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The moral worth of sport reconsidered: Contributions of recreational sport and competitive sport to life aspirations and psychological well-being

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Abstract
Based on self-determination theory, the present study aimed to test the hypothesis that importance ratings of life aspirations would mediate the effects of participation in recreational and competitive sport on psychological well-being. In addition, the effects of sport participation on psychological well-being were hypothesized to indicate that, compared with competitive athletes, recreational athletes would report higher psychological well-being. The participants were 118 university students (83 males, 35 females) with a mean age of 20.8 years ($s = 7.6$). In accordance with the initial hypotheses, a path analysis supported the mediating effect of importance ratings of life aspirations, but not of attainment ratings of life aspirations, on the relationship between participation in recreational and competitive sport and psychological well-being. The indirect effects observed for importance ratings supported the conclusion that recreational athletes showed a preference for intrinsic life aspirations compared with competitive athletes and reported higher psychological well-being. Overall, the findings of the present study suggest that the moral worth of sport does not reside so much in the frequency with which individuals engage in sport but in the goals and values people express through sport participation.

Keywords: *Self-determination theory, sport participation, recreation, hedonic enjoyment, eudemonia*

Introduction

Epidemiological and clinical studies have indicated that regular participation in physical activities is associated with enhanced psychological well-being and reduced risks of cardiovascular disease and other illnesses (Biddle, Fox, Boutcher, & Faulkner, 2000; Hagger & Chatzisarantis, 2005). Although there seems to be a convergence of opinion regarding the beneficial effects of physical activity on psychological well-being, it can be argued that that not all types of physical exercise or sport enhance psychological wellness (Hagger & Chatzisarantis, 2005). For more than 35 years, researchers in social psychology have consistently indicated that certain forms of competition (i.e. winning at all costs) undermine optimal functioning and an emerging conclusion is that psychological well-being is associated with pursuit of a limited number of goals; goals that are often not supported by competitive sport structures (Deci, Koestner, & Ryan, 1999; Chatzisarantis, Hagger, Biddle, Smith, & Wang, 2003; Vansteenkiste & Deci, 2003). Therefore, the popular view that all forms of physical activity enhance psychological well-being may be an over-generalization and the small number of studies conducted in sport suggest that there are certain forms or types of competitive sport that do not enhance psychological well-being (Abele & Brehm, 1993). In the present paper, we adopt a self-determination theory approach (Deci & Ryan 1985; Ryan & Deci, 2000, 2001) to examine the psychological processes by which participation in recreational sport and competitive sport influences psychological well-being.

Psychological well-being is a complex construct that concerns optimal experience and functioning (Ryan & Deci 2001). In contemporary usage of the term, it is described as *hedonic* enjoyment and, broadly speaking, refers to the experience of pleasure versus displeasure or satisfaction with life (Ryan & Deci 2001). An important characteristic of hedonic enjoyment is that it can be a passive condition, not necessarily associated with the pursuit and achievement of important goals and purposes. As Grayling

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(2001) noted, as hedonic enjoyment can be induced through hallucinogenic drugs shows that it can be a passive condition that can undermine other important outcomes in life such as our strivings, personal improvement, and psychological growth. Nevertheless, Diener, Sapyta, and Suh (1998) have noted that hedonic enjoyment cannot be equated with physical hedonism, but it can be derived from the attainment and fulfilment of goals and purposes.

Alongside this definition of hedonic enjoyment, there is another definition of psychological well-being, termed *eudemonia* (Aristotle, 1993; Waterman, 1993), which has been largely ignored by contemporary researchers in physical activity and sport. According to Waterman (1993), experiences of eudemonia are derived from personally expressive activities that facilitate self-realization through the fulfilment of personal potentials and through the advancement of one's purposes in living. At the level of human experience, eudemonia manifests in experiences of vitality and as having an enhanced sense of purpose in life (Ryff & Keyes 1995). Generally speaking, eudemonic people find life not only enjoyable but also meaningful and worth living (Aristotle, 1993).

There are certain important differences between hedonic enjoyment and eudemonia. Unlike hedonic enjoyment, which can be a passive condition, eudemonia is an active process derived from the pursuit and achievement of personal goals. Yet, as Aristotle (1993) originally argued, the pursuit and fulfilment of subjectively felt needs (i.e. wealth) is quite unlikely to produce eudemonia. Only innate needs and goals, which are rooted in human nature, produce eudemonia and an enhanced sense of purpose in life. In Aristotelian terms, goals and needs that produce eudemonia are objectively valid needs and include the exercise of virtues such as freedom, bravery, honesty, and generosity. Hedonic enjoyment, in contrast, can be achieved through attainment of any type of goal, subjectively felt or universal. There are no conceptual restrictions regarding the development of hedonic enjoyment (Waterman, 1993).

To date, several researchers who have studied the antecedents of hedonic enjoyment and eudemonia have drawn from self-determination theory, a theory that makes a distinction between subjectively felt needs and universal needs (Chirkov, Ryan, Kim, & Kaplan, 2003; Gagne, Ryan, & Bergman, 2003; Kasser & Ryan 1993; Ryan, Little, Sheldon, Timoshina, & Deci, 1999; Sheldon, Elliot, Kim, & Kasser, 2001). According to this theory, psychological well-being can be explained on the basis of a few principles related to three innate psychological needs for self-determination, competence, and relatedness (Hagger & Chatzisarantis 2005). Self-determination refers to the need to experience oneself as initiator and regulator of one's actions (Deci & Ryan, 1985). Competence refers to the need to produce behavioural outcomes and understand the instrumentalities leading to these behavioural outcomes (Deci & Ryan, 1985). Relatedness refers to the need to experience satisfactory relationships with others and with the social order in general (Deci & Ryan, 1985).

The notion of psychological needs, postulated by self-determination theory, differs from the more common usage that equates a need with any subjective desire or goal that people might try to achieve. In accordance with the Aristotelian (1993) distinction between universal and subjective needs, Ryan and Deci (2000) suggested that the psychological needs for competence, autonomy, and relatedness are universal (basic), rooted in human nature (innate), and *necessary* for human development and growth. As others have shown (Sheldon *et al*., 2001), psychological needs for self-determination, competence, and autonomy are universal because individuals from individualistic and collectivistic societies assign greater importance to satisfaction of these psychological needs than to satisfaction of needs for safety and financial success. In addition, experiences related to satisfaction of psychological needs are essential for human development and growth because satisfaction of the needs for relatedness, competence, and autonomy are more strongly associated with psychological well-being than satisfaction of subjectively felt needs of financial success and safety (Sheldon *et al*., 2001).

The construct of psychological needs can also be particularly useful in understanding antecedents and processes underlying hedonic enjoyment and eudemonia. The notion that satisfaction of the basic psychological needs of autonomy, competence, and relatedness is *necessary* for human development and growth implies that behaviours will produce hedonic enjoyment and eudemonia only when they are regulated in a way that satisfies all three psychological needs (Hagger, Chatzisarantis, & Harris, 2006; Ryan & Deci, 2001). When behaviours frustrate or detract people from satisfying basic psychological needs, they may produce hedonic enjoyment, but not eudemonia (Ryan & Deci 2001; Sheldon *et al*., 2001). From this perspective, therefore, the key factor determining eudemonia and hedonic enjoyment is not concerned so much with the extent of involvement in an activity (i.e. frequency of physical activity participation), but with the *regulation of behaviour*. For example, two people may exercise with the same intensity and frequency yet experience different levels and types of psychological well-being depending on whether they regulate physical activity in a way that enhances a sense of self-determination, competence, and relatedness.

An important characteristic of behavioural regulation that can influence quality and levels of psychological well-being is concerned with the goals or life aspirations that people pursue through social behaviour. Kasser and Ryan (1993) have made a distinction between intrinsic and extrinsic life aspirations. Intrinsic life aspirations include goals related to health, meaningful relationships, personal growth, and community contributions. Intrinsic life aspirations are hypothesized to produce both hedonic enjoyment and eudemonia because their attainment directly satisfies psychological needs for self-determination, competence, and relatedness (Ryan & Deci, 2001). In contrast, extrinsic life aspirations include more materialistic life goals of financial success (wealth), image, and fame. Extrinsic life aspirations can, according to self-determination theory (Ryan & Deci, 2001), undermine eudemonia and enhance or undermine hedonic enjoyment depending on whether their attainment provides indirect satisfaction of basic psychological needs or frustrates basic psychological needs.

Self-determination theory also focuses and measures different aspects of life aspirations, namely perceived importance of life aspirations, perceived current attainment of life aspirations, and perceived likelihood of future attainment of life aspirations. The difference between these aspiration dimensions is that while perceived importance and perceived likelihood reflect desires and expectancies respectively, attainment ratings of life aspirations reflect current progress at an aspiration, regardless of whether a person values or expects to achieve the aspiration (Ryan *et al.*, 1999). For example, a successful athlete may have received a number of financial rewards, yet place no particular value on financial success.

The construct of life aspirations has been studied extensively in social psychology and has generally produced results consistent with the tenets of self-determination theory. Thus far, evidence suggests that placing greater importance on intrinsic life aspirations relative to extrinsic aspirations is associated with enhanced hedonic enjoyment and eudemonia, whereas the reverse is true for people who place greater importance on extrinsic life aspirations relative to intrinsic life aspirations (Kasser & Ryan, 1993; Ryan *et al.*, 1999; Williams, Cox, Herberg, & Deci, 2000). Therefore, a conclusion that emerges from previous research is that importance of intrinsic versus extrinsic life aspirations is the critical dimension predicting psychological well-being (Ryan & Deci, 2001). In addition, research has shown that while perceived likelihood of attaining intrinsic life aspirations enhances hedonic enjoyment and eudemonia, extrinsic life aspirations neither enhance nor undermine indicators of hedonic and eudemonic enjoyment (Ryan *et al.*, 1999). Surprisingly, in the context of sport and physical activity, there are no studies investigating the relationship between life aspirations and psychological well-being. The present study addresses this gap in the literature.

The construct of life aspirations proposed by self-determination theory can be particularly useful in understanding the relationship between sport participation and psychological well-being. It can be argued that some forms of sport participation will not be associated with enhanced psychological well-being because not all forms of sport participation promote valuing and/or attainment of intrinsic life aspirations. For example, monetary rewards, image, and fame have long been part of the currency of competitive sport, whereas participation in recreational sport has been more strongly associated with intrinsic goals of health, meaningful relationships, and growth rather than with extrinsic goals of fame, appearance, image, and financial success (Hagger & Chatzisarantis, 2005). As a consequence of this focus on extrinsic rather than on intrinsic goals, it might be expected that competitive athletes will show a greater preference for extrinsic relative to intrinsic life aspirations than recreational athletes. In line with this reasoning, numerous researchers using field and experimental approaches have demonstrated that competitive sport structures undermine intrinsic motivation and facilitate a preference for extrinsic rewards relative to intrinsic rewards (see Greendorfer & Blinde, 1990; Vallerand, Gauvin, & Halliwell, 1986; Vansteekiste & Deci, 2003).

The preference that competitive sport athletes display towards extrinsic goals may also have important consequences for their psychological well-being. Broadly speaking, compared with individuals who participate in recreational sport, individuals who participate in competitive sport should display lower hedonic enjoyment and eudemonia because extrinsic aspirations, endorsed by competitive athletes, undermine both hedonic and eudemonic enjoyment (Ryan *et al.*, 1999). From this perspective, therefore, the relationship between recreational sport, competitive sport, and psychological well-being is far more complex than contemporary research on physical activity portrays (Biddle *et al.*, 2000). As Abele and Brehm (1993) argued, the critical factor determining levels and quality of psychological well-being may not be associated with the extent of participation in competitive or recreational sport, but with the goals and life aspirations individuals try to achieve through competitive and recreational sport. Activity type can be expected to enhance hedonic enjoyment and eudemonia only to the extent that individuals place higher value on intrinsic relative to extrinsic aspirations. Life aspirations, therefore, should mediate the effects of activity type on psychological well-being.

Based on self-determination theory and previous research (Ryan *et al.*, 1999; Ryan & Deci, 2001), we formulated separate hypotheses regarding the effects of importance ratings and attainment ratings of intrinsic and extrinsic aspirations on psychological well-being. With respect to the importance ratings, we used an aspiration index to represent the importance people place on intrinsic aspirations relative to extrinsic aspirations. High scores on this aspiration index reflected high values on intrinsic aspirations coupled with low values on extrinsic aspirations, and low scores on the aspiration index indicated high values on extrinsic aspirations coupled with low values on intrinsic aspiration (Ryan *et al.*, 1999). In accordance with previous research (Ryan *et al.*, 1999), we hypothesized that the aspiration index would be positively associated with both hedonic enjoyment and eudemonia (H_{1a}). This positive relationship would indicate that compared with individuals assigning high value to extrinsic aspirations and low value to intrinsic aspirations, those who assign high value to intrinsic aspirations and low value to intrinsic aspirations would report higher levels of both hedonic and eudemonic forms of well-being. With respect to the attainment ratings of life aspirations, we hypothesized that while intrinsic aspirations would positively predict both hedonic and eudemonic happiness, attainment ratings of extrinsic aspirations would predict neither hedonic nor eudemonic well-being (H_{1b}).

The second hypothesis addressed the relationship between activity type (competitive vs. recreational sport) and life aspirations. In accordance with Ryan and colleagues' (1999) recommendations, we used the aspiration index to investigate this relationship. On the basis of previous evidence suggesting that competitive sport structures place greater emphasis on extrinsic goals relative to intrinsic goals (Hagger & Chatzisarantis, 2005), we hypothesized that individuals who participate in competitive sport would assign greater importance to extrinsic aspirations relative to intrinsic aspirations than individuals who participate in recreational sport (H_2). We did not expect to find a relationship between activity type and attainment ratings of aspirations because, unlike importance ratings which are predominantly influenced by social and sport structures, actual attainment of a life goal is influenced by other factors not directly related to sport structures, such as the time frame needed to accomplish a goal and how long the person is pursuing the goal (Chatzisarantis, Hagger, & Biddle, 2002; Chatzisarantis, Hagger, Smith, & Phoenix, 2004; Hagger & Chatzisarantis, 2005).

The third hypothesis addressed the process by which competitive sport and recreational sport participation influence psychological well-being. Specifically, on the basis of evidence suggesting that life aspirations constitute one of the most proximal determinants of psychological well-being whereas social structures play a more distal role in the determination of psychological well-being (Ryan *et al.*, 1999; Ryan & Deci, 2001), we hypothesized that the effects of activity type on psychological well-being would not be direct but indirect via importance ratings of life aspirations (H_3). These indirect effects were expected to corroborate the view that, compared with competitive athletes, recreational athletes report higher levels of both hedonic and eudemonic well-being. To be consistent with previous aspiration research (Ryan *et al.*, 1999), we used the aspiration index to represent value ratings of life aspirations. Because activity type was not expected to influence attainment of life aspirations, we did not expect to observe indirect effects of activity type on psychological well-being via attainment of life aspirations. Nevertheless, the mediating role of attainment of life aspirations was examined. Finally, it is important to note that, in testing these hypotheses, we controlled statistically for the effect that frequency of past participation in physical activities exerts on psychological well-being to rule out the alternative hypothesis that the effect of activity type on psychological well-being was due to frequency of past participation (Bagozzi & Kimmel, 1995).

Methods

Participants and procedure

The participants were 118 university students (83 males, 35 females) with a mean age of 20.8 years ($s = 7.6$). Participants were recruited from different departments, including psychology, sport science, and education. A prospective design was employed with psychological variables being assessed at two points in time. In the first wave of data collection, we assessed life aspirations, age, gender, and activity type (i.e. participation in recreational sport vs. competitive sport). After 2 weeks, general psychological well-being was assessed. Data collection occurred in quiet classroom conditions of less than 20 individuals. Prospective responses were matched with baseline responses using dates of birth and gender to match participants' responses. Before data collection, we obtained university ethics committee approval and informed consent of the participants.

Measures

Life aspirations. The measure of life aspirations was adapted from Ryan *et al.* (1999) and consisted of 14 life aspiration categories. Four of these categories reflected the intrinsic life aspirations of personal

growth (e.g. ''to grow and learn new things''), community service (e.g. ''to work for the betterment of society''), meaningful relationships (e.g. ''to have good friends that I can count on''), and health-related goals (e.g. ''to be physically healthy''). Three categories reflected extrinsic life aspirations of financial success (e.g. ''to be a wealthy person''), fame (e.g. ''to have my name known by many people''), and image (e.g. ''to successfully hide the signs of ageing''). The other seven aspiration categories were distractors and were not included in the analysis (see Ryan *et al.*, 1999). The purpose of the distractors was to ensure that the participants did not readily detect the focus on intrinsic and extrinsic life aspirations.

All life aspiration categories were measured using five items. Items from each life aspiration category were measured alongside two exemplars indicating (i) the importance of the aspiration to the person (e.g. ''how important is this to you?'') and (ii) current attainment of the life aspiration (i.e. ''how much have you already attained this goal?''). Perceived importance and current attainment of life aspirations were measured on 7-point scales ranging from 1 (''not at all'') to 7 (''very''). We used an aspiration index to represent the importance that individuals assigned to intrinsic aspirations relative to extrinsic aspirations. This aspiration index collapses importance ratings into a single dimension by first subtracting, for each individual, the overall mean of the value ratings from each individual rating. After averaging the intrinsic and extrinsic value ratings, the extrinsic ratings are reverse coded. Thereafter, a value of 3 is added to all ratings. Finally, the aspiration index is estimated by taking the product of intrinsic and reverse-coded extrinsic rating. Cronbach alpha reliability coefficients for the attainment ratings of intrinsic aspirations ($\alpha = 0.83$) and for attainment ratings of extrinsic aspirations ($\alpha = 0.76$) were satisfactory. Reliability coefficients for each type of value rating (e.g. fame, image, financial success) were also satisfactory and ranged from $\alpha = 0.76$ to 0.86. We also measured perceived likelihood of attaining life aspirations (e.g. ''how likely is it that this will happen in the future?''), but this measure was not used because it produced results similar to those from the current attainment of life aspirations scale.

Psychological well-being. We used Waterman's (1993) personal expressiveness scale to assess psychological well-being. This instrument measures psychological well-being on two dimensions of hedonic and eudemonic well-being. Hedonic well-being concerns the experience of pleasure (i.e. enjoyment) versus displeasure (i.e. pain), whereas eudemonic well-being concerns the extent to which activity experiences are congruent with deeply held values and are holistically and fully engaged in (Ryan & Deci, 2001).

In assessing hedonic and eudemonic well-being, participants were asked to respond to the following question: ''If you wanted another person to know who you are, what five (5) activities of importance to you would you describe?'' (Waterman, 1993). Next, the participants were prompted to report their experiences associated with these activities alongside 12 items intended to measure hedonic enjoyment (6 items) and eudemonia (6 items) (Waterman, 1993). Participants responded to the same series of questions about each activity. An example of an item measuring hedonic enjoyment was: ''When I engage in this activity I feel happier than I do when engaged in most other activities''. An example of an item measuring eudemonia was: ''I feel more complete or fulfilled when engaging in this activity than I do when engaged in most other activities''. All items were measured on 7-point scales ranging from 1 (''strongly disagree'') to 7 (''strongly agree''). Reliabilities for hedonic enjoyment ($\alpha = 0.86$) and eudemonia ($\alpha = 0.89$) were satisfactory.

Activity type and past behaviour. We identified the type of physical activity in which participants regularly engaged by asking them to name their main sport or physical activity. Next, the participants were asked to indicate whether they were engaging in physical activity or sport for competitive or for recreational reasons. Participants were considered to participate in competitive sport if: (i) they were members of a club; (ii) they were preparing (engaging in a training programme) for a major competition (i.e. national, international, or university competition), and had a clear competitive goal to accomplish; (iii) competed at international, national, regional, and/or university level; or (iv) were making a living out of competing in a sport. Participants were considered to engage in recreational sport if they did not fulfill any of these criteria but participated in intramural competitions. For the purpose of statistical analysis, participant responses were collapsed into a categorical variable indicating membership in competitive sport (1) versus recreational (2) sport groups.

Finally, we used Bagozzi and Kimmel's (1995) measures of past behaviour to rule out the alternative hypothesis that the effects of activity type on psychological well-being were due to frequency of past behaviour (Biddle *et al.*, 2000). This measure asked participants to indicate the frequency with which they engaged in competitive sports (i.e. training) or recreational sports (e.g. intramural competitions) in the last 6 months. Past behaviour was measured on a 7-point scale ranging from 1 (''not at all'') to 7 (''most days of the week'').

Data analysis

All hypotheses were examined using path analysis (Bentler, 1989). We specified two separate models estimating indirect effects of activity type on psychological well-being via aspiration values (Model 1) or via perceived current attainment of life aspirations (Model 2). In addition, Models 1 and 2 specified effects from past behaviour on hedonic enjoyment and eudemonia to control statistically for the effects that frequency of physical activity exerts on psychological well-being (Biddle *et al.*, 2000). Because the variable representing activity type was categorical, we used a polyserial correlation matrix to estimate parameters of the models. In addition, because the sample size of the study was not sufficient to use latent variables, structural equations of the models were estimated on the basis of observed variables rather than latent variables.

The comparative fit index (CFI) and standardized root mean square residual (SRMSR) were used as means to evaluate model fit because previous research has shown that these fit indices display restricted random variation under various conditions of model misspecification, sample size, and estimation methods (Fan, Thompson, & Wang, 1999). Cut-off values close to 0.95 for the CFI and 0.08 for the SRMSR were considered indicative of acceptable model fit because the Type I and II error rates associated with these criteria are low (Hu & Bentler, 1999).

Results

Descriptive statistics

The participants took part in a wide variety of sports, including rugby, tennis, kick-boxing, football, basketball, hockey, triathlon, athletics, netball, ice hockey, motor racing, horse riding, swimming, golf, dancing, and cricket. Altogether, 24% ($n = 29$, 13 males, 16 females; mean age 19.5 years, $s = 2.1$) participated in recreational sport, 55% ($n = 65$, 48 males, 17 females; mean age 19.5 years, $s = 2.6$) participated in competitive sport at a university level, and 21% ($n = 24$, 22 males, 2 females; mean age 20.7 years, $s = 3.5$) competed at national or international standard.

Table I presents descriptive statistics and zero-order correlations of all psychological variables. Participants reported greater attainment of intrinsic life aspirations than extrinsic life aspirations (Sheldon & Elliot, 1999). In addition, participants tended to report greater hedonic enjoyment than eudemonia. Correlations among the variables supported positive relationships between the aspiration index and hedonic enjoyment and eudemonia. In addition, current attainment of intrinsic life aspirations and current attainment of extrinsic life aspirations were positively correlated with both hedonic enjoyment and eudemonia. Point bi-serial correlations revealed a statistically significant relationship between activity type and the aspiration index, but activity type was not significantly correlated with the attainment of intrinsic life aspirations or extrinsic life aspirations.

Path analysis

Table II presents results of the path analysis examining effects of activity type on life aspirations and psychological well-being. As shown, Models 1 and 2 exceeded recent criteria of good fit given that the CFI was greater than 0.95 and the SRMSR was lower than 0.08. In addition, in accordance with our initial hypothesis (H_{1a}), parameters of Model 1 supported positive relationships between the aspiration index with hedonic enjoyment and eudemonia. The aspiration index predicted 12% and 8% of variance on eudemonic and hedonic well-being respectively. This positive relationship supports the conclusion that placing higher value on intrinsic relative to extrinsic aspirations has beneficial effects on hedonic enjoyment and on eudemonia (Ryan *et al.*, 1999; Ryan & Deci, 2001). In addition, in accordance with the first hypothesis of the present study (H_{1b}), parameters of Model 2 indicated that while attainment of intrinsic aspirations was positively associated with hedonic enjoyment and eudemonia, attainment of extrinsic aspirations

Table I. Descriptive statistics.

	Mean	*s*	1	2	3	4	5	6	7
1. Aspiration index	7.83	4.17	1.0						
2. Extrinsic aspirations – attainment	2.30	0.93	0.54	1.0					
3. Intrinsic aspirations – attainment	3.41	0.88	0.69	0.58	1.0				
4. Hedonic well-being	4.93	0.87	0.27	0.18	0.30	1.0			
5. Eudemonic well-being	4.61	0.85	0.39	0.22	0.35	0.52	1.0		
6. Activity type	–	–	0.19	−0.14	0.04	0.10	0.17	1.0	
7. Past behaviour	4.3	0.70	0.00	0.05	0.05	0.20	0.12	0.00	1.0

Note: Correlations greater than 0.18 are significant at $P < 0.05$. Correlations for activity type are bi-serial correlations.

Table II. Fit indexes of hypothesized models.

	χ^2	d.f.	CFI	SRMSR
Model 1 (aspiration values)	1.26	2	1.0	0.03
Model 2 (attainment of aspirations)	1.28	3	1.0	0.02

predicted neither type of psychological well-being. Attainment of intrinsic aspirations predicted 6% of variance in hedonic and eudemonic well-being.

Turning now to the relationship between activity type and life aspirations, it can be seen in the parameters of Model 1 that, in line with the second hypothesis (H_2), activity type exerted positive effects on the aspiration index. Activity type explained 4% of variance in the aspiration index. These positive effects observed for activity type qualify the conclusion that, compared with individuals participating in competitive sport, individuals participating in recreational sport place more importance on intrinsic relative to extrinsic life aspirations. Activity type, however, did not influence attainment of intrinsic or extrinsic life aspirations (see Model 1), a finding that is consistent with our expectations. In addition, in accordance with the third hypotheses (H_3), Sobel tests supported indirect effects of activity type on hedonic enjoyment ($\beta = 0.04$, $z = 2.24$, $P < 0.05$) and eudemonia ($\beta = 0.06$, $z = 2.12$, $P < 0.05$) via the mediation of the aspiration index. Because these indirect effects were positive, they corroborated the view that recreational athletes reported higher levels of both hedonic enjoyment and eudemonia than competitive athletes. Importantly, the alternative hypothesis that the indirect effects observed for activity type were due to the frequency with which participants exercised in the past can be ruled out on the basis that Model 1 controlled statistically for past behaviour effects (see Figure 1).

Finally, an additional path analysis in which we compared recreational athletes ($n = 29$) with national and international athletes ($n = 24$) revealed similar results. Specifically, we found that activity type exerted statistically significant indirect effects on hedonic ($\beta = 0.04$, $P < 0.05$) and eudemonic well-being ($\beta = 0.05$, $P < 0.05$) via the aspiration index. In addition, path analysis controlling for gender supported indirect effects of activity type on hedonic enjoyment and eudemonia. Therefore, the results of the present study cannot be attributed to the disproportionate number of university students who participated in competitive sport and/or to gender.

Discussion

The purpose of the present study was to examine the effects of participation in recreational and competitive sport on life aspirations and psychological well-being. In accordance with initial hypotheses (H_{1a}), the path analysis demonstrated that importance ratings of intrinsic aspirations, represented by the aspiration index, predicted both hedonic enjoyment and eudemonia (see Model 1). These results are consistent with tenets of self-determination theory (Ryan *et al.*, 1999; Ryan & Deci, 2001) and corroborate the view that the relative importance of intrinsic over extrinsic aspirations is a key dimension in predicting psychological well-being. Placing greater value on community contributions, meaningful relationships, personal development, and health relative to wealth, fame, and image enhances both hedonic enjoyment and a sense of purpose in life (eudemonia). Conversely, placing lower value on health, community contributions, meaningful relationships, and personal development relative to wealth, fame, and image undermines both hedonic pleasure and experiences of eudemonia.

The effects observed for the aspiration index on psychological well-being also compare favourably with previous research in the domain of physical activity that has investigated the effects of motivation on psychological well-being. In particular, Gagne *et al.* (2003) showed that intrinsic motivation influences indicators of hedonic enjoyment and eudemonia. However, it is important to note that Gagne *et al.* (2003) demonstrated the effects of

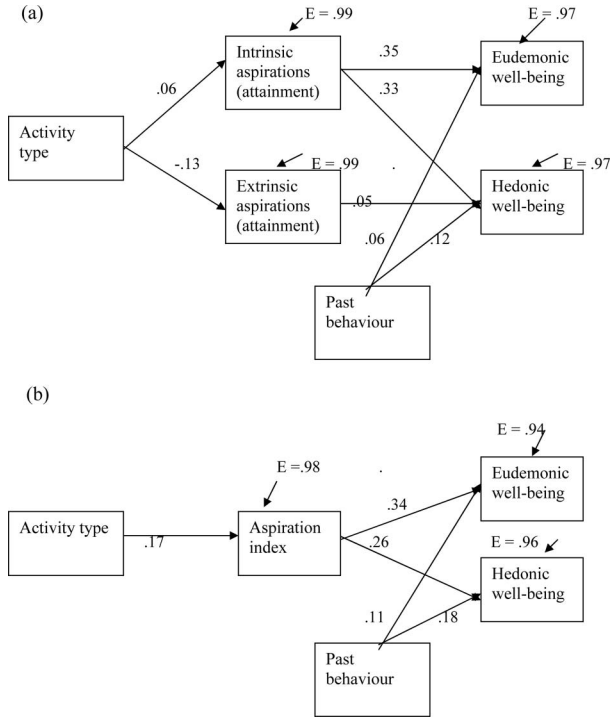

Figure 1. Path model showing effects of activity type on life aspirations and psychological well-being. (a) A model (Model 1) with current attainment of aspirations. (b) A model (Model 2) with aspiration values. *Note*: All path models were estimated on the basis of a polyserial matrix.

autonomous and controlling motives, and not of life aspirations, on psychological well-being. These autonomous and controlling motives address why individuals participate in sport and not the goals that people try to achieve through sport participation. Therefore, the present results extend previous research in the domain of sport and exercise psychology by demonstrating effects of life aspirations on hedonic enjoyment and eudemonia.

In addition to examining the effects of importance ratings of life aspirations, we also examined the effects of attainment ratings of life aspirations on psychological well-being (see Figure 1). In accordance with initial hypotheses, the parameters of Model 2 clearly showed that while attainment of intrinsic life aspirations produced both hedonic enjoyment and eudemonia, attainment of extrinsic aspirations was not associated with either form of psychological well-being. It would appear, therefore, that because the development of eudemonia is rooted in human nature (Aristotle, 1993) and because psychological needs expressed by intrinsic life aspirations are innate, and therefore rooted in human nature (Deci & Ryan, 1985), attainment of intrinsic aspirations produces eudemonia. In addition, it seems that attainment of intrinsic life aspirations results in an enhanced sense of hedonic enjoyment as well because experiences of eudemonia can be pleasant, although, theoretically, activities producing eudemonia can also be unpleasant (e.g. attending a funeral; Aristotle, 1993).

By way of contrast, because extrinsic life aspirations express subjectively felt and not innate needs, the attainment of extrinsic aspirations neither harms nor enhances hedonic enjoyment or eudemonia, a finding that is consistent with the tenets of self-determination theory (Ryan & Deci, 2001). Therefore, compared with extrinsic aspirations of wealth, image, and fame, the attainment of intrinsic aspirations related to personal growth, community contributions, health, and meaningful relationship is far more rewarding in that it results in an enhanced sense of purpose in life (eudemonia) and enjoyment. In contrast, attainment of extrinsic life aspirations of financial success, image, and fame is psychologically vacuous in that their attainment enhances neither hedonic enjoyment nor a sense of purpose in life.

It is important to note however that although the absence of an effect for extrinsic aspiration is consistent with self-determination theory (Ryan *et al.*, 1999), it is nevertheless inconsistent with the Aristotelian (1993) view that subjectively felt goals do enhance hedonic enjoyment (Waterman, 1993). Although it is difficult to ascertain why this might be the case, experiences of hedonic enjoyment in the context of sport may depend on other factors such as athletic career stage and/or the extent to which the pursuit of extrinsic aspirations is volitional and autonomous versus controlling. This explanation seems plausible considering that previous research has shown that hedonic enjoyment is not only associated with life aspirations (i.e. the ''what'' of human motivation), but with the extent to which the pursuit of a goal is experienced as autonomous versus controlling (i.e. the ''why'' of human motivation) (see Gagne *et al.*, 2003; Sheldon, Ryan, Deci, & Kasser, 2004). Therefore, future research might usefully examine the combined and interactive effects of life aspirations and autonomous motives on psychological well-being.

Another critical finding raised in the present study concerns the positive effects observed for sport participation on the importance ratings of life aspirations. This positive effect is consistent with our second hypothesis and corroborates the view that individuals participating in recreational sport assign greater importance to intrinsic aspirations relative to extrinsic aspirations than individuals participating in competitive sport. The effects of activity type on the importance ratings of life aspirations also compare favorably with previous research investigating the effects of competitive versus recreational sport structures on sport motivation (Fortier, Vallerand, Briere, & Provencher, 1995). Specifically, using measures of autonomous and controlling motives that assess the why of sport participation, Fortier *et al.* (1995) demonstrated that competitive athletes were less intrinsically motivated than individuals participating in recreational sport. However, by representing motivation through life aspirations, the present study is the first to demonstrate effects of sport participation on life goals. It would appear therefore that because the focus of recreational structures is not so much on winning material or extrinsic rewards compared with competitive sport structures, individuals participating in recreational sport place greater emphasis on intrinsic aspirations relative to extrinsic life aspirations (Greendorfer & Blinde, 1990; Ryan & Deci, 2001).

The preference that recreational athletes showed for intrinsic aspirations, relative to extrinsic aspirations, appears also to have important consequences for their psychological well-being. The path analysis supported this conclusion by the significant positive indirect effects, via the aspiration index, of activity type on hedonic enjoyment and eudemonia. These positive effects are also in accordance with our third hypothesis and corroborate the view that competitive athletes experience less hedonic enjoyment and eudemonia than recreational athletes. It would appear therefore that because recreational athletes place greater emphasis on intrinsic aspirations relative to extrinsic aspirations and because intrinsic aspirations produce hedonic enjoyment and eudemonia,

recreational athletes are happier and more content than competitive athletes.

Importantly, the greater psychological well-being reported by recreational athletes cannot be attributed to the effect that regular participation in physical activities exerted on psychological well-being (Biddle *et al.*, 2000). That is, the alterative explanation that the greater psychological well-being exhibited by recreational athletes is due to the fact that they are frequent exercisers is untenable because the indirect effect of activity type on psychological well-being in Model 1 appears to be independent from the effects of past behaviour. Although physically active individuals tend to experience enhanced psychological well-being compared with sedentary individuals (Biddle *et al.*, 2000), our results suggest that competitive athletes display lower psychological well-being than recreational athletes.

The present findings not only reveal beneficial effects of recreational sport on psychological well-being relative to competitive sport, but they also explain why such effects occur. Specifically, in the path analysis, the mediating effect of life aspirations supports the notion that the key factor determining the level and quality of psychological well-being is life aspirations rather than sport participation *per se*. In interpreting the results, it is therefore important to note that competitive athletes' preference for extrinsic over intrinsic aspirations is the critical factor in determining the level and quality of psychological well-being, whereas sport structures and participation play a less important role. It might be possible to reverse the general trend observed for competitive athletes to experience diminished psychological well-being by encouraging significant others (e.g. coaches, teachers, parents) to highlight the value of intrinsic goals such as personal development and to present sport in terms of attaining intrinsic goals (see Vansteenkiste, Simons, Lens, Sheldon, & Edward, 2004; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005).

Not only do the results of the present study contribute to the understanding of the relationship between sport participation and psychological well-being, they also have important implications for the understanding of moral worth in sport. Philosophers generally agree that the moral worth of all action should be judged by the extent to which they contribute to personal happiness and psychological well-being (Aristotle, 1993; Bentham, 1996; Plato, 1953). According to these philosophers, actions not contributing in some way to the maintenance of psychological well-being are psychologically vacuous, unnecessary, and therefore not worth pursuing. However, philosophers disagree in terms of the definition of psychological well-being and how optimal experience can be developed. While Hellenic philosophers argued that the moral worth of all action lies in the few goals and values rooted in human nature that produce eudemonia (Aristotle, 1993; Plato, 1953), other philosophers ignored happiness in the form of eudemonia and proposed that the moral worth of all action lies in goals that produce hedonic enjoyment (e.g. Bentham, 1996).

Building upon eudemonic and hedonic perspectives of psychological well-being, we examined the moral worth of sport in the present study. We addressed the fundamental questions: Is sport participation worth doing and, if so, in what form? The findings show that competitive sport is associated with diminished psychological well-being when such sport is viewed as a means to achieve extrinsic life goals. Furthermore, in accordance with eudemonic perspectives of well-being, the findings suggest that competitive athletes are less happy and content than recreational athletes because they place higher value on extrinsic aspirations. Therefore, in accordance with the Aristotelian view, it could be concluded that the moral worth of sport does not lie so much in sport participation itself or in the frequency with which individuals engage in sport. This conclusion is untenable considering the small effects that past behaviour exerted on hedonic enjoyment (see Figure 1). Rather, our results suggest that the moral worth of sport lies in the goals and values people express through sport participation. At this juncture, it is reasonable for us to question the moral worth of competitive sport and conclude that the relationship between participation in physical activities and sport and psychological well-being is far more complex than contemporary exercise physiologists and psychologists portray.

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