive perfectionism is characterized by a strive to maximize one's potential, whereas the hallmark of maladaptive perfectionism is the avoidance of failure. It has been suggested that the distinction between adaptive and maladaptive perfectionism is acceptance. The difference is striving for perfectionism and having the demands of being perfect (Lundh, 2004). Based on consultation with elite athletes, Hardy et al. (1996) noted that these athletes had learned to handle their perfectionism and use it as an asset instead of allowing it to hamper their development. However, this standpoint has been criticized and remains an unsolved issue (Flett & Hewitt, 2005; Hall, 2006). Even if the outcome might be positive for the adaptive or healthy perfectionist, the self-critical dimension in the perfectionist makes them vulnerable during stressful conditions (Flett & Hewitt, 2002) and is therefore a potential risk factor in burnout (Gould, Udry et al., 1996; Lemyre, Hall, & Roberts, 2007).

### *Self-esteem*

Self-esteem can be described as a "person's overall self-evaluation or sense of self-worth" (Myers, 2005). Self-esteem is thereby the value people place on themselves. High self-esteem implies a highly favorable evaluation of the self, whereas low self-esteem means an unfavorable evaluation of the self (Baumeister, Campbell, Kreuger, & Vohs, 2003). Having a performance-based self-esteem can have negative health consequences (Crocker & Park, 2004) and has been suggested to be related to occupational burnout (Hallsten, 2005); it is therefore described briefly here.

Levels of self-esteem are important for one's well-being. In non-sport settings, it has been found that individuals with low levels of self-esteem tend to be less happy, more anxious and less able to exert effort on tasks compared to people with high self-



esteem (Diener & Diener, 1995; McFarlin, Baumeister, & Blascovic, 1984; Pyszczynski & Greenberg, 1987). Even if causation has not been clearly established, there is strong support suggesting that high self-esteem leads to greater happiness (Baumeister et al., 2003). Low levels of self-esteem, on the other hand, are associated with depression (Crocker & Park, 2004). Studies in sport settings have also showed that low levels of self-esteem are associated with competitive anxiety, eating disorders and maladaptive perfectionism (Berry & Howe, 2000; Gotwals, Dunn, & Wayment, 2003; Koivula, Hassmén, & Fallby, 2002). Thus, low levels of self-esteem can have detrimental effects on a person's physical and mental health.

The domain in which the individual has invested his or her self-worth can affect his or her well-being. Already in the 19<sup>th</sup> century, William James (1890) stated that self-esteem is both a stable trait and an unstable state. Building on this theory Crocker and Wolfe (2001) suggested that good or bad events in domains that are important to the individual's self-worth raise or lower feelings of self-esteem around the individual's typical trait level. According to this view, global state self-esteem rises and falls in response to accomplishments, setbacks and altered circumstances related to one's contingencies. Because an increase in self-esteem feels good and a decrease feels bad, these fluctuations of state self-esteem have important motivational consequences (Crocker & Park, 2004). In areas where the individuals have invested their self-worth, they will adopt goals to validate themselves. Increases will lead to positive emotional effects associated with success and allow the individuals to avoid the negative effects that accompany failure. This is how self-esteem can regulate behavior. For example, if athletes have based their self-esteem on accomplishments in sport they will have self-validation goals in this domain. As a consequence, a failure in sport will threaten their self-esteem and they will try to avoid this by exerting an increasingly higher effort (Crocker & Knight, 2005). If the individual's self-worth is based on external contingencies, such as others' approval or performance in sport, this might make the individual adopt more chronic self-validation goals and the costs will be greater, including impaired physical and mental health (Crocker & Park, 2004).

The costs of having self-validation goals and performance-based self-esteem can potentially also be associated with burnout. It has been suggested that self-esteem strivings affect self-regulation (Crocker & Park, 2004). Self-regulation includes restraining impulses that will affect the self negatively and cause an individual to progress toward goals that will have positive benefits in the future (Metcalf & Mischel,

1999). When athletes have self-esteem validation goals, their self-regulation can be problematic. If self-regulation is to be effective, this means disengaging from goals when progress is too slow (Carver & Scheier, 1998) but if goals are connected to self-worth it is harder to disengage from these goals (Baumeister, Heatherton, & Tice, 1993). This means that athletes' self-esteem being based on performance in sports might lead them to continue training even when they experience signs of training maladaptation; this increases the risk of burnout.

## **Unanswered questions in previous athlete burnout research**

### *Prevalence of burnout among athletes*

An important question regarding athlete burnout is how many athletes are afflicted, or: What is the prevalence? Although the importance of knowledge about the prevalence of burnout has been accentuated, no studies have specifically investigated this matter (Dale & Weinberg, 1990; Goodger et al., 2006). This is because there are no normative data based on large-scale surveys available. In occupational burnout research, the prevalence of severe burnout is estimated at between 4 and 10% in the Netherlands (Schaufeli, 2003). Raedeke (1997) investigated burnout in a group of swimmers with a preliminary version of the Athlete Burnout Questionnaire. Using cluster analysis, Raedeke found that 11% of his sample scored at midpoint (i.e., sometimes) or higher on all three subscales (exhaustion, devaluation and reduced sense of accomplishment) and interpreted this as a "high level of burnout". Using the same cut-offs, and based on a secondary analysis of data from a study of rugby players using the Athlete Burnout Questionnaire, Eklund and Cresswell (2007) found that between 19 and 25% experienced high levels of burnout, expressed as scoring at midpoint or higher on the subscales. When only the athletes who had scored midpoint or higher on all three subscales were included, 6% experienced high levels of burnout. Gould and Dieffenbach (2003) estimated that the prevalence of burnout among competitive swimmers using data from Raedeke (1997) to be approximately 1-5%. Athletes were considered to suffer from some kind of burnout if they scored more than two standard deviations above the mean on the burnout subscales of emotional/physical exhaustion, devaluation and reduced sense of accomplishment or if they had an absolute of 4 or higher on each scale (5 is the highest score possible). There is a considerable difference in the estimated numbers of athletes suffering from high levels of burnout ranging from

1 to 25%. This might partly be due to relatively small and homogenous samples, but is most likely a result of different cut-offs; thus the choice of cut-off is very important in the estimation of prevalence of burnout.

The most common way to categorize the level of burnout used in occupational settings is to use arbitrary statistical norms as applied with the Maslach Burnout Inventory (Maslach et al., 1996). In this approach, a normative sample is divided into three equally sized groups of 33.3% each, assuming that the upper third is experiencing a “high degree of burnout”, the middle third an “average degree of burnout” and the bottom-third a “low level of burnout.” It is important to emphasize that this classification is not intended to be used for diagnostic purposes (Maslach et al., 1996), but instead gives an estimation of the level of burnout in the sample. Interestingly, no studies of athletes have used this approach. It has been argued that burnout should be more prevalent in individual sport than in team sport. The reason for this has been speculated to be higher training loads in individual sports (R. E. Smith, 1986) or a buffering effect of being part of a team (Coakley, 1992). These claims have not been investigated empirically.

#### *The process of burning out*

In occupational settings, burnout has been considered a dynamic process that evolves over time (Cherniss, 1980; Schaufeli & Buunk, 2003). A few longitudinal studies in sport have been conducted, showing levels of burnout to vary across time points (Cresswell & Eklund, 2005b; 2006c; Lemyre, et al., 2006). However, these studies were conducted foremost with healthy athletes, leaving a notable gap in our understanding of the process of burning out in those with a fully developed syndrome.

An approach to investigating dynamic processes like burnout is to employ qualitative methods (Camic, Rhodes, & Yardley, 2003), but only one study has investigated the process of athlete burnout by adopting a qualitative approach (Cresswell & Eklund, 2007). Rugby players were interviewed multiple times over a twelve-month period, describing both negative and positive changes in their burnout experiences. The results supported the multidimensional description of athlete burnout suggested by Raedeke (1997), whereby burnout is defined as a syndrome of emotional/physical exhaustion, reduced sense of accomplishment and sport devaluation. This study provided information on the dynamics of burnout. However, this methodology does not allow the investigation of the development of severe burnout

from “start to finish”, but instead only the burnout experience within a certain time frame.

Training stress has been emphasized less in the “classic” burnout case, and it has been suggested that psychological factors are the most prominent in the development of burnout (Gould, Udry et al., 1996). This suggestion, however, is not based on data from endurance athletes. In endurance sports, large volumes of training are fundamental to involvement and success. Therefore, investigating burnout in endurance sports could give valuable information about how various aspects of training are related to the development of burnout. The etiology of burnout in endurance athletes might differ from the etiology in less physically demanding sports and therefore needs closer investigation.

#### *The characteristics of the burnout experience*

Even if the amount of athlete burnout research has increased recently there is still little knowledge of the experience of burnout and why these athletes remain in sports despite negative outcomes such as ill health. Qualitative methods seem to be appropriate for investigating the nature of burnout, in view of the fact that it is a complex interaction between personal and situational factors (R. E. Smith, 1986). It has further been argued that, as burnout is an individual and subjective experience (Gould, Tuffey, Udry, & Loehr, 1997; Schaufeli & Enzmann, 1998), qualitative methods may be better than traditional quantitative approaches for investigating complex social issues and subjective experiences (Patton, 2002).

Despite the potential benefits, only a few studies have used a qualitative research approach to investigate the nature of burnout and these suffer from methodological shortcomings. First, it is questionable whether the investigated athletes have actually experienced burnout, as burnout has been confused with temporary stress and dropout (Coakley, 1992; Cohn, 1990; Cresswell & Eklund, 2006a). Several studies have also investigated very young athletes (Coakley, 1992; Cohn, 1990; Gould, Tuffey et al., 1996; Gould et al., 1997), some as young as twelve. Only two qualitative studies have been conducted with adult athletes (Cresswell & Eklund, 2006a, 2007), and their findings support the multidimensional conceptualization of athlete burnout proposed by Raedeke (1997, Raedeke & Smith, 2001) and offer valuable information about the dynamic nature of burnout. Interpretations must be treated with caution, however, because only a small number of the participants appeared to suffer from high levels of

burnout (i.e., high scores on all three dimensions of the Athlete Burnout Questionnaire). Thus, knowledge concerning the burnout experience in athletes is limited, due partly to a small number of qualitative studies that have suffered from sampling limitations and/or lack of proper definitions. Although models and definitions of burnout have been offered, key signs and antecedents of burnout in elite athletes have not been thoroughly delineated through empirical research.

### **Aims of this thesis**

The general aim of this thesis was to investigate burnout in competitive and elite athletes. Knowledge about the prevalence of burnout in athletes is limited; therefore, the aim of *Study I* was to investigate how many athletes are afflicted. Another aim was to test the hypothesis that burnout is more common in endurance athletes than in team sport athletes. The process of burnout is not well understood, due to ethical limitations in the possibilities to induce burnout in healthy athletes. Further, knowledge about burnout in endurance athletes and the relationship between overtraining syndrome and burnout is not well known. Therefore the aim of *Study II* was to investigate in depth the process of burning out in three elite endurance athletes. Although there has been research on the characteristics of athletic burnout, knowledge about antecedents and underlying processes is lacking. This is especially evident in elite athletes suffering from severe burnout. The aim of *Study III* was therefore to investigate the characteristics of burnout in elite athletes who had experienced high levels of burnout. The following research questions are asked:

- 1 What is the prevalence of burnout in competitive adolescent athletes? (Study I)
- 2 Is burnout more common in individual sports than in team sports? (Study I)
- 3 Is the Eades Athlete Burnout Inventory a valid instrument for measuring athlete burnout? (Study I)
- 4 What characterizes the process of burnout in elite endurance athletes and what is the “driving force” in the development of burnout? (Study II)
- 5 What is the relationship between burnout and overtraining syndrome in elite endurance athletes? (Study II)
- 6 What are the characteristics of burnout in elite athletes? (Study III)
- 7 Why do athletes continue in sports despite negative outcomes? (Study III)



## II. Summary of the empirical studies

Study I: Gustafsson, H., Kenttä, G., Hassmén, P., & Lundqvist, C. (2007). Prevalence of burnout in competitive adolescent athletes. *The Sport Psychologist, 21*, 21-37.

It has been argued that the number of athletes suffering from burnout is on the rise due to increased training loads, restricted time for recovery and increased competitive stress (Gould & Dieffenbach, 2002; Raglin & Wilson, 2000). Knowledge about the prevalence of burnout among competitive athletes is limited, however. One reason for this is the lack of psychometrically valid instruments for measuring burnout in athletes (Raedeke & Smith, 2001). Earlier studies (Gould, Udry et al., 1996; Vealy et al., 1998) have used the Eades Athlete Burnout Inventory (EABI; Eades, 1990), but only a preliminary validation has been conducted (Vealy et al., 1998). It has been argued that burnout is more common in individual athletes than in team sports because of higher demands in terms of time and effort (R. E. Smith, 1986), and because the social support and relationships in team sports can serve as a buffer (Coakley, 1992). These claims have not been tested empirically. The aim of this study was therefore to examine the factorial validity of the Eades Athlete Burnout Inventory, the prevalence of burnout in adolescent competitive athletes, and whether burnout is more common in individual sports than in team sports.

### *Method*

The Eades Athlete Burnout Inventory was distributed to 980 athletes (402 females and 578 males) in 29 different sports, 23 (n=665) individual and 6 (n=315) team sports. The athletes also completed a questionnaire involving items related to various aspects of training previously used with age group athletes (Kenttä et al., 2001). All athletes were studying at designated sport high schools in Sweden and ranged in age from 16 to 21 years, with a mean age of 17.5 years (SD=0.95). The Eades Athlete Burnout Inventory is a 36-item self-report inventory and has been developed from general burnout inventories (e.g., Maslach Burnout Inventory; Maslach & Jackson, 1986) and interviews with athletes suffering from burnout (Eades, 1990). The inventory is based on a seven-

point Likert scale (0-6) and the participants respond to the intensity of various feelings and cognitions regarding their athletic participation. The inventory contains six subscales, four of which were included in this study (*Negative Self-Concepts of Athletic Ability, Emotional and Physical Exhaustion, Psychological Withdrawal from Sport and Devaluation of Sport Participation, Devaluation by Coach and Team-Mates*). The remaining two (*Congruent Athlete–Coach Expectations* and *Personal and Athletic Accomplishment*) were excluded due to weak theoretical grounding and low internal consistency (Eades, 1990; Gould, Udry et al., 1996).

### *Results and discussion*

Concerning the factor structure, we found support for the theoretically supported four-factor model of the Eades Athlete Burnout Inventory, but factorial invariance across gender was insufficient. This implies psychometrical shortcomings and that females and males interpret the subscales differently, which would affect gender comparisons. Nevertheless, it was found to be invariant between team and individual sports, indicating stability in the scale for such comparisons. Regarding the prevalence of burnout frequency, data in relation to low (lower third), moderate (middle third) and high (upper third) levels of burnout were established in the same manner as Maslach et al. (1996) have proposed. Between 1 and 9% of the athletes displayed high burnout scores on the four subscales. Since burnout is considered a multidimensional syndrome, it is argued that the most severe phase is characterized by high scores on all subscales (Golembiewski, Boudreau, Munzenrider, & Luo, 1996; Maslach et al., 2001). According to this view about 1-2% of the athletes in our sample were experiencing symptoms of severe burnout, which implies that burnout is a serious problem among competitive adolescent athletes. The hypothesis of higher prevalence of burnout in individual sports was not supported, however, indicating that burnout is not more common among individual athletes than among team sport athletes. Furthermore, no correlation between training load (hours per week and hours per day) and burnout scores was found. These findings suggest that factors other than training load must be considered when athletes at risk for burnout are investigated.

Study II: Gustafsson, H., Kenttä, G., Hassmén, P., Lundqvist, C., & Durand-Bush, N. (in press). The process of burnout: A multiple case study of three elite endurance athletes. *International Journal of Sport Psychology*.



Becoming an elite endurance athlete requires extensive training over a number of years (Keul et al., 1996). It has been proposed that the training process can be viewed as a continuum with separate stages where training fatigue constitutes the first stage, overreaching and overtraining syndrome represent subsequent stages (Fry et al., 1991), and burnout is the most severe outcome (Kenttä, 2001). Unfortunately, these processes have been studied separately and there is limited knowledge about this process. One component proposed to distinguish between overtraining syndrome and burnout is motivation. Whereas athletes suffering from overtraining syndrome can still be extremely motivated, burnout leads to a dramatic drop in their desire for training and competition (Gould, Tuffey et al., 1996; Raglin, 1993). It can even result in complete withdrawal from sport (R. E. Smith, 1986). Some scholars have, however, suggested that motivational loss may also be present in athletes suffering from overtraining syndrome (Fry et al., 1991); but this is primarily based on anecdotal evidence as research on overtraining syndrome is lacking (Halson & Jeukendrup, 2004).

Much of the athlete burnout research has used a cross-sectional design (i.e., Cresswell & Eklund, 2005a; Raedeke & Smith, 2001), although some attempts at using longitudinal design have been made, showing the dynamics of burnout during the season (Cresswell & Eklund, 2006c; Lemyre et al., 2006). Unfortunately, these studies have mainly used healthy athletes and a quantitative approach, which limits the possibility to investigate the complexity and dynamics of the burnout experience. Cresswell and Eklund (2007) interviewed athletes at several times during the season about their experiences. However, this design does not allow the investigation of burnout from “start to finish” and makes it difficult to gain novel knowledge about the burnout process. Furthermore, traditionally social-psychological aspects have been emphasized in athlete burnout research (e.g., Gould, Udry et al., 1996; Raedeke, 1997) with minor emphasis on the training-related aspects of burnout and relations to overtraining syndrome. Because there are very few studies investigating burnout in the context of elite endurance sports and knowledge of the dynamics of the burnout process is limited, our purpose was to study in-depth the process of burning out, from start to finish, in three elite endurance athletes. We used a case-study methodology including retrospective interviews, training-log entries and responses to the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) to address this purpose.

### *Method*

A case-study methodology was chosen since this is considered an appropriate method when the aim is to examine complex and dynamic processes occurring over time (Merriam, 1998). Purposeful sampling (Patton, 2002) was used in the selection of three elite endurance athletes (two women and one man, 21, 22 and 19 years old, respectively) to participate in this study. All three were cross-country skiers, with one also competing in orienteering and ski-orienteering. Semi-structured interviews were conducted using a interview guide containing questions regarding why the athletes had withdrawn from sport, symptoms before withdrawal, perceived demands and responses to demands, perceived performance, motivation, social relations and significant others. Since training load is a fundamental part of the total stress in endurance sports (Keul et al., 1996) questions about training, recovery and overtraining syndrome were included. The participants were interviewed in person on two occasions. The first interview ranged between 90 and 220 minutes and the second between 40 and 60 minutes. All interviews were tape-recorded and transcribed verbatim. The interviews were inductively analyzed by three members of the research team, while the fourth and fifth members acted as “critical friends” in order to reveal bias and promote reflection and alternative interpretations (Marshall & Rossman, 2006). The Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) was used to quantify the athletes’ levels of burnout and to validate the interviews, together with training logs and an interview with a coach with knowledge about the three athletes in order to broaden the analysis using data triangulation. Case narratives were constructed and were also cross-case analyzed. Member checks were used during the whole process to further achieve trustworthiness (Lincoln & Guba, 1985).

### *Results and discussion*

Regarding the process of burnout, all three athletes experienced what can be labeled as burnout but with different levels of severity, symptoms, origins, time perspectives and characteristics. This shows that burnout develops differently and is an individual experience. In addition, links between overtraining syndrome and burnout were found, as was support for an overtraining-burnout continuum in two of the cases. Thus, overtraining syndrome can evolve into burnout. Strong athlete identity, internal pressure/drive to train, high initial motivation, depressed mood and decreased performance were common to all three athletes. Also, being successful at an early age in

their chosen sport had led to high expectations and an internal pressure to train. As a consequence, they ignored early signs of training maladaptation and a chronic lack of recovery, which were important contributors to their burnout. Concerning what fueled the burnout process, it was found that a performance-based self-esteem and achievement strivings to validate self-worth acted as a driving force and were therefore important in the development of burnout. Furthermore, excessive levels of a motivation to succeed, excellent performances at an early age, a perceived need to please others and feelings of pressure and entrapment with restricted control were important contributors.

Study III: Gustafsson, H., Hassmén, P., Kenttä, G., & Johansson, M. (in press). A qualitative analysis of burnout in elite Swedish athletes. *Psychology of Sport & Exercise*.

Athlete burnout has been a topic of discussion both among scholars and in the athletic community. Despite this interest, the etiology of athlete burnout is not fully understood. Much of the research has used a cross-sectional design with foremost healthy athletes (i.e., Cresswell & Eklund, 2005a; Raedeke & Smith, 2001). Since burnout appears to be a complex interaction between personal and social factors (R. E. Smith, 1986), and as it would be unethical to induce burnout in healthy athletes, a qualitative approach using retrospective interviews may be a suitable way to investigate this phenomenon (Patton, 2002). Unfortunately, previous qualitative studies of athlete burnout suffer from methodological problems such as sampling problems and unspecified concept definitions (Coakley, 1992; Cohn, 1990). Further, the participants in these studies are very young and cannot be considered elite athletes. The only study of adult elite athletes included rugby players (Cresswell & Eklund, 2006a), although only four of a total of ten athletes appeared to suffer from burnout (i.e., high scores on all dimensions of the Athlete Burnout Questionnaire). This makes these results difficult to interpret. The aim of this study was to enhance our understanding of athlete burnout by interviewing burned-out elite athletes from different sports using semi-structured in-depth interviews.

### *Method*

Because the purpose of this study was to explore the burnout experience, we had to verify that the athletes had experienced burnout. A Swedish version of the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) was therefore used to assess the

participants' level of burnout. The twelve athletes with the highest ABQ scores were sampled from a pool of 628 athletes. Ten of these twelve agreed to participate. The athletes were between 22 and 26 years old and represented nine different sports. Six of them had been competing at an international level, representing the junior national team, and the other four were elite athletes who had been competing at a national level. All had quit sports due to burnout, and two had later made a comeback. An interview guide was developed from the one used by Gustafsson, Kenttä, Hassmén, Lundqvist and Durand-Bush (in press). Although an interview guide was used, the format of the interviews was semi-structured, making it possible to follow up on issues the participants brought up, as well as providing them sufficient time to talk (Rapley, 2004). The athletes were interviewed on two occasions. The first interview was conducted in person to enhance the possibility to establish rapport. The purpose of the second interview was to clarify issues and verify that the findings truly reflected the perspectives of the interviewees. The interview transcripts were inductively analyzed using qualitative content analysis (Graneheim & Lundman, 2004). Trustworthiness was established using a "critical friend" procedure during the analysis to promote reflection and avoid bias (Marshall & Rossman, 2006). Member checks were used during the study to assure that we had understood the interviewees (Lincoln & Guba, 1985). A reflexive journal was kept during the study and reflections, experiences and methodological decisions were recorded (Lincoln & Guba, 1985). This journal also included memos from the initial analysis, in addition to thoughts and ideas during the interpretative process.

### *Results and discussion*

Regarding the experience of burnout in elite athletes, our findings strengthen the assumption of athlete burnout being a multidimensional syndrome consisting of emotional and physical exhaustion, sport devaluation and a reduced sense of accomplishment (Raedeke, 1997). Concerning antecedents of burnout, the athletes attributed stressors such as lack of recovery, "too much sport" and high expectations as causes. A situation with multiple demands in sport, school and social life contributed to a "total overload". Regarding the question of why athletes remain in sports despite these negative outcomes, we found that critical factors included unidimensional athletic identity, self-esteem strivings, high (ego) goals, inflexible sport organization and feelings of entrapment. These factors contributed by preventing the athletes from

leaving sport, thereby leading to a worsening of their condition. They were therefore labeled “Restraining factors.” Our findings indicate that performance-based self-esteem is an important restraining variable that may adequately contribute to the original model of entrapment presented by Raedeke (1997). Interestingly, high commitment and motivation are considered key features of success in sport (Durand-Bush, Salmela, & Green-Demers, 2001), but they can also constitute a risk factor for burnout (Schaufeli & Buunk, 2003). The restraining factors offer an explanation for this contradiction. An ego-involved motivational climate has been suggested as an antecedent to burnout (Reinboth & Duda, 2004). Our findings indicate that this might be true, but it is the combination of feeling entrapped, being a perfectionist, perceiving multiple stressors and having performance-based self-esteem that makes the ego involvement potentially problematic. In sum, athlete burnout appears to be a complex interaction of multiple stressors, inadequate recovery and frustration at unfulfilled expectations, which is explained partly by maladaptive perfectionist traits and (ego) goals. This process is fueled by a strong drive to validate self-worth, sometimes in conjunction with feelings of entrapment. Our findings further accentuate the importance of a holistic view of the training and recovery process.



### **III. General discussion**

#### **The findings and previous research**

This thesis aims to increase our understanding of burnout in competitive and elite athletes, the prevalence of burnout in elite sports, and reasons given by athletes for the emergence of this condition.

Specifically, Study I adds knowledge about how many athletes are afflicted with burnout. It shows that between 1 and 9% of the athletes at the designated sport high schools in Sweden present high levels of burnout. It is estimated that between 1 and 2% of these athletes suffer from severe burnout symptoms. Further, in contrast to what has been speculated (Coakley, 1992; R. E. Smith, 1986), Study I shows that burnout does not seem to be more common in individual sports than in team sports. Findings in Study II show that the burnout process can develop within different time frames and with different levels of severity. Study II describes the personal experiences of three elite athletes and captures their burnout experiences from “start to finish”, thereby adding knowledge about the entire burnout process, which has been absent in the literature. Study II also shows that performance-based self-esteem appears to be a “driving force” in the process of burnout, with achievement strivings and trying to validate oneself appearing to be important aspects in the development of burnout in athletes. In addition, Study II lends support to the suggestion that burnout is the endpoint and most severe condition of the training continuum (Kenttä, 2001).

A strong athletic identity has previously been suggested as a risk factor in the development of overtraining syndrome and burnout (Brustad & Ritter-Taylor, 1997; Coakley, 1992). Studies II and III support this notion but also show that it appears to be a change in the strength of the athletes’ athletic identity whereby they devalue from their athlete identity when they develop full-blown burnout and experience devaluation of sport.

The findings in Study III give support to a multidimensional conceptualization, with burnout characterized by an enduring experience of physical and emotional exhaustion, frustration due to lack of results and loss of motivation and devaluation of sport participation (Maslach et al., 2001; Raedeke, 1997). Even if a wide range of stressors contributes to the development of burnout, Study III shows that “restraining

factors” play an important role because they prevent athletes from leaving sports despite negative outcomes. This expands the suggested entrapment perspective (Raedeke, 1997; Schmidt & Stein, 1991) and gives insight into how athletes experience being entrapped. Furthermore, Studies II and III add important information from athletes who have experienced high levels of burnout; this information has been limited in the literature.

### **Comments on methodology**

It has been a growing recognition in both sport science and sport psychology that to gain knowledge about phenomena related to sport and performance both qualitative and quantitative approaches are needed, and that qualitative methods have slowly gained credibility (Dale, 1996; Jackson, 1998; Munroe-Chandler, 2005). The use of qualitative or quantitative methodology has more of a pragmatic than an epistemological nature, and has to do with whether or not the method is suitable for answering the question (Bryman, 1988). Thus, good social science is problem-driven, not methodology-driven (Flyvbjerg, 2004). Quantitative approaches are suitable for research questions including cause and effect, for testing hypotheses and provide the opportunity to make generalizations (Bryman, 1988; Creswell, 2003). Considering the research questions in Study I, the aim of which was to investigate the prevalence of burnout and whether burnout is more common in individual sports than in team sports, a quantitative approach was considered the most suitable. In qualitative research the researcher’s goal is to explore and interpret personal and social experiences (J. A. Smith, 2003). The aim is not to predict but to describe, and in some cases explain, events and experiences and to acquire an in-depth understanding of a small number of participants (Patton, 2002; Willig, 2001). Further, because qualitative approaches are suitable in areas where little knowledge exists, as in the case of burnout (Richards & Morse, 2007), I chose a qualitative approach for Studies II and III. In Study II, the aim was to investigate the dynamics of the process of burning out. A foremost qualitative case-study approach was chosen, but with the integration of quantitative data (Merriam, 1998; Patton, 2002; Willig, 2001). In Study III, the aim was to gain a better understanding of the burnout experience and therefore a basic interpretive approach was chosen, whereby the aim is to capture how participants make meaning of a phenomenon (Merriam, 2002). A more in-depth discussion of each methodology used in the specific studies will be outlined below.



### *Strength and limitations of the quantitative approach*

The great number of athletes (n=980) from a wide array of sports (n=29) is a strength of Study I. Also, the high return rate, with over 80% of the questionnaires being returned, must be considered more than adequate. The use of the Eades Athlete Burnout Inventory (Eades, 1990) might be questioned, however. It is important to note that at the time of data collection, the Eades Athlete Burnout Inventory was the only available instrument for measuring athletic burnout and it was also used in the studies by Gould, Udy et al. (1996) and Vealey and colleagues (1998). Eades (1990) developed this inventory based on the work of Maslach and colleagues (1986) and interviews with athletes suffering from burnout and with experienced sport psychologists. The only published psychometric evaluation (in addition to Eades' unpublished master's thesis) was performed by Vealey et al. (1998) and included a confirmatory factor analysis. They found support for the six-factor model; however, their account of their psychometric evaluation is brief and incomplete. Although Vealey et al. (1998) found support for the construct reliability of the inventory, five of the original 36 items were deleted due to low reliability in relation to the proposed factor structure. As mentioned earlier, two of the subscales, *Personal and athletic accomplishment* and *Congruent coach-athlete expectation* suffer from psychometric problems and the latter also has a weak theoretical foundation (Gould, Udry et al., 1996). Because of these limitations, the Eades Athlete Burnout Inventory has rightfully been criticized (Cresswell & Eklund, 2006b; Eklund & Cresswell, 2007).

On account of the discussion above, a four-factor model was used in Study I (*Negative concepts of athletic ability, Emotional and physical exhaustion, Psychological withdrawal from sport and devaluation of sport participation, and Devaluation of coach and teammates*). These subscales largely correspond to the dimensions proposed by Maslach and have sufficient theoretical support (Cresswell & Eklund, 2006a; Schaufeli & Buunk, 2003). Support for the four-factor model was found. Factorial invariance was found for team and individual sports, but not across gender. After this thorough validation it is possible to make statements about the prevalence of burnout using this instrument, even if it has psychometric weaknesses. Because of these weaknesses and the introduction of the Athlete Burnout Questionnaire (Raedeke & Smith, 2001), which has shown promising psychometric properties

(Cresswell & Eklund, 2006b; Raedeke & Smith, 2001), this newer questionnaire was used in Studies II and III.

#### *Qualitative methodology choice*

Since the aim of both Studies II and III was to investigate the nature and dynamics of burnout, both how it evolves over time (Study II) and as a personal experience (Study III) a qualitative research approach was chosen. The interviews in both qualitative studies were semi-structured and of an open-ended character. In order to match the form of data gathered, I used the qualitative form of content analysis described by Graneheim and Lundman (2004) and Hsieh and Shannon (2005). The purpose was to explore the experiences of the participants and their view of the world. In order to do so, a naturalistic approach was adopted to minimize investigator manipulation through an inductive effort in the data collection and analysis (Lincoln & Guba, 1985). In Study II, a qualitative case study methodology defined as an “intensive, holistic description and analysis of a single entity, phenomenon, or social unit” (Merriam, 1998, p. 27) was used. Complementary quantitative data were used to enrich the analysis (Moran-Ellis et al., 2006; Steckler, McLeroy, Goodman, Bird, & McCormick, 1992) and increase the trustworthiness and credibility of the findings using data triangulation (Patton, 2002).

#### *Selection of participants*

The selection of participants is a crucial matter of validity in qualitative studies (Patton, 2002). The most suitable participants are those who have sufficient knowledge about the research topic or are the most representative (Morse, Barret, Mayan, Olson, & Spiers, 2002). The participants were therefore purposefully sampled in order to get information-rich cases (Patton, 2002). An important prerequisite was that the informants had actually experienced burnout. In earlier qualitative burnout research, poor selection techniques or definitions of burnout have been used, which has ended in studies in which it is questionable whether all athletes have indeed experienced true burnout (Coakley, 1992; Cohn, 1990; Cresswell & Eklund, 2006a). In Study II, the informants were selected based on information from their coaches and my observations working as a sport psychology consultant with the Swedish Skiing Federation. The informants all described symptoms of burnout, such as exhaustion, loss of motivation and devaluation of their sport participation. They had all withdrawn from sports due to their symptoms,

although two had made a comeback at the time of the interviews. It is also important to note that two athletes in the case study had been ordered by physicians to take a break from sports as a consequence of their stress-induced symptoms. It is difficult to determine the reasons two of the athletes were able to make a comeback, but possible reasons might include less severe burnout (lower levels of exhaustion) in one case and a shorter burnout experience in the other, thus less time feeling devaluated, therefore potentially making it easier to regain motivation and return to sport.

In Study III the informants were selected from 628 athletes using the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). The 12 athletes with the highest scores were asked to participate and ten consented. It is important to note that neither the Athlete Burnout Questionnaire nor the Maslach Burnout Inventory (Maslach et al., 1996) was developed for clinical purposes. However, all informants described having experienced feelings of severe exhaustion, which is considered to be the core component of burnout (Maslach et al., 2001; Schaufeli & Buunk, 2003) along with feelings of motivational loss, devaluation of sports and frustration over lack of accomplishment. Due to these descriptions of their symptoms and their very high scores on the Athlete Burnout Questionnaire, the athletes were regarded as suffering from severe burnout, although this is not a clinical diagnosis. Nevertheless, two of the participants in Study III had a clinical burnout diagnosis.

#### *The interview procedure*

Telephone interviews are often used in sport psychology (e.g., Gould, Tuffey et al., 1996; Nicholls, Holt, & Polman, 2005). The advantage of telephone interviews is that you can reach participants who are otherwise difficult to reach due to lengthy geographical distances. The disadvantage is that the researcher cannot monitor face-to-face nonverbal cues, which helps to pace the interviews and gives direction in how to continue (Berg, 2004). Further, conducting interviews in person facilitates the building of rapport, the handling of complex issues and the obtaining of answers even when asking sensitive questions (Shuy, 2002). I therefore chose to use in-person interviews because I considered building rapport a very important issue in the interest of getting valid data. This was confirmed when athletes revealed personal issues in the interviews such as eating disorders, the loss of loved ones and domestic abuse. In both Studies II and III the athletes were interviewed on two occasions. In Study II both interviews were conducted in person, whereas in Study III the first was in person and the second was

conducted over the phone. The telephone interview might be a disadvantage, considering the discussion above. However, telephone interviews are more useful and productive when the researcher has already established rapport in earlier in-person interviews or during fieldwork (Rubin & Rubin, 1997). The athletes were also allowed to choose the interview location so that they would feel more comfortable, and the interviews started with an informal conversation to make the respondent feel at ease and to establish rapport (Rapley, 2004).

#### *The researcher as the instrument*

Since the researcher is the instrument in qualitative research, his or her qualifications will affect the credibility of the findings (Patton, 2002). A description of the researcher is therefore important so that the reader can judge the validity of the study. I have conducted coursework in qualitative research methods at a post-graduate level, including courses in basic qualitative methods and analysis, interview technique and advanced qualitative analysis methods. Further, I have conducted more than 60 semi-structured interviews as part of the selection process to the designated sport high schools (Riksidrottsgymnasier) as part of my work as a coach and a number of additional pilot interviews as part of the preparation for the qualitative studies.

#### *Credibility of the analysis*

In both Studies II and III, analyst triangulation was used as a way to achieve trustworthiness (Patton, 2002). In both studies the transcripts were read and independently analyzed for raw-data themes by two and three analysts, respectively. The analysts then met to discuss the findings and the meaning units, and to develop codes. I led the further analysis and developed the codes into categories and themes, but discussed each step with the supporting analysts during “analyze meetings”. In order to achieve further credibility testing, *rival explanations* and *negative cases* were used (Patton, 2002). Rival explanations are tested once patterns and themes are inductively established. This includes looking inductively for other possible explanations and considering other logical explanations. A related approach is to look for negative cases that do not fit the pattern (Lincoln & Guba, 1985). These procedures were incorporated into the analysis and were also stressed as a part of the “critical friend” procedure (Marshall & Rossman, 2006). During the whole process I kept a

reflexive journal to further increase trustworthiness (Lincoln & Guba, 1985). In the journal, reflections about myself as a researcher and about methodological decisions during the studies were kept. This journal also included memos of the analysis in which initial analyses, thoughts and ideas were noted (Taylor & Bogdan, 1998). This was part of the audit trail by which the validity of the data was judged (Richards, 2005).

#### *Member checking*

Member checks were used as an important procedure to ensure the credibility of the findings. There has been a debate over whether this is a way to increase validity or actually a threat to validity. Lincoln and Guba (1985) argued that member checking adds credibility by giving participants an opportunity to react to both data and the findings, and that it is the most crucial technique for establishing credibility. Sandelowski (1993) on the other hand claims that since data are abstracted and synthesized, participants might not recognize themselves and their personal experiences. The risk of using member checks is thus that the level analysis is kept too close to the data (Morse et al., 2002). In the case studies (Study II), the member-check procedure is uncontroversial as the level of analysis is supposed to be close to the participants' accounts (also acknowledged by Morse et al., 2002). In Study III, the level of analysis is more abstract and member checks could thus be more problematic. In Study III, member checks were used for ethical reasons by showing the participants the findings and giving them a chance to react to their accounts. It is also important to note that the findings were checked not only after the final analysis but also during earlier parts of the analysis. Foremost, member checking was used as a procedure to confirm that I had fully understood the participants' views and experiences.

#### *Data triangulation*

In Study II, triangulation of methods was used and included interviews, training logs, a coach interview and the Athlete Burnout Questionnaire (Patton, 2002). The interviews were the main source of information and the training logs, coach interview and Athlete Burnout Questionnaire were used to enrich the findings and better explore the phenomenon of burnout. In this view, the outcome of triangulation is not as much a validation of claims using different data sources but a way to reveal different dimensions and increase the understanding of a complex phenomenon (Moran-Ellis et al., 2006). In Study III, quantitative data (the Athlete Burnout Questionnaire; Raedeke

& Smith, 2001) were used not as a part of triangulation of data sources but as a way to choose participants in a multiple-method design (Greene, Caracelli, & Graham, 1989).

### *Reflexivity*

Reflexivity is an important aspect that affects the validity of findings. In the traditional positivist paradigm good science is viewed as a neutral activity, whereas in naturalistic research the researcher and the researched are interdependent in the research process (Henwood & Pidgeon, 1992). Reflexivity means being sensitive to how the researcher's experience and prior knowledge might have formed the research process and findings (Mays & Pope, 2000). My background as both a coach and former athlete at a sport high school might have affected the findings. In order to promote reflexivity, three strategies were used. First, the use of a critical friend procedure (Marshall & Rossman, 2006) throughout the research process in both Studies II and III was a way to discover bias and promote reflection. This role was adopted by my supervisor, which can be potentially problematic due to the power difference in the student-supervisor relationship (Lincoln & Guba, 1985). This risk was reduced because we were several researchers involved in the planning and analysis of the studies. Further, the use of a reflexive journal gives the researcher an opportunity for catharsis and reflection (Lincoln & Guba, 1985). Finally, the studies were conducted together with other researchers, with whom I discussed methodology and findings throughout the research process. Although my background might imply bias, it was also an important asset in my opportunities to build rapport with the athletes. With a background as a coach and former athlete I have knowledge about the demands of the sport, subculture and terminology used, which made it easier to gain entry, build rapport and see the situation from the viewpoint of the respondents (Eklund, 1993).

### *Limitations of the qualitative approach*

The design of Studies II and III has both strengths and limitations. The retrospective character of the data collection is a limitation. A longitudinal design would be optimal for studying the process of overtraining syndrome and burnout. As mentioned earlier, it would be unethical to induce overtraining syndrome or burnout in healthy athletes. Retrospective interviews can be criticized for the potential risk of bias, but significant and emotional events such as experiencing burnout are less susceptible to being forgotten and have high accuracy in both detail and emotional experience (Christianson

& Safer, 1996). Through using small samples, qualitative studies facilitate studying issues in depth and detail and thereby limit the possibility for generalization (Patton, 2002). However, the main purpose is not to generalize but to represent the case and refine theory, or to develop new and empirically grounded theories (Flick, 2006; Stake, 2000). Qualitative studies do not produce generally applicable laws of cause and effect but instead generate insights into the dynamics of particular cases (Willig, 2001). This makes the qualitative study a suitable procedure for studying the complex nature and process of burnout.

### **Ethical considerations**

The researcher is responsible for the ethical appropriateness of the research (American Psychological Association, 1992). A number of ethical issues must be considered when conducting research, and many of these issues are independent of whether the research is quantitative or qualitative. Examples of important issues are: avoiding risk of harm or deprivation to participants, securing the informed consent of participants, voluntary participation and the right to withdraw without negative consequence, confidentiality, deception and debriefing (Whitley, Jr., 2002; Willig, 2001). These issues must be considered if research is to be judged ethically sound.

In the planning of the studies, a risk analysis of the potential harm and benefits was performed. This was conducted as a discussion within the research group, and the potential risk of harm was estimated to be low. All included participants were given written and oral information about the immediate project they were taking part in. They were also informed that they could discontinue their participation without having to state any reason for doing so. The athletes were also informed that they could refuse to answer any question they wished.

Confidentiality is an important aspect in all research. In large-scale survey research, confidentiality is a minor problem, since the data are presented on a group level. In qualitative research and especially case studies, maintaining the anonymity of participants is more difficult (Hayes, 2000). In order to guarantee confidentiality in Study I, the questionnaires were coded and the coding list was only available to the research group. In qualitative research, it is the researcher's responsibility to ensure that the anonymity of the informants is not violated indirectly by linkage of information such as age, gender, occupation, disease or names of locations or institutions (Richards

& Morse, 2007). In Study II, pseudonyms were used to protect the informants' privacy. However, because case studies are concerned with details of the individual's life, researchers must be especially aware of this matter (Willig, 2001). Therefore, a coach with good insight into Swedish cross-country skiing read the case narratives and pointed out information that would reveal the identity of the informants. The case narratives were then rewritten, with the revealing information removed. After this procedure, the informants read and approved the case narratives for publication. In Study III, data were presented without explicitly stating information about the informants; instead, neutral descriptions were used (i.e., "a female swimmer stated..." or "...according to one athlete"). Because the athletes in Study III were selected from a pool of 628 athletes, the maintenance of their confidentiality was a minor problem.

The exclusion of the word "burnout" in the qualitative studies might be considered ethically questionable since it might be likened to deception and withholding the purpose of the study (Whitley, Jr., 2002). However, as mentioned earlier, this decision was made in order to avoid potential negative bias. Instead, the description of the study was motivational loss and withdrawal from sport. The concept of burnout was then discussed during the interviews so that the athletes would be informed more specifically of the purpose. This procedure was discussed in our research group in the planning of the study, and we estimated that the risk of harm was small and the gains from this procedure far exceeded these risks. It is important to mention that none of the informants reacted negatively, and that this procedure also had the approval of the Örebro University ethical committee. The information given at the conclusion of the interviews relating to their purpose can be compared with debriefing, whereby the full purpose of the study is explained (Willig, 2001). Debriefing is an important ethical aspect and serves several functions. First, researchers have an obligation to educate the informant about the research (Whitley, Jr., 2002). In the initial phase of each interview, the informants were therefore informed that there would be time for questions after the interview and that they were free to ask questions at any time during the interview. Furthermore, the time plan for each interview was generous in order to avoid lack of time at the end of the interview and to allow sufficient time for debriefing. It is also considered important to invite the informants to give feedback on the findings (Willig, 2001). This was achieved through the member-check procedure, which was used both to increase the credibility of the findings and as an ethical measure, letting the informants



respond to the initial analysis and allowing for more questions (Elliot, Fischer, & Rennie, 1999).

### **The conceptualization of burnout in athletic contexts**

An important question is whether the concept of burnout is suitable for athletic settings. Even if some have adapted burnout outside the occupational setting, such as “couple burnout” (Pines, 1996), others have strongly argued that burnout occurs only in “work contexts” (Schaufeli & Buunk, 2003). Important causes of job burnout are a too-high work load and time pressure (Schaufeli & Enzmann, 1998). Athletes often have long “working hours”, with training that requires physical and mental energy and that is combined with a pressure to perform. This situation is very similar to many work settings (Dale & Weinberg, 1990). It is also important to note that many athletes are professional or semiprofessional, and that being active in sports is in fact their occupation. Further, being part of a sports team is in many aspects similar to work, including the obligation to show up in time and being paid depending on how well you perform. Foremost, it has been claimed that in order to be able to burn out one must be highly committed (Pines, 1993; Schaufeli & Buunk, 2003), something that is especially true for athletes. Also, the athletes investigated in the studies in this thesis were or had been studying at designated sport high schools with obligations that would qualify this environment as being “work-like”, with “work days” starting at 8.00 and ending at 16.00 or even later. Thus, being a high-level athlete shares many similarities with “doing a job” and for many elite athletes sport is their occupation and therefore burnout is applicable in elite and high-level sports.

Burnout in athletes has been considered a “hot topic” in the American athletic community (Gould, Udry et al., 1996) and according to some has even become a “buzzword” (Raedeke, 1997). Yet, among the Swedish athletes I have interviewed I found this not to be so. These athletes stated that even though some had recognized similarities between descriptions of occupational burnout and their own symptoms, athlete burnout was not something that was discussed in sport settings. The reason for this might be a negative attitude toward burned-out athletes and toward the label itself. As mentioned earlier, this kind of stigmatization has been reported in earlier research (Cresswell & Eklund, 2006a; Gould, Tuffey et al., 1996), but this research was conducted in the US and New Zealand and these projects were launched since the

problem of burnout had been accentuated and was therefore being discussed in the sport environment. The negative attitude toward burnout therefore cannot fully explain these differences. Contextual differences between the US and Sweden may be partly responsible, one important aspect of these differences possibly being related to language. Burnout in Swedish – “utbrändhet” – makes one think of something that is definitive, destroyed and beyond restoration (Åsberg et al., 2002). This is a much more severe condition than implied by the American use of the term burnout; Maslach and Jackson have clearly stated that burnout occurs in normal populations (1986). Further, most of the research has been conducted with people who still are at work (Schaufeli & Enzmann, 1998), whereas in Sweden concerns about the clinical consequences have been pronounced and burnout is a clinical diagnosis (Hallsten, 2005; Socialstyrelsen, 2003). There has also been more attention given to athlete burnout in the media in the US than in Sweden because successful tennis players have publicly attributed their dropout from sports to burnout (Cashmore, 2002). Further, studies of burned-out tennis players in the US (i.e., Gould, Tuffey et al., 1996) and rugby players in New Zealand (i.e., Cresswell & Eklund, 2005a) have been initiated and funded by the USTA Sport Science Division and the New Zealand Rugby Union, respectively. In Sweden, there are only a few recent examples of athletes who have publicly conceded to suffering from burnout and the debate of athlete burnout has been virtually absent.

### **Is the multidimensional concept valid in athlete burnout?**

There has been a debate over occupational burnout, regarding whether burnout is a unidimensional or a multidimensional phenomenon. Almost all recent research in athlete burnout (i.e., Cresswell & Eklund, 2005a; 2006b; Lemyre et al., 2006; Raedeke & Smith, 2001) has adapted the social psychology approach used by Maslach and colleagues (Maslach & Jackson, 1981; Maslach et al., 1996). These studies have used the Athlete Burnout Questionnaire, which is largely based on the concept of the Maslach Burnout Inventory (Maslach et al., 1996) despite the fact that only a few studies have investigated this conceptualization in athletic settings (Cresswell & Eklund, 2006a; 2007). There is a consensus among researchers that exhaustion is the core dimension, but there has been a debate over whether it is necessary to measure all three dimensions proposed by Maslach (Cox, Tisserand, & Taris, 2005). Some have claimed that burnout primarily consists of exhaustion (Shirom, 1989), whereas others

argue that the exclusion of the other dimensions will make us lose sight of the phenomenon entirely (Maslach & Leiter, 2005; Schaufeli & Taris, 2005).

Exhaustion in athletes, in contrast to the situation in many jobs, has an obvious physical dimension. As described earlier, emotional exhaustion was initially conceptualized as a reaction to emotionally demanding contacts with recipients (Maslach & Jackson, 1981). In the Maslach Burnout Inventory-General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996), exhaustion was not restricted to the emotional dimension in order to be applicable in a wide range of occupations. Moore (2000) argued that the physical dimension of exhaustion should be excluded because it can have quite different causes and may be experienced quite differently than emotional and mental exhaustion. The results from Study III imply that the exhaustion experience in athletes is both emotional and physical, and that these dimensions are interrelated. This is in conjunction with the dimension of emotion and physical exhaustion proposed by Raedeke (1997). The experience of fatigue in athletes corresponds better to the definition of tedium proposed by Pines, Aronson and Kafry (1981), who define it as a state of physical, emotional and mental exhaustion caused by long-term involvement in demanding situations. This is especially evident since athlete burnout is related to overtraining syndrome (Lemyre, Roberts, & Stray-Gundersen, 2007; Studies II & III).

Depersonalization has been questioned as a dimension outside the helping professions (Garden, 1987). A more recent definition has adopted cynicism, meaning a distant attitude toward work in general instead of depersonalization (Maslach et al., 2001). The salient feature of devaluated value of sport in Study III can be compared with the cynical attitude or mental distancing regarding work found in job burnout (Maslach et al., 2001), and supports devaluation as an important part of the definition of athlete burnout (Raedeke, 1997). The findings in Study III indicate that the initial step is a mental distancing and the final step is a cynical attitude and disengagement from sport. Thus, this supports the notion that devaluation is an important aspect of athlete burnout and is the sport-specific dimension of cynicism.

There has been a debate in job burnout over whether or not a lack of personal accomplishment is a component of burnout (Cox et al., 2005). There is empirical support in occupational burnout that exhaustion and cynicism are the core dimensions, in comparison to lack of accomplishment. This is shown in the low correlation between lack of accomplishment and the two other dimensions, whereas exhaustion and cynicism are highly correlated (Lee & Ashfort, 1996). Further, cynicism appears to be a

consequence of exhaustion (Schaufeli, 2003) whereas lack of accomplishment seems to develop individually or in parallel with the two other dimensions (Leiter, 1993). The reason lack of accomplishments was a salient feature in all athletes in Studies II and III compared to occupational settings might be due to contextual differences and foremost the importance of performance in sport (Brewer et al., 1993). It appears that frustration a lack of accomplishment is a salient feature of athlete burnout.

The sequential relationships between the three dimensions are not fully understood, but exhaustion and lack of accomplishment seem to be the core dimensions and devaluation of sports participation a consequence of these two. Even if our findings are not unambiguous, they strengthen the suggestion by Cresswell and Eklund (2006a) that sport devaluation is the result of a long-term experience of exhaustion and a reduced sense of personal accomplishment (Studies II and III). It appears that exhaustion and a reduced sense of accomplishment are central to athletic burnout and that devaluation is a consequence that in some cases can also be considered a coping strategy for handling the stressful situation (Schaufeli & Taris, 2005). Because the core dimensions (lack of accomplishment, exhaustion and sport devaluation) so clearly emerged and captured the experience of the athletes in Study III it supports the notion of athlete burnout as a multidimensional syndrome, but more research is needed to establish the relationships between these dimensions.

The position of conceptualizing burnout as a multidimensional construct entails the use of all three dimensions (Raedeke & Smith, 2001), or at least physical/emotional exhaustion and sport devaluation (or cynicism in job burnout; Schaufeli, 2003). Some researchers have used a total burnout score by adding the three dimensions together (i.e., Gould, Udry et al., 1996; Harlick & McKenzie, 2000; Lemyre et al., 2006). This constitutes a considerable risk of blurring burned-out athletes with non-burned-out athletes, since the total score can be high in individuals who feel devaluated and lack motivation due to reduced accomplishment but do not have high exhaustion scores. This is an important notion because exhaustion is considered to be the key component of burnout (Schaufeli & Buunk, 2003; Shirom, 2003). Without feelings of exhaustion, these athletes cannot be considered to be suffering from burnout. Maslach and colleagues (1996) have also strongly recommended not using total scores; instead, the three scales should be interpreted independently.

## **Diagnosis of burnout – clinical cutoffs**

Being able to use standardized questionnaires in the diagnosis of burnout would be very helpful in both research and practice, but this is associated with certain problems. In order to establish clinically valid cut-off levels, Schaufeli and colleagues (2001) compared Maslach Burnout Inventory scores to results of clinical evaluations. This is a viable approach that could also be applicable in the research on athletic burnout, but with some methodological restrictions. Firstly, it would be more problematic to find athletes with burnout since there are a limited number of athletes suffering from it (Study I). Secondly, the sample must be representative of the athlete population and sufficiently large (Schaufeli, 2003). Thirdly, the most used instrument for measuring athlete burnout, the Athlete Burnout Questionnaire, needs further psychometric development. Another solution could be to use a more established burnout measure. This has other limitations, like the lack of fit to the context of sport. This is especially evident in the Maslach Burnout Inventory, whereas other measures like Pines and Aronson's Burnout Measure or Shirmom Melamed Burnout Measure could be more appropriate since they are constructed to measure a more general form of exhaustion than the job-oriented conceptualization of Maslach. Still, neither of these instruments has been developed for the context of sport, and since athlete burnout seems to be a multidimensional phenomenon (Studies II & III) this is not an optimal solution. In conclusion, there seems to be a need for large sample studies including different age groups and sports in order to establish valid cut-off levels, perhaps not for diagnostic purposes given the difficulties mentioned above, but to enable reliable monitoring for practical use.

## **Prevalence of burnout among athletes**

The best way to measure the prevalence of athlete burnout is to establish clinical cut-offs to measure burnout as a dichotomous variable and to have a sufficiently large representative sample (Schaufeli, 2003). As discussed above, it is very problematic to satisfy all these criteria in a sport population. The second best option is to use arbitrary statistical norms as applied with the Maslach Burnout Inventory (Maslach et al., 1996) whereby the sample is divided into three equally sized groups and the upper third corresponds to "high degree of burnout", the middle third "average degree of burnout" and the bottom third "low level of burnout." Using such a classification is not adequate

for diagnostic purposes and the finding that 1-9% of the athletes in Study I displayed high signs of burnout and between 1-2% of athletes are suffering from burnout is based only on estimations and is not clinically proven (Maslach et al., 1996).

In some of the earlier research, the estimation of the prevalence of burnout in athletes seems a bit exaggerated. In a clinical validation of the Maslach Burnout Inventory, it was found that patients who received a work-related Neurasthenia diagnosis showed mean scores of 95<sup>th</sup>, 75<sup>th</sup> and 75<sup>th</sup> percentiles of exhaustion, efficacy and cynicism, respectively (Schaufeli & Buunk, 2003). This is a more conservative cut-off than the one used by Maslach and colleagues (1996). It is important to keep in mind that cut-offs are nation-specific (Schaufeli & Enzmann, 1998). It is also inappropriate to translate these values to sport-specific instruments such as the Eades Athlete Burnout Inventory or the Athlete Burnout Questionnaire. Nevertheless, it indicates that one should be careful in evaluating the number of athletes suffering from burnout. Eklund and Cresswell (2007) estimated that between 19 and 25% experienced high levels of burnout corresponding to midpoint responses (i.e., sometimes) or higher on the Athlete Burnout Questionnaire. Very few of these athletes displayed averaged scores of 4 or higher on any subscale. The findings of Eklund and Cresswell (2007) appear high in comparison with occupational settings, with prevalence estimations ranging between 4 and 10% (Schaufeli, 2003). This might be due to the chosen cut-off levels. Perhaps this is because experiencing symptoms of burnout “sometimes” seems a little low in comparison with the descriptions of burnout from qualitative studies (Gould, Tuffey et al., 1996; Studies II and III). Also, because burnout is considered a multidimensional syndrome, it has been argued that its most severe phase is characterized by high scores on all three subscales (Golembiewski, Boudreau, Munzenrider, & Luo, 1996; Maslach et al., 2001). When limiting to athletes who scored 3 (i.e. sometimes) or higher on all three subscales (exhaustion, devaluation and reduced sense of accomplishment), Raedeke (1997) found that 11% corresponded to this criteria and 6% in Eklund and Cresswell’s (2007) sample did. When Eklund and Cresswell (2007) used a score of 4 or above as cut-off (i.e., “frequently-most of the time”), a more restrictive cut-off, they found that approximately 1% of the athletes experienced burnout, which is similar to the findings in Study I. It appears that adopting a stricter cut-off level for being “burned out” is appropriate and that the number of athletes suffering from severe burnout is approximately 1-2%.

The estimated number of athletes suffering from severe burnout is considerably lower in comparison with the estimated number of between 4-10% found in work settings (Schaufeli, 2003) indicating that athletes is a healthier population. It is perhaps surprising that the prevalence is lower among athletes than workers, especially since the amount of pressure to perform and the total stress experienced by athletes is considered high (Holt & Hogg, 2002; Scanlan et al., 1991). Paradoxically, this can also be one of the explanations. Since the performance of athletes is evaluated on a regular basis (i.e., during training, competitions and games) it immediately becomes evident if an athlete is not performing up to normal standards, even if the cause is unknown. In contrast, occupational burnout can long remain unnoticed (Schaufeli & Buunk, 2003). This might reinforce the “healthy worker effect” found in occupational settings, a systematic bias whereby investigated employees are relatively healthy since those who are ill have already left the organization (Schaufeli, 2003). The “healthy athlete effect” might be even more evident, due to the evaluative nature of sports and the fact that athletes, even more than ordinary employees, need to be healthy to participate in competitive and elite sports. This is strengthened by the fact that in occupational settings, burnout is not necessarily linked to actually lowered performance (Schaufeli & Enzmann, 1998).

The use of burnout as a continuum including both mild and severe burnout has some negative implications. Except for a few studies (Gould, Tuffey et al., 1996; Gould, Udry et al., 1996; Study II; Study III), most research on athlete burnout is conducted with healthy individuals using cross-sectional design (Goodger et al., 2007). The use of truly burned-out athletes in Studies II and III therefore provides important information useful for future research. In treating burnout as a continuum, there is also a risk of blurring burnout and stress, especially at lower levels of burnout since we have difficulty distinguishing burnout from stress in the initial process (Halbesleben & Buckley, 2004). An example of this is the study by Cohn (1990) in which athletes rated themselves as having been burned out for 5-10 days. Such studies are problematic since burnout is of a more chronic nature (Schaufeli & Enzmann, 1998; Studies II & III), and they reveal little knowledge about “true” burnout and may even inhibit the knowledge development. A potential solution for practical settings is to use “overstrain” for milder forms that may precede burnout. This conceptualization has been made in occupational settings in the Netherlands (Schaufeli, 2003). So, instead of covering the whole spectrum, burnout is used to describe an end state of a process of burning out. This

conceptualization of burnout is something that researchers in athlete burnout should consider in future research.

### **Burnout as an imbalance between efforts and rewards**

Even if it is difficult to establish the sequential order of the core dimensions found in both Studies II and III, it is clear that lack of accomplishment plays an important role in athlete burnout. Lack of accomplishment is perhaps more important here than in occupational burnout, since performance and results are so essential to being an athlete (Studies II and III). For example athletes can compete several times a week periodically during the season. Hence, the lack of accomplishment might be even more important in the world of sports, where athletes are continuously being evaluated.

A potential framework for athlete burnout research is the Effort-Reward-Imbalance model (Siegrist, 1996). This model claims that effort at work (or in sport) is spent because of the rewards of money, esteem and career opportunities. According to the model, a lack of reciprocity between rewards and efforts, that is high cost/low gain conditions, will lead to strain and distress. There is extensive empirical support for the claim that lack of reciprocity will lead to ill health such as cardiovascular disease, depression and alcohol dependency (Siegrist, 2005; van Vegchel, de Jonge, Bosma, & Schaufeli, 2005). It is also been associated with burnout (Bakker, Killmer, Siegrist, & Schaufeli, 2000; Unterbrink et al., 2007). The following conditions will produce the most intense and long-lasting strain: (a) lack of alternative in the job market, such as having no opportunity to move or having restricted job skills; (b) the employees themselves contributing to this imbalance, for example accepting job arrangements that are unfair for a certain time to gain career opportunities; and finally (c) individuals with a motivational pattern of being overcommitted to their work or having a high need for approval and esteem. They may therefore not perceive the demands in the same way their colleagues do, or may use inappropriate coping skills (Siegrist, 1996; 2005). This model has several features that can be applied in sport settings. Translated into sport, the lack of alternative (a) can be compared with the entrapment situation found in athlete burnout (Raedeke, 1997; Study III). The second point, (b), has several similarities with a striving athlete wanting to succeed in sports (see for example the case of Steve; Study II). Finally, (c) the overcommitted elite athlete is probably more common than the overcommitted employee, since commitment is considered a



prerequisite for success in elite sports (Durand-Bush et al., 2001). Also, performance-based self-esteem appears to be essential in the burnout process (Studies II and III). Thus, the Effort Reward Imbalance model has several features that seem applicable in athlete burnout research such as the effort-reward imbalance focus as well as “the overcommitted worker.” This deserves further investigation in the sport context.

The findings in both Studies II and III implicate the importance of reciprocity in athlete burnout also; the balance between investments and outcome is crucial. Buunk and Schaufeli (1993) suggested that depersonalization could be a way to restore reciprocity by psychologically withdrawing from the recipients. Our findings in Study III indicate that athletes became progressively more distanced from sports and their athletic identity. This can partly be a coping mechanism for handling the disappointment with the lack of results. In this view the athletes initially devote themselves to sport and immerse themselves in an athlete identity, but during the burnout process psychologically distance themselves from sport in an attempt to preserve their self-esteem (Brewer, Selby, Linder, & Petitpas, 1999; R. E. Smith, 1986). This can explain the lack of correlation between athlete identity and burnout (Lemyre, Gustafsson, Kenttä, & Hassmén, 2007) or even a negative correlation (Raedeke, 1997). This is speculative, however, and must be further investigated. Another explanation is that their involvement becomes “too much”, like with the athletes described in Study III. Nevertheless, it seems that lack of reciprocity is a key concept in understanding burnout (Schaufeli & Buunk, 2003), whether it is based on the relationship with work (Siegrist, 1996), with others (Buunk & Schaufeli, 1993) or between an athlete and sport (Studies II & III).

### **Why don't they just quit?**

An intriguing question considering the prevalence of burnout in elite sports is why athletes do not simply leave sport when their participation leads to negative outcomes such as severe exhaustion, frustration of unfulfilled expectations and negative affect (e.g., depressed mood). Reasons given by these athletes for remaining in sports are referred to as “restraining factors” (Study III). Striving for self-esteem has been suggested to affect self-regulation (Crocker & Park, 2004); this means that if goals are connected to self-worth it is harder to disengage from them (Baumeister, Heatherton, & Tice, 1993). Studies II and III show that restraining factors such as a strong

unidimensional athlete identity and a performance-based self-esteem prevent athletes from leaving sports despite negative consequences. The very nature of elite sports is problematic since it is based on avoiding listening to bodily signals such as pain and exhaustion. Athletes must push themselves while training in order to achieve greater adaptation and higher performance levels (Koutedakis et al., 2006). Becoming an elite athlete also takes approximately 10-12 years (Viru & Viru, 2001), which means that athletes must push their limits for a considerable period of time. So, although optimal performance requires a proper manipulation of training intensity and volume as well as adequate rest and recovery (Hoffman, Epstein, Yarom, Ziegel, & Einbinder, 1999) athletes are often tempted to “accelerate” their performance development by increasing their training loads faster than their adaptive capacity can bear (Fry, Morton, & Keast, 1992b). Further, effective self-regulation means disengaging from a goal when progress is too slow (Carver & Scheier, 1998). Disengagement from their achievement goals is hard for athletes who have been taught that becoming an elite athlete requires ten years of intense training and who have made great investments in their sports career. In combination with a narrow athlete identity and performance-based self-esteem leaving few options outside sport, these also become “restraining factors”, critical in the development of burnout. These restraining factors are crucial in understanding burnout because they explain why athletes remain in sports despite negative outcomes, explaining why athletes “don’t just quit.”

### **Burnout, negative affect and depression**

The relationship between depression and burnout was discussed in the introduction. This relationship may have implications for practitioners such as coaches and sport psychologists because depression is a commonly reported symptom in athletes suffering from overtraining syndrome (Armstrong & VanHeest, 2002; Morgan et al., 1987), injuries (Bianco, Malo, & Orlick, 1999), burnout (Gould, Tuffey et al., 1996a) and from career-ending difficulties (Blinde & Stratta, 1992). Even if burnout and depression have similarities in etiology, research clearly shows that these phenomena are different albeit related (Cresswell & Eklund, 2006b; Schaufel & Enzmann, 1998). Especially the exhaustion dimension of burnout is related to depression (Schaufeli & Buunk, 2003). Individuals with a strong and exclusive athlete role identification are more prone to depressive reactions to a negative life events related to sports, such as injury (Brewer,

1993). Performance deterioration accompanying overtraining syndrome and burnout in athletes can be viewed as negative event, thus possibly leading to a depressive reaction. This can certainly be argued in the case of elite athletes who have made great investments in their career (Hanna, 1979; Meehan et al., 2004). Athletes in both Studies II and III reported negative mood changes and symptoms of depression. In two of the cases in Study II, the symptoms seem to come from their inability to perform and fulfill their goals. Athletes rehabilitating from season-ending injuries reported “shattered hopes and dreams” (Gould, Udry, Bridges, & Beck, 1997), which could be viewed as a similar reaction in our burned-out athletes. Altogether this suggests a need to further examine the causes behind depression in burnout and overtraining syndrome. An interesting venue is the findings that stress and depression are related through cytokines and the immune system (Maier & Watkins, 1998). By affecting the same systems, it seems that stressors and immune challenges can provoke a depression like syndrome and increase vulnerability to affective illnesses (Simmons & Broderick, 2005). Even if this research is novel and the links to athlete burnout are not investigated, it seems safe to suggest that the monitoring of changes in affect could be a useful way to discover early signs of overtraining syndrome and burnout (Lemyre et al., 2006; Morgan et al., 1987).

### **The extended training continuum**

A continuum of training and overtraining consequences has been proposed (Fry et al., 1991). Kenttä (2001) expanded this continuum, suggesting burnout as its endpoint. It is complicated to study the development of overtraining syndrome and burnout due to the ethical problems associated with an experimental approach, for example inducing overtraining syndrome or burnout in healthy athletes. Research on overtraining syndrome has therefore used two general models (Mackinnon & Hooper, 2000). In the first model, athletes are monitored during a normal training season. Several performance, physiological and/or psychological variables are measured during different training phases corresponding to low and high training loads (intensity and volume). These variables are then compared within the same athletes during different training phases, or between athletes showing signs of emerging overtraining syndrome and athletes who adapt to training. In the second model, training volume and/or training intensity is/are increased during specified periods of time, usually between 1 and 4

weeks. Within this limited amount of time, athletes generally cannot be considered to have developed overtraining syndrome. Instead, they can be classified as overreached and much of the research presented is based on athletes suffering from overreaching rather than overtraining syndrome (Halson & Jeukendrup, 2004). Both these models have additional problems. The first offers information from the natural environment of the athletes, but it is difficult to control for all possible confounding variables such as psychological stress, travel, diet and competition, which makes the results difficult to interpret. Also, the athletes may develop injury or illness before overtraining syndrome is identified (Mackinnon & Hooper, 2000). The second model suffers from the fact that doubling the training volume for a few weeks without recovery does not reflect the normal training regime. It is also questionable to extrapolate results from overreaching to overtraining syndrome. It is also important to observe that these two approaches focus on the training aspect, but training is rarely the sole cause of overtraining syndrome or burnout. It is rather the total amount of stress that exceeds the individual's adaptation capacity; non-training factors are therefore highly important (Kenttä & Hassmén, 1998; Kuipers, 1996). These two models thereby have considerable limitations in their ability to investigate the training continuum.

A way to investigate burnout and overtraining syndrome is to use of case-study methodology as exemplified in Study II. This study supports the claim that overtraining syndrome and burnout are related and that burnout is the end point of the training continuum (Fry et al., 1991; Kenttä, 2001). These findings must nevertheless be interpreted with caution since they are based on only a few cases, but they still suggest that this link exists in endurance sports. On the other hand, case-study methodology enables a holistic approach whereby the entire life situation of the athlete can be included in the analysis. Even though there is evidence of overtraining syndrome as a precursor of burnout (Lemyre, Roberts, & Stray-Gundersen, 2007; Studies II and III), further research must be conducted to establish this link.

The lack of correlation between training volume and burnout in Study I supports the suggestion that psychological factors are the most prominent in burnout (Gould, Udry et al., 1996). A speculative explanation for the findings might be the different nature of physiological and psychological stress. Although physical and psychological stress may impose the same acute effects on the body, one important difference is that many psychological stressors do not have clear onsets and offsets (Lovallo, 2005). Physiological stress (i.e., training) is of a temporary nature, provided that recovery is

incorporated into the training plan, such as through recovery days. The psychological stress, on the other hand, can be lasting (i.e., frustration at lack of accomplishment, worries about the future) and thereby of a more chronic nature. The chronic stress will most likely induce a more prolonged and maladaptive impact on the autonomic nervous system (HPA axis), leading to ill health (Kemeny, 2003; McEwen, 1998). Even if it is hard to distinguish between physical and psychological stress in athletes because many sports include severe training stress, more knowledge about the psychological aspect of stress in the understanding of athlete burnout is important. This seems especially vital as the interviews revealed the importance of psychological stressors such as internal and external pressure.

Recent research lends support to a more specific stressor-physiology perspective. It has been shown that acute psychological stressors can induce HPA axis and cortisol activation (Lovallo, 2005). There is variability in the degree of activation, showing that uncontrollable self-evaluative threats trigger the highest activation (Dickerson & Kemeny, 2004). This leads not only to a higher response but also to a failure to return to baseline and thereby longer recovery time. This might explain why athletes from low physically demanding sports like golf and bowling are afflicted with burnout.

The majority of the athletes investigated in the qualitative studies in this thesis did not execute extreme training volumes. According to their own estimated values, they put in an average of 12.9 hours per week (SD= 5.6), corresponding to less than two hours per day (unpublished data, Studies II and III). It is important to note that some of these athletes were training very hard, in terms of both training hours per week (max 25h/week) and the amount of very high-intensity training (Study II). However, a common mistake is to focus on the training load *per se*, and not its actual physiological or psychological impact (Raglin, 1993; D. J. Smith & Norris, 2002). The athletes in the qualitative studies rated their training load according to the CR-10 scale, which is a category ratio scale on which exertion is rated from 0 to 10 (Borg, 1998). The rating was on average 7.3 (SD=2.1), which corresponds to *very strong* or *very hard*. Three of the athletes rated their training as low demanding (i.e., 5 or lower). Two athletes rated their training as 7 (very hard) whereas the other eight rated their training as 8 or higher. Even if the training volume was not extreme in most athletes, they perceived their training as very hard or very demanding. This might be due to high total stress load, or lack of recovery as described by many athletes (Studies II and III).

But do athletes without high levels of physical stress get burned out? Since humans are driven to preserve their self-esteem, individuals with performance-based self-esteem are very motivated to maintain or increase their self-esteem (Crocker & Park, 2004). Even of a speculative nature, the fact that threats to self-preservation induce higher cortical response and delayed recovery (Dickerson & Kemeny, 2004) might be a potential supplementary psycho-physiological explanation for why athletes with performance-based self-esteem seem to be vulnerable to burnout. These assumptions are strengthened by the fact that psychological stressors are considered more important for stress and burnout in non-athletic settings (Maslach et al., 2001; Sapsolsky, 2007). An important difference from the work settings is that many athletes are exposed to considerable levels of training stress. However, there are differences between sports. Training and training fatigue are much more prominent in endurance sports, and there can be a different etiology in burnout for more physically demanding sports such as cycling and cross-country skiing compared to low or moderately physically demanding sports such as bowling and golf.

Due to diverse demands in different sports, the etiology might vary between sports and situations. Differences appear to exist between strength and endurance sports, with the explanation in the autonomic nervous system (Fry, Steinacker, & Meeusen, 2005). Two clinical forms of overtraining syndrome have been described: sympathetic form, characterized by predominance of sympathetic activity, and parasympathetic form with a predominance of parasympathetic activity (Lehmann, Foster, Dickhuth, & Gastmann, 1998). It seems that the sympathetic form is more common in anaerobic sports such as sprinting and jumping events and that the parasympathetic form is more common in aerobic sports such as long-distance running and road cycling (Lehmann et al., 1993). It also appears that initially in the early stages of overtraining syndrome sympathetic activity is increased to cope with increased stress, but if the stress continues the sympathetic system becomes exhausted and this leads to a parasympathetic dominance (Fry et al., 2005). Future research should therefore investigate the etiology of burnout and the possibility of a physically and a psychologically driven burnout. Most importantly, knowledge about the interactions between physiological, social and psychological factors is crucial to fully understanding the burnout process.

## A new model of athlete burnout

Since decreasing, and in the end a lack of, motivation was so profound in the athletes in this thesis as well as in the study by Gould, Tuffey and colleagues (1996), decreased motivation should be a part of the definition of athlete burnout. In job burnout, Schaufeli and colleagues (1998, 2003) offered the following definition: “Burnout is a persistent, negative work-related state of mind in ‘normal’ individuals that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and development of dysfunctional attitudes and behaviors at work.” With this definition in mind, I suggest that athlete burnout be defined as a syndrome of emotional and physical fatigue, reduced sense of perceived accomplishment, accompanied by distress and sport devaluation, initially manifested in diminished or lost motivation. The burnout process develops gradually and can long remain unnoticed by the athlete involved.

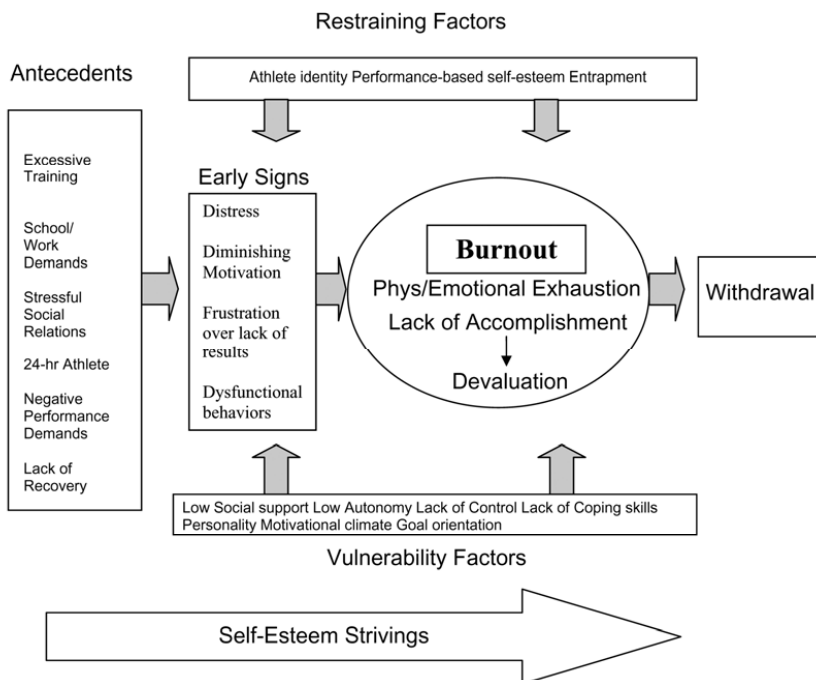


Figure 3. Extended model of athlete burnout including major antecedents, early signs, vulnerability factors, restraining factors and consequences (i.e., burnout and withdrawal).

An integration of the findings in this thesis and the literature is presented in Figure 3. Antecedents associated with burnout seem to be extreme stress load, including excessive training and/or lack of recovery, too many competitions or games, work and school demands, negative performance demands and psychosocial stressors including interpersonal conflicts. Not only training but the total engagement in sports seems to be an important antecedent, and “too much sport” appears to be vital in the burnout process. Frustration over unfulfilled expectations and results seems to be an important precursor as well as a key feature of athlete burnout. Initially, the athletes experience signs of distress including exhaustion and negative affect. Further, their motivation might start to fade and they might display dysfunctional behaviors such as maintaining training despite signs of maladaptation or “cheating” during training sessions. Lack of resources such as coping skills and social support together with situational factors such as low autonomy, low social support and ego-involved motivational climate are important contributors. High commitment and motivation form a prerequisite for burnout but when an athlete starts to feel frustrated at his or her lack of accomplishment and becomes more and more exhausted, the initially high motivation starts to fade.

The model provides a potential framework for understanding why athletes push themselves into burnout and why they remain in sports and do not drop out. Restraining factors including strong athlete identity, performance-based self-esteem, inflexible organizations and entrapment keep the athlete in sport despite negative outcomes such as exhaustion and negative affect. This leads to progressively more exhaustion, and the lack of motivation becomes devaluation of the previously highly loved sport. During this process, self-esteem strivings act as a “driving force”, fueling the process and allowing the athlete to sink deeper into burnout, and finally leading to a total withdrawal from sport. These aspects are important for our understanding of burnout and explain how burnout differs from stress and dropout.

The fully developed burnout experience is signified by emotional, mental and physical exhaustion, reduced sense of accomplishment and devaluation of sport. Although the evidence is from qualitative research and is therefore not suitable for cause-and-effect conclusions, it seems that frustration over lack of accomplishment and exhaustion leads to devaluation. Athletes with less severe symptoms can remain in sports for a long time and become what have been called “active burnouts” (Gould, Udry et al., 1996; Study II). In these cases the restraining factors play an important role,



probably in combination with the level of burnout. High athlete identity is an important factor in the development of burnout, but when athletes become severely burned out they lose their motivation and it seems that they psychologically withdraw from sports and their athletic identity.

Overtraining syndrome and burnout seem to be parts of the same syndrome, which could be categorized by a depletion of human resources. Burnout and the loss of motivation is the end-point, and the process might be what differentiates these two syndromes, as indicated in Study II. Extremely hard training, inadequate recovery (both mental and physical) and psychosocial stress are examples of important antecedents. Different origins will probably be manifested in different symptoms (Fry et al., 2005), both during the process and in the final stage. A multidisciplinary approach to the maladaptive outcomes of overtraining syndrome and burnout will provide valuable information, regardless of whether or not these syndromes are forms of the same phenomenon.

### **Future research**

Even if the research and knowledge about burnout in athletes has increased considerably in recent years, there are still many questions to be answered. The recovery process of burnout has not been investigated in athletes, and it is crucial that more knowledge be gained in this area. In the two qualitative studies (II and III), four of the total 13 athletes did make a comeback in sports. Although it is not possible to draw general conclusions from such a small sample, it indicates that burnout is a very severe and potentially life-changing condition for some athletes. Researchers in occupational burnout have suggested that the effects of burnout can be of a chronic nature, due to relatively stable levels of burnout measured during longitudinal studies (Schaufeli & Enzmann, 1998; Shirom, 2005). The extent to which athlete burnout is of a chronic nature is an important future research area. Despite the efforts of some scholars who have measured burnout over one season (Cresswell & Eklund, 2006; Lemyre et al., 2006), longitudinal research over several years investigating both the recovery process and the possible chronic nature of burnout is clearly needed.

Athlete identity and performance-based self-esteem appear to be significant contributing factors in the development of burnout. The research on athlete identity and burnout is limited and contradictory, however. No relationships, even negative ones, have been found (Black & Smith, in press; Raedeke, 1997). The relationship between

burnout and self-esteem is not well known. Fully developed burnout is considered to be associated with low levels of self-esteem (Schaufeli & Enzmann, 1998); Hallsten (2005), on the other hand, argues that performance-based self-esteem is an important antecedent of burnout. The findings in Studies II and III strengthen this view. As indicated in this thesis and speculated by Raedeke (1997), it could be that a strong athlete identity and the strive to validate oneself are driving forces in the development of burnout, but with progressively greater devaluation of the sport participation the strength of the athlete identity weakens and the individual withdraws from sport to protect his or her self-esteem. The roles of athlete identity and performance-based self-esteem in the development of burnout must be investigated further using a longitudinal design so that potential causal relationships can be explored.

Because burnout is a serious condition, sensitive and reliable tools for monitoring initial signs are crucial. Overtraining syndrome and burnout lead to severe negative consequences; afflicted athletes might experience severe exhaustion, depression, depressed immune function and loss of motivation (Fry et al., 1991; Goodger et al., 2007; Studies II and III). It has therefore been suggested that the best cure is to avoid being afflicted, because of the negative outcomes and the long recovery required (Uusitalo, 2001). It is thus important to find a balance between catabolic processes, which constitute the destructive phase of metabolism, and anabolic processes which constitute the recovery phase and the rebuilding of body tissue (Wilmore & Costill, 2004). In practice, we need tools to monitor this balance and the training process to recognize when overtraining syndrome and burnout start to develop.

The monitoring process is problematic because there is no “golden standard” available today as regards monitoring tools. Suggestions for such tools include biochemical, psychological, physiological, immunological and hormonal markers (Gleeson, 2002; Hooper & Mackinnon, 1995; Rowbottom, Morton, & Keast, 2000). Despite considerable efforts to develop methods for diagnosis and monitoring of overtraining syndrome, results have been disappointing and there are still no reliable methods available (Urhausen & Kindermann, 2002). The research on overtraining syndrome has had a large focus on physiological and biochemical markers, even if some scholars have argued that psychological monitoring methods are the most sensitive and suitable (O’Connor, 1997; Raglin, 1993). In contrast, burnout research has almost entirely relied on paper-and-pencil tests. A fusion of the areas of overtraining and

burnout research and a multidisciplinary approach seem to be a more successful way to increase available knowledge and to help athletes.

Since burnout is assumed to be an outcome of severe, prolonged stress and inadequate recovery, it is not surprising that relationships between job burnout and the HPA axis have received attention. The HPA axis is a central mechanism regulating the long-term adaptation to stress, and the release of cortisol plays an important role in this process (Lundberg, 2005; McEwen, 1998). Changes in HPA axis function have been found in many stress-related disorders (Raison & Miller, 2003) including chronic fatigue syndrome (Parker, Wessely, & Cleare, 2001) and overtraining syndrome (Steinacker & Lehmann, 2002). Studies show inconsistent results with high, low and unchanged levels of cortisol in association with job burnout (Grossi et al., 2005; Melamed et al., 1999; Mommersteeg, Heijnen, Verbraak, & van Doornen, 2006). No studies investigating cortisol in burned-out athletes have been conducted, but research on overtraining syndrome indicates a down-regulation of the HPA axis and decreased levels of basal cortisol levels (Steinacker & Lehmann, 2002). A recent study, using a test protocol with two consecutive maximal tests separated by four hours (Meeusen et al., 2004), found that athletes suffering from overtraining syndrome had a significantly increased release of cortisol after the first bout but a suppressed hormonal release after the second bout, which may imply an exhausted system. Studies on the neuroendocrinological aspects of athlete burnout might provide important information on the relationship between stress, overtraining syndrome and burnout and increase our understanding of the psychobiological aspects of burnout.

To establish the extent to which burnout and overtraining syndrome are associated with negative affect and depressive symptoms (Lemyre et al., 2006; Morgan et al., 1987) must be investigated further. Stressors can affect the central nervous system through cytokines, which can induce depression-like symptoms (Simmons & Broderick, 2005). Further, antidepressants have been shown to diminish or prevent signs of depression caused by inflammatory cytokines (Raison, Marcin, & Miller, 2002). The link between cytokines and these depression-like symptoms seen in athletes suffering from maladaptation must be investigated further. Case studies have shown that athletes suffering from overtraining syndrome had positive effects when supplemented with antidepressant medication (Armstrong & VanHeest, 2002). Antidepressants are often prescribed to individuals suffering from occupational burnout, but it is not fully established whether this is a sufficient strategy for these patients or if it is based on an

incorrect diagnosis (Ahola et al., 2007). The links between cytokines, negative affect and burnout comprise an important area of future research, especially regarding its potential as an intervention in recovery from burnout.

The interaction between environment and personality is an interesting venue for future research in athlete burnout. Early research on job burnout has almost exclusively focused on environmental factors in the prediction of burnout, and researchers in athlete burnout have also had a psychosocial perspective (Goodger et al., 2007; Maslach et al., 2001). The findings in both Studies II and III as well as other recent research (Lemyre, Hall, & Roberts, 2007) indicate the importance of the interaction of situational factors such as motivational climate and dispositions such as perfectionism and goal orientation in the development of burnout. As suggested by Goodger et al. (2007), the interplay of dispositions and environmental factors is of great importance for future research.

The findings in this thesis show that there are important connections between motivational aspects and the development of burnout (see Studies II and III). The recent motivational concept of passion in sport (for a review see Vallerand & Miquelon, 2007) seems to be an interesting new area relevant to burnout research. Athletes with an obsessive passion for sport might remain in it despite negative outcomes, and could therefore have important associations with the findings on the restraining factors preventing athletes from leaving sports (Studies II and III). Obsessive passion is suggested as developing partly as a consequence of controlled internalization, or from athletes feeling pressured to integrate sport into their identity. Since their contingencies are attached to sport, it is likely that they will feel low autonomy. According to Self-Determination Theory, low autonomy will lead to ill health and has been suggested as an explanation for athlete burnout (Cresswell & Eklund, 2005a; Deci & Ryan, 2000). Motivation is an important factor in the development of burnout, and the concept of passion has several constructs that could be important in the development of theoretically grounded burnout research.

In Study I we had planned to investigate potential gender differences, but the Eades Athlete Burnout Inventory proved not to be valid for gender comparisons. This was unfortunate as there are no existing studies investigating gender differences. Early research on job burnout found women to be more prone to burnout than men (Maslach & Jackson, 1981), but in more recent research the opposite has been found (e.g., Van Horn, Schaufeli, Greenglass, & Burke, 1997). The reason for these contradictory results might be that gender differences are confounded by both type of occupation and

hierarchical position at work, because when these factors are taken into account most studies find no difference between men and women with the exception of depersonalization, in which men score higher than women (Schaufeli & Buunk, 2003). The reason for this might be gender differences in the antecedents of burnout. While work sources appear to be the main antecedent in men, predictors of women's burnout contain both work and family variables such as role conflict and marital problems (Greenglass, 1991; Posig & Kickul, 2004). Women also seem to use more efficient coping strategies such as investing in interpersonal relationships or engaging in cultural activities, which are related to lower levels of depersonalization and exhaustion (Greenglass, Burke, & Konarski, 1998; Ogus, Greenglass, & Burke, 1990). Despite the findings from occupational settings, no studies have been conducted in athlete populations. Investigating whether athlete burnout is experienced or manifested differently in men and women is of interest because if this is the case, it implies the need for gender considerations in the prevention and intervention of burnout.

## **Concluding remarks and applications of the findings**

### *Prevention of burnout*

Periodization has been proposed as a way to avoid overtraining syndrome (Fry, Morton, & Keast, 1992a; Mackinnon & Hooper, 2000). It involves varying the training load in order to both maximize performance improvement and decrease the risk of underperformance and overtraining syndrome through giving enough training stimuli during high-load periods and allowing sufficient recovery during low training-load periods (Rowbottom, 2000). Overload is not the only reason one becomes overreached or develops overtraining syndrome; the boredom of performing the same monotonous training is also a risk factor that can be avoided through periodization (Foster, 1998; Fry et al., 1991). Despite a lack of empirical evidence, periodization appears to be a suitable way to avoid training maladaptation.

Recovery appears to be critical in avoiding burnout. Studies II and III show that inadequate recovery was important in the development of burnout. These studies also indicate that not only physical recovery but also emotional recovery are important in burnout. Therefore, the use of periodization of training is probably important for avoiding burnout, but it is also important to allow rest from sport in a broader sense. The athletes in both Studies II and III indicate having "too much sport" in their life. It

does not have to be the amount of training *per se*, but the overload of their total sport engagement. This often includes both their sport participation and their whole life situation being stressful. This is also indicated by the lack of correlation between training volume and burnout in Study I. In conclusion, it seems safe to advise athletes and coaches to implement not only physical but also emotional recovery in their training planning and further emphasize the importance of recovery in elite sports.

Even if the research is not unambiguous, there is evidence that social support reduces the risk of burnout (Raedeke & Smith, 2004; Schaufeli & Greenglass, 2001). One could therefore assume that social support could be an important buffer against burnout and should be used as a way to help athletes avoid developing burnout. However, there might be a downside to the use of social support as a way to handle burnout. Social support masks the real stressors, delaying the detection of burnout and thereby potentially worsening the condition (Hobfoll, 1998). In the same vein, Coakley (1992) warned against the negative implications of the use of “psychodoping”, whereby athletes are cultivated to give their all to sport without questioning why, in order to adjust to the condition of dependency and powerlessness. “Psychodoping” and the use of stress management techniques should not be used without trying to find the underlying cause of burnout. An important recommendation is therefore to treat not only the symptoms but also the causes of stress experienced by the athlete.

#### *Advice for avoiding burnout*

No intervention studies in athlete burnout have been conducted. Interventions in job burnout have been focused on either the individual or the organization. Far more studies have been conducted in which the effects of changing the individual are studied, despite the fact that research strongly indicates that organizational factors play a more important role (Maslach et al., 2001). Interventions both at individual and group levels seem to be effective in reducing exhaustion, at least in the short perspective (Schaufeli, 2003). But if nothing is done about the antecedents of burnout, it is most likely that its symptoms will reoccur. While waiting for intervention research in athletic settings, the athletes in Studies II and III offered some advice to athletes, parents and coaches for how to avoid burnout in young elite athletes (Gustafsson, 2007):

*Advice to athletes.* Remember that it has to be fun and you should feel good about yourself. It is important to make training joyful, and you should play more. It is also

important to have a life outside sport, in order to relax completely from sport. Learn who you are and trust your instincts. Listen to your bodily signals and dare to trust those signals. Talk about how you feel, make sure you have someone to help you in this process – a coach, a sport psychologist or someone else you trust. Do not attend too many competitions. One athlete also said that one should avoid competing at a senior level while still a junior. Avoid “chasing training hours” and do not plan all your time. Instead, make sure you have some time off.

*Advice to coaches.* The most important advice to coaches is to promote open communication. Talk to the athlete, listen carefully and try to understand him or her. Ask how he or she has perceived their training, how they feel. Try to see the individual and help them learn about themselves. Teach them to listen to and trust their bodily signals and support their autonomy. Individualize training; not all athletes are equal. Try to have a comprehensive view of adolescents, not only of their life as an athlete. Finally, do not take on too many athletes; make sure you can manage to support them.

*Advice to parents.* The most common advice to parents was to be supportive. Have a permissive attitude and do not push your children. Make the children a part of the decision-making process or simply let them do what they want (in sport). It is important in this process to let the child know that they are participating in sports because they want to and not because they have to. Avoid interfering in their training and criticizing them. Allow them to develop in their own pace and let them try as many sports as they like.

#### *Burnout and talent development*

Elite sports are a paradox because athletes must learn to dissociate fatigue while simultaneously learning to balance fatigue and recovery to enhance performance. Even if the “nature-nurture” debate discusses whether performance is a result of genetic or environmental factors, and is evident in the talent development literature (i.e., Cskszentmihailyi, 1998; Gagne, 1998; Howe et al., 1998), many years of training are necessary to arrive at an international level (Viru & Viru, 2001). Aspiring young elite athletes must learn how to cope with fatigue, and sometimes pain, to achieve their goals. Extreme levels of motivation are a prerequisite for becoming a world champion or winning the Olympics (Durand-Bush & Salmela, 2001), but this kind of commitment is

also a peril of burnout if combined with perfectionist traits, unidimensional athlete identity and a performance-based self-esteem (Lemyre, Hall, & Roberts, 2007; Studies II and III). Thus, athletes must learn when to listen to bodily signals and when to dissociate these signals in order to be successful in sport and avoid training maladaptation and burnout.

The findings in this thesis highlight the importance of recovery, including both physical and emotional recovery (Study II and II). This can be achieved using periodization of training. It is nevertheless important to reassure the athlete that it is fine and even suitable to focus on other things than sports during the recovery. Even if the “24-hour athlete”, totally devoted to sport, is the ultimate dream of every coach, it is not always a positive thing in young athletes. The importance of recovery is further strengthened by the lack of correlation between training load and burnout in Study I. An important issue for coaches is to help athletes find a healthy balance, being highly committed and integrating this with their social life.

The word burnout has a negative connotation in the athletic context (Cresswell & Eklund, 2006a; Gould, Tuffey et al., 1996) and is something that is rarely discussed by coaches and athletes in Sweden. It is almost as if the phenomenon does not exist in the “real world” outside research. This view is problematic because it might prevent athletes from talking about their symptoms with those who are the most likely conversants, that is, their coaches. This may further worsen an already delicate condition (Study II). It is important to emphasize that burnout occurs in normal people who are exposed to extreme conditions (Schaufeli & Enzmann, 1998). The fact that it is not the training load *per se* (Study I) that is the cause of burnout should instead encourage coaches to realize that athletes can perform high loads of training, but in order for them to do so psychosocial factors must be considered (Studies II and III), just as Doherty stated in the 1960s (Doherty, 1964). Simply ignoring the problem, however, will not erase it from elite sports or the afflicted athletes.

Athlete identity and performance-based self-esteem emerged as important contributors in the development of burnout described in Studies II and III. It seems safe to encourage coaches, parents and sport administrators to help athletes foster a multidimensional identity in order to lessen the risk of burnout. The finding that being very successful at a young age can “boost” a performance-based self-esteem and a unidimensional identity must be considered when working with young, promising athletes. It has been argued that perfectionists will be vulnerable to negative outcomes if



their perfectionism is linked to contingent self-worth such as performance in sport (Flett, Hewitt, Olivier, & McDonald, 2002). Together with the findings in Studies II and III, this indicates that the combination of narrow athlete identity, a performance-based self-esteem, being self-critical and having an ego-goal orientation are important prerequisites of burnout.

There is empirical support for perfectionism as an important antecedent of burnout. Neurotic or maladaptive perfectionism in combination with an ego orientation have been suggested to energize maladaptive motivational patterns in athletes suffering from burnout (Hall et al., 1997). Lemyre, Hall, & Roberts (2007) showed that higher burnout scores at the end of the season could be predicted in athletes with a maladaptive motivational profile of perfectionism and ego orientation compared to athletes with a more adaptive motivational profile. Using regression analysis, we have found that perfectionism and goal orientation can explain 35% of the dimension of reduced sense of accomplishments, 29% of sports devaluation and 9% of the exhaustion dimension (Gustafsson, Ragnarsson, & Hassmén, 2007). Thus perfectionism appears to be an important antecedent of burnout.

Parents and coaches play an important role in the development of perfectionism in their children and thereby in the development of burnout. Parents who are overly critical and demanding or who are highly perfectionistic themselves are important antecedents of perfectionism in their children (Flett et al., 2002; Shafran & Mansell, 2001). In sports, pressure from both parents and coach has been attributed as an important aspect of sports-related perfectionism (Anshel & Eom, 2003; Dunn, Dunn, & Syrotuik, 2002). Because perfectionism is related to burnout, knowledge about the consequences of high pressure in young athletes must be implemented in coaching education and passed on to sport parents.

Many of the athletes in the qualitative studies in this thesis were highly successful at a young age, and the three athletes in Study II described a very rapid performance development. Is early success in young athletes always good, or can it actually be an impediment? Being very talented can lead to what Stambulova (in press) labeled “the early recognition problem”. When athletes are very talented at a young age, they are noticed and receive attention from coaches, other athletes, media, parents and significant others, and external expectations increase. It has been suggested that early success in athletes plays an important role in the development of perfectionism (Slade & Owens, 1998). The attention that the athlete receives because of being successful might

imply that he or she will be conscious of the external expectations. The focus then switches from trying to achieve accomplishments to avoiding failure. The positive aspects of perfectionism thereby change from being an asset to being negative and leading to decreased performance (Hall, 2006). All the attention for being successful might even become a barrier in the next career transition, for example from junior to senior (Stambulova, in press). These suggestions are intuitively appealing and have some support. In a comparison of young burned-out tennis players and a control, it was found that the burned-out players had been playing in higher divisions compared with their peers (Gould, Udry et al., 1996). They also scored higher on a variety of perfectionism subscales, such as perceived parental pressure and expectations and greater concerns over mistakes. The athletes in Studies II and III described a process whereby their success evolved from something very positive into extreme pressures that led to their burnout.

In conclusion, being extremely successful at a young age like many of the athletes in Studies II and III, having repeated reinforcements, might in fact be a risk factor for burnout and an impediment to talent development. Significant others such as coaches and parents therefore must be very cautious during developmental phases and avoid being too eager and rushing athletes. These talented young athletes must be monitored carefully, because having all the praise and being a “wonder child” might turn into extreme pressure and, eventually, burnout.



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