Well-being in competitive sports – the feel-good factor?: A review of conceptual considerations in well-being research

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A review of conceptual considerations of well-being

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Abstract

This paper summarizes the topic of well-being as it applies to competitive athletes, with a particular focus on definitional and conceptual issues. Established definitions within research on human happiness and flourishing based on the hedonic and eudaimonic perspectives are contrasted against definitions applied within sport psychology. The majority of the reviewed sport psychology studies either failed to define well-being or used a variety of labels to describe the construct (e.g., subjective well-being, psychological well-being, mental well-being). A large number of assessments have been used to assess well-being among athletes, but most were applied with only a weak theoretical rationale and did not distinguish between well-being at the global and sport levels. It is concluded that well-being studies within sport psychology have been hampered by conceptual ambiguity, which makes it difficult to compare results across studies and generalize findings in order to develop a sound theoretical base of knowledge. Future research needs to more explicitly define the conceptual framework of well-being and the level (global or context-specific) on which the construct is investigated. Toward this goal, an integrated model is presented to provide a conceptual well-being structure in sport studies, and future directions for research are discussed.

Keywords: Subjective well-being, psychological well-being, social well-being, positive psychology, competitive athlete

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A review of conceptual considerations of well-being

It is well known that participation in sport and physical activity can promote positive experiences, well-being and health among children, adults and the elderly (Coakley, 2007; Gould & Carson, 2008; Tracey & Elcombe, 2004). However, high-level competitive athletes participate in sports under conditions that present considerable physical and psychosocial stressors. Inherent in the lifestyle of elite athletes is the continual striving for success in a highly competitive and stressful environment. Moreover, a significant proportion of an athlete's life is dedicated to reaching highly uncertain long-term results. Thus, high-level competitive sports can either detrimentally or beneficially influence the well-being and health of athletes (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011). The likelihood of detrimental outcomes is accentuated by the existence of risk factors to high-level competitive athletes, including a single-minded athletic identity, high levels of psychosocial stress and competitive anxiety, overtraining and burnout, negative emotional adjustments to sports injuries and utilitarian adoption of physical activity (e.g., Tracey & Elcombe, 2004; Wiese-Bjornstal, 2009).

Although research focusing primarily on beneficial effects on well-being in athletes has been comparatively sparse, an increasing number of studies on this topic have been published during the past decade. In the scientific literature, it is evident that researchers have found the construct of well-being as both multifaceted and complex. Consequently, there exist different views of how well-being should be defined, which impact how research is conducted in the field and the conclusions that can be drawn from the studies (Ryan & Deci, 2001). The aim of the present paper is to review the current knowledge development concerning well-being among competitive athletes with a particular focus on definitions of well-being and their underlying conceptual theoretical frameworks. Well-being research on general human health,

happiness and flourishing has a longer history than well-being research conducted within the context of sport, and this traditional literature will first be summarized in order to contrast definitional and conceptual considerations across the two research contexts.

Well-being defined within research on human happiness and flourishing

Early psychological literature was primarily directed toward investigating impaired psychological health and human unhappiness. While the “good life” of humans has engaged philosophers for centuries (see review by Ryan & Deci, 2001), the research interest in human well-being began after 1960 (e.g., Cantril, 1965; Gurin, Veroff, & Feld, 1960). Recently, researchers have been further stimulated by the positive psychology movement with the result of a heavily increased interest in human flourishing and well-being (Diener, 2009; Maddux, 2005). Currently, well-being is studied among a variety of non-clinical populations and is regarded as a highly subjective and multifaceted experience (Diener, Suh, Lucas, & Smith, 1999; Keyes, 2005). From this research, two main perspectives of well-being have evolved and are labeled the hedonic and the eudaimonic traditions (Ryan & Deci, 2001; Ryff, Singer, & Diener, 2004). Although both perspectives discuss well-being and to some degree overlap in their view of the construct, they emanate from different philosophical views on human needs and desires in life. The hedonic perspective is founded on the general idea that happiness and pleasure form the essential goal of human life. Thus, according to this perspective well-being is achieved by increasing happiness through striving for pleasurable moments, moving toward rewarding goals in line with individual values, and approaching stimuli that increase positive affect. In contrast, the eudaimonic tradition considers well-being to be separated from pleasure and happiness *per se*. Instead, human goals and values that increase positive affect are not viewed as necessarily helpful to the individuals’ growth and development. Rather than defining well-being as primarily obtaining happiness, the eudaimonic tradition is concerned with activities and challenges people engage in to develop and reach an individual

potential that is in line with important values and engagements rooted in the self (cf. review by Ryan & Deci, 2001; Ryff et al., 2004). As a consequence of these philosophical distinctions, different definitions, research questions and approaches to the study of well-being have emerged in the general psychology literature. The hedonic perspective applies the label of subjective well-being and the eudaimonic perspective utilizes the labels of psychological and social well-being. Thus, these distinct definitions of well-being will be discussed more in detail in the proceeding paragraphs.

Subjective well-being. Some early literature of well-being, in particular sociological studies, adopted a normative view (e.g., Cantril, 1965). Well-being was primarily evaluated based on objectively defined and generally desirable standards in the person's life context that were believed to characterize the norm of well-being. Normative standards used to evaluate well-being could be constituted of, for example, work status, level of personal or household income, marital status and household composition. Overall, inconsistent relationships between normative standards *per se* and well-being have been reported, indicating that life standards only indirectly affect well-being (cf. Ryan & Deci, 2001). For example, although people in wealthy countries tend to be happier than people in poor countries, the associations between well-being and wealth are inconsistent within developed countries. As long as poorness does not dominate an individual's life, money itself does not tend to increase his or her perceived well-being. Thus, the importance of considering the subjective component of the well-being construct has been emphasized (Cummins et al., 2004; Diener, 2009; cf. Ryan & Deci, 2001). The term subjective well-being (SWB) applies to affective and judgmental elements of well-being. The subjective standards on which a person evaluates his or her perceived well-being may differ considerably from normative standards, which are primarily evaluated based on social comparisons (Diener, 2009; Diener & Biswas-Diener, 2009; Diener, Lucas, & Oishi, 2005). People may, for example, experience problematic life circumstances with decreased

levels of normative standards, such as lowered income, but still maintain SWB depending on their subjective standards and judgments of the situation. Other people might instead live a life with beneficial life standards based on a normative view, but subjectively experience a lack of well-being (Diener, 2009; Ryan & Deci, 2001).

Theoretically, SWB is constituted of two main areas: life satisfaction and happiness over a period of life. Life satisfaction is characterized by the perceived disparities between the individual's actual life and wishes for how life should be, and involves a broad and long-term cognitive evaluation. Happiness is concerned with the experiences of affects, including both moods and emotions, wherein the presence of positive affect combined with a relative absence of negative affect is regarded as indicative of subjective well-being (Diener et al., 2005; Lucas, Diener, & Suh, 1996).

There is substantial research confirming that both life satisfaction and the balance between positive and negative affect are important indicators of well-being (for reviews see Diener, 2009; Diener et al., 2005), and until recently the predominant view has also been that SWB is relatively constant and held at an individual set-point (Headey, 2008). Empirical investigations have, however, started to challenge this view. Studies adopting randomized controlled designs have revealed the possibility of long-term increases in positive affect and happiness among participants (Seligman, Steen, Park, & Peterson, 2005; Sheldon & Lyubomirsky, 2006a, b). These results imply that life circumstances and intentional activities have a far more influential and persistent influence on well-being than previously believed (Lyubomirsky, Sheldon, & Schkade, 2005).

Psychological and social well-being. The eudaimonic tradition emerged based on criticism that well-being research was largely atheoretical and lacking in conceptual clarity (Ryff, 1989; Ryff & Keyes, 1995). Consequentially, the eudaimonic perspective emphasized a theory-driven definition of psychological well-being (PWB) based on effective psychological

functioning of the individual. More specifically, PWB involves psychological facets of importance for human psychological growth and development in light of life challenges. Ryff's (1989; Ryff & Keyes, 1995) original conceptualization of PWB is still dominant within the eudaimonic tradition and explains PWB as divided into six key dimensions: self-acceptance (positive view of the self, one's own qualities and one's past life), positive relation to others (trusting, caring and empathetic relationships with others), autonomy (self-determined with intrinsic motivation and self-referenced standards for evaluation), environmental mastery (effective mastery of the environment and the context to fulfill personal needs and values), purpose in life (directed toward purposeful goals for living) and personal growth (sense of development and self-fulfillment over time). Although some empirical findings have questioned the distinctiveness of these six factors (Springer & Hauser, 2006; Springer, Hauser, & Freese, 2006), a great number of studies have confirmed their validity as correlated indicators of PWB (e.g., Chen & Chan, 2005; Clark, Marshall, Ryff, & Wheaton, 2001; Ryff & Singer, 2006; Van Dierendonck, 2004).

PWB primarily comprises the private and personal aspects of positive functioning, and Keyes (1998) has suggested that social aspects of well-being should be incorporated. Social well-being (Social WB) was defined as an individual's social function and perceived flourishing in social life. The construct included five dimensions of public and social criteria: Social acceptance (positive attitude toward and acknowledgement of others), social actualization (positive attitude toward the world and the society's potential and development), social contribution (positive view that one's own contribution to society is valuable and valued), social coherence (perception that the social world is interesting, logical and predictable) and social integration (feeling of social belonging and support). Thus, PWB and Social WB primarily relate to the thriving and positive function of an individual in his or her personal or social life (Keyes, 1998; Keyes & Lopez, 2005).

Although most studies of well-being have adopted either the hedonic or the eudaimonic perspective, there is some overlap between SWB and PWB/Social WB. Both traditions study human mental health and describe well-being as a dynamic construct that may change as a result of the individual's challenges and transitions during life (Kwan, Love, Ryff, & Essex, 2003; Ryff et al., 2004). The hedonic perspective indicates that life satisfaction and happiness are necessary and sufficient elements of human well-being (Deci & Ryan, 2001; Diener et al., 1999). According to the eudaimonic perspective, these elements are not regarded as sufficient for a self-actualized life; rather, it is acknowledged that positive psychological functioning is likely stimulated by or may result in increased levels of life satisfaction and happiness (Keyes, Shmotkin, & Ryff, 2002; Ryff et al., 2004). Testing the hypothesis that SWB and PWB are two related yet separate dimensions of well-being, Keyes and colleagues (2002) integrated the two into a single study. Empirical support was found for the notion that SWB and PWB can appropriately be explained as positively correlated yet empirically distinct latent constructs. Based on these results and the potential overlap between features of the constructs, it is reasonable to assume that SWB and PWB are likely to exert influence on each other over a person's lifespan (Keyes et al., 2002; Keyes & Lopez, 2005). Thus, an individual's psychological growth and development will probably be prevented by a lack of life satisfaction and happiness, whereas life satisfaction and happiness are likely to decrease through an unsatisfying personal flourishing of life experiences. An empirical consideration of both the eudaimonic and hedonic perspectives will increase the opportunity to attain a more thorough understanding of the overall well-being of individuals.

Well-being within studies of competitive athletes

Within sport psychology over the past decade, there has been a steady increase in studies conducted with samples of competitive athletes in which well-being explicitly has been assessed as one variable. These studies have examined well-being from a variety of perspec-

tives and foci, including self-determination and need satisfaction, achievement goals, self-concordance, coach behaviors, athletic identity, psychological skills and coping, team cohesiveness and romantic relationships (e.g., Aide, Duda, & Ntoumanis, 2008; Amorose, Anderson-Butcher, & Cooper, 2009; Blanchard, Amiot, Perreault, Vallerand, & Provencher, 2009; Jowett & Cramer, 2009; Miller & Hoffman, 2009; Podlog, Lochbaum, & Stevens, 2010; Reinboth & Duda, 2006; Ridnour & Hammermeister, 2008; Ryan & Bargman, 2003; Smith, Ntoumanis, & Duda, 2007, 2010; Smith, Ntoumanis, Duda, & Vansteenkiste, 2011; Solberg & Halvari, 2009; Stephan, Bilard, Ninot, & Delignières, 2003; Vansteenkiste, Mouratidis, & Lens, 2010).

The increased interest in including the construct of well-being in studies has likely been stimulated by the view that a high level of psychological functioning, adaptive short-term responses of emotions and long-term affects among athletes are crucial to perform optimally in high-pressure environments over time (e.g., Jones, Meijen, McCarthy, & Sheffield, 2009; Lundqvist & Kenttä, 2010). Moreover, well-being likely helps athletes deal with the diverse challenges they face during their sporting career. Indeed, a great majority of sport psychology interventions implemented and evaluated within sport psychology focus on obstacles athletes face, but are actually designed to directly or indirectly increase components of the athletes' well-being (Williams, 2009). Studies have also revealed that elite athletes with long, successful sports careers are characterized by a range of attributes related to well-being including a hopeful and positive view of the future, high perceived ability, high self-esteem, adequate life balance, well developed skills to cope with both major and minor life challenges, and high levels of mental and emotional health (e.g., Durand-Bush & Salmela, 2002; Gould, Dieffenbach, & Moffett, 2002; Morgan, 1985). These findings provide support for the importance of various aspects of well-being for athletes in the context of competition as well as outside the milieu of sport.

Well-being defined within studies of competitive athletes. In contrast to the general psychology literature, efforts to contextualize athletic well-being within a larger conceptual/theoretical framework have been rare in the field of sport psychology. In an early review presented by Ruoff in 1995, it was noted that much of the extant literature adopted ambiguous definitions of well-being, and the need for an accepted definition of well-being within sport psychology was emphasized. Unfortunately, similar concerns are widely evident in research published since Ruoff's review. A close examination of published studies of competitive athletes during the immediate years after Ruoff's review (i.e., 1995-2002) shows that well-being was indeed mentioned in studies as a general and desirable outcome among competitive athletes but was rarely investigated as a variable related to the specific purpose of the study. For example, in their introduction section Kerr and Goss (1997) elaborated on the possibility that a sense of control among young elite athletes was related to physical, psychological and social well-being overall, but explicitly explored the relationships between locus of control, self-esteem, and trait anxiety. Similarly, Millard (1996) and Ryska and Todd (1999) briefly acknowledged that factors of coaching behavior and social support might impact athletes' well-being, but carried on to explicitly investigate questions of coaching behavior as it may relate to gender and the association between coach support and anxiety. Thus, until the early 2000s there was a flaw in studies investigating well-being among competitive athletes as a specific, defined and assessed variable.

A summary of more recently published research (i.e., between 2003 and February 2011) on adolescent and adult athletes' well-being in competitive sports (see Table 1), in which well-being was treated as a dependent variable, reveals that the majority of these studies still did not define or provide a conceptual rationale for well-being. Labels such as mental well-being, emotional well-being and PWB were also used inconsistently and without clarification as to whether the labels were used synonymously within the study or if they actually referred

to different dimensions of the well-being construct. For example, Solberg & Halvari (2009) variously applied the labels of mental well-being, subjective well-being and subjective emotional well-being in their study without defining any of these terms or establishing what theoretical perspective was being applied. Although the choice was not theoretically justified by the authors, the hedonic perspective appears to have been partly adopted because positive and negative affect were assessed by PANAS (Watson, Clark, & Tellegen, 1988) as an indicator of well-being. A number of studies have further argued in favor of using self-esteem as a key indicator of well-being (Aide et al., 2008; Amorose et al., 2009; Gagné et al., 2003; Podlog et al., 2010). Yet, the self-esteem construct is inconsistent with current definitions of SWB (Diener, 2009) and PWB (Ryff & Keyes, 1994; Ryff et al., 2004), wherein high self-esteem is conceptualized as a factor that can increase the likelihood of athletes achieving well-being, but which is not itself an indicator of well-being.

Some work has, however, incorporated a more thorough conceptualization or definition of well-being and has adopted theoretical relevant assessment to investigate the construct. Edwards and Steyn (2008) referred directly to Ryff's (1989) conceptualization of PWB. These authors applied the operationalization in Ryff's (1989) psychological well-being scale to investigate the influence of psychological skills training programs on athletic well-being. Testing the self-concordance model as a framework for goal striving and well-being among athletes, Smith and colleagues (2011) defined well-being as hedonic well-being including both positive affect and life satisfaction. They also appropriately applied the PANAS (Watson et al., 1988) and the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) as assessments. Moreover, Blanchard and colleagues (2009) explicitly defined well-being based on the SWB perspective. Building on the work by Vallerand (1997) concerning intrinsic and extrinsic motivation, Blanchard and colleagues assessed well-being as positive emotions and satisfaction within the sport. Thus, the assessed indicators adopted can be regarded as relevant

and sport-adjusted indicators in line with affective and life-satisfaction dimensions of the hedonic perspective.

Other researchers have clearly defined well-being as a construct, but have failed to adopt assessments that represent the chosen theoretical perspective. Examples include the work by Gagné and colleagues (2003) and Reinboth, Duda and Ntoumanis (2004), who each utilized a self-determination perspective and chose to define well-being according to the eudaimonic tradition. Both investigations measured subjective vitality as an indicator of well-being. Gagné et al. (2003) additionally assessed self-esteem and affect whereas Reinboth et al. (2004) employed measures of intrinsic interest in the sport and presence of negative physical symptoms. Notably, none of the indicators assessed in these studies actually represents PWB or Social WB as defined by the eudaimonic tradition, and some indicators used (e.g., affect) would rather equal indicators of SWB operationalized by the hedonic tradition. Stephan and colleagues (2003) clearly defined well-being as SWB but used less conceptually established indicators to assess it (e.g., change in lifestyle and socioeconomic status) by adopting semi-structural interviews and the General Health Questionnaire (Goldberg & Williams, 1988). Thus, although some studies (e.g., Blanchard et al., 2009; Gagné et al., 2003; Reinboth et al., 2004; Stephan et al., 2003) have successfully defined a specific well-being perspective, the indicators adopted to assess well-being differ significantly across studies applying the same well-being perspective, and several of the variables measured (e.g., subjective vitality and self-esteem) by definition do not represent well-being from any theoretically grounded perspective.

In summary, in many of the reviewed studies well-being is treated as a substantially unspecific variable, is inconsistently defined, and is assessed using a variety of theoretically questionable indicators. This is sometimes also the case within single studies. Thus, although well-being from different perspectives is represented by clearly defined variables within psy-

chology on human happiness and is flourishing in the general literature, the construct of well-being within the sport psychology literature is still treated vaguely. Moreover, well-being is often presented simply as a general feel-good factor that is highly open to the researcher's own interpretation of its content. Indeed, these are very similar conclusions to those Ruoff (1995) presented based on his well-being review of sport and exercise psychology studies one and a half decades ago:

“It can be speculated that the shortcomings of each definition of psychological well-being has lead (sic) researchers to invent their own meanings. The result has been an abundance of methods for measuring psychological health with no one acceptable standard. Perhaps future studies will be more focused as researchers clarify their terms and agree to measure psychological well-being in similar ways. Currently however, simplicity and practicality seem to be the prevailing standards resulting in substantial diversity” (p. 11).

This forecast by Ruoff, that researchers within sport and exercise psychology would come to an agreement on definitions and measurements of well-being, has yet not come true. The consequences of continuing this approach, with vague or diverse definitions and indicators, are that study results will be difficult to interpret within a larger theoretical framework, general conclusions from the extant literature will be difficult to draw, and the literature will be characterized by confusion regarding what construct is actually studied. In the worst case, misleading conclusions might hamper both the progress in this field of research and the application of evidence-based interventions. For progress to occur in understanding well-being in competitive athletes a more uniform and theory-based approach to the construct is sorely needed, as is the use of accepted and appropriate measures of well-being and its associated constructs.

Global or context-specific view of well-being in sport. There is a growing body of research indicating that a person's judgment of his or her current well-being is related to significant contextual domains of his or her present life situation (Diener et al., 2003). Thus, a person's self-evaluation of well-being will be particularly influenced by parts of his or her life, such as work, family, athletics or hobbies, perceived as subjectively valuable at a specific point in time. The context of high-level competitive sports, similar to other performance domains such as business, dance, music and acting, is characterized by a striving for high-standards and highly valued goals in competition against others with similar levels of competence. The high dedication to the sport that is required for success works to limit athletes' opportunity to pursue alternative interests or social contacts outside sports during their active careers (Tracey & Elcombe, 2004). It is likely that the life context of elite sports impacts athletes to make judgments of their well-being that are often exclusively grounded in their sport experiences. Related research conducted in other highly involving work settings indicates that the specific life context presently surrounding the individual is crucial for understanding his or her perceived well-being (see review by Page & Vella-Brodrick, 2009). For example, studies have revealed that work satisfaction, used as an indicator of subjective workplace well-being on a context-specific level, was only weakly to moderately correlated with the workers' subjective well-being on a global level (Rice, Near, & Hunt, 1980; Rode, 2004). Thus, although a relationship exists between well-being assessed on a global and a context-specific level, there also appear to be separate factors with unique variance that constitute partly different aspects of the well-being construct. Supplementing assessments of global well-being with more context-specific measures that assess well-being related to specific life domains will likely provide a more accurate estimation of an individual's well-being (e.g., Daniels, 2000). In contrast, the pure reliance on global estimations of well-being present the risk of

representing average estimations of a number of undefined aspects of a person's life or a gross estimation of the current state (Schwartz & Strack, 1999).

For many athletes, high-level competitive sport is equivalent to a part-time or full-time job, and an elite sport career will most likely involve experiences of both environmental and organizational challenges, stressors and demands (Fletcher & Wagstaff, 2009). Findings from the work-related literature may therefore well have relevance in the context of sport. A review of measurements used in sport psychology research on well-being, as presented in Table 1, shows that studies have variously investigated global well-being (e.g., the Satisfaction With Life Scale; Diener et al., 1985) and sport-specific well-being in terms of satisfaction with or interest in sport (e.g., the Athlete Satisfaction Scale; Riemer & Chelladurai, 1998; the Satisfaction/Interest in Sport Scale; Duda & Nicholls, 1992). Unfortunately, however, there seems to be little rationale for the choice of either the global scale or the context-specific level of assessment in these studies, although the operationalization chosen in a certain study will highly impact interpretations of its results. An inconsistent use of the level on which well-being is evaluated and a lack of theoretical justification for this choice are symptomatic of the conceptual bewilderment in the literature. Such work obscures the precision of the assessments, highly increasing the risk of contrarious results, which makes it difficult to draw valid theory-driven conclusions regarding well-being among athletes.

An integrated model of well-being in sports to provide future research directions

In an effort both to summarize the hedonic (SWB) and eudaimonic (PWB and Social WB) perspectives of well-being and to distinguish between global and sport-specific descriptions of well-being, an integrated model of sport-related well-being constructs is provided in Figure 1. The global level of the model is based on well-recognized conceptualizations of well-being in psychology (cf. Deci & Ryan, 2001; Diener, 2009; Keyes & Lopez, 2005; Ryff & Singer, 2006). The contextual level in the model builds on newer work by, for example,

Page and Vella-Brodrick (2009), who emphasize the need to also relate well-being judgments to significant contexts in a person's life. Thus, the contextual level in the model is tentatively adapted to the sport context by slightly adjusting the well-being dimensions accordingly. Importantly, the purpose of including the contextual level in the model is not to present a fixed model or a theory of well-being in sport. Research to date has not provided sufficient knowledge to enable such an endeavor. The primary intention of the model is rather to provide a broad framework of plausible well-being concepts in sport to act as a guide and inspiration for further studies of well-being in competitive sports. Moreover, it is hoped that the model will help researchers to explicitly establish the well-being perspective that is adopted and clarify the level (global or context-specific) on which the construct is investigated. The present literature review shows that we presently do not know much about which factors may constitute contextual sport-related well-being, or how well-being factors and levels relate to each other. Future researchers are therefore encouraged to elaborate on the model and, based on empirical findings, to search for and identify the most essential dimensions that contextual sport-related well-being is constituted of. A further elaboration of well-being and relevant research questions on a global and contextual level is provided in the sections below.

Athletes' well-being on the global level. Based on the reviewed literature on well-being, it is apparent that sport psychology studies intending to investigate athletes' well-being on a global level would benefit conceptually from the application of established definitions and assessments available in the extant psychology literature. As pictured in Figure 1, current research supports the validity of SWB, PWB and Social WB, respectively, in the general population and also suggests a moderate interrelationship between them (Diener, 2009; Keyes & Magyar-Moe, 2003; Keyes et al., 2002; Ryff & Singer, 2006). Unfortunately, as a result of conceptual obscurity in sport psychology studies, which has been described in this review, evidence of the validity of these global dimensions in populations of competitive athletes is

still sparse. However, as global well-being is viewed as contextual-free subjective evaluations of a person's life, it is reasonable to assume that the global well-being dimensions are of general application to both athletes and non-athletes. Regardless of whether the well-being constructs are investigated separately or in conjunction, to capture a more comprehensive understanding of athletes' overall well-being, sport researchers need to carefully define and give theoretical grounds for their choice. Moreover, assessments that are applied need to correspond to the chosen theoretical perspective. Although a number of well-being assessments have been developed, those that are presently most applied appear to be the PANAS (Watson et al., 1988) and the Satisfaction with Life Scale (Diener et al., 1983) for assessing subjective well-being, as well as the Psychological Well-being Scale (Ryff, 1989). Moreover, Keyes (2009) recently presented psychometric evidence of a short measure containing 14 items to assess subjective well-being (labeled emotional well-being), psychological well-being and social well-being within a single questionnaire. For further summaries of validated assessments available on the global well-being level, the reader is referred to Keyes and Magyar-Moe (2003), Keyes and Lopez (2005) and Diener (2009). Overall, future researchers studying athletes' well-being on a global level need to pay careful attention to established definitions as well as consider validation of available assessments within psychology of other domains.

Well-being on the contextual sport level. The study of well-being within a competitive sport context is a relatively new research area. Very few studies have explored athletes' satisfaction with their sport situation in depth, and among the few studies that have, the broader and less specific construct of quality of life (which only partly includes well-being) has most often been referred to. For instance, Wrisberg (1996) scrutinized survey data on 4,000 American athletes and other students from 42 colleges and universities. The quantitative data were also complemented by interview data. Conclusions drawn from the study were that the life quality of many athletes was rather low regarding a number of parameters such as feelings of

exhaustion or fatigue, reduced enjoyment in sport, reduced satisfaction with personal development, few interpersonal relationships with people outside sport, and wanting satisfaction with athletic and academic performance (Wrisberg, 1996). Brady and Shambrook (2003) instead used a phenomenological approach and interviewed 11 international elite track-and-field athletes. Results showed that the athletes perceived their sport situation as very good and in some instances nearly optimal. Moreover, five essential themes were revealed in the study as important for a “good athletic life”, including self-interest in fulfilling one’s own needs, the sacrifice of things non-athletes might have, success in sport performance, support of significant others, and autonomy (Brady & Shambrook, 2003). Thus, the results across studies appear rather inconsistent, ranging from perceptions of very unsatisfactory to nearly ideal. The attempt by Brady and Shambrook (2003) to use qualitative methodology to identify sport-related factors of importance to athlete’s satisfaction with their sport situation is promising. Unfortunately, there is presently a lack of studies that have replicated or extended this qualitative approach to identify the unique indicators that may signify sport-related well-being among competitive athletes. Thus, knowledge of factors in the sport environment that may impact athletes’ well-being in a debilitating or facilitative manner is sparse and the prevalence of well-being among competitive athletes is unknown. Also, the relationship between global levels of well-being and well-being specifically related to sports needs further investigation. For example, researchers need to establish the extent to which global well-being may act as a buffer for sport-related well-being and/or whether sport well-being may impact athletes’ levels of global well-being.

There is also a notable lack of measurements for assessing competitive athletes’ well-being on a contextual level. As revealed by the present review of published studies, researchers thus far seem to have unsuccessfully “fumbled around” to find indicators to fulfill this need. One plausible exception to this absence is the assessment of subjective vitality as an

indicator of well-being in athletes (Gagné et al., 2003; Podlog et al., 2010; Reinboth & Duda, 2006; Reinboth et al., 2004). Based on the unique psychosociophysiological demands associated with competitive sports, subjective vitality may prove to be a central indicator of well-being in athletes. Additional research is needed to confirm the role of subjective vitality, as well as to investigate the sport-related well-being construct *per se* and to identify the most prominent indicators of well-being among athletes.

In summary, studies that thoroughly explore the most representative dimensions of well-being among athletes are necessary both to develop a theory-driven definition of sport-related well-being and to ensure content validity in the assessments used. In order to achieve this aim, researchers may also need to consider qualitative approaches to allow the exploration of well-being in greater depth and detail than what quantitative approaches alone can achieve. The results from such work would also provide increased possibilities to adapt available global measures to a sport context and/or to develop new measures that reflect the most characteristic well-being dimensions present in athletes. In contrast to the studies conducted thus far, well-defined constructs and theory-driven measurements of sport-related well-being would provide increased opportunities to evaluate the impact of the competitive context on the well-being of athletes, investigate the role of well-being on performance from a short- and long-term perspective, and establish the concordance of results across studies.

Summary and conclusions

In this review, the topic of definitions and conceptualizations of well-being among competitive athletes was addressed and contrasted to research on other populations within psychology. It is concluded that the sport psychology research on well-being among competitive athletes suffers from ambiguous and inconsistent definitions of well-being, as many studies do not provide a definition, or use diverse well-being labels seemingly interchangeably. Explicit and theoretically well grounded definitions of well-being have been developed in the

psychology literature on well-being in other more general populations, but these may require both validation in and, most likely, adaptation to the context of sport. Based on the present level of knowledge presented in this review, researchers investigating athletes' well-being on a global level should adopt established measurements developed within the theoretical framework utilized. At the contextual sport level, it is concluded that the knowledge level of what constitutes sport-related well-being is presently shallow. In particular, future qualitative research is warranted to enable the exploration of sport-related well-being in greater detail and depth.

There has been a notable increase in interest in the study of well-being within the context of competitive sports during the past decade. An increased understanding of well-being in athletes is desirable, as this information could potentially address aspects of competitive sports that constitute obstacles and facilitate athletes' possibilities to flourish and use their full potential as both humans and athletes. Moreover, a growing body of evidence suggests that interventions aimed at increasing positive affective states may enhance well-being and health over time, which facilitates adaptive long-term coping resources (Fredrickson, 2005; Seligman et al., 2005; Sheldon & Lyubomirsky, 2006 a, b). Support for these findings is thus far displayed primarily in laboratory settings within general psychology, but indicates promising new insight into plausible intervention strategies that could be beneficial to competitive athletes' overall well-being and health. Unfortunately, much of the extant sport psychology research on the topic of well-being suffers from both methodological and conceptual shortcomings that have limited these applications. Future researchers studying well-being among competitive athletes are therefore encouraged to carefully consider the conceptual issues emphasized in this review in order to improve and enable continued progress in this research field.

References

- Adie, J.W., Duda, J.L., & Ntoumanis, N. (2008). Achievement goals, competition appraisals, and the psychological and emotional welfare of sports participants. *Journal of Sport and Exercise Psychology, 30*, 302-322.
- Amorose, A.J., Anderson-Butcher, D., & Cooper, J. (2009). Predicting changes in athletes' well being from changes in need satisfaction over the course of a competitive season. *Research Quarterly for Exercise and Sport, 80*, 386-392.
- Bartholomew, K.J., Ntoumanis, N., Ryan, R.M., & Thogersen-Ntoumani, C. (2011). Psychological need thwarting in the sport context: Assessing the darker side of athletic experience. *Journal of Sport & Exercise Psychology, 33*, 75-102.
- Blanchard, C.M., Amiot, C.E., Perreault, S., Vallerand, R.J., & Provencher, P. (2009). Cohesiveness, coach's interpersonal style and psychological needs: Their effects on self-determination and athletes' subjective well-being. *Psychology of Sport and Exercise, 10*, 545-551.
- Brady, A., & Shambrook, C. (2003). Towards an understanding of elite athlete quality of life: a phenomenological study. *Journal of Sports Sciences, 21*, 341-342.
- Cantril, H. (1965). *The pattern of human concerns*. New Brunswick, NJ: Rutgers University Press.
- Chen, S-T., & Chan, A.C.M. (2005). Measuring psychological well-being in the Chinese. *Personality and Individual Differences, 38*, 1307-1316.
- Clark, P.J., Marshall, V.W., Ryff, C.D., & Wheaton, B. (2001). Measuring psychological well-being in the Canadian study of health and aging. *Canadian Journal of Aging, 19*, 139-159.
- Coakley, J. (2007). *Sports in society: Issues and controversies* (9th ed.). Boston: McGraw Hill.

- Cummins, R.A., Eckersley, R., Kai Lo, S., Okerstrom, E., Hunter, B., & Woerner, J. (2004). *Australian unity wellbeing index survey 12, part A: The report, "the wellbeing of Australians – job security*. Melbourne: Australian Centre on Quality of Life. Available at: <http://www.deakin.edu.au/research/acqol/auwbi/survey-reports/survey-012-report-part-a.pdf> [2011-02-02].
- Daniels, K. (2000). Measures of five aspects of affective well-being at work. *Human Relations*, 53, 275-294.
- Derogatis, L.R. (1983). *SCL-90R: Administration, scoring and procedures manual-II*. Towson, MD: Clinical Psychometric Research.
- Diener, E. (2009). Subjective well-being. In E. Diener (Ed.), *Social Indicators of Research Series. The science of well-being* (vol. 37, pp. 11-58). New York: Springer Science+Business Media B.V.
- Diener, E., & Biswas-Diener, R. (2009). Will money increase subjective well-being? A literature review and guide to needed research. In Diener (Ed.), *Social Indicators of Research Series. The science of well-being* (vol. 37, pp. 119-154). New York: Springer Science+Business Media B.V.
- Diener, E., & Emmons, R.A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology*, 47, 1105-1017.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- Diener, E., Lucas, R.E., & Oishi, S. (2005). Subjective well-being. In C.R. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology* (pp. 63-73). New York: Oxford University Press, Inc.
- Diener, E., Lucas, R.E., & Scollon, S. (2003). The evolving concept of subjective well-being: the multifaceted nature of happiness. *Advances in Cell Aging and Gerontology*, 15, 187-219.

- Diener, E., Oishi, S., & Lucas, R.E. (2009). Subjective well-being: The science of happiness and life satisfaction. In S.J. Lopez & C.R. Snyder (Eds.), *Oxford handbook of positive psychology* (2nd ed.) (pp. 187-194). New York: Oxford University Press, Inc.
- Diener, E., Suh, E.M., Lucas, R.E., & Smith, H.L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125, 276-302.
- Duda, J.L., & Nicholls, J.G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84, 290-299.
- Durand-Bush, N., & Salmela, J.H. (2002). The development and maintenance of expert athletic performance: Perceptions of world and Olympic champions. *Journal of Applied Sport Psychology*, 14, 154-171.
- Edwards, D.J., & Steyn, B.J.M. (2008). Sport psychological skills training and psychological well-being. *South African Journal for Research in Sport, Physical Education and Recreation*, 30, 15-28.
- Emmons, R.A. (1991). Personal strivings, daily life events, and psychological and physical well-being. *Journal of Personality*, 59, 453-472.
- Fletcher, D., & Wagstaff, C.R.D. (2009). Organizational psychology in elite sport: Its emergence, application and future. *Psychology of Sport and Exercise*, 10, 427-434.
- Fredrickson, B.L. (2005). Positive emotions. In C.R. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology* (pp. 120-147). New York: Oxford University Press, Inc.
- Gould, D., & Carson, S. (2008). Life skills development through sport: current status and future directions. *International Review of Sport and Exercise Psychology*, 1, 58-78.
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172-204.
- Goldberg, D. P., & Williams, P. (1988). *A user's guide to the General Health Questionnaire*. Windsor, UK: NFER-Nelson.

- Gurin, G., Veroff, J., & Feld, S. (1960). *Americans view their mental health*. New York: Basic Books.
- Headey, B. (2008). The set-point theory of well-being: Negative results and consequent revisions. *Social Indicators Research*, 85, 389-403.
- Jones, M.V., Meijen, C., McCarthy, P.J., & Sheffield, D. (2009). A theory of challenge and threat states in athletes. *International Review of Sport and Exercise Psychology*, 2, 161-180.
- Jowett, S., & Cramer, D. (2009). The role of romantic relationships on athletes' performance and well-being. *Journal of Clinical Sports Psychology*, 3, 58-72.
- Kerr, G.A., & Goss, J.D. (1997). Personal control in elite gymnasts: the relationships between locus of control, self-esteem, and trait anxiety. *Journal of Sport Behavior*, 20, 69-82.
- Keyes, C.L.M. (1998). Social well-being. *Social Psychological Quarterly*, 61, 121-140.
- Keyes, C.L.M. (2005). Mental illness and/or mental health? Investigating the axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, 73, 539-548.
- Keyes, C. L. M. (2009). Atlanta: *Brief description of the mental health continuum short form (MHC-SF)*. Available at: <http://www.sociology.emory.edu/ckeyes/>. [2010-10-26]
- Keyes, C.L.M., & Lopez, S.J. (2005). Toward a science of mental health. Positive directions in diagnosis and interventions. In C.R. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology* (pp. 43-59). New York: Oxford University Press, Inc.
- Keyes, C.L.M., & Magyar-Moe, J.L. (2003). The measurement and utility of adult subjective well-being. In S.J. Lopez & C.R. Snyder (Eds.), *Positive psychological assessments. A handbook of models and measures* (pp. 411-425). Washington DC: American Psychological Association.

- Keyes, C.L.M., Shmotkin, D., & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, 82, 1007-1022.
- Kwan, C.M.L., Love, G.D., Ryff, C.D., & Essex, M.J. (2003). The role of self-enhancing evaluations in a successful life transition. *Psychology and Aging*, 18, 3-12.
- Lundqvist, C., & Kenttä, G. (2010). Positive emotions are not simply the absence of the negative ones: Development and validation of the Emotional Recovery Questionnaire (EmRecQ). *The Sport Psychologist*, 24, 468-488.
- Lyubomirsky, S., Sheldon, K.M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111-131.
- Lucas, R.E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology*, 71, 616-628.
- Maddux, J.E. (2005). Stopping the “madness”: Positive psychology and the deconstruction of the illness ideology and the DSM. In C.R. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology*, (pp. 13-25). New York: Oxford University Press, Inc.
- Malinauskas, R. (2010). The associations among social support, stress, and life satisfaction as perceived by injured college athletes. *Social Behavior and Personality*, 38, 741-752.
- Marsh, H.W., Richards, G.E., Johnson, S., Roche, L., & Tremayne, P. (1994). Physical self-description questionnaire: Psychometric properties and a multitrait-multimethod analysis of relations to existing instruments. *Journal of Sport and Exercise Psychology*, 16, 270-305.
- Millard, L. (1996). Differences in coaching behaviors of male and female high school soccer coaches. *Journal of Sport Behavior*, 19, 19-31.
- Miller, K.E., & Hoffman, J.H. (2009). Mental well-being and sport-related identities in college students. *Sociology of Sport Journal*, 26, 335-356.

- Morgan, W.P. (1985). Selected psychological factors limiting performance: a mental health model. In: D.H. Clarke & H.M. Eckert (Eds.), *Limits of human performance* (pp. 70-80). Champaign, IL: Human Kinetics.
- Page, K.M., & Vella-Brodrick, D.A. (2009). The "what", "why" and "how" of employee well-being: A new model. *Social Indicators Research*, 90, 441-458.
- Podlog, L., Lochbaum, M., & Stevens, T. (2010). Need satisfaction, well-being, and perceived return-to-sport outcomes among injured athletes. *Journal of Applied Sport Psychology*, 22, 167-182.
- Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Raedeke, T.D., & Smith, A.L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of Sport and Exercise Psychology*, 23, 281-306.
- Reinboth, M., & Duda, J.L. (2006). Perceived motivational climate, need satisfaction and indices of well-being in team sports: A longitudinal perspective. *Psychology of Sport and Exercise* 7, 269-286.
- Reinboth, M., Duda, J.L., & Ntoumanis, N. (2004). Dimensions of coaching behavior, need satisfaction, and the psychological and physical welfare of young athletes. *Motivation and Emotion*, 28, 297-313.
- Riemer, H.A., & Chelladurai, P. (1998). Development of the Athlete Satisfaction Questionnaire (ASQ). *Journal of Sport and Exercise Psychology*, 20, 127-156.
- Rice, R.W., Near, J.P., & Hunt, R.G. (1980). The job-satisfaction/life-satisfaction relationship: A review of empirical research. *Basic and Applied Social Psychology*, 1, 37-64.
- Ridnour, H., & Hammermeister, J. (2008). Spiritual well-being and its influence on athletic coping profiles. *Journal of Sport Behavior*, 31, 81-92.

- Rode, J.C. (2004). Job satisfaction and life satisfaction: A longitudinal test of an integrated model. *Human Relations, 57*, 1205-1230.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Ruoff, M. K. (1995). *A literature review investigating the relationship between sports participation and psychological well-being*. Doctoral research paper, in partial fulfillment of the requirements for the degree of Doctor of Psychology, Biola University.
- Ryan, R.M., & Bargman, K. (2003). Autonomy support and need satisfaction in the motivation and well-being of gymnasts. *Journal of Applied Sport Psychology, 15*, 372-390.
- Ryan, R.M., & Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141-166.
- Ryan, R.M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65*, 529-565.
- Ryff, C.D. (1989). Happiness is everything, or is it? Exploration on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*, 1069-1081.
- Ryff, C.D., & Keyes, C.L.M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*, 719-727.
- Ryff, C.D., & Singer, B.H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research, 35*, 1103-1119.
- Ryff, C.D., Singer, B.H., & Dienberg Love, G. (2004). Positive health: Connecting well-being with biology. *Philosophical Transaction of the Royal Society of London. Series, B, Biological Sciences, 359*, 1383-1394.
- Ryska, T.A., & Yin, Z. (1999). Testing the buffering hypothesis: Perceptions of coach support and pre-competitive anxiety among male and female high school athletes. *Current Psychology, 18*, 381-393.

- Schwartz, N., & Strack, F. (1999). Reports of subjective well-being: Judgment processes and their methodological implications. In D. Kahneman, E. Diener, & N. Schwartz (Eds.), *Foundation of hedonic psychology: Scientific perspectives on enjoyment and suffering* (pp. 61-84). New York: Russell Sage Foundation.
- Seligman, M.E.P., Steen, T.A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60, 410-421.
- Sheldon, K.M., & Lyubomirsky, S. (2006a). Achieving sustainable gains in happiness: Change your actions not your circumstances. *Journal of Happiness Studies*, 7, 55-86.
- Sheldon, K.M., & Lyubomirsky, S. (2006b). How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *Journal of Positive Psychology*, 1, 73-82.
- Smith, A., Ntoumanis, N., & Duda, J. (2007). Goal striving, goal attainment, and well-being: Adapting and testing the self-concordance model in sport. *Journal of Sport and Exercise Psychology*, 29, 763-782.
- Smith, A., Ntoumanis, N., & Duda, J. (2010). An investigation of coach behaviors, goal motives, and implementations as predictors of well-being in sport. *Journal of Applied Sport Psychology*, 22, 17-33.
- Smith, A.L., Ntoumanis, N., Duda, J.L., & Vansteenkiste, M. (2011). Goal striving, coping, and well-being: A prospective investigation of the self-concordance model in sport. *Journal of Sport & Exercise Psychology*, 33, 124-145.
- Solberg, P.A., & Halvari, H. (2009). Perceived autonomy support, personal goal content, and emotional well-being among elite athletes: Mediating effects of reasons for goals. *Perceptual and Motor Skills*, 108, 721-743.

- Springer, K.W., & Hauser, R.M. (2006). An assessment of the construct validity of Ryff's scales of psychological well-being: method, mode, and measurement effects. *Social Science Research, 35*, 1079-1101.
- Springer, K.W., Hauser, R.M., & Freese, J. (2006). Bad news indeed for Ryff's six-factor model of well-being. *Social Science Research, 35*, 1120-1131.
- Stephan, Y., Bilard, J., Ninot, G., & Delignières, D. (2003). Depreciation of transition out of elite sport on subjective well-being: A one-year study. *Journal of Applied Sport Psychology, 15*, 354-371.
- Tracey, J., & Elcombe, T. (2004). A lifetime of healthy meaningful movement: Have we forgotten the athletes? *Quest, 56*, 241-260.
- Vallerand, R.J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. Zanna (Ed.), *Advances in experimental social psychology, Vol. 29* (pp. 271-360). New York: Academic Press.
- Van Dierendonck, D. (2004). The construct validity of Ryff's scales of psychological well-being and its extension with spiritual well-being. *Personality and Individual Differences, 36*, 629-643.
- Vansteenkiste, M., Mouratidis, A., & Lens, W. (2010). Detaching reasons from aims: Fair play and well-being in soccer as a function of pursuing performance-approach goals for autonomous or controlling reasons. *Journal of Sport and Exercise Psychology, 32*, 217-242.
- Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of a brief measure of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- Wiese-Bjornstal, D. M. (2009). Sport injury and college athlete health across the lifespan. *Journal of Intercollegiate Sports, 2*, 64-80.

Williams, J.M. (Ed.) (2009). *Applied sport psychology: Personal growth to peak performance* (6th ed.). London: McGraw-Hill Higher Education.

Wrisberg, C.A. (1996). Quality of life for male and female elite athletes. *Quest*, 48, 392-408.

Table 1

Summary of 17 reviewed articles, published between 2003 and 2011, studying well-being in competitive sports regarding definition of well-being provided, indicators and measurements used and well-being studied as an independent or a dependent variable.

Authors	Sample	Definition	Indicators	Measurements	Well-being
					Independent or dependent variable
Adie et al., 2008	Diverse team sport athletes	Yes	Self-esteem Positive and negative affect	Physical Self-Description Questionnaire (Marsh, Richards, Johnson, Roche, & Tremayne, 1994) 9 items of positive and negative affect (Diener & Emmons, 1984)	Dependent
Amorose et al., 2009	Volleyball players	No	Self-esteem Degree of burnout symp-	Self-esteem scale (Rosenberg, 1965) Athlete Burnout Questionnaire	Dependent

			toms	(Raedeke & Smith, 2001)	
Blanchard et al., 2009	Basketball players	Yes	Positive emotions Satisfaction with sport	Positive emotion subscale and satisfaction with sport based on Vallerand (1997)	Dependent
Edwards & Steyn, 2008	Track athletes	Yes	Ryff's six well-being factors	Psychological well-being scale (Ryff, 1989)	Dependent
Gagné et al., 2003	Gymnasts	Yes	Stability of self-concept Subjective vitality Positive and negative affect	Self-esteem scale (Rosenberg, 1965) Subjective vitality scale (Ryan & Frederick, 1997) PANAS (Watson et al., 1988)	Dependent

Jowett & Cramer, 2009	Diverse individual and team sport athletes	No	Satisfaction with sport Symptoms of depression	Satisfaction with performance subscale of the Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998) Depression subscale (Derogatis, 1983)	Dependent
Malinauskas, 2010	Diverse individual and team sport athletes	Yes	Life satisfaction	Satisfaction with life scale (Diener et al., 1985)	Dependent

Mouratidis, Lens, & Vansteenkiste, 2010	Diverse	No	Subjective vitality	Subjective vitality scale	Dependent
			Positive and negative affect	(Ryan & Frederick, 1997)	
			Depression	PANAS (Watson et al., 1988)	
				Center for Epidemiological Studies- Depression Scale (CES-D; Radloff, 1977)	
Podlog et al., 2010	Diverse indi- vidual and team sports athletes	No	Self-esteem	Self-esteem scale (Rosenberg, 1965)	Dependent
			Subjective vitality	Subjective vitality scale (Ryan & Frederick, 1997)	
			Positive and negative affect	PANAS (Watson et al., 1988)	
Reinboth & Duda, 2006	Diverse team sport athletes	No	Subjective vitality	Subjective vitality scale	Dependent

			Physical symptoms	(Ryan & Frederick, 1997)	
				9-item physical symptom checklist	
				(Emmons, 1991)	
Reinboth et al., 2004	Soccer and cricket players	Yes	Subjective vitality	Subjective vitality scale	Dependent
			Intrinsic interest in sport	(Ryan & Frederick, 1997)	
			Negative physical symptoms	Satisfaction/Interest in sport scale	
				(Duda & Nicholls, 1992)	
				Physical symptom checklist	
				(Emmons, 1991)	
Smith et al., 2007	Diverse indi-	No	Positive and negative affect	PANAS (Watson et al., 1988)	Dependent

	vidual and team sports athletes		Life satisfaction Emotional/physical exhaus- tion	Satisfaction With Life Scale (Diener et al., 1985) ABQ/Emotional/physical exhaustion subscale (Raedeke & Smith, 2001)	
Smith et al., 2010	Diverse indi- vidual and team sports athletes	No	Positive and negative affect Life satisfaction Emotional/physical exhaus- tion	PANAS (Watson et al., 1988) Satisfaction With Life Scale (Diener et al., 1985) ABQ/Emotional/physical exhaustion subscale (Raedeke & Smith, 2001)	Dependent
Smith et al., 2011	Diverse indi-	Yes	Positive and negative affect	PANAS (Warson et al., 1988)	Dependent

	vidual and team sports		Life satisfaction	Satisfaction with Life Scale (Diener et al., 1985)	
Solberg & Halvari, 2009	Diverse indi- vidual sports athletes	No	Positive and negative affect	PANAS (Watson et al., 1988)	Dependent
Stephan et al., 2003	Diverse indi- vidual sports athletes	Yes	Discrepancy between pre- sent state and usual state Changes in lifestyle Changes in socio- professional situation	General Health Questionnaire (Goldberg & Williams, 1988) Semi-structured interviews	Dependent

Vansteenkiste et al., 2010	Football play- ers	No	Subjective vitality Positive and negative affect	Subjective vitality scale (Ryan & Frederick, 1997) PANAS (Watson et al., 1988)	Dependent
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Figure 1. An integrated model of global well-being and context-specific well-being related to sport (modified and extended from the work of Page and Vella-Brodrick, 2009).