

Gratitude and Adolescent Athletes' Well-Being

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Abstract Two cross-sectional studies were conducted to examine the relationships between gratitude and athletes' well-being. Study 1 examines the relationship between dispositional gratitude and well-being, while Study 2 investigates the relationship between sport-domain gratitude and well-being. In Study 1, 169 Taiwanese senior high school athletes ($M = 16.43$, $SD = 0.7$ years) were administered the Gratitude Questionnaire (GQ; McCullough et al. 2002, *Journal of Personality and Social Psychology*, 82(1), 112–127), Team Satisfaction Scale (Walling et al. 1993, *Journal of Sport & Exercise Psychology*, 15, 172–183), Satisfaction with Life Scale (SWLS; Diener et al. 1985, *Journal of Personality Assessment*, 49, 71–75), and the Athlete Burnout Questionnaire (ABQ; Raedeke and Smith, 2001, *Journal of Sport & Exercise Psychology*, 23(4), 281–306). In Study 2, a separate sample of 265 adolescent athletes ($M = 16.47$ years, $SD = 0.7$) were administered the modified Sport-domain GQ, Team Satisfaction Scale, and ABQ. Study 1 results showed that dispositional gratitude positively predicts team satisfaction and life satisfaction, and negatively predicts athlete burnout. Findings from Study 2 revealed that sport-domain gratitude positively predicts team satisfaction and negatively predicts athlete burnout. A stronger gratitude and well-being relationship was observed in Study 2. This research provides the initial verification that gratitude and adolescent athletes' well-being are related. Possible mechanism of this relation, limitations, and practical implications are discussed.

Keywords Thankful · Gratefulness · Stress · Satisfaction · Happiness · Positive psychology

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1 Introduction

Being grateful and wanting to win appears to be a mismatch of some sorts. Would an athlete choose to feel grateful during the critical moments of an intense competition? It is perhaps very unlikely. While competing, it is certainly not a time to be distracted by other irrelevant emotions such as gratitude. But if an athlete chose to feel grateful at times, what roles might gratitude play in promoting his or her sporting experience? Sport psychology research rarely explores this issue. Gratitude as a topic of discussion is more likely to appear in either the sport philosophy literature (Kretchmar 2005), or in athletes' autobiographies (e.g., Lewis and Marx 1990). In fact, in Carl Lewis' autobiography, the former sprint champion relates that feeling grateful to his competitors became part of his competition repertoire (Lewis and Marx 1990). He recounts that gratitude is an important aspect of his mental preparation. In addition, scenes of athletes giving thanks to God or other higher beings post-victory or after overcoming challenges are also commonly sighted (Baker 2000). Thus, examining gratitude within the context of sport psychology is necessary since it occurs naturally in competitive sports and its specific implications are not well understood.

Recent research in mainstream psychology suggests that gratitude can play a role in promoting psychological and physical well-being (e.g., Emmons and McCullough 2003; McCullough et al. 2002; Kashdan et al. 2006). With the advent of positive psychology (Snyder and Lopez 2007; Pritchett 2007), there is a greater emphasis on the research of athletes' well-being in sport psychology (e.g., Reinboth and Duda 2006). The humanistic approach towards the study of athletes' psychology is a well-accepted perspective (Hill 2001), and issues such as self-awareness (Hill 2001), flow (Jackson and Csikszentmihalyi 1999), mindfulness (Kee and Wang in press), and authenticity (Nesti 2004) have been discussed in relation to athletes' positive psychology. Gratitude, an important aspect of positive psychology (Snyder and Lopez 2007), is likely to help promote athletes personal growth if there is a relation between athletes' well-being and gratitude. However, at the moment it is not empirically known whether gratitude has a positive influence on athletes' well-being, let alone whether it is involved with personal growth.

Gratitude is a broad topic that can be studied from multiple viewpoints (see Emmons and McCullough 2003). For the purpose of the current discussion, gratitude can be defined as "an estimate of gain coupled with the judgment that someone else is responsible for that gain" (Solomon 1977, p. 319). Estimation and appreciation of gain is an important first step towards feeling grateful. The personal gain, benefits, or gifts could be in the form of material items or non-material gains such as spiritual and emotional gains (Emmons and McCullough 2003). Next, it is also important to direct gratitude to the possible source or giver of the gain. The target of gratitude might be other persons, animals, supernatural beings, or nature (Solomon 1977; Teigen 1997). Gratitude has been considered an affective trait (McCullough et al. 2002), and some individuals experience or invoke gratitude more often than others.

It is generally accepted that gratitude is a positive emotion (Emmons and McCullough 2004). Studies of non-athlete samples document benefits of gratitude (e.g., Emmons and McCullough 2003; McCullough et al. 2002; Kashdan et al. 2006). Based on a series of self-report assessments, McCullough et al. (2002) found that a disposition of gratitude is positively associated with positive affect, well-being, prosocial behavior, prosocial traits, and spirituality/religiousness. A grateful disposition also negatively relates to materialism and envy. In another study, Emmons and McCullough (2003) also found that an intentional grateful focus for daily life circumstances may be a useful cognitive appraisal strategy that

can positively impact long-term levels of well-being. In fact, evidence of links between gratitude and well-being goes beyond subjective measures. For instance, McCraty and Childre (2004) found that a higher degree of coherence in the heart's rhythmic activity was related to the experience of appreciation. The evidence from non-athlete samples suggests that strong links between gratitude and positive psychology exist. Would similar findings be found in athletes?

Given the lack of gratitude-related work in sport psychology, we begin investigating this line of research by focusing on gratitude among adolescent athletes. Adolescence is a critical stage of life in terms of overall development (Arnett 1999; Steinberg and Morris 2001). Adolescent athletes devote a considerable amount of time to sports and academic studies. Serious sport involvement can be a very stressful experience for them. Therefore, discovering ways to make sport involvement more positive is a worthwhile endeavor. Since gratitude is an important element of well-being in other samples (e.g., Emmons and McCullough 2003; McCullough et al. 2002; Kashdan et al. 2006), it is possible that adolescent athletes can benefit from being grateful. Furthermore, it has been suggested that gratitude tends to be deemphasized after adolescence (McAdams and Bauer 2004). If gratitude is found to be related to well-being, it is important to find ways to strengthen it during adolescence. We are hopeful that this initial research regarding athletes' gratitude, based on adolescent samples, can provide important insights for future researchers and practitioners.

In summary, to examine the relationships between gratitude and athletes' well-being, we elected to assess the relationships using two studies. The objective of Study 1 was to examine the relationship between dispositional gratitude and well-being, while Study 2 investigated the relationship between sport-domain gratitude and well-being. The major difference between the two studies is the type of gratitude assessed. Study 1 focused on athletes' general sense of gratitude with reference to daily life experiences. Study 2 focused on athletes' sense of gratitude towards experiences and people encountered in sports. Several researchers have noted that context-specific measurement can improve the assessment and examination of relationship between constructs (Duda and Allison 1990; Dunn 1994; Dunn et al. 2006). We, therefore, include the examination of sport-domain gratitude in Study 2 to complement the assessment of dispositional gratitude in Study 1. Separate samples were recruited for the two studies to eliminate the risk of confusion when participants recollect their perception of gratitude. Specifically, the two research questions are as follows:

Research question 1 Is there a relationship between dispositional gratitude and adolescent athletes' well-being?

Research question 2 Is there a relationship between sport-domain gratitude and adolescent athletes' well-being?

2 Study 1

The focus of this study is dispositional gratitude and adolescent athletes' well-being. Athletes' well-being is examined based on their life and team satisfaction. We also added athlete burnout as an indicator of stress, which is a negative correlate of well-being. Life satisfaction is a well-accepted indicator of well-being, and previous studies found a strong relationship between gratitude and well-being (Froh et al. (in press); McCullough et al. 2002). Team satisfaction represents a "positive affective state resulting from a complex evaluation of the structures, process, and outcomes associated with the athlete experience"

(Chelladurai and Riemer 1997, p. 135). We include team satisfaction as an indicator of well-being because the samples in question were drawn from a collectivist culture that emphasizes interpersonal harmony and team success (Yang 2006). In the Chinese culture, personal well-being is dependant on harmonious interpersonal relationships; thus, well-being can be closely linked to satisfaction with the team. Finally, athlete burnout is adopted as a negative indicator of well-being (Gagné and Blanchard 2007). We predict that both life and team satisfaction will be positively related to gratitude. Gratitude should thus correlate with lower athlete burnout.

3 Method

3.1 Participants

Participants were 169 Taiwanese senior high school athletes, including 114 boys, 51 girls, and four participants who did not identify their gender. Their age was between 15 and 18 ($M = 16.43$, $SD = 0.7$ years). The athletes recruited for this study trained more than five times a week and competed seriously. The sample consisted of 29 track and field athletes, 24 table tennis players, 23 badminton players, 18 archers, 27 baseball players, and 18 Tae kwon do martial artists, 13 fencers, seven Chinese martial artists, six kendokas, one billiard player, one tenpin bowler, one swimmer, and one cyclist. These participants were mainly conversant only in the Chinese language.

3.2 Measurement

3.2.1 Gratitude Questionnaire

Dispositional gratitude was assessed with the Chinese translation of the items from the Gratitude Questionnaire (GQ), which was originally developed by McCullough et al. (2002). The Chinese version was back-translated to English by a second translator, and equivalence in meaning and comparability was assessed. The scale consists of six items. The items pertain to the experiences and expressions of gratefulness and appreciation in daily life, and feelings about receiving benefits from other people. They measure the general type of gratitude one would have towards daily events and people. The original questionnaire uses a 7-point Likert scale with a response format ranging from strongly disagree (1) to strongly agree (7). In this study, we adopted a 6-point Likert scale to prevent participants from selecting the median score, because Chinese individuals tend to be non-committal when it comes to self-assessment (Chiu and Yang 1987).

Psychometrics of the original GQ is satisfactory according to its developers (McCullough et al. 2002). Previous studies that utilized the English version GQ also found that the instrument is reliable and valid (e.g., Giacalone et al. 2005; Kashdan et al. 2006; McCullough et al. 2004; Watkins et al. 2006).

3.2.2 Team Satisfaction

The Chinese version of the Team Satisfaction Scale (3 items), originally developed by Walling et al. (1993), was used to assess athletes' perceived team satisfaction. The Team Satisfaction Scale was translated from English to Chinese and its reliability has been

reported by its translators, with a reported Cronbach's alpha of .83 (Huang and Chi 1994). Participants indicated their response on a 6-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (6). This Chinese version of the Team Satisfaction Scale has been widely adopted in research involving Taiwanese samples, and is deemed to be a reliable tool, according to previous studies (e.g., Chen et al. 2005; Li 2003).

3.2.3 *Life Satisfaction*

Athletes' subjective well-being was assessed using the Chinese version of the Satisfaction with Life Scale (SWLS; Diener et al. 1985). The original English scale has been widely used in a variety of research (e.g., Hart et al. 2007; Llewellyn et al. (2008); McAlinden and Oei 2006; Oishi 2006). The two month test-retest reliability of the English version was .82, with Cronbach's alpha of .87 (Diener et al. 1985). It is also reported to be well-validated (Pavot and Diener 1993). The Chinese version has been used in research of Taiwanese samples, and its reliability has been reported in previous studies (e.g., Tsai et al. 2005; Wu and Yao 2006).

3.2.4 *Athlete Burnout Questionnaire*

Eleven items from the Athlete Burnout Questionnaire (ABQ; Raedeke and Smith 2001), which was previously translated into Chinese by Lu et al. (2006), was used to assess athlete burnout. The exploratory factor analysis (EFA) conducted by Lu et al. (2006) showed that the 11-item Chinese version of the ABQ yielded three factors with an eigenvalue above 1.00, accounting for 61.66% of the variance. Four out of the 15 original items were deleted due to low factor loadings or cross-loadings. The Chinese ABQ retained the original three factors, namely emotional/physical exhaustion (4 items), devaluation (4 items), and reduced sense of accomplishment (3 items). Responses were indicated on a 6-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (6).

Furthermore, Lu et al. (2006) also reports that the Chinese ABQ has good factorial validity ($\chi^2_{(41)} = 86.96$, $p = .00$, CFI = .98, RMSEA = .069, NFI = .97, NNFI = .98, GFI = .94, AGFI = .90, NC (χ^2/df) = 2.12, RMR = .045). The original Cronbach's alpha of the Chinese ABQ was .88 for emotional/physical exhaustion, .87 for devaluation, and .70 for reduced sense of accomplishment. Test-retest correlation over a seven-day period was .79 for emotional/physical exhaustion, .86 for devaluation, and .80 for reduced sense of accomplishment (Lu et al. 2006).

3.2.5 *Procedure*

The set of self-report questionnaires was administered to the participants in a quiet classroom setting. Participants' confidentiality and anonymity was assured. One of the authors served as the survey administrator and was there to answer any questions that participants had. No questions were raised. After completing the questionnaires, the athletes returned them to the administrator in the envelope provided. Participants' involvement in the study was voluntary.

4 Result

4.1 Correlation of Dispositional Gratitude with Well-Being

The means and standard deviations of dispositional gratitude, team satisfaction, life satisfaction, and the three dimensions of athlete burnout are listed in Table 1. In Study 1, the internal consistency of all subscales exceeded .70, which means that the instrument has acceptable reliability. Correlation coefficients between dispositional gratitude and well-being subscales were as expected. The magnitude of the correlations between the variables tested was moderate (Table 1). Dispositional gratitude correlated positively with team satisfaction ($r = .43$) and life satisfaction ($r = .30$), both at $p < .001$. Dispositional gratitude also related negatively to the reduced sense of accomplishment ($r = -.32$, $p < .001$) and devaluation ($r = -.31$, $p < .001$) subscales of the ABQ. However, its correlation with emotional/physical exhaustion ($r = -.17$, $p < .05$) was weak.

4.2 Regression of Well-Being Indicators on Dispositional Gratitude

Furthermore, team satisfaction, life satisfaction, and athlete burnout were regressed on gratitude and the results are consistent with the correlation outcomes, whereby dispositional gratitude positively predicted team satisfaction ($\beta = .43$, $p < .001$; $R^2 = .18$) and life satisfaction ($\beta = .30$, $p < .001$; $R^2 = .09$). Dispositional gratitude negatively predicted a reduced sense of accomplishment ($\beta = -.32$, $p < .001$; $R^2 = .10$), devaluation ($\beta = -.31$, $p < .001$; $R^2 = .10$), and emotional/physical exhaustion ($\beta = -.17$, $p < .05$; $R^2 = .03$). Results suggest that adolescent athletes who rate themselves as being more grateful report higher team satisfaction and life satisfaction. Furthermore, athletes high in dispositional gratitude report lower athlete burnout.

5 Discussion

The findings from Study 1 address the first research question. It was observed that there is a relationship between dispositional gratitude and adolescent athletes' well-being. Thus, it appears that some of adolescent athletes' life satisfaction as well as team satisfaction can be accounted for by dispositional gratitude. This observed relation with satisfaction

Table 1 Descriptive statistics and correlation among variables for dispositional gratitude and well-being (Study 1)

Variables	N	M	SD	α	Gratitude	TS	LS	RA	D	E
Gratitude	167	4.78	0.75	.80	1.00					
TS	167	4.87	0.99	.91	.43***	1.00				
LS	159	4.17	1.30	.84	.30***	.43***	1.00			
RA	166	3.23	1.05	.73	-.32***	-.56***	-.45***	1.00		
D	166	4.41	1.65	.82	-.31***	-.46***	-.31***	.66***	1.00	
E	166	4.89	1.67	.89	-.17*	-.40***	-.30***	.49***	.70***	1.00

* $p < .05$; *** $p < .001$

Note. TS—team satisfaction, LS—life: satisfaction, RA—reduced sense of accomplishment, D—devaluation, E—emotional/physical exhaustion

concur with previous gratitude research conducted with non-athletes (Emmons and McCullough 2003; Froh et al. (in press); McCullough et al. 2002, 2004). Athlete burnout also correlates negatively with gratitude. Specifically, reduced sense of accomplishment, devaluation, and emotional/physical exhaustion correlated negatively with dispositional gratitude. Previous research suggests that gratitude can reduce the effects of stress and thereby can enhance subjective well-being (Watkins 2004). Thus, the observed link between athlete burnout and gratitude concurs with previous studies. In summary, those who have stronger gratitude dispositions appear to have greater general and sport-domain-specific well-being, as predicted.

6 Study 2

Since dispositional gratitude associates positively with athletes' well-being, we extend our research by examining whether changing the target of gratitude towards people, experiences, and events in sports would have similar effects. To the best of the authors' knowledge, domain-specific gratitude measures have not been utilized, even in the other contexts previously researched. In this study, sport-domain gratitude is examined in relation to athletes' subjective assessment of team satisfaction and athlete burnout. The issue of interest is whether team satisfaction and athlete burnout can be better predicted with the added specificity of gratitude. Given that context-specific measurement can serve to improve assessment and examination of the relationship between constructs (Duda and Allison 1990; Dunn 1994; Dunn et al. 2006), we expect sport-domain gratitude to be a stronger predictor than dispositional gratitude. If so, it may provide further evidence to support the gratitude and well-being link.

7 Method

7.1 Participants and Procedure

Another sample of 265 (159 boys and 106 girls, $M = 16.47$ years, $SD = 0.7$) Taiwanese senior high school athletes participated in the second study. These athletes were of similar sporting background as those recruited in Study 1. In short, they committed a considerable amount of time to serious training and competition. Participants included 86 track and field athletes, 43 volleyball players, 18 softball players, 18 archers, 16 Tae kwon do martial artists, 14 swimmers, 14 baseball players, 11 judokas, 10 handball players, nine basketball players, seven rugby players, six karatedos, four tug-of-war athletes, three cyclists, two boxers, one kayaker, one gymnast, one wrestler, and one tennis player. Most of these athletes were only conversant in Chinese. The research procedure was similar to that of Study 1.

7.2 Measurement

7.2.1 Sport-domain Gratitude Questionnaire

In Study 2, the wording of the dispositional GQ was modified so that participants' perception of gratitude was directed specifically to the sport setting. Targets of gratitude were

directed to the participant's coach and teammates, or sport experiences. For example, items from the original GQ that were without a targeted person such as "I have so much in life to be thankful for" were changed to "I have so much in *my entire sport experience or endeavor* to be thankful for". Items involving people such as "I am grateful to a wide variety of people" has been changed to "I am grateful to *my coach or teammates*". See Appendix A for the complete scale. The modified Chinese version of the items was checked and its accuracy was ascertained. The 6-point Likert scale response format ranging from strongly disagree (1) to strongly agree (6) was used.

Factor analysis (principal axis factoring with Promax rotation) was conducted. The purpose was to ascertain whether the expected factor structure could be upheld when the original dispositional gratitude questionnaire (GQ) was modified. Results indicated that, as predicted, the items load on a single factor, with factor loadings ranging from 0.78 to 0.37 and an eigenvalue of 2.95, which accounts for 40.31% of the variance. The Cronbach's alpha for the modified scale was .78, suggesting that the sport-domain GQ is psychometrically acceptable.

7.2.2 Team Satisfaction and Athlete Burnout Questionnaire

The Team Satisfaction Scale and ABQ previously described in Study 1 were used in Study 2 to assess team satisfaction and athlete burnout, respectively.

8 Result

8.1 Correlation of Sport-domain Gratitude with Well-Being

Table 2 shows the means and standard deviations of all variables tested in Study 2. All subscales used in the current study have an internal consistency exceeding .70, except for reduced sense of accomplishment, which should be treated with care. Correlation results showed a consistent and expected pattern similar to Study 1. Sport-domain gratitude correlated positively with team satisfaction ($r = .70, p < .001$). For athlete burnout, sport-domain gratitude correlated negatively with reduced sense of accomplishment ($r = -.30, p < .001$), devaluation ($r = -.47, p < .001$), and emotional/physical exhaustion ($r = -.31, p < .001$).

Table 2 Descriptive statistics and correlation among variables for sport-domain gratitude and well-being (Study 2)

Variables	N	M	SD	α	Gratitude	TS	RA	D	E
Gratitude	265	4.59	0.76	.78	1.00				
TS	265	4.69	0.91	.83	.70***	1.00			
RA	265	3.44	1.06	.63	-.30***	-.29***	1.00		
D	265	3.42	1.23	.85	-.47***	-.42**	.34***	1.00	
E	265	5.07	1.46	.86	-.31***	-.30***	.22***	.67***	1.00

** $p < .01$; *** $p < .001$

Note. TS—team: satisfaction, RA—reduced sense of accomplishment, D—devaluation, E—emotional/physical exhaustion

8.2 Regression of Well-Being on Sport-domain Gratitude

Team satisfaction and athlete burnout were regressed on sport-domain gratitude and the result was in line with the correlation analysis. Sport-domain gratitude positively predicted team satisfaction ($\beta = .70, p < .001; R^2 = .49$). Also, sport-domain gratitude negatively predicted reduced sense of accomplishment ($\beta = -.30, p < .001; R^2 = .09$), devaluation ($\beta = -.47, p < .001; R^2 = .22$), and emotional/physical exhaustion ($\beta = -.31, p < .001; R^2 = .10$). In summary, the results of Study 2 partially replicate and extend the findings of Study 1. Results suggest that high school athletes who possess sport-domain gratitude perceive higher team satisfaction and lower athlete burnout.

9 Discussion

This study addressed the second research question. Positive relationships between sport-domain gratitude and adolescent athletes' well-being were found. Gratitude directed towards the various elements of the sport experience is related to higher team satisfaction and lower athlete burnout. A comparison between targets of gratitude and team satisfaction shows that the magnitude of the relationship in Study 2 is higher than in Study 1 (z score = $-4.09, p < .001$; see Cohen and Cohen 1983, p. 54). This suggests that domain-specific gratitude is a better predictor for team satisfaction than dispositional gratitude. In terms of predicting athlete burnout, sport-domain gratitude has similar effects to dispositional gratitude. Reduced sense of accomplishment, devaluation and emotional/physical exhaustion correspond to lower sport-domain gratitude. However, for predicting athlete burnout, the predictive power of sport-domain gratitude was not significantly different from dispositional gratitude (for reduced sense of accomplishment, z score = $-0.22, p > .05$; devaluation z score = $1.9, p > .05$; emotional/physical exhaustion, z score = $1.49, p > .05$).

10 General Discussion

We begin this discourse by proposing that studying gratitude in sports has value. Our current results suggest that gratitude in sports might have some role in promoting athletes' well-being. In summary, Study 1 shows that dispositional gratitude predicts life satisfaction, team satisfaction, and lower athlete burnout. In Study 2, sport-domain gratitude is related to higher team satisfaction and lower athlete burnout. Sport-domain gratitude also appears to have a higher correlation with team satisfaction than does dispositional gratitude, suggesting that the targets of gratitude when directed to the sport context enhance the predictive capacity for team satisfaction. Lower athlete burnout, however, is equally predicted by gratitude regardless of its target. We provide further elaborations and explanations in the following paragraphs.

The overall results suggest that two levels of well-being, be it sport-domain or general well-being, can be predicted from gratitude. With similar patterns observed in two separate studies, we provide evidence that suggests that gratitude is linked to the well-being of athletes. In our series of studies, gratitude is viewed as a trait-like characteristic, suggesting that athletes who are better predisposed to experience gratitude have higher well-being. This view is well-accepted in the current literature (McCullough et al. 2002). Individuals with a propensity for gratitude have been noted to be happier and less stressed (Emmons

and McCullough 2003; Kashdan et al. 2006). Thus, the observed link between life satisfaction and general gratitude is as predicted. We further extend the existing research by providing evidence to suggest that both dispositional gratitude and sport gratitude are related to sport-specific well-being, such as lower athlete burnout and higher team satisfaction. In sum, individuals' propensity for gratitude is related to greater well-being among athletes.

The observed negative link between athlete burnout and gratitude is an exciting new finding for sport psychology. All three subscales of athlete burnout, namely reduced sense of accomplishment, physical/emotional exhaustion, and devaluation, correlated negatively with both dispositional and sport-domain gratitude. It has been suggested that gratitude as a positive affect can trigger other broadened thought-action repertoires that help individuals cope with future threats (Froh et al. (in press)). Athletes who experience gratitude tend to view life more positively and are, thus, less affected by negative emotions associated with stressors resulting from sports. Thus, lowered athlete burnout can be explained by the broadening of internal resources resulting from the positive affect of gratitude.

This leads to a further explanation of why team satisfaction might be better predicted by sport-domain gratitude. In relation to team satisfaction, the extent of one's gratitude towards teammates, the sporting environment, and coaches is a better predictor than dispositional gratitude. Positive experience and kindness from the team begets gratitude, and acts of gratitude further generate unexpected benefits for others. Thus, a team culture that values gratitude, even if it is superficial, might still be useful for promoting team harmony between its members. In Study 2, results showed that team satisfaction correlates well with sport-domain gratitude. Perhaps the participants in this study are in a team culture that values gratitude to start with. Samples from a collectivistic society, such as the Taiwanese students in this study, are more likely to value harmony and respect for authority than samples from individualistic societies (Yang 2006). For example, it is likely that some of the participants have coaches who subscribe to paternalistic leadership, which emphasizes benevolence and member satisfaction. This type of leadership would naturally solicit gratitude from its members.

In terms of psychometrics, the establishment of sport-domain gratitude as a measurable construct is another breakthrough. To the best of our knowledge, this is the first time the Gratitude Questionnaire has been modified for use in the sport setting. As we previously noted, the psychometrics of the sport-domain gratitude assessment tool is satisfactory. It loads on a single factor, as expected. When compared to the dispositional gratitude measures, its similar relationship with well-being constructs such as team satisfaction and athlete burnout indicates that the target of gratitude can be altered to reflect gratitude in a specific context without much problem. Although the current version of the sport-domain gratitude assessment is in Chinese, we provide the English translation in the appendix to facilitate further validation work with English-speaking samples. In future studies, sport-domain gratitude, being more domain-specific, should be used when assessing gratitude issues in sports.

There are several limitations of the research that should be noted. First, the link between gratitude and well-being observed in this research is not causal in nature. Both studies adopt correlation and regression analysis methods; therefore, the direction of causation is not known. There is a possibility that well-being indicators such as team satisfaction actually results in the heightened sense of gratitude. If that is the case, it shows that an intricate symbiotic relationship between gratitude and well-being might indeed exist. Second, caution is needed when applying the findings to younger children, adults, or professional athlete samples. Samples from different age groups and levels of sports

involvement may not exhibit similar characteristics as observed in the adolescent athlete samples. Third, as this study was performed on a Taiwanese sample, which is supposedly collectivistic in nature, one might speculate that adolescent athletes from individualistic cultures may behave differently. However, since the current findings concur with previous studies conducted in the western culture (e.g., McCullough et al. 2002), a different finding in western athlete samples would be interesting. Future researchers are reminded to keep in mind the influence of culture when studying the psychology of gratitude.

Despite the several limitations articulated, two possible practical implications are suggested. First, we suggest that developing a sporting culture based on gratitude might promote athletes well-being. Coaches and sport administrators can purposefully elicit a sense of gratitude in their athletes. For example, formal or informal declarations of gratitude to nature, teammates, opponents, and facilities can help promote a sense of gratitude in athletes. Specifically, the recently inaugurated Youth Olympic movement, with its goals set at holistically educating adolescent athletes, might benefit from including gratitude as its ethos. Secondly, sport psychologists can help athletes explore the use of gratitude as a way of improving positive affect in the sport situation. Maintaining a sense of gratitude could also serve as an inoculation for athlete burnout.

The observed link between gratitude and adolescent athletes' well-being can certainly open up new avenues in sport psychology research. First, revalidation of the findings in separate samples drawn from different demographics is needed. Future research can also explore the links between gratitude and indicators of peak performance in athletes. A possible topic would be to examine flow dispositions in relation to gratitude. For example, whether heightened gratitude to others would lead to higher flow disposition or loss of self-consciousness is worthy of further examination, since both involve downplay of personal egos. Following this, the practical use of gratitude as a form of mental strategy, like Carl Lewis unintentionally did, could also be researched.

In conclusion, the positive link between gratitude and adolescent athletes' well-being is assessed in this research. Although gratitude has received considerable attention in mainstream psychology (e.g., Emmons and McCullough 2003; McCullough et al. 2002; Kashdan et al. 2006), it is rarely discussed in sport psychology. The current research provides the initial verification that gratitude and adolescent athletes' well-being are related, and suggests that the sporting experience would benefit from the promotion of gratitude.

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Appendix A

1. I have so much to be thankful for, *during the course of my training.*
2. If I had to list everything in my *sport career* that I felt grateful for, I think it would be a very long list.
3. When I look at *my sport career*, I don't see much to be grateful for.
4. I am grateful to *many coaches or teammates.*

5. As I get older I find myself *more able to appreciate the help given by coaches or teammates*, who have been part of my life history.
6. Long amounts of time can go by before I feel grateful to *coaches or teammates*.

Note: items 3 and 6 are reversely scored items

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