

Abstract

This study explored the efficacy of a gratitude intervention (i.e., gratitude visit) to promote sport injury-related growth (SIRG). Participants (N=30) were purposefully assigned to either the experimental or non-treatment control group. The intervention required injured athletes to write and share a gratitude letter with an intended recipient. Social validation interviews (N=30) were conducted with the experimental group and recipients (e.g., parents, siblings, partners, physiotherapists). Findings revealed a significant difference between the experimental and control group over time for one growth dimension (i.e., relating to others). Other growth dimensions were nonsignificant. Findings illustrate the importance of aligning interventions with growth dimensions.

Keywords: Adversarial Growth, Perceived Benefits, Posttraumatic Growth, Stress-Related Growth, Stress, Trauma

Using Gratitude to Promote Sport Injury-Related Growth

Sporting injuries often trigger a multitude of stressors for athletes (e.g., incapacitation, pain, isolation) that can result in maladaptive thinking patterns (e.g., catastrophizing) and negative feeling states such as anxiety and depression (Appeneal, Levine, Perna, & Roh, 2009; Breitmeyer & David, 2017; Morris, Tod, & Eubank, 2017). Consequently, injury is frequently considered a negative event with debilitating consequences (Wadey & Evans, 2011). Challenging this dominant perspective, a growing body of literature has identified that sporting injuries can also act as a catalyst for positive change, which has been labelled as *sport injury-related growth* (SIRG) and defined as perceived positive changes resulting from sport injury-related experiences (Roy-Davis, Wadey, & Evans, 2017). Examples of indicators of SIRG include personality development (Udry, Gould, Bridges, & Beck, 1997), an increased ability to understand and regulate one's emotions (Wadey, Evans, Evans, & Michell, 2011), and strengthened social relationships (Salim, Wadey, & Diss, 2016). These indicators have been corroborated by coaches and parents (Podlog, Kleinert, Dimmock, Miller, & Shipherd, 2012; Wadey, Clark, Podlog, & McCullough, 2013) and identified to enhance injured athletes' subjective well-being (Wadey, Podlog, Galli, & Mellalieu, 2015). Yet, despite these novel findings, it is important to acknowledge that several studies have shown SIRG is not inevitable (Brewer, Cornelius, Van Raalte, & Tennen, 2017; Salim, Wadey, & Diss, 2016; Wadey, Roy-Davis, Evans, Howells, Salim, & Diss, 2019). Consequently, it is now time for future research to examine *how* to promote SIRG in injured athletes.

To date, only one intervention study has been conducted that aimed to promote SIRG. Building upon a systematic program of research that identified emotional disclosure to be a mechanism to SIRG (Salim, Wadey, & Diss, 2015, 2016), Salim and Wadey (2018) examined the efficacy of a 4-week emotional disclosure intervention in a population of athletes who are less likely to disclose emotions (i.e., low in dispositional resilience). Injured athletes were

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assigned to one of three groups (i.e., written disclosure, verbal disclosure, or control). Consistent with standardized instructions from Pennebaker and Beall (1986), participants in the experimental groups were either asked to write *or* talk about their deepest thoughts and feelings regarding their recent sporting injury. Participants completed x4 20minute sessions. In contrast to the written disclosure group for whom was no significant effect, findings supported the efficacy of verbal disclosure in promoting SIRG. Using a social validation protocol (i.e., semi-structured interviews) to act as a means of evaluating whether the changes following the intervention were meaningful (Kazdin, 1997), Salim and Wadey reported that the participants explained how the intervention enabled them to re-story their injury experience into a structured format they could ultimately learn from. Indicators of SIRG included a heightened awareness of the self in the context of the wider environment (e.g., how their actions have consequences, how they need to be more compassionate to their bodies). Whilst these preliminary findings are encouraging, it is important to recognize that this intervention operated at an intrapersonal level (i.e., verbalizing thoughts and feelings to *oneself*). Consequently, this intervention is more likely to enhance certain indicators of SIRG operating at this level (e.g., *self*-awareness) rather than others (e.g., enhanced relationships).

For those researchers interested in targeting other levels of analysis (e.g., interpersonal), alternative interventions will likely need to be considered (cf. Wadey, Day, Cavallerio, & Martinelli, 2018). Given Howells, Sarkar and Fletcher's (2017) recent systematic review identified growth following adversity (e.g., injury) in athletes could be collapsed across three levels: intrapersonal indicators (e.g., awareness of the self), interpersonal indicators (e.g., enhanced relationships), and physical indicators (e.g., physically stronger), it is important that future research now builds upon Salim and Wadey's (2018) study to identify alternative and diverse ways of nurturing growth. Considering there is growing recognition in the psychology of sport injury literature that social support plays a critical role in the way athletes cope with

1 and rehabilitate from sport injury (e.g., Bianco, 2001, Tracey, 2003; Rees, Mitchell, Evans, &
2 Hardy, 2010), interventions that operate at an interpersonal level could be a particularly fruitful
3 avenue of research. Empirical evidence suggests that social support can enhance the well-being
4 of injured athletes by reducing distress (e.g., Bianco, Malo, & Orlick, 1999), preventing
5 perceptions of isolation (Podlog & Eklund, 2004), and by increasing motivation (Bianco,
6 2001), rehabilitation adherence (Evans, Hardy, & Fleming, 2000), and self-confidence
7 (Magyar & Duda, 2000). Yet, this body of empirical research is largely one-directional; it
8 explores how social support can benefit the *injured athlete*. Thus, researchers have ignored
9 how the support exchanges from, friends, family members, teammates, coaches, and medical
10 staff might result in interpersonal growth-related outcomes (e.g., strengthen relationships).

11 From reviewing other fields of research (cf. Davis et al., 2016; Dickens, 2017; Wood,
12 Froh, & Geraghty, 2010) and considering Salim and Wadey's (1998) study highlights the
13 importance of verbal disclosure in promoting growth, one way to promote SIRG at an
14 interpersonal level could be using gratitude interventions. Informed by the positive psychology
15 movement (Seligman & Csikszentmihalyi, 2000), gratitude interventions were touted as one of
16 the 'first fruits' of positive psychology (Emmons & McCullough, 2003). Although defined by
17 some as a trait (viz. Wood, Maltby, Stewart, & Joseph, 2008), others define gratitude as a
18 positively valenced emotion directed towards appreciating the helpful actions of other people
19 (McCullough, Kilpatrick, Emmons, & Larson, 2001). Cross-sectional and longitudinal
20 research suggests gratitude is related to both positive relationships and the characteristics
21 needed for their development and maintenance (Wood et al., 2010). To illustrate, gratitude has
22 been shown to strengthen relationships and promote relationship formation and maintenance
23 (Algoe, Haidt, & Gable, 2008), as well as relationship satisfaction (Algoe, Gable, & Maisel,
24 2010). Experimental evidence also suggests gratitude can promote conflict resolution and
25 increase reciprocally helpful behaviour (Baron, 1984; Tsang, 2006). These associations can be

1 explained by drawing on the *theory of sport injury-related growth* (Roy-Davis et al., 2017) that
2 suggests injured athletes whom recognise and *feel* grateful are more likely to *express* their
3 gratitude through engaging in pro-social behaviors (e.g., reciprocating acts of kindness) that
4 can lead to SIRG indicators such as strengthened relationships. However, a shortcoming of this
5 theory is that it does not stipulate what activities promote gratitude.

6 Gratitude interventions can be classified into two types. The first operates at an
7 intrapersonal level and involves listing things for which one is grateful to cultivate appreciative
8 feelings (e.g., gratitude journaling). The second operates at an interpersonal level and involves
9 expressing one's gratitude to the person to whom one is grateful (e.g., writing and expressing
10 gratitude letters) in the form of a gratitude visit. For example, Seligman, Steen, Park, and
11 Peterson (2005) conducted a study in which adults wrote a letter to a benefactor thanking them
12 and had to read it to the benefactor in person within one-week. Compared to a control group
13 who had to write about early childhood memories, those who went on the gratitude visit
14 reported more happiness and less depression post-test and 1-month follow-up. A shortcoming
15 of this study however is that it only explored intrapersonal outcomes and it did not account for
16 the participants' and recipients' acceptability of the intervention procedures and the importance
17 of the elicited outcomes (Kazdin, 1977). Since this preliminary study, a number of studies have
18 examined the efficacy of gratitude interventions and extended Seligman et al.'s methodology.
19 For example, Froh, Kashdan, Ozimkowski, and Miller (2009) reported that there was a need to
20 extend the literature to identify potential moderators of the treatment response. That is, are
21 certain people more inclined to derive benefits from gratitude interventions? It was
22 hypothesized that people high in positive affect may reach an 'emotional ceiling' and, thus, are
23 less susceptible to experiencing gains that follow a gratitude intervention. Comparatively,
24 people low in positive affect may need more positive events to 'catch up' to the positive

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experiences of their peers. Put another way, gratitude might be a less frequent, more novel experience for those low in positive affect.

In a sample of children and adolescents from a parochial school, Froh et al. (2009) examined whether positive affect moderated a gratitude intervention and emotional well-being. Students (N=89) were randomly assigned one of two conditions: experimental (i.e., gratitude visit) or control group (i.e., writing about daily events). In the experimental condition, similar to the procedure outlined by Seligman et al. (2005), students were asked to think of the people—parents, friends, coaches, teammates, and so on—who have been especially kind to them but whom they have never properly thanked. The students then chose one person who they could meet individually for a face-to-face meeting in the next week and then wrote a gratitude letter to this individual and delivered it in person. Findings indicated children and adolescents low in positive affect in the gratitude condition, compared with youth in the control condition, reported greater gratitude and positive affect at post-treatment and greater positive affect at the 2-month follow-up. Given these findings, specific individuals—such as those low in positive affect—may benefit more from gratitude interventions. Furthermore, these findings echo a recent meta-analysis of gratitude interventions (N=26 studies). Davis et al. (2016) concluded the benefits of gratitude interventions would not be fully realised unless people are given opportunities to develop the habit of expressing gratitude outwardly to others (cf. Lambert et al., 2010; O’Connell, O’Shea, & Gallagher, 2017). Considering gratitude has a strong prosocial, interpersonal focus (Emmons & Mishra, 2011), it makes sense for gratitude to be practiced in vivo with other people (Wong, Blackwell, Mitts, Gabana, & Li, 2017).

This first aim of this study is to examine the efficacy of a gratitude visit to promote SIRG in athletes who have experienced a serious injury. Based on previous gratitude research (Davis et al., 2016; Wood et al., 2010) and the theory of sport injury-related growth (Roy-Davis et al., 2016), it was hypothesized that there will be a significant difference between the

experimental and control group in that the experimental group will report more SIRG. The second aim is to understand the participants' and recipients' postintervention appraisal of the acceptability of the intervention procedures (e.g., What did the participants and recipients think of the intervention? Were there any negative side effects?) and the importance of any elicited outcomes (e.g., What were the outcomes? Did the participants value them?). The rationale for the study is twofold. First, SIRG is a timely concept in the current climate. Not only has SIRG been associated with improved sporting performance (Salim & Wadey, 2018), but also increased well-being (Wadey et al., 2016). Given the increased research attention on athletes' well-being (Henriksen et al., 2018; Rice et al., 2016), we believe this study to be timely. Second, the psychology of sport injury literature is dominated by interventions that operate at an intrapersonal level (e.g., goal-setting, imagery, self-talk; Cupal & Brewer, 2001; Evans & Hardy, 2002; Hare, Evans, & Callow, 2008). Therefore, it is important that we now seek to build an evidence-base of interventions that operate at an interpersonal level. Wiese-Bjornstal (2009) reported, "Injury affects more than the injured; it often also holds health-related consequences for the network of family, friends, teammates, coaching staff and even the larger communities" (p. 64-65).

Method

Sample and Participant Selection

Criterion-based and maximum-variation sampling were used to identify participants (Sparkes & Smith, 2014). The criteria were twofold. First, participants had to have been injured through sport for a minimum of 4-weeks. This study was only interested in *sport*-related injuries, and previous researchers have used 4-weeks as the length of time to define a *serious* sport injury (Bianco, Malo, & Orlick, 1999). Second, participants had to be in the return to sport phase of recovery (i.e., within 6-months of returning to sport following rehabilitation). Rather than conducting the gratitude intervention at injury onset or rehabilitation, this criterion

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was chosen because it provided the participants with an increased ‘window’ to recognize that they had received a benefit and the external source of that benefit (Emmons & McCullough, 2003). Participants who met these criteria were then matched across the experimental and control groups using maximum variation sampling. The aim was to match the groups as much as possible across several predetermined characteristics (i.e., sex, sport type, competitive level, type of injury, and severity of injury), which have been shown to effect psychological responses to injury (Brewer & Redmond, 2017). When a match was obtained for a participant already assigned to a group, the new participant was assigned to the other group. This procedure ensured any changes identified were the result of the intervention rather than demographic differences between groups.

The final sample consisted of 30 former injured athletes who were college students. All agreed to participate and provided written informed consent. Fifteen participated in the experimental group and 15 in the control group (M age=21.8 years; SD =2.5). Participants represented several individual and team sports (i.e., athletics, cricket, gymnastics, hockey, judo, netball, rugby league, rugby union, soccer, volleyball), ranging from recreational to international levels of competition. Injuries sustained were pulls, tears, breaks, and dislocations. All participants had recovered from their injuries and returned to full training and/or competition at the time of this study. For an overview of participant demographics, see Tables 1 and 2. The aim of this study and the intervention itself also required the participants’ recipient of the gratitude visit participated. Recipients were parents (i.e., mother, father), grandparents (i.e., grandma, grandpa), siblings (i.e., sister), partners (i.e., girlfriend, boyfriend), and physiotherapists. All recipients agreed to participate and provided informed consent.

Procedure

Ethical approval was sought and granted from the authors’ University’s Research and Ethics Committee. Participants were recruited by contacting gate-keepers to sporting clubs

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(e.g., coaches, physiotherapists, team captains). This dialogue entailed the purpose of the study and whether they would grant permission to recruit potential participants from their club. All clubs that were contacted agreed that the first author could approach their athletes for potential participation. For those athletes who met the selection criteria, they were invited to participate; all agreed, provided written informed consent, and were assigned to either the experimental or control group. They were then required to complete a demographic data sheet and two quantitative measures: Post Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and the Gratitude Questionnaire-Six Item Form (GQ-6; McCullough, Emmons, & Tsang, 2002) pre-intervention (i.e., Time 1).

Heeding recommendations in the literature (Dickens, 2017; Wood et al., 2010), it was decided that the control group would be a neutral non-treatment (measurement only) control group. That is, participants were only required to complete the questionnaires at the same time as the experimental group: pre- and post-intervention (immediately after the intervention), and three-month delayed follow-up. Our rationale for using a non-treatment control group rather than an alternative activity condition such as listing hassles experienced that day (i.e., negative intervention control group) or performing random acts of kindness (i.e., positive intervention control group) is that they have been identified to underestimate or overestimate the efficacy of gratitude interventions. Dickens (2017) reported:

Studies should consider using neutral comparison groups as the simplest way to test for efficacy of interventions, as negative comparisons may exaggerate effects and positive comparisons may hide effects. By comparing to neutral, one is able to ask the question: “How does gratitude improve personal outcomes”? without being distracted by the detrimental effects of negative interventions or the comparable effective of other positive interventions (p. 204-205).

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Participants in the experimental condition were provided with instructions from Seligman et al. (2005) on the gratitude visit: “*Reflecting back on your injury experience, you have one-week to write and then deliver (read out loud) a letter of gratitude in person to someone who has been especially kind to you, but who has never been properly thanked*”. This process was broken down for the participants into three progressive steps: (a) think of someone who did something important for you during your injury experience, yet who you feel you have not probably thanked; (b) reflect on the benefits you received from this person, and write a letter expressing your gratitude for all they did for you; and (c) arrange to deliver the letter personally, read it out loud to them and spend some time with the person talking about what you wrote. The participants then completed the PTGI post-intervention (i.e., Time 2) and at a 3-month delayed follow-up (i.e., Time 3). The GQ-6 was only completed at Time 1.

Following the gratitude task and consistent with the procedures of Froh et al. (2009), a ‘completion of the gratitude intervention form’ was emailed to all benefactors of the participants to assess treatment integrity. The form asked benefactors to check ‘yes’ or ‘no’ if the participant had read the gratitude letter in person to them. We received emails back from all benefactors, confirming treatment integrity. Participants were then invited to take part in a social validation interview. Each interview was conducted face-to-face, lasting between 45 and 103 minutes (M duration=56.5 min, SD =16.5). Furthermore, each of the recipients of the letters also took part in a social validation interview, lasting between 35-75 minutes (M duration=49.3min, SD =13.7). Because the control group was non-treatment, participants were not required to participate in a social validation interview.

Measures

Growth. As there is no measure of SIRG, the PTGI (Tedeschi & Calhoun, 1996) was used to assess growth at Time 1 (i.e., pre-intervention), Time 2 (i.e., post-intervention), and Time 3 (3-month delayed follow-up). The PTGI is a 21-item questionnaire designed to assess

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individuals' perceptions of whether they experience positive outcomes following a stressful event. Our rationale for using this measure over other potential measures (e.g., Park & Lechner, 2006) is that rather than being unidimensional the PTGI has five subscales: relating to others (7 items; e.g., I have a greater sense of closeness with others), new possibilities (5 items; e.g., I developed new interests), personal strength (4 items; e.g., I discovered that I am stronger than I thought I was), spiritual change (2 items; e.g., I have a better understanding of spiritual matters) and appreciation of life (3 items; e.g., I changed my priorities about what is important in life). Therefore, this measure will enable us to ascertain if the intervention impacts certain subscales and not others. To ascertain athletes' perceptions of growth following injury, the original stem was modified from "*Indicate for each of the statements below the degree to which this change occurred in your life as a result of the crisis/disaster*" to "*Indicate for each of the statements below the degree to which this change occurred in your life as a result of your injury experience*". Items are scored on a scale from 0 (*I did not experience this change as a result of my injury experience*) to 5 (*I experienced this change to a very great degree as a result of my injury experience*). Higher scores correspond to greater perceived growth. Tedeschi and Calhoun provided evidence to support the scale's internal consistency and test-retest reliability. Subsequent studies have provided further support for the factor structure of the PTGI (Linley, Andrews, & Joseph, 2007; Taku, Cann, Calhoun, & Tedeschi, 2008). Cronbach's alpha coefficients ranging from .84 to .98 were obtained for the PTGI subscales in this study.

Gratitude. The GQ-6 (McCullough et al., 2002) was used to assess dispositional gratitude at Time 1 (i.e., pre-intervention) to examine if there was a difference in dispositional gratitude between the experimental and control group that might account for any variance in the resultant findings. The GQ-6 is a 6-item questionnaire designed to assess individuals' proneness to experience gratitude in daily life. Items include four positively worded items (e.g., "*I feel thankful for what I have received in life*") and two negatively worded items (e.g., "*Long*

amounts of time can go by before I feel grateful to something or someone”). Items ask about how frequently and intensely participants experience gratitude and are scored on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores correspond to greater levels of dispositional gratitude. McCullough et al. (2002) provided evidence to support the internal consistency and test-retest reliability. Subsequent studies have provided further support for the validity and reliability of the GQ-6 (e.g., Wood, Maltby, Gillett, Linley, & Joseph, 2008). A Cronbach’s alpha coefficient of .74 was found for this study.

Social Validation

Rather than using questionnaires or a structured interview guide (Kazdin, 1977), a semi-structured interview guide was developed for social validation purposes (Page & Thelwell, 2013). This qualitative method of data collection was chosen to understand the former injured athletes’ and recipients’ perceptions of the process of the intervention and the importance of potential outcomes. The semi-structured nature also provided the flexibility to enable the interviewee to talk freely around pre-determined questions, whilst also allowing the interviewer to explore any areas that arose spontaneously (Kvale & Brinkmann, 2009). The guide consisted of five sections. The first two sections explained the objective of the study and sought to gain rapport with the participants. The third and fourth sections focused on the acceptability of the intervention protocol (e.g., What did you think of the intervention?) and the potential impact of the intervention respectively (e.g., What effect, if any, did the intervention have on you? What do these outcomes mean to you?). The concluding section invited the participants to add to anything previously discussed. Neutral non-directional probes (e.g., Can you give me an example? What do you mean?) were used throughout (Kvale & Brinkmann 2009).

Data Analysis

The quantitative data were analyzed using SPSS 21.0 and involved four steps. First, the data were screened to check for accuracy and statistical assumptions. Second, means and

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standard deviations were calculated for the study's variables (Table 3). Third, an ANOVA was conducted to compare dispositional gratitude between groups at Time 1 (i.e., pre-intervention). Fourth, a mixed-design (Group x Time) analysis of variance was conducted to assess growth subscales between the experimental and control group over time: Time 1 (pre-intervention), Time 2 (post-intervention), and Time 3 (3-month delayed follow-up). Follow-up Bonferroni-corrected pairwise comparisons tests were used to isolate mean differences.

The interview data were analyzed using thematic analysis (Braun, Clarke, & Weate, 2016). First, the first author familiarized herself with the data, which involved transcribing the data and repeat reading. Next, initial codes were generated by identifying interesting features of the data in a systematic fashion across the data. Once the data had been coded, data relevant to each code were collated. Next, how these different codes combined to form an overarching theme and involved thinking about the relationship between codes and themes. The themes were then reviewed in relation to the coded extracts, the entire data set, and the overall story regarding the participants' experiences both during the process of the intervention and the outcome. Finally, producing the report involved ensuring that the write-up provided a concise, coherent, logical, non-repetitive, and interesting account of the data.

Two strategies were used to enhance the methodological rigor of the qualitative data analysis process. First, the co-author acted as a 'critical friend' throughout (Faulkner & Sparkes, 1999). To illustrate, the first author presented her interpretations of the data on a regular basis to the coauthor, who provided a theoretical sounding board to encourage reflection upon, and exploration of, alternative explanations and interpretations as they were identified in relation to the data. As part of this process of critical dialogue, the first author was required to make a defensible case that the available data supported her interpretations. Second, member reflections on our analytical interpretations were also sought to enhance the study's methodological rigor (Smith & McGannon, 2017). This involved sharing and

dialoguing with the participants about the study's findings and providing opportunities for additional data and insight. To elaborate, this process involved discussing with our participants their experiences of the processes and outcomes of the intervention, which helped to further co-construct and crystallize the identified themes.

Results

Preliminary Analysis

Participants completed data entry for all study variables. Before proceeding to the main analysis, two preliminary analyses were conducted. First, a potential difference between the experimental and control group for dispositional gratitude was examined at Time 1. An independent T-Test revealed no significant difference ($t[28, 27] = .25, p > .05$). Second, differences between the experimental and control group for the growth subscales were examined at Time 1. A one way ANOVA revealed no significant differences between groups for relating to others ($t[1, 29] = .116, p > .05$), new possibilities ($t[1, 29] = .04, p > .05$), personal strength ($t[1, 29] = .14, p > .05$), spiritual change ($t[28, 27] = .25, p > .05$) and appreciation of life ($t[1, 29] = .28, p > .05$). Because of these findings, dispositional gratitude and growth were not controlled for in the main analyses.

Main Analysis

Findings revealed a significant Group x Time interaction for the growth subscale relating to others (Wilks's $\lambda = .78, F[2, 27] = 25.68, p < .001, \eta p^2 = .65$). Post hoc tests indicated and mean values illustrated the experimental group reported greater relating to others between Time 1 (pre-intervention) and Time 2 (post-intervention) and Time 1 and Time 3 (3-month follow-up) than the control group. No significant difference was found between Time 2 and Time 3, thus, indicating that relating to others remained stable between post-intervention and the 3-month follow-up. No significant effects were found for the remaining growth subscales: new possibilities (Wilks's $\lambda = .90, F[1, 27] = .90, p = .24, \eta p^2 = .10$), spiritual change (Wilks's

1 $\lambda=.93$, (F [2, 27]=.92, $p=.41$, $\eta p^2=.19$), appreciation of life (Wilks's $\lambda=.91$, (F [1, 28]=.26,
2 $p=.62$, $\eta p^2=.078$), or personal strength (Wilks's $\lambda=.77$, (F [2, 27]=9.321, $p=.33$, $\eta p^2=.08$).

3 **Social Validation: Injured Athletes**

4 **Processes.** Five themes were identified that reflected the athletes' experiences of the
5 gratitude visit: *Feeling Lucky*, *Feeling Grateful*, *Guilt*, *I'm Embarrassed to Say This ...*, and
6 *Feeling Good*. The first theme, *Feeling Lucky*, reflected the participants' raised awareness of
7 the people in their social support network and the challenge of deciding who to write the letter
8 to. One participant expressed:

9 I know there were plenty of people who *said* they would be willing to help, but once I
10 got thinking about the amount of people who *did* help me, I started to realize just how
11 lucky I am. The hardest part was choosing who to address the letter to. It just made me
12 feel so, lucky I guess, because I know a lot of people are not as fortunate as me to have
13 so many good people in their lives.

14 The second theme, *Feeling Grateful*, encompassed the athletes becoming aware from
15 writing the letter what the recipients had done and how they had gone out of their way to help
16 them, expecting nothing in return. One participant reflected:

17 I just started listing what my dad had done for me. The list got longer and longer! To
18 him it might have seemed like small-things, like helping me up the stairs or helping me
19 get some shopping, but, at the time, those were *really* big-things to me. I just never
20 realized at the time to what degree he had helped me. I felt so grateful to him.

21 Although *feeling grateful* was reported as a pleasurable experience for the participants,
22 they also expressed that raising their awareness of the recipient's efforts had made them feel
23 guilty. The third theme, *Guilt*, reflected an unpleasant emotional experience for the
24 participants, whereby they felt they had compromised their own moral standards. They came
25 to the realization from writing the letter that they had not properly thanked or *expressed*

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1 gratitude to the recipients for the help that they had provided. During their rehabilitation, they
2 reported being more concerned with their recovery and returning to sport. One participant
3 recalled:

4 It was a nice feeling writing a letter to my girlfriend for helping me. Then I suddenly
5 felt guilty for how ungrateful I had been to her whilst I was injured. I thanked her at the
6 time because I should, but there is a real difference between saying thank you and *really*
7 appreciating the help someone has given you. During my injury, I just wanted to get
8 better. I wasn't grateful to her at the time because all I was focused on was getting back
9 to competing again. I feel quite ashamed to admit that.

10 The fourth theme, *I'm Embarrassed to say this ...*, reflected how the participants' felt
11 when reading out the letter out loud to the recipient. They reported feeling exposed, silly,
12 awkward, and self-conscious, resulting in nervous-laughter and physical symptoms (i.e.,
13 becoming 'red-faced', heart racing, and palms sweating). One participant reflected:

14 I felt silly, I mean really, silly; I just couldn't stop laughing at first, but it wasn't that
15 funny. I think I was just really embarrassed, and my mum started smiling and I couldn't
16 tell whether she found it funny or was happy. I don't know, I just felt a little silly reading
17 it out loud at first. I mean, this isn't something I've ever done before. But as I kept
18 reading I felt less embarrassed because it turned into me just chatting and saying how
19 much she had helped me ... I would have much preferred that my mum just read the
20 letter to herself, but I think reading it to her gave it more meaning, more emotion.

21 The final theme, *Feeling Good*, reflected how the participants' felt after reading the
22 letter and during subsequent exchanges between them and the recipient that immediately
23 followed (i.e., smiling with one another, laughing out loud together, hugging each another, and
24 recounting memories from the injury). The athletes' expressed feeling a 'wave' of happiness,
25 grinning from 'ear-to-ear', and how they had enjoyed the overall experience. One participant

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expressed: “It’s like smiling became contagious; they started smiling, then I started smiling. It made me feel so happy.’ Another participant reflected:

When I started seeing my grandma smiling and a glint in her eye, I could see how happy she was, and I felt happy too. I never thought that a letter of thanks would make her so happy. When I finished reading it to her, she gave me the biggest cuddle ... Normally with letters you never get to see the reaction of the person receiving it. But from reading it out, I could. And it meant a lot to me. It was such a nice thing to do.

Outcomes. Five themes were identified that reflected the participants’ reported outcomes of the gratitude visit: *Feeling Closer*, *Doing More Together*, *Returning the Favor*, *Feeling Better about Me*, and *Seeing Others’ True Colors*. The first theme, *Feeling Closer*, reflected a greater sense of warmth and a renewed dynamic between them and the recipient. One participant described: “It’s hard to explain, but I just feel closer to him [boyfriend] because of it. There’s an energy between us now that we haven’t had in a while.” Another reported:

I think it’s easy to take others that you’re close to for granted sometimes. You’re just both going through the motions; the days keep rolling by. You don’t *really* talk when you get home. You can be two independent people. But something like this task, helped to bring me and my mum closer together. It made me stop and appreciate her, and I feel much closer to her now because of it.

The second theme, *Doing More Together*, encompassed the participants spending more time with the recipient by talking with them more in the evenings and making plans together at the weekends. One participant expressed: “We talk more now. Rather than, ‘Did you have a good day?’ Yes or no. It’s more ‘Tell me about your day’. And I listen. I mean, this weekend we are going to the beach together, which we haven’t done in ages.” However, not only did they spend more time together, the athletes also tried to identify ways in which they could be helpful for the recipient and acting upon these opportunities (i.e., *Returning the Favor*). This

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1 theme included going to the shops for them, cooking them some food, giving them lifts in the
2 car, and running errands (e.g., posting letters). One participant stated: “Realizing how much
3 they did for me. I felt I wanted to do something in return. So, one evening, I made him a lasagna
4 when he got home, which made him smile and gave us some time to talk”.

5 The fourth theme, *Feeling Better About Me*, reflected a positive affective state and an
6 increased sense of self-satisfaction experienced by the athletes. One participant reported, “I
7 feel better about me from doing this. I like myself more. It’s a nice thing to do. And it’s
8 something I should do more. We should all do more.” Another expressed:

9 Being a full-time athlete, you become quite selfish. It requires a lot of training and
10 sacrifices. Not going out at weekends, early nights. And it’s all about me really. How
11 can I make myself the best athlete? After a while, you do become increasingly selfish
12 and inward looking. What I liked about this task is that it allowed me to do something
13 nice for someone else. It wasn’t about me, but I did feel good about myself afterwards.

14 The final theme, *Seeing Others’ True Colors*, encompassed the athletes learning who
15 their *real* friends were and realizing who they could (not) turn to during difficult times. One
16 participant expressed, “People always say you know who your real friends are when you are at
17 your worst. And I think I was at my worst when I was injured; I was a nightmare to be around.
18 But it was good to recall who struck by me and who didn’t.” Another reported:

19 There is that saying isn’t there, “It’s during the hard times that you see people’s true
20 colors.” It was not just about who showed up when the chips were down, but also who
21 didn’t. After I had written my letter, I sat and thought about people who I would have
22 hoped were there for me during my injury and were not. Some of those ‘friends’ I did
23 not hear from during the whole time I was injured. I guess this task just opened my eyes
24 to things like that.

25 Social Validation: Recipient

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Processes. Four themes were identified that reflected the recipients' experiences of the process of receiving the letters from the participant: *I Wasn't Expecting That*, *Feeling Embarrassed*, *Overcome with Emotion*, and *Feeling Valued*. The first theme, *I Wasn't Expecting That*, encompassed the participants not knowing what was happening, not knowing the athletes were going to read the letter out loud, and not knowing the content of the letter. One participant reported, "To be honest, I didn't really know what was going on. He said did I have 10 minutes, because he wanted to read me something. As I sat there, and he started reading, well, I wasn't expecting that." Once the athlete had started to read the letter, the recipients reported *Feeling Embarrassed*. One expressed, "I started laughing initially and feeling uncomfortable; I guess, I felt embarrassed. I do not take compliments very well. To hear him read the letter out loud to me, I couldn't help but feel embarrassed." However, the participants reported that this embarrassment soon passed, and they then felt *Overcome with Emotion*. One expressed, "I just burst into tears! What a lovely thing to do. I felt so overwhelmed by it all." Another recalled:

As she started to read out the letter, everything stopped. I stopped thinking about everything else. It was such a special experience. I could feel myself welling up. I wanted to get up and hug her, but I sat on my hands to stop myself. What a golden moment. I was overcome with emotion. I could feel a tear running down my cheek as she spoke. I was grinning from 'ear-to-ear'! It felt good to hear those things. It was such a beautiful moment, one that I will cherish.

The fourth theme, *Feeling Valued*, encompassed being acknowledged and not taken for granted, being reminded of the things you do without being asked or with any expectation or ulterior motive, and feeling appreciated. A physiotherapist reported, "I was just doing my job. But it was nice to feel valued. Not many people say thank you." Another reported:

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1 Being a parent, it's largely a one-way relationship. You do so much for your children.
2 You cook for them, clean for them, drive them here and there and so on. Sometimes
3 they say thanks, but often they forget. And a lot of the stuff you do for them, you do
4 without thinking. Hearing my son say how much it meant to him to have me help him
5 is something he has never done before. I felt valued, and I felt, important.

6 **Outcomes.** Four themes were identified that reflected the recipients' perceived
7 outcomes following the gratitude intervention: *A Memory*, *Feeling Closer*, *Two-Way*
8 *Relationship*, and *Pay-It-Forward*. The first theme, *A Memory*, reflected how the intervention
9 had created a memory for them, which could be recalled from re-reading the letter. One
10 participant expressed: "What this whole process has done is created a memory, something I'll
11 never forget." Another recipient reflected:

12 I think life's all about creating memories. Most days are forgotten. But I will remember
13 this one, I will cherish it. What's also nice is that I have the letter itself. I've put it in a
14 box where I keep all the things I hold dear. And I can always go back to it remind
15 myself of this day.

16 The second theme, *Feeling Closer*, reflected a greater sense of warmth and a renewed dynamic
17 between them and the athlete. One parent expressed: 'It's really put the spark back in our
18 relationship. I feel we have come out of a lull. It's reminded me what a great friendship we
19 have and how close we really are.' As well as feeling closer, they also reported that the
20 relationship subsequently became a *Two-way Relationship* rather than one-way. It was reported
21 that the athletes started to do more for them around the house, took more of an interest in them,
22 and wanted to spend more time together. One participant expressed:

23 I've really noticed a change in his day-to-day behavior. He's really trying to help
24 around the house more and wants to spend more time with us at the weekend. I guess,

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1 this task has reminded him how much we do for him and perhaps he wants to re-pay us
2 in some way. Let's hope it lasts!

3 The final theme, *Pay-it-Forward*, encompassed the recipients continuing to help others
4 in need and expressing gratitude themselves in the form of a gratitude visit to others who have
5 helped them in the past. One expressed, "When you hear that someone appreciates the help you
6 have provided, it makes you more willing to continue to help them and others. You realize that
7 even the smallest gestures can be so beneficial." Another reported:

8 I thought it was such a great idea that I decided to do it myself. I always used to write
9 thank you letters when I was a child. I haven't done it in years. Because of this [gratitude
10 visit] I decided to write one to my parents who have helped me a great deal of late. I
11 loved experiencing it from the other side; reading it out loud to them and I could tell
12 how much they really appreciated it.

Discussion

14 This study was the first to examine the efficacy of a gratitude-visit to promote SIRG.
15 As hypothesized, the findings supported the efficacy of the intervention in facilitating growth.
16 However, only one dimension of growth (i.e., relating to others) was found to be statistically
17 significant between groups over time. That is, the experimental group experienced reported
18 more relating to others (e.g., knowing I count on people in times of trouble, a sense of closeness
19 with others, putting effort into my relationships) than the control group following the
20 intervention. This finding resonates with previous research that illustrates that gratitude
21 interventions can enhance relational outcomes (e.g., relationship closeness, motivation to
22 improve relationship with benefactors, positive views of others; Algoe & Haidt, 2009; Baron,
23 1984; Wood, Joseph, & Maltby, 2009). Furthermore, it extends previous gratitude research in
24 that it illustrates that this can be done following an adverse situation. In contrast, the other
25 dimensions of growth were non-significant (i.e., new possibilities, personal strength, spiritual

change, and appreciation of life). These findings might be explained because these dimensions operate at an intrapersonal level (cf. Wadey et al., 2018). Whilst the gratitude-visit enhanced relational outcomes, alternative interventions are likely to be needed to enhance other growth dimensions. This finding has important implications for future researchers and applied practitioners, suggesting there needs to be an alignment between the type of intervention and a targeted growth dimension. Yet, researchers and applied practitioners must remain critical of these implications, considering the limitations of this study (i.e., small sample size, no manipulation check, and limited moderating variables accounted for pre-intervention).

Extending previous gratitude intervention research, the second aim of this study was to understand the participants' and recipients' postintervention appraisal of the acceptability of the intervention procedures (e.g., What did the participants and recipients think of the intervention? Were there any negative side effects?) and the importance of any elicited outcomes (e.g., What were the outcomes? Did the participants value them?). In terms of perceived outcomes, the qualitative findings expanded our understanding of the quantitative findings. Both the injured athletes and their recipients reported feeling closer to one another and spending more time together, which reflects growth at an affective and behavioral level; a finding that is supported by Hobfall et al. (2007) who believe that growth following adversity is most beneficial when translated into action. Furthermore, the behaviors not only included the dyad doing more together, it also encompassed the injured athlete returning the favour to the recipient and the recipient 'paying-it-forward' to others within their social support network. This supports previous researchers who have shown gratitude interventions to lead to repaying of kind gestures, altruism, and prosocial behaviour (Algoe, Haidt, & Gable, 2008; Froh, Sefick, & Emmons, 2008; Michie, 2009). Finally, another perceived outcome beyond growth that was identified was increased subjective well-being (i.e., *Feeling Better About Me*). This finding has important theoretical and applied implications such that interventions operating at an

interpersonal level can also have intrapersonal outcomes, which supports the multilevel model of sport injury (Wadey et al., 2018) that suggests that levels of influence (i.e., intrapersonal, interpersonal, institutional, cultural, and policy) are interdependent and can affect one another. Thus, an intervention directed at one level can have knock-on-effects at other levels.

Regarding the intervention procedures (i.e., processes), findings suggest that the process of delivering the gratitude-visit led to positive affect for the injured athlete and their recipient (i.e., *Feeling Good, Feeling Grateful, Overcome with Emotion, Feeling Valued*), which supports previous studies (for reviews, see Davis et al., 2016; Dickens, 2017). For example, it was reported by the injured athletes that the intervention led to them to *feel* grateful towards their recipients. This finding supports the theory of sport injury-related growth (Roy-Davis et al., 2017), indicating that this positive emotion is a mechanism to SIRG. Further, it extends previous research as there is little evidence to show gratitude interventions operate through the mechanism of increased gratitude (Wood et al., 2010). However, it is important that future researchers and practitioners recognise some people might feel uncomfortable writing and sharing gratitude letters (Dickens, 2017). The participants in this study did report feeling guilty and/or embarrassed during the intervention. This finding extends previous gratitude research, which continues to report that there are no downsides to practicing gratitude interventions (Dickens, 2017). Whilst no negative perceived outcomes were identified in this study, considering the negative affect experienced during the process of delivering and receiving the intervention, we would agree with Wood et al. (2010) that future researchers examine if there is a negative side associated with gratitude interventions. Are there costs associated with gratitude? Under what conditions does gratitude become maladaptive? For example, if injured athletes attribute the causes of their successful recovery to other people rather than their own doing might this result in impaired well-being (cf. Abramson, Seligman, & Teasdale, 1978). For now, Dickens (2017) recommends that future researchers should tailor

1 interventions to individuals. That is, rather than imposing an intervention *on* them, work *with*
2 them to co-construct an intervention. This aligns with Lyubomirsky (2007) idea of the ‘person-
3 activity-fit’, where understanding what works best for any given individual is likely to
4 maximize positive change.

5 From an applied perspective, there are many reasons why gratitude-visits should
6 become embedded in professional practice. First, the gratitude-visit is easy to understand
7 (Dickens, 2017). Second, people seem to enjoy them; in fact, evidence suggests that
8 participants are more likely to remain in an intervention that assigns gratitude activities relative
9 to those that assign homework (Geraghty, Wood, & Hyland, 2010). Third, the emotion of
10 gratitude is pleasant to experience (Gallup, 1999). Fourth, gratitude interventions offer another-
11 oriented way to enhance personal well-being (McCullough, Kilpatrick, Emmons, & Larson,
12 2001). Fifth, if a person does not experience gratitude they are less likely to notice help and
13 less likely to reciprocate the help they do notice (McCullough et al., 2001). Additionally,
14 people who are not thanked are less likely to provide help in future (Carey, Clicque, Leighton,
15 & Milton, 1976; Rind & Bordia, 1995). Finally, interventions recommended in the psychology
16 of sport injury literature largely operate at an intrapersonal level; therefore, we need to consider
17 interventions operating at other levels, especially considering that a fallacy in the culture of
18 sport exists that athletes’ success is wholly determined by individual effort and ability
19 (Wagstaff, 2016). Rather, athletes’ success is also dependent on one’s relationships with a
20 systematic collective of stakeholders (e.g., coaches, managers), support staff (e.g., scientific,
21 medical), and networks (e.g., family, friends). Therefore, gratitude interventions offer one-way
22 to enhance these relationships and the context of sport injury can offer a place to do so. Yet,
23 before implementing gratitude intervention in professional practice, researchers and
24 practitioners must recognise and be mindful of the study’s limitations.

Although this study makes a novel contribution to the psychology of sport injury literature in that it is the first study to examine the efficacy of a gratitude intervention with injured athletes, it is important that practitioners and future researchers are aware of its limitations. First, the sample size for the gratitude intervention (N=15) and control (N=15) groups were small. Despite being consistent with other experimental studies in the psychology of sport injury literature (e.g., Mankad & Gordon, 2010; Salim & Wadey, 2018), given the low statistical power there is an increased risk for Type II error. Future research should conduct gratitude interventions with larger samples. Second, no manipulation check was conducted during the gratitude intervention to examine whether the experimental group did experience an increased feeling of gratitude in comparison to the control group. Future research should ensure a manipulation check is accounted for in the procedure and appropriate measures are utilised to evidence the manipulation check was effective. Considering a manipulation check was not used and therefore this study offers limited support for the effectiveness of the intervention itself, researchers and practitioners should remain sceptical whether a *gratitude* visit does elicit changes in *gratitude*. Third, we included limited pre-intervention quantitative measures to identify what factors moderate the effect of a gratitude intervention on growth-related outcomes. Future research should seek to better understand if there is a subset of athletes who would benefit more (and less) from expressing gratitude to others. For example, positive affect (Froh et al., 2009), extraversion (Sheldon & Lyubomirsky, 2004), and trait gratitude (McCullough et al., 2002) could be considered as potential moderating factors that influence treatment effects. Fourth, the PTGI (Tedeschi & Calhoun, 1996) was used to assess growth. Although previous sport injury researchers have used the PTGI (e.g., Brewer et al., 2017), it was not developed for (injured) athletes and its content validity could be questioned. Future research should seek to develop a reliable and valid measure of SIRG. A final limitation of this study is that it prescribed to the participants the gratitude intervention (i.e., the participants

were told to write and read a letter out loud). Future research should consider more novel and creative ways of expressing gratitude that are co-constructed with participants.

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