

Changes in Athletic Identity and Life Satisfaction of Elite Athletes as a Function of
Retirement Status

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Keywords: athletes, sport, retirement, self-perception, satisfaction, transition

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The correct APA citation for this paper is:

Martin, L. A., Fogarty, G. J., & Albion, M. J. (2014). Changes in athletic identity and life satisfaction of elite athletes as a function of retirement status. *Journal of Applied Sport Psychology*, 26 (1), 96-110. doi: 10.1080/10413200.2013.798371

Abstract

The purpose of this study was to track changes in athletic identity and life satisfaction of elite athletes over time as a function of retirement status and the voluntariness of retirement decisions. Sixty-two elite Australian athletes (45 female and 17 male, mean age of 22 years) from three different phases of their athletic careers were surveyed five years apart. Athletic identity was shown to decrease as athletes approached retirement. Athletes who retired voluntarily reported an increase in life satisfaction post-retirement. These findings support the need for athlete career education programs that emphasise autonomy and career planning.

Changes in Athletic Identity and Life Satisfaction of Elite Athletes as a Function of Retirement Status

Athletic identity has featured prominently in sport career transition research. The literature suggests that it declines following retirement from sport and that this decline facilitates adjustment to post-sport life (Lally, 2007; Lavallee, Gordon, & Grove, 1997). The degree of voluntariness of sports career termination has also been highlighted as affecting adjustment to life after sport with voluntary career termination associated with fewer adaptation difficulties (Cecic Erpic, Wylleman, & Zupancic, 2004; Taylor & Ogilvie, 1994). However, much of what we know about the athlete career transition experience comes from research that has employed cross-sectional designs or retrospective accounts of athletes' transition experiences. There is a need for studies that track athletes as they move into, and through, this transition.

The current study adds to the sports career transition literature by tracking three groups of elite athletes over a five-year period. One group remained active in competitive sport throughout the period of the study; a second group was active at the start of the study but had retired by the final data collection point; and a third group was active at the start of the study but indicated an intention to retire by the end of the study. Athletes who had retired or who were intending to retire were also classified according to whether their retirement was voluntary or involuntary. The broad goals of this study were to track changes in athletic identity and life satisfaction over time as a function of retirement status and the degree of control exerted over retirement decisions.

Preparing for Retirement

To the extent that they see themselves as having a career in sport, retiring athletes can be expected to go through the normal career transition processes whereby the individual engages in gradual alterations of behaviours and goals over time (Cecic Erpic et al., 2004).

However, because retirement from sport typically occurs at a young age and involves transitioning into another career rather than out of the workforce, what we know about the retirement process from the general literature has to be reexamined in the sporting context. Research has identified seven predictable transitional phases that an elite athlete will face and seek to resolve over the course of his or her sports career (Stambulova, 1994). The initial phases relate to the beginning of sports specialisation and the transition athletes then make to special intensive training in their chosen sport. The middle phases describe the step up from social sports to high-achievement sports, and then from junior to senior, and from amateur to professional status. The final two identified phases are the transition from the peak of the athletes' sports career to the final stage, followed by the transition to retirement (Stambulova, 1994). Interest in this final transition phase has grown rapidly over the past 20 years, with much of the research focussing on the psychosocial impact of retirement on the athlete (Cecic Erpic et al., 2004; Ogilvie & Taylor, 1993; Shachar, Brewer, Cornelius, & Petitpas, 2004). Making the transition from active participation in sport to retirement can often see the athlete experience loss in numerous areas such as social networks, identity, and public attention (Lally, 2007). Past studies have documented incidences of athletes suffering from psychological and emotional difficulties during this period such as decreases in levels of self-confidence (Sinclair & Orlick, 1993), substance abuse (Svoboda & Vanek, 1982), and eating disorders (Blinde & Stratta, 1992). Other studies have demonstrated the significant impact that retirement from sport can have upon life satisfaction (Cecic Erpic, 1998; Sinclair & Orlick, 1993; Werthner & Orlick, 1986). The aim of this study was to investigate changes in athletic identity and life satisfaction as a function of retirement status. We begin our review of the literature by examining the links between retirement and life satisfaction.

Life Satisfaction

Life satisfaction has been defined as a cognitive evaluation of one's life as a whole (Shin & Johnson, 1978) and has been documented as remaining quite stable over time within the general population (Cummins, 1998).

Sport-related research exploring the impact of retirement on athlete life satisfaction has produced mixed results. A study conducted by Sinclair and Orlick (1993) with 199 retired high-performance athletes found 74% of the sample to be satisfied with their lives post-retirement, with 63% indicating that it had been a positive change. Contrary findings were reported by Cecic Erpic (1998) and Werthner and Orlick (1986), who noted a decline in life satisfaction following retirement. Such results reflect the dynamic nature of this transition phase. Although there are some grounds for anticipating an increase in life satisfaction following retirement, the outcome is likely to depend on whether or not the transition was expected or unexpected. These transitions are referred to as normative and non-normative respectively (Stambulova, 2000). Team deselection and injury have been commonly identified as being non-normative, or involuntary, reasons for retirement. Retirement because of goal satisfaction or lost motivation, on the other hand, is considered to be normative or voluntary (Stambulova, 2000; Taylor & Ogilvie, 1994).

Involuntary retirement has been found to increase an athlete's feelings of anxiety and depression (Alfermann & Gross, 1997), and to have a negative impact upon an individual's feelings of self-respect (Crook & Robertson, 1991), and self-control (Werthner & Orlick, 1986). In a study of 48 former elite-amateur Australian athletes, Lavalley, Grove, and Gordon (1997) reported that those athletes who experienced involuntary retirement from their sporting careers were more likely to experience greater emotional and social adjustment difficulties than those who retired voluntarily. A smoother transition may be related to the

predictability of the situation, allowing individuals to feel that they have a choice and have more control over their future.

Life satisfaction is an interesting construct to explore in relation to normative and non-normative transitions to retirement in a sport setting, especially due to the relatively young age that this transition occurs for elite athletes. In relation to the general population, Lang and Heckhausen (2001) found that high positive perceptions of control were particularly important in the protection of young and middle-aged adults against the detrimental effects of failure and loss, lowered subjective well-being (SWB) being one of these negative effects. They concluded that a strong sense of control can benefit younger and middle-aged individuals, especially when faced with experiences which commonly result in negative affect (Lang & Heckhausen, 2001).

Career planning has been identified by researchers as one activity that can assist athletes with their transition from active participation in sport to retirement. Studies have found that those athletes who have engaged in career planning prior to their retirement feel higher levels of perceived personal control, resulting in them having higher self-efficacy in relation to their ability to successfully adapt to life after sport (Alfermann, 2000; Alfermann et al., 2004; Taylor & Ogilvie, 1994; Webb et al., 1998). Career planning has also been identified as having positive associations with life satisfaction in both elite and student-athlete populations by other researchers (e.g., Alfermann et al., 2004; Perna, Ahlgren, & Zaichkowsky, 1999). According to Alfermann et al. (2004), athletes who have prepared themselves in this way prior to career termination are able to access their resources more readily upon retirement than those athletes who have failed to make such plans.

Athletic Identity

One of the key variables that has been identified as having the ability to impact elite athletes in the transition to retirement process is athletic identity. As defined by Brewer, Van

Raalte, and Linder (1993), athletic identity is the degree to which an individual thinks and feels like an athlete. It is positively associated with athletic performance (Werthner & Orlick, 1986) and is therefore a desirable quality. It is also one of the major factors impacting on athletes' personal and psychological development, with the possession of a strong and exclusive level of athletic identity found to be associated with the restricted development of a multi-dimensional self, adjustment difficulties following retirement from sport, post-injury emotional distress, social isolation, and delays in career maturity (Brewer, 1993; Kornspan & Etzel, 2001; Tasiemski, Kennedy, Gardner, & Blaikley, 2004). Previous research has shown that those individuals with a strong athletic identity are less likely to plan for their future vocations before retirement (Lavallee, Gordon, et al., 1997; Gordon, 1995; Pearson & Petitpas, 1990). In the area of elite athlete career decision-making, Albion and Fogarty (2005) found that high levels of athletic identity were associated with indecisiveness, lack of knowledge about occupations, and internal conflicts about career choices.

One of the more commonly reported aspects of athletic identity is that it begins to decline from a relatively young age. Brewer et al. (1993) found a negative relationship between athletic identity and age in a sample of collegiate student-athletes. Miller and Kerr (2003) also observed that the importance of the athlete role decreased over time as student-athletes matured. Houle, Brewer, and Kluck (2010) investigated the development of athletic identity over three age groups (10 years, 15 years, and adulthood) and found that it increased until the age of 15 and then stayed at that level into young adulthood. The literature also suggests that athletic identity can change in response to certain events, such as success or failure. Identity scores of athletes who had endured a losing season and reported being dissatisfied with their performance were lower than those of athletes who had enjoyed a winning season (Brewer, Selby, Linder, & Petitpas, 1999). A drop in athletic identity has also been found following state team deselection (Fish, Grove, & Eklund, 1999). Similar

outcomes were reported in a later study by the same research team (Grove, Fish, & Eklund, 2004). In this second study, the athletic identity scores of 47 female athletes vying for state team selection were captured on three occasions: one week before selections; on the day of team selections; and two weeks afterwards. Athletic identity scores of the unsuccessful athletes decreased during the two weeks immediately following selection announcements whilst the scores of the players who were selected remained stable. Other studies have shown reductions in athletic identity as a result of injury (Brewer, Cornelius, Stephan, & Van Raalte, 2010) and retirement from sport (Grove et al., 2004; Lavalley, Gordon, et al., 1997; Shachar et al., 2004).

The findings relating to the effects of retirement on athletic identity are of particular relevance to the aims of this study. It seems that the quality of an athlete's adjustment to post sport life is facilitated if athletic identity decreases (Cecic Erpic et al., 2004; Lavalley, Gordon, et al., 1997; Webb et al., 1998). To explore this notion further, Lally (2007) tracked the changes in identity that took place for six Canadian student-athletes at three time points from preretirement through to one-year postretirement. She found that athletes reduced their athletic identity in preparation for retirement by employing a variety of coping strategies, such as involving themselves in other physical and academic pursuits. She also found that some of the athletes began to negotiate their new sense of self long before they actually retired. As a result, the athletes reported a relatively smooth transition into retirement (Lally, 2007).

Retirement, Athletic Identity, and Psychosocial Adjustment

The studies reviewed above indicate that a number of factors can lead to decreases in athletic identity with perhaps the major ones being the decline associated with retirement, and the drop that seems to occur as athletes enter their early twenties and face the realities of making career choices that will help them to secure a comfortable lifestyle. The literature

also suggests that retirement accompanied by a decrease in athletic identity leads to better social adjustment, however this is one section of the literature that remains unclear. Although it has been shown that athletes going into retirement with high levels of athletic identity are likely to experience adjustment problems, we do not know much about what is likely to happen to other important personal characteristics, such as life satisfaction. In one of the few studies in this area, Shachar et al. (2004) looked at the differences in athletic identity, transitional adjustment difficulties, and life satisfaction of former athletes who chose to be coaches, and those who chose a career unrelated to sport following their retirement. Using retrospective recall data, it was found that the two groups did not differ in athletic identity at the time of retirement. However, at the time of assessment, non-coaches were found to have lower levels of athletic identity. There were no differences in transitional adjustment difficulties or life satisfaction, indicating that changes in athletic identity do not necessarily influence these factors.

Aims of the Current Study

While many of the studies discussed above provide valuable information relating to changes in athletic identity, a limitation of the literature on this topic is that much of it is based on cross-sectional designs, retrospective research designs, or qualitative studies with small sample sizes. The current study employed a longitudinal design, tracking a group of young elite athletes over a five-year period. The sample encompassed athletes who were both actively competing in their sport with no current plans to retire, as well as those who were in different stages of the retirement transition process. Some of the athletes actually retired from their sport during the study, while others indicated their intention to retire. These differences enabled within-group and between-group comparisons. In order to investigate whether athletic identity and life satisfaction were impacted by the level of

perceived personal control the athletes had over embarking on their final transition phase, the effects of voluntary versus involuntary retirement was also explored.

Method

Participants

Participants were 62 elite athletes (45 females, 17 males) who were enrolled in various Australian academies and institutes of sport in 2003 and who were still contactable for a follow-up study in 2007. The definition of elite encompasses those athletes involved in a national senior squad or on a scholarship with the Australian Institute of Sport or a state institute or academy of sport. At the commencement of the study, the average age of these athletes was 21.61 years with ages ranging from 14 to 36 ($SD = 5.10$). They represented 23 different sports, with the largest numbers involved with swimming (9), track and field sports (9), rowing (7), netball (5), hockey (4), cricket (3), softball (3), volleyball (3), and water polo (3). By 2007, these 62 athletes separated into three naturally occurring groups: those who had retired from elite sport ($n = 16$); those who indicated that they intended to retire before 2010 ($n = 14$); and a group who had no current thoughts of retirement ($n = 32$). These three groups were labeled *Retired*, *Intending*, and *Continuing* respectively. The average number of years that the retired group athletes had been retired for by 2007 was 2.1 years, with a range of one to three years.

Measures

Demographic and general information. Demographic data included age, gender, and type of sport.

Athletic Identity Measurement Scale. The Athletic Identity Measurement Scale (AIMS; Brewer et al., 1993) is a 10-item scale which provides a measure of the extent to which an individual identifies as an athlete. A sample item is "I spend more time thinking about sport than anything else". Respondents indicate their level of agreement with the 10

statements on a 5-point Likert scale which ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). The total score ranges from 10 to 50 and provides an overall measure of athletic identity, with higher scores indicating stronger identification with the athletic role. Daniels, Sincharoen, and Leaper (2005) reported a Cronbach's alpha coefficient of .82 for the AIMS. The alpha coefficients for the AIMS in the present study were .80 in 2003 and .81 in 2007.

Satisfaction With Life Scale. Life satisfaction was measured using the Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). This short and widely-used scale measures a person's subjective evaluation of his or her life. Consisting of five statements related to life satisfaction, respondents are asked to indicate their level of agreement with these statements on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The SWLS includes items such as "I am satisfied with my life" and "In most ways my life is close to my ideal". The total score ranges from 5 to 35 and provides an overall measure of life satisfaction with lower values indicating lower levels of life satisfaction (Diener et al., 1985). Previous studies have demonstrated the validity and reliability properties of this scale (Pavot, Diener, Randall, & Sandvik, 1991; Shevlin, Brunsten, & Miles, 1998). Diener et al. (1985) reported a Cronbach's alpha coefficient of .87 for the SWLS. The alpha coefficients for the scale in the present study were .79 for both the 2003 and 2007 surveys.

Retirement intentions. Participants were asked about their intention to retire from active participation in their sport in both the 2003 and 2007 surveys. They were asked the following initial question; "Do you plan to retire from elite level participation in your sport?" Four different timeframes were offered: "within the next 12 months?", "within the next 2 years?", "within the next 3 years?", and "within the next 4 years?" Participants were then asked to indicate either *yes* or *no* for each of these timeframes. From these responses, participants were separated into those who indicated that they were (a) intending to retire

within the next four years, or (b) intending to continue to participate. An additional option was provided in the 2007 survey where participants could indicate whether they had retired and how long they had been retired (e.g. 1 year). These questions in 2007 provided the basis for separating the 62 individuals into one of three retirement status groups (a) already retired, (b) intending to retire within the next four years, or (c) no thoughts of retirement. For those participants who indicated that they had retired, or were considering retiring from sport within the next four years, an additional open-ended question probed the reason for retirement. A content analysis of responses to this question provided the basis for further sorting the retired group into voluntary versus involuntary retirees.

Procedure

Data for the current project were taken from the initial and final phases of a five-year longitudinal study investigating the impact of Australian elite athletes' participation in the National Athlete Career and Education (NACE) program (Albion & Fogarty, 2002; Anderson & Morris, 2000). The NACE program was set up to provide an integrated program of support for Australia's elite athletes. The program provides personal development workshops, career and education guidance, transition services, and education support among other services. The essential aim of these services is to assist athletes in meeting the demands of their sporting careers while concurrently developing educational and vocational skills (Anderson & Morris, 2000). In order to be eligible for the program, athletes must be involved in a national senior squad or be on a scholarship with the Australian Institute of Sport or a state institute or academy of sport. All participants in this study met these criteria. The project received ethics clearance from the Australian Sports Commission's Human Research Ethics Committee. In 2003, survey forms were sent to NACE advisers at all of Australia's State or Territory Academies or Institutes of Sport. These surveys were then distributed to all athletes on scholarship ($N = 2,915$) at these

institutes and academies in 2003. Completed surveys were returned by 917 (476 females) athletes, giving a response rate of 31.5%. In 2007, NACE advisers distributed 1,250 surveys to current athletes. Surveys were also sent directly to 93 athletes, all of whom had responded to the survey in previous years and were both current and retired athletes. Completed surveys were returned by 435 (251 females) athletes, giving a response rate of 34.8%. Of these respondents, 62 athletes who participated in both the 2003 and 2007 surveys were identified.

Results

The first step in the data analysis involved matching the responses to the 2003 and 2007 questions on retirement intentions. This step was taken as a check of the validity of the process used to establish the three 2007 groups. In 2003 athletes were asked whether they intended to retire within the next four years or to continue competing. In 2007 the same individuals were offered the same two options plus an “Already retired” option. It was expected that a reasonable proportion of the 2007 retired group came from those who indicated in 2003 that they intended to retire within the next four years. In fact, this is exactly what did happen. Of the 35 athletes who said in 2003 that they had no intentions of retiring, all but 3 were still competing in 2007. Of the 27 athletes who said in 2003 that they were thinking of retiring in the next four years, 13 had retired by 2007 and 14 were still intending to retire.

These data help to define the three retirement groups to be analysed in this study. The 32 athletes in the 2007 Continuing group had a long-term commitment to their sport in 2003 and they retained that commitment in 2007. The 14 members of the 2007 Intending group had been intending to retire in 2003 and were obviously still of this mindset in 2007, although still competing. The 16 members of the 2007 Retired group comprised 13 individuals who indicated that they intended to retire in 2003 plus three members who had not indicated an

intention to retire in 2003 (from other data, we know that these were forced retirements). The consistent patterns in these data suggest that the three groups formed from the 2007 data were indeed distinctive groups in terms of retirement intentions.

Descriptive statistics and correlations for the AIMS and SWLS scales are shown in Table 1.

Table 1

Descriptive Statistics and Correlations among Athletic Identity (AIMS) and Life Satisfaction (SWLS) Scales Across Survey Periods (2003 and 2007)

	M	SD	AIMS 2003	SWLS 2003	AIMS 2007
AIMS 2003	34.97	5.80			
SWLS 2003	25.84	4.84	-.11		
AIMS 2007	31.19	6.38	.55**	-.24	
SWLS 2007	25.62	5.54	-.20	.57**	-.30*

Note. $N = 62$; ** $p < .01$, * $p < .05$.

The means for the scales were less than one standard deviation above the midpoints and there was no evidence of skewness or kurtosis. As expected, the 2003 and 2007 measures of the same constructs were moderately correlated. The negative correlation between athletic identity and life satisfaction in 2007 will be explored further when analysing the impact of voluntary versus involuntary retirements.

The first aim of the current study was to explore changes in athletic identity and life satisfaction over time, and to ascertain whether an athlete's retirement status has a role to play in any changes identified. The relevant means and standard deviations are presented in Table 2.

Table 2

Means and Standard Deviations for AIMS and SWLS for the Retirement Status Groups

Group	Survey	n	AIMS		SWLS	
			M	SD	M	SD
Continuing	2003	32	37.13	5.98	26.22	5.48
	2007	32	34.59	4.95	25.35	5.44
Intending	2003	14	31.86	4.83	26.50	4.24
	2007	14	29.64	5.58	24.31	5.89
Retired	2003	16	33.38	4.56	24.50	3.88
	2007	16	25.75	5.40	27.19	5.47

To test whether there were differences in mean scores for athletic identity across the time periods and whether retirement status had a moderating effect on these scores, separate repeated-measures 3 x 2 (Group x Time) ANOVAs were performed for each of the two measures. Firstly, when conducted in relation to the AIMS, both main effects were significant and a significant interaction was found, $F(2, 59) = 5.40, p < .01$. A graph of the AIMS means of each of the groups at both time points is shown in Figure 1.

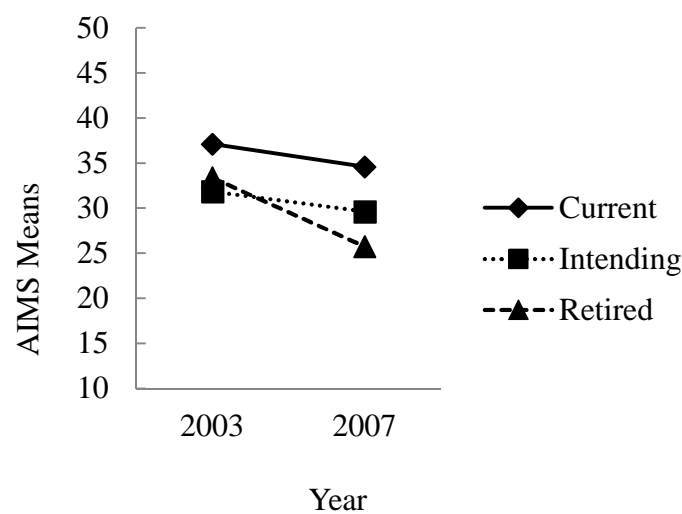


Figure 1. AIMS means across the three retirement status groups for 2003 and 2007.

Paired-samples t-tests indicated that the mean AIMS scores of all three groups significantly decreased over time, Continuing, $t(31) = 2.49, p < .05$; Intending, $t(13) = 2.36, p < .05$; and Retired, $t(15) = 4.98, p < .01$. When converted to effect sizes, the r^2 values for the three groups respectively were .16, .30, and .62. The biggest decrease in athletic identity was for the Retired group. When looking at between-group differences, univariate ANOVAs revealed that there were significant difference between the three groups in 2003, $F(2, 59) = 5.56, p < .01$, and also in 2007, $F(2, 59) = 16.16, p < .01$. In both years, post hoc tests using the Bonferroni correction revealed that the Continuing group had significantly higher levels of athletic identity than either the Intending group or the Retired group. However, there were no differences between the Retired or the Intending groups.

A consequence of the quasi-experimental design of the current study (naturally-formed groups) is that there was a main effect for age, with the Continuing group significantly younger than the similarly-aged Intending and Retired groups, $F(2, 59) = 11.44, p < .01$. This outcome raises the possibility that the group differences in AIMS scores were due to age rather than retirement status. That possibility cannot be ruled out entirely but the differing effect sizes for the three groups suggests that the effect is not due to age alone. Furthermore, using a median split to separate the Continuing group into a younger age sub-group ($n = 17$) with a mean of 20.6 years and an older sub-group ($n = 15$) with a mean of 25.2 years revealed that there were no differences between the AIMS scores of these sub-groups ($M = 34.1$ versus $M = 35.1, F(1, 30) = 0.33, p > .01$) even though there were significant differences in their ages, $F(1, 30) = 61.73, p < .01$.

To test the effect of retirement on life satisfaction (SWLS), a 3 x 2 (Group x Time) repeated-measures ANOVA was conducted. A significant interaction was found between SWLS scores and retirement status, $F(2, 57) = 4.02, p < .05$. The means of each of the three groups at both time points is shown in Figure 2.

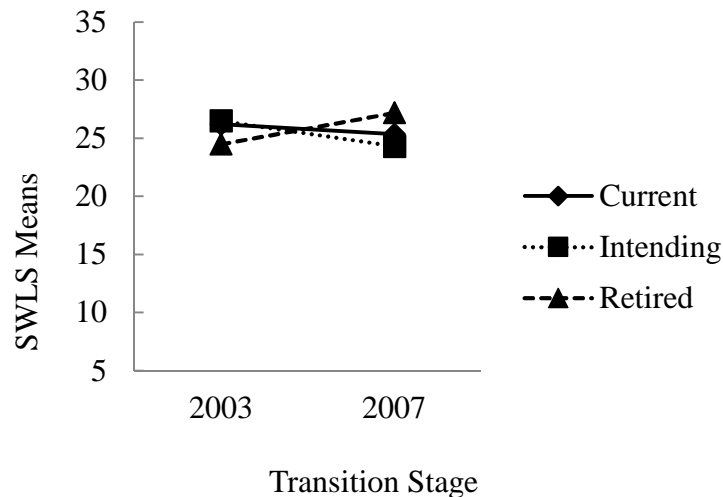


Figure 2. SWLS means across the three retirement status groups for 2003 and 2007.

A series of paired-samples *t*-tests indicated that the mean SWLS scores of the Continuing group and Intending group did not change significantly over time. However, for the Retired group, life satisfaction increased between the 2003 and 2007 surveys, $t(15) = 2.46, p < .05$.

A further aim of this study was to investigate the impact of forced retirement on athletic identity and life satisfaction. A question in the 2007 survey asked participants to state their reasons for retiring from elite level sport. Fourteen members of the Retired group answered this question. A panel of six expert judges, who were all experienced sport and exercise psychologists (i.e., registered to practise in this area), were asked to categorise the written responses as indicating either a voluntary or an involuntary retirement decision. To assist the judges in this task, research by Stambulova (2000) and Taylor and Ogilvie (1994) was used to develop criteria defining the two categories. For example, retirement because of injury was classified as an involuntary reason whilst retirement due to satisfaction that sporting goals had been reached constituted a voluntary reason. Ebel's (1951) index of inter-rater agreement among the six judges was high (.91).

Of the 14 members of the Retired group who responded to this question, nine were assigned to the *Involuntary* group and five to the *Voluntary* group. Because of the small

sample sizes, nonparametric Mann-Whitney U tests were employed to compare scores obtained by these two groups on the AIMS and SWLS measures in 2003 and 2007. There was no difference between the groups on any of the 2003 measures. Whilst AIMS scores for the Voluntary group ($Mdn = 20$) did not differ from the Involuntary group ($Mdn = 28$), $U = 8.5$, $z = -1.87$, $p > .05$, $r^2 = .25$, the large effect size suggests that lack of statistical power may have masked a genuine difference between these groups. In terms of life satisfaction, the Voluntary group ($Mdn = 33$) reported significantly higher scores than the Involuntary group ($Mdn = 25$), $U = 7$, $z = 2.07$, $p < .05$, $r^2 = .31$.

Discussion

The current study provided a rare opportunity to follow a group of elite athletes as they separated into groups at various stages of the career transition process. The constructs of athletic identity and life satisfaction were compared at two time points over a five-year period. The impact of the voluntariness of retirement on these constructs was also assessed. The athletic identity scores of all three groups declined over the period of the study. The most likely reason for the general decline was the increased age at the time of the second testing, which supports previous studies by Brewer and Cornelius (2001) and Brewer et al. (1993). However, one of the aims of this study which made it distinct from previous studies, was to ascertain whether an athlete's retirement status moderated this decline. Athletes who indicated that they were considering retiring from sport within the next four years (Intending group) showed lower levels of athletic identity than those athletes who indicated no intentions to do so (Continuing group). The AIMS scores of the Intending and Retired groups were comparable at this time-point, although the effect size reflecting the decline in AIMS scores over the period of the study was much greater for the Retired group (.62 vs. .30).

These results support Lally's (2007) findings that athletes considering retirement from sport displayed significantly lower levels of athletic identity. Lally viewed this decrease in the prominence of athletic identity as being a means of self-protection, with athletes anticipating disruptions to their identities as their retirement approached.

A plausible explanation for the AIMS results of the current study is that self-protection processes may also be operating within this population of Australian elite athletes. The lower levels of athletic identity of those athletes who are either retired, or who have intentions to retire, may indicate that these individuals have started to explore, or at least think about, other aspects of their lives, such as their career choices, as they contemplate their future after sport. These self-protection processes may have subconscious or conscious components as well as the conscious components implied by the preceding explanation.

In relation to life satisfaction, in 2007 a negative correlation was observed with athletic identity, supporting previous research indicating that high levels of athletic identity may be associated with adjustment difficulties (e.g., Brewer, 1993). However, by separating athletes into different career-transition groups, we have been able to demonstrate that the relationship between athletic identity and life satisfaction is moderated by retirement status. No change was observed between 2003 and 2007 for the Continuing or the Intending groups but the Retired group showed an increase in life satisfaction scores suggesting that these individuals have experienced a positive adjustment to post-sport life. Although these results conflict with some previous studies conducted within the sporting context which have reported declines in life satisfaction of athletes following retirement from sport (Cecic Erpic, 1998; Werthner & Orlick, 1986), it is not difficult to see why life satisfaction may either rise or decline in this situation. On the negative side, loss of identity and loss of prestige are obvious hazards to be negotiated. On the positive side, increased free time, freedom from injury, and freedom from the stresses associated with competition are likely benefits. In the

current study, the fact that the rise in life satisfaction was largely associated with voluntary retirement is evidence that planned retirement coupled with decreases in athletic identity is likely to lead to positive outcomes. This outcome is consistent with other findings in the literature where a positive association has been found between voluntary career termination and fewer adaptation difficulties while an abrupt or involuntary retirement has been shown to have a significant negative impact upon an individual, both socially and psychologically (Alfermann, 2000; Alfermann & Gross, 1997; Crook & Robertson, 1997; Lang & Heckhausen, 2001; Werthner & Orlick, 1986). When viewed in this light, the current study clarifies, rather than contradicts, previous reports on the effects of retirement on life satisfaction among athletes.

It is also interesting that no group showed evidence of a decline in life satisfaction, even those who experienced an involuntary retirement, an outcome that may be attributable to participation in the National Athlete Career Education (NACE) program. Involvement with NACE has been found to be associated with higher levels of motivation to make career-related decisions and a better knowledge of career and educational options (Albion & Fogarty, 2003). Career planning has, in turn, been identified as having positive associations with life satisfaction in both elite and student-athletes populations (e.g., Alfermann et al., 2004; Perna et al., 1999).

Practical Implications

There are a number of findings emerging from this study that can be used to guide individuals who are working with athletes. As shown by the significant increases in the life satisfaction of retired athletes in this study, making the transition from active participation in elite sport to retirement does not always result in the athlete suffering adjustment issues. This study has added to the volume of research demonstrating a negative association between athletic identity and life satisfaction (see Table 1). In view of the negative psychosocial

implications associated with an over-commitment to the athlete role, athletes should be encouraged to broaden their sense of self while still competing. Sport and exercise psychologists, career counsellors, coaches, and parents can assist in this process by working with athletes to identify their strengths, interests, or talents outside of the sporting environment, and supporting them in the exploration and development of these other aspects of their identity. Athletic identity is positively associated with athletic performance (Werthner & Orlick, 1986) but not to the exclusion of other interests. Miller and Kerr (2002) demonstrated the soundness of this advice when they showed that athletes who invest their time in academic and social goals, along with athletic goals, perform better in the sporting arena.

The findings relating to autonomy also have important practical implications. The Retired group comprised mostly athletes who had indicated an intention to retire in 2003 and had done so by 2007. This group was further separated into voluntary and involuntary retirees. The different retirement outcomes for these two retiree groups suggests that there is a risk factor here that needs to be addressed in support programs such as NACE. Our findings indicate that athletes who face an involuntary retirement continue to be at the greatest risk of experiencing adjustment issues. These results therefore reinforce the importance of including strategies in athlete support programs that aim at increasing perceptions of personal control. These strategies should encourage athletes to be autonomous, to set their own career goals, and to develop their own social networks outside of sport. Career planning has been found to increase athletes' levels of perceived personal control (Alfermann et al., 2004), assisting them to feel more confident in their ability to adapt to post-sport life. It is therefore recommended that athletes be encouraged to access individualised support services through programs such as NACE with the aim of educating them on topics such as how to achieve sport-life balance, how to set effective goals in both

sport and life, and how to manage careers. As a result, athletes will be more equipped to face significant life events, such as injury or career transition, and will develop a broader range of coping resources. Such coping resources may include the development of a post-sport career plan or the development of a variety of stress management strategies.

Finally, it is important to continue to support athletes in these same ways post-retirement. This support is especially necessary when an athlete experiences an involuntary retirement, which may occur as a result of injury, team deselection, or age, among other reasons.

Limitations and Suggestions for Future Research

The main limitation of the study was the low power associated with the small sample size. Longitudinal research in real life settings is always exposed to this risk. We have addressed that problem by reporting effect sizes and using appropriate statistical procedures. A second limitation relates to the fact that retirement status and age were confounded. The Continuing group was younger than both the Intending and the Retired groups. The differences in athletic identity noted between the Continuing and the other two groups (see Figure 1) could therefore also be an age effect. However, the fact that the effect size associated with the decline was much larger for the Retired group than for the Intending group, with both groups equivalent in terms of age, suggests that the effect cannot be attributed to age alone. Furthermore, age played no part in the Voluntary versus Involuntary comparisons, nor were there differences between the AIMS scores for the Continuing group when it was divided into two age sub-groups. Another limitation of this study was that the five-year gap between data collections opened the possibility of cohort effects. Over this period, athletes may have been differentially exposed to events that influenced their self-view or psychological wellbeing, such as increased financial rewards for participating or doing

well in their sport, engagement in athlete development workshops, or accessing support from professionals, such as those provided by the NACE program.

As far as future research is concerned, a major question emerging from these limitations is the extent to which declines in athletic identity are attributable to age and the extent to which they are attributable to retirement status. To address this question, we are investigating the relative influence of these variables in ongoing research using a much larger sample. From a practical viewpoint, another question that demands investigation is the effect of interventions such as NACE on life satisfaction and athletic performance. We have shown in this study that athletic identity declines with age, that it also declines as athletes approach and enter retirement, that there is an interaction between athletic identity and life satisfaction, and that the degree of control an athlete has over the decision to retire has an impact on subsequent life satisfaction. With athlete support programs proliferating in Western countries, one would expect to see a levelling effect whereby access to and participation in these programs has a greater effect on variables such as athletic identity and life satisfaction than the chance events that inevitably occur during an athlete's career. That research has yet to be conducted.

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