Perfectionism and sport-specific engagement in elite youth soccer players

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Keywords: athletes; personality; adolescent; sport; participation

Abstract

It is acknowledged that the time invested in sport-specific activities contributes to higher levels of performance. However, there is limited understanding of the potential impact of personality traits, such as perfectionism, on engagement in sport-specific activities. In the current study, we examine whether elite youth soccer players who demonstrate higher and lower levels of perfectionistic strivings tendencies can be differentiated based on their sport-specific engagement. The Sport Multidimensional Perfectionism Scale 2 and an adapted Player History Questionnaire were completed by 419 elite youth male soccer players competing at the Australian age-related national youth championships (Under 13, *n*=133; Under 14, *n*=166; Under 15, *n*=120). A quartile split approach was used to separate higher (*n*=100) and lower (*n*=107) perfectionistic strivings groups. Findings revealed the higher perfectionistic strivings group accumulated more time in sport-specific activities, including coach-led practice, individual practice, peer-led play and indirect involvement in soccer when compared to individuals with lower perfectionistic strivings tendencies. Descriptive analysis indicates this equates to approximately 159 hours a year (i.e., 17 hours coach-led practice; 22 hours individual practice; 60 hours of peer-led play; and 60 hours of indirect involvement) more than the lower perfectionistic strivings group. In summary, the results suggest players with varying levels of perfectionistic strivings may be differentiated based on their engagement in soccer-specific activity in a sample of elite youth players in Australia, and suggests that perfectionistic striving may have an adaptive influence on sport-specific engagement.

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Introduction

Sporting excellence is emphasised by a commitment to practice (Ericsson, 2006; Ward, Hodges, Starkes, & Williams, 2007). There is an extensive body of literature indicating the time engaged in sport-specific activities can have a positive influence on skill learning and performance (Ford, Ward, Hodges, & Williams, 2009; Ford & Williams, 2012; Roca, Williams, & Ford, 2012; Ward et al., 2007). Moreover, scientists believe that athletes at an elite level exhibit perfectionistic qualities to achieve success in their chosen domain (Gould, Dieffenbach, & Moffett, 2002; Stoeber, Uphill, & Hotham, 2009). Yet, there remains limited understanding of the impact of personality traits, such as perfectionism, on the amount of time an individual invests in sport-specific activities in the pursuit of expertise. In the current study, we explore the potential influence of perfectionism on engagement in sport-specific activities within an elite youth soccer context.

There is consensus in the literature that perfectionism is a multidimensional personality trait (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991) and a defining characteristic is the tendency to set high personal performance standards (Burns, 1980; Frost et al., 1990; Hewitt & Flett, 1991). The personal standards dimension has been conceptualised in contemporary research, with researchers identifying the perfectionistic dimension of perfectionistic strivings (Enns & Cox, 2002; Stoeber, 2012; Stoeber & Otto, 2006). Perfectionistic strivings is defined as aspects of perfectionism associated with a self-oriented strive for perfection, a commitment to exceptionally high personal standards. It encompasses facets of perfectionism that are typically considered normal, adaptive and healthy (Stoeber & Otto, 2006; Stoll, Lau, Stoeber, 2008). To understand the influence of perfectionism on individuals, researchers have explored the relationship between perfectionistic strivings and performance. Findings have indicated perfectionistic strivings is associated with higher performance in academic (Bieling, Israeli, Smith, & Anthony, 2003;

Stoeber & Kersting, 2007; Stoeber & Rambow, 2007) and musical settings (Stoeber & Eismann, 2007). The findings may provide evidence to suggest perfectionistic strivings are adaptive characteristics associated with performance. While research in academic and music contexts demonstrate the potential positive characteristics of perfectionism, it has been suggested that, sport is an ideal environment to explore perfectionism due to achievement being more transparent and more easily measurable (Flett & Hewitt, 2002; Hall, 2006; Hall, Hill & Appleton, 2012).

Several researchers have attempted to understand whether perfectionistic striving, or a healthy pursuit of excellence, is adaptive for sports performance (Stoeber, Uphill, & Hotham, 2009; Stoll, Lau, & Stoeber, 2008). Stoll and colleagues (2008) studied perfectionism and performance on a new basketball training task of undergraduate student athletes. Perfectionistic strivings were calculated prior to the completion of a series of four trials whereby participants were required to score baskets from a non-standard position. Findings indicated perfectionistic strivings were associated with higher levels of performance across the trials. In support of this, Stoeber and colleagues (2009) conducted two further studies investigating the relationship between perfectionism and competitive performance in triathletes. The results of both investigations demonstrated that perfectionistic strivings predicted the competitive performance of the triathletes.

While researchers have demonstrated the positive relationship between perfectionistic strivings and performance (Bieling, Israeli, Smith, & Anthony, 2003; Stoeber & Kersting, 2007; Stoeber & Eismann, 2007; Stoeber & Rambow, 2007; Stoeber, Uphill, & Hotham, 2009; Stoll, Lau, & Stoeber, 2008), there is limited discussion of how perfectionistic strivings may contribute to higher performance levels. Therefore, Stoeber, Chesterman, and Tarn (2010) explored whether time invested on a task can explain the relationship between perfectionistic strivings and performance. University students completed a simple letter-

detection activity whereby the time to complete the task and performance was calculated. Findings indicated perfectionistic strivings correlated positively with time and performance on the task, and time on the task fully mediated the relationship between perfectionistic strivings and performance. This finding may suggest that time invested may explain how perfectionistic strivings lead to higher performance levels, and supports previous evidence that suggest individuals high in perfectionistic strivings spend more time practicing and studying (Bieling et al., 2003; Stoeber & Eismann, 2007).

While there is an emerging body of literature outlining the association between striving for perfectionism and performance in domains such as academia and music (Bieling, Israeli, Smith, & Anthony, 2003; Brown et al., 1999; Stoeber et al., 2010; Stoeber & Eismann, 2007), there remains limited knowledge of how perfectionistic striving may influence the time invested in sport-specific activities in high-performance sport. The absence of research in the sports domain is surprising given that a positive link has been shown between the time invested in sport-specific activities and skilled performance (Ford et al., 2009; Roca et al., 2012; Ward et al., 2007) as well being able to discriminate between youth players who progress or not to professional soccer (Ford & Williams, 2012). It would be reasonable to presume individuals high in perfectionism would invest more time in sport-specific activities compared to individuals lower in perfectionistic tendencies. Therefore, in this study we undertake an exploratory study to examine whether groups higher and lower in perfectionistic strivings may be differentiated based on the time accumulated in sport-specific activities using an elite sample of junior soccer players in Australia. We predict, based on previous findings in non-sport contexts (Bieling et al., 2003; Brown et al., 1999; Stoeber et al., 2010; Stoeber & Eismann, 2007), that players with higher perfectionistic tendencies will have invested greater amounts of time in sport-specific activities during their development.

Method

Participants

A total of 419 elite youth male soccer players volunteered to participate. All participants were involved in national youth development programs in Australia and had been selected to compete at the age-related national youth soccer championships for their associated state representative team (Under 13, $n = 133$, $M_{age} = 12.84$, $SE_{age} = 0.03$; Under 14, $n = 166$, $M_{age} = 13.89$, $SE_{age} = 0.02$; Under 15, $n = 120$, $M_{age} = 14.80$, $SE_{age} = 0.04$). Ethical approval was gained from the lead institution's research ethics board and written parental consent was obtained for all participants prior to data collection.

Instruments

To measure differences in perfectionistic striving, the Sport-MPS-2 Personal Standards scale was used (Stoeber, 2011, 2012). Participants rate the degree to which they agree with each of the seven items (e.g., 'If I do not set the highest standards for myself, I am likely to end up a second-rate player') on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree), with the item scores averaged across the scale, with higher values representing higher levels of perfectionistic striving. The validity and reliability of the Sport-MPS-2 Personal Standards scale has been established including factorial structure and internal consistency ($\alpha s \geq 0.74$) (Dunn, Dunn et al., 2006). For the current study, the internal consistency was within the acceptable range ($\alpha = 0.746$).

An adapted version of the Participation History Questionnaire (PHQ: Ward et al., 2007) was used to gather data relating to the soccer-related activities which players had undertaken from the current season back to eight years of age. The questionnaire elicited information relating to the number of hours participants engaged in soccer-related activities at a specific age. Specifically, participants were asked questions relating to their recollection of the number of hours per week and the number of months per year engaged in five soccer-related

activities, including match-play (i.e., competitive soccer matches); coach-led practice (i.e., soccer practice with a coach); individual practice (i.e., soccer activity by oneself); peer-led play (i.e., soccer activities with peers, including small-sided games); and indirect involvement (i.e., soccer activities not physical in nature, such as playing soccer computer games and watching soccer games) (Ford et al., 2009; Ford & Williams, 2012; Larkin, O'Connor, & Williams, 2015; Ward et al., 2007). Concurrent validity and test-retest reliability of the PHQ has previously been reported (Ford, Low, McRobert, & Williams, 2010).

Procedure

Participants from each team competing at the national youth championships sat together in a quiet room (n = 14-16). Participants first completed the Sport-MPS-2 with the completion time ranging from 5 to 10 minutes. The adapted PHQ was then administered, with participants taking approximately one hour to complete. During this time, the lead author and a research assistant were available to answer questions and provide further explanation and support to the participants.

Data Analysis

Following completion of the Sport-MPS-2 and the adapted PHQ, data were entered into a Microsoft excel spread sheet and then transferred to Statistical Package for the Social Sciences (SPSS) version 20 (IBM Corp., Released 2011) for statistical analysis. To identify perfectionistic strivings, the average personal standards sub-scale score was used for analysis. For the adapted PHQ, to ensure consistency with previous findings (Ford et al., 2009; Ford & Williams, 2012; Ward et al., 2007), soccer-related activities were grouped into five activity types, match-play, coach-led practice, individual practice and peer-led play. The accumulated hours of engagement in soccer-related activities was calculated by multiplying the reported hours per week by weeks per year, minus the number of weeks participants reported as

injured. For example, if a player reported participating in an activity for 2 hours per week for 40 weeks of the year, but was injured for 5 weeks, the accumulated total hours for that activity would be 70 hours. In addition to the accumulated total, the average number of months the activity was engaged in during the year was recorded. Also, to provide a standardised measure, the time invested in sport-specific activity was calculated relative to the hours invested per month, with the total accumulated time in the activity divided by the months of active engagement.

To understand the potential influence of perfectionistic striving within an elite group of players, a quartile split approach was used. This method split the group based on the perfectionistic striving score, with the top 25% forming a higher perfectionistic striving group, and the bottom 25% forming a lower perfectionistic striving group. As per previous research (e.g., Ma, Mare, & Gurd, 2014; Rascle, Coulomb, & Pfister, 1998; Williams, Ward, Bell-Walker, & Ford, 2012), the sub-groups were separated based on objective markers (i.e., perfectionistic striving score) and were statistically different from each other. Therefore, the top 25%, higher perfectionistic striving group (n = 100), had a mean age of 14.15 years (SE = 0.09), and the bottom 25%, lower perfectionistic striving group (n = 107), had a mean age of 13.83 years (SE = 0.08).

To assess group (i.e., higher perfectionistic striving and lower perfectionistic striving) differences for perfectionistic strivings and player history data, separate one-way Analysis of Covariance (ANCOVA), controlling for age, were conducted. A significant alpha was set at 0.05, with effect sizes calculated by a partial eta-squared (η^2) and described as a small (η^2 = 0.01 – 0.058), medium (η^2 = 0.059 – 0.137) or a large ($\eta^2 \geq 0.138$) effect size (Cohen, 1992).

Results

The descriptive statistics (mean ± standard error) for perfectionistic striving and total sport-specific engagement when the cohort was separated by level of perfectionistic striving

(i.e., higher or lower) are presented in Table 1. A separate one-way ANCOVA demonstrated a significant main effect for perfectionistic striving when controlling for age, with the higher perfectionistic striving group (M = 4.38, SE = 0.02) recording a significantly greater perfectionistic striving score compared to the lower perfectionistic striving group (M = 3.02, SE = 0.03). Thus, the two groups were significantly different on our measure of perfectionistic strivings.

In relation to the accumulated hours of soccer-specific activity, there were significant between group differences for coach-led practice, individual practice, peer-led play and indirect involvement when controlling for age (Table 1). When considering the average hours per month invested in the sport-specific activities, the separate one-way ANCOVA indicated the higher perfectionistic striving group invested more hours per month in coach-led practice (p = 0.042, partial η^2 = 0.021), peer-led play (p < 0.001, partial η^2 = 0.137) and indirect involvement (p < 0.001, partial η^2 = 0.102) when compared with the lower perfectionistic strivings group. Furthermore, while not significant, the higher perfectionistic strivings group recorded more hours per month in sport-specific individual practice (M = 13.02 hrs, SE = 0.79) and match-play (M = 6.51 hrs, SE = 0.24) when compared to the lower perfectionistic striving group (Individual practice M = 11.11 hrs, SE = 0.76; match-play M = 6.00 hrs, SE = 0.20).

<<<INSERT TABLE 1 HERE>>>

Discussion

We examined whether two groups of elite youth soccer players who scored higher and lower on a measure of perfectionism may be differentiated based on the amount of hours accumulated in different soccer-specific activities during development. We predicted that players with higher perfectionistic tendencies will have invested greater amounts of time in sport-specific activities during their development.

It is apparent from the results that within an elite sample of youth soccer players in Australia, players differ in their levels of perfectionistic strivings. It is difficult to generalise our findings to societal perfectionism norms, because of the various different instruments that measure perfectionism. Yet, in accordance with other reported findings (Stoeber et al., 2010; Stoeber et al., 2009; Stoll et al., 2008; Gucciardi, Mahoney, Jalleh, Donovan, & Parkes, 2012), the current results suggest the higher perfectionistic striving group represent individuals with high perfectionistic tendencies, while the players categorised in the low perfectionistic striving group are low in perfectionistic tendencies relative to other sports. . The results of the current study may provide initial evidence to suggest elite youth soccer players differ in their levels of perfectionistic strivings.

Our findings make a significant contribution to the current knowledge by providing evidence to suggest perfectionistic striving may have an adaptive influence on sport-specific engagement, specifically, coach-led practice, individual practice, peer-led play and indirect soccer involvement. Our findings support previous perfectionism literature which indicates individuals high in perfectionistic strivings invest more time studying (Bieling et al., 2003; Brown et al., 1999) and practicing music (Stoeber & Eismann, 2007) when compared to individuals lower in perfectionistic strivings. It is therefore believed perfectionistic strivings have an important role in the motivation and effort which may contribute to individuals higher in perfectionism investing more time in the pursuit of higher levels of achievement in their chosen domain (Stoeber & Eismann, 2007). While not assessed in the current study, in future researchers should consider the potential link between perfectionistic striving, motivation, effort and sport-specific engagement on achievement in sports.

The trend in our data suggests that the higher perfectionistic strivings group invest more time in soccer-specific activities compared to the lower perfectionistic striving group. While there is no difference in the number of months individual practice and peer-led play is

engaged in during the year, the descriptive data indicate the higher perfectionistic strivings group accumulates a couple more hours per month in each activity, which equates to approximately 99 hours a year (i.e., 17 hours coach-led practice; 22 hours individual practice and 60 hours of peer-led play) more than the lower perfectionistic strivings group. This latter finding is of interest as previously researchers have shown that the time invested in deliberate play and deliberate practice, such as peer-led play may improve sport-specific perceptual-cognitive skills (Roca et al., 2012; Williams et al., 2012) and higher levels of achievement in the sport (Ericsson, 2004; 2006; Ford et al., 2009; Ford & Williams, 2012) compared to individuals who accumulate less time in these activities.

In a similar manner to the physical engagement in soccer-specific activities, the results indicate that the higher perfectionistic strivings group invest more time indirectly involved in soccer than the lower perfectionistic strivings group. On average this equates to approximately an additional 60 hours per year spent engaged in non-physical activities, such as playing soccer computer games and watching soccer games. While there is limited empirical evidence to suggest that this indirect involvement has a beneficial effect on performance in the sport, researchers have tentatively indicated greater amounts of contextualised observational experience may have a positive influence on perceptual-cognitive skill development (Pizzera & Raab, 2012).

Although in the current study we do not directly assess the performance level of the individual players, the findings may indicate perfectionistic striving has a positive indirect effect on performance. Previous findings have acknowledged players who invest more time in sport-specific activities possess greater sport-specific skills (Ford et al., 2009; Roca et al., 2012; Ward et al., 2007) and are more likely to progress to a professional level (Ford & Williams, 2012). Therefore, it would appear logical to assume that individuals higher in perfectionistic striving want to invest more time in their chosen domain with the potential

belief that increased sport-specific engagement may refine and improve skills. As there currently are no direct links between perfectionism and elite youth soccer performance, researchers should consider the exploration of the potential influence of perfectionism on the performance of sport-specific skills.

While this is one of the first studies to explore perfectionism and practice history in a sport based context, the findings should be considered with respect to several limitations. First, while previous sports related data may indicate that greater amounts of time invested in sport-specific activities contributes to skilled performance (Ford et al., 2012; Ford et al., 2009; Ford & Williams, 2012; Ward et al., 2007), perfectionism based research has indicated that high perfectionism level may also contribute to burnout in youth athletes (Appleton, Hall, & Hill, 2009; Gould, Udry, Tuffey, & Loehr, 1996; Hill, Hall, Appleton, & Kozub, 2008; Lemyre, Hall, & Roberts, 2008). Therefore, while not an aim of this paper, it would be suggested that future studies exploring practice history profiles should consider the potential impact of burnout on individuals and whether individuals with the high perfectionistic tendencies progress to the elite adult level or drop out prior to this stage of their career. Second, the current study was limited by the lack of performance related data. While researchers suggest increased engagement in sport-specific activities contributes to skilled performance (Ford et al., 2012; Ford et al., 2009; Ford & Williams, 2012; Ward et al., 2007), it is not possible to assume the higher perfectionistic strivings group would perform better on technical or tactical skill assessments. Therefore, in future researchers should consider incorporating performance based assessment matrices to fully comprehend the influence of perfectionism on youth athletes. Third, the study may be limited by the recall accuracy of the participants. While research has indicated the reliability and validity of the player history questionnaire (Ford et al., 2010), it may be possible that the higher perfectionistic strivings group, epitomised by exceedingly high personal standards, may be more accurate when

recalling sports-activity engagement and completing the questionnaire. Finally, while the results support previous research describing the association between perfectionism and investment in domain specific activities (Bieling et al., 2003; Brown et al., 1999; Stoeber & Eismann, 2007), there is still limited understanding whether perfectionism has a casual impact on domain specific engagement or practice. Therefore, researchers should now attempt to understand whether high level of perfectionism leads to increased engagement in practice, or vice versa. By gaining a better understanding of this relationship it may be possible to use measures of perfectionism within the talent identification processes.

In summary, our results indicate that players with higher levels of perfectionistic strivings accumulate more time in direct and indirect involvement in their specific sport. The findings demonstrate elite youth level soccer players higher in perfectionistic strivings may invest more time per month in both physical (i.e., coach-led practice and peer-led play) and non-physical (i.e., indirect involvement) sport-specific activities. Therefore, consistent with the literature, it suggested that perfectionistic strivings is adaptive for engagement in soccer-specific activities of elite youth level Australian soccer players.

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Table 1.

Mean (± SE) for perfectionistic striving and sport-specific engagement (total hours; average hours per month; average months per year) when separated by level of perfectionistic striving.

		Lower Perfectionistic Strivings		Higher Perfectionistic Striving		*F*	p-value	Effect Size	
		Mean	SE	Mean	SE				
	Age (years)	13.83	0.08	14.15	0.09	2.29	0.132	0.011	Small
	Perfectionistic Striving	3.02	0.03	4.38	0.02	1322.25	0.000	0.869	Large
Total Hours	Match-play (hrs)	299.42	14.10	361.10	20.37	1.45	0.230	0.007	Small
	Coach-led Practice (hrs)	914.59	39.40	1148.28*	56.15	6.60	0.010	0.033	Small
	Individual Practice (hrs)	704.78	54.27	909.85*	62.45	4.73	0.031	0.025	Small
	Peer-led Play (hrs)	802.85	54.48	1044.21*	65.67	5.80	0.017	0.032	Small
	Indirect Involvement (hrs)	2099.29	159.03	2981.46*	182.32	9.57	0.002	0.050	Small
Average Months per Year Engaged	Match-play (months/year)	8.01	0.18	8.13	0.15	0.04	0.837	0.000	Small
	Coach-led Practice (months/year)	8.64	0.16	8.76	0.15	0.20	0.655	0.001	Small
	Individual Practice (months/year)	10.63	0.20	10.95	0.20	1.05	0.308	0.005	Small
	Peer-led Play (months/year)	9.62	0.21	10.19	0.20	3.23	0.740	0.017	Small
	Indirect Involvement (months/year)	10.94	0.18	11.40	0.14	1.86	0.174	0.009	Small
Average Hours per Month Invested	Match-play (hrs/month)	6.00	0.20	6.51	0.24	0.36	0.547	0.002	Small
	Coach-led Practice (hrs/month)	17.09	0.60	19.05*	0.74	4.18	0.042	0.021	Small
	Individual Practice (hrs/month)	11.11	0.76	13.02	0.79	3.49	0.063	0.019	Small
	Peer-led Play (hrs/month)	14.76	0.77	20.61*	0.89	27.72	0.000	0.137	Medium
	Indirect Involvement (hrs/month)	25.28	1.64	37.78*	1.95	19.22	0.000	0.102	Medium

* indicates a significant difference at the 0.05 level