Passion and Coping: Relationships With Changes in Burnout and Goal Attainment in Collegiate Volleyball Players

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This study examined the relationship between harmonious and obsessive passion and coping, and assessed whether coping mediated the relationship between passion types and changes in burnout and goal attainment. College- and university-level volleyball players (N = 421) completed measures of passion, coping, burnout, and goal attainment at the start and end of a season. Results of structural equation modeling, using a true latent change approach, supported a model whereby types of passion were indirectly related to changes in burnout and goal attainment via coping. Harmonious passion was positively related to task-oriented coping which, in turn, was positively associated with change in goal attainment. Obsessive passion was positively associated with disengagement-oriented coping which, in turn, was positively and negatively associated with changes in burnout and goal attainment, respectively. This study identifies coping as a reason why passionate athletes may experience changes in burnout and goal attainment over the course of a season.

Keywords: harmonious passion, obsessive passion, intra-individual change, motivation, stress, suppression

The stress process in sport has the potential to severely reduce the quality of an athlete’s experience (Hoar, Kowalski, Gaudreau, & Crocker, 2006). Athletes manage these experiences through coping, a deliberate process involving thoughts and actions (Lazarus & Folkman, 1984). Coping is a critical component of the athletic stress process, and failing to cope effectively with stress can lead to serious long-term outcomes, such as burnout and a failure to attain desired goals (Hoar et al., 2006). Coping strategies used by athletes are influenced by person-related variables (Nicholls & Polman, 2007), and one such variable that may influence coping is the passion that athletes have for sport (Rip, Fortin, & Vallerand, 2006). Vallerand et al. (2003, p. 757) defined passion as, “a strong inclination towards an activity that people like, that they find important, and in which they invest time and energy” and distinguished between two types of passion: harmonious passion (HP), when an activity is autonomously internalized into a person’s identity, and obsessive passion (OP), which results from a controlled internalization of an activity into a person’s identity. Although research has shown that passion is an important predictor of athletic outcomes (for a review, see Vallerand, 2010), little is known about the relationship between passion and coping in sport. This study examined the relationship between types of passion and changes in burnout and goal attainment over the course of a season, and tested whether coping acts as a mediating variable in these relationships.

Passion and Coping

Vallerand et al. (2003) proposed the dualistic model of passion to differentiate between two types of passion. Harmonious passion emerges when a passionate activity has been internalized into the self through autonomous forms of regulation, allowing the activity to become an important, but not overpowering, component of the individual that remains in harmony with other life domains. When an activity has been integrated into the self through more controlled forms of regulation, an OP emerges in which the person feels pressured to engage in an activity that can eventually overpower one’s identity. For example, an athlete with an OP would feel compelled by external (such as pressure from significant others) or internal (such as guilt or a desire for social status) pressures to engage in sport, perhaps even at the expense of other important activities. In contrast, an athlete with an HP would freely participate in sport without feeling pressured to do so, and could easily resist the urge to engage in sport to pursue other activities. Harmonious passion, in general, has been linked with adaptive outcomes such as...
Passion, Burnout, and Goal Attainment

Training for sport competitions can be emotionally and physically taxing because it requires a substantial amount of time and energy. Nonetheless, the propensity to develop symptoms of athletic burnout—which encompasses feelings of emotional and physical exhaustion, reduced sense of accomplishment, and a devaluation of sport (Raedeke & Smith, 2009)—is likely to vary according to one’s inclination toward sport activity. Previous research has lent credence to this assumption by showing that HP is negatively associated with certain dimensions of burnout, whereas OP may be unrelated or even positively related to these burnout dimensions (Curran, Appleton, Hill, & Hall, 2011; Gustafsson, Hassmén, & Hassmén, 2011). These findings are generally consistent with results found with teachers (Carbonneau, Vallerand, Fernet, & Guay, 2008) and nurses (Vallerand, Paquet, Philippe, & Charest, 2010).

Burnout can be seen as a syndrome that involves a complex association between stress (Smith, 1986) and motivational processes (Raedeke & Smith, 2009). Coping, which is an integral component of this process, has been shown to significantly correlate with burnout in athletes (Hill, Hall, & Appleton, 2010). The usage of task-oriented coping plays a critical role in developing a sense of purposefulness and in fostering the development of inner resources (e.g., Amiot, Blanchard, & Gaudreau, 2008) that may protect the individuals against the development of burnout symptoms. In contrast, athletes who use disengagement-oriented coping may be more likely to experience burnout symptoms because of their tendency to reorient their inner resources away from the demands of the situation. Previous research in sport has supported the hypothesized associations between coping and burnout (Hill et al., 2010), but research has yet to investigate the mediating role of coping in the relation between passion and burnout.

Competitive athletes are investing substantial time and effort to strive toward the attainment of highest levels of sport achievement. Goal success—or the capacity to master important tasks, self-improve in the practice of one’s sport, and outperform competitors—can be influenced by a host of motivational and self-regulatory processes. Mounting empirical evidence indicates that task-oriented coping and disengagement-oriented coping are respectively positively and negatively associated with objective (Bois, Sarrazin, Southon, & Boiché, 2009) and subjective (Nicolas, Gaudreau, & Franche, 2011) indicators of goal attainment in sport.

The relationship between passion and indicators of achievement appears to be more complex. Although some studies have reported nonsignificant direct associations between passion and performance (e.g., Vallerand et al., 2007), both types of passion have sometimes been found to positively relate to indicators of sport achievement (e.g., Vallerand et al., 2008, Study 1). Recently, Vallerand (2010, p. 143) suggested that “research on passion and performance suggests the existence of two roads leading to
performance attainment.” This statement originates from the idea that, although HP is generally related to more positive experiences in sport compared with OP, both harmoniously and obsessively passionate individuals are willing to invest considerable time and effort in the pursuit of their passionate quests (Vallerand et al., 2003). Considering the role that effort and goal commitment play in goal attainment (Locke & Latham, 2002), individuals with either an HP or an OP for an activity are likely to mobilize the needed efforts to attain their achievement goals.

The Present Research

On conceptual grounds, the capacity to cope with stressful situations occupies a central role in the complex interplay between motivational tendencies and consequential life outcomes (Amiot et al., 2008). These outcomes in athletes, however, can change over time (Cresswell & Eklund, 2005). Therefore, this study examined whether types of passion predicted changes in burnout and goal attainment during a season, and assessed whether coping mediated these relationships. We expected HP to be positively associated with task-oriented coping and OP to be positively related to disengagement-oriented coping. We also expected HP to be negatively associated with change in burnout, and that task-oriented coping would mediate this relationship. Based on conflicting findings in the literature (Carbonneau et al., 2008; Vallerand et al., 2010), OP was expected to be either positively related or unrelated to change in burnout, but in either scenario, we expected mediation via disengagement-oriented coping. Finally, we predicted that HP would be positively associated with change in goal attainment, and that this relationship would be mediated by task-oriented coping. Obsessive passion was also expected to be positively associated with goal attainment, with disengagement-oriented coping playing a mediating role in this relationship.

Method

Procedure

This study was approved by the University of British Columbia Behavioral Research Ethics Board. At Time 1 (preseason phase of the volleyball season), 438 collegiate volleyball players from 35 teams provided informed consent and completed pen-and-paper questionnaires measuring passion, burnout, goal attainment, and demographic variables during preseason tournaments and practices. Participants provided an e-mail address that was used to invite participants to complete an online questionnaire 3 months later near the end of the volleyball season. At Time 2, the online questionnaire measured coping, burnout, and goal attainment.

Participants

Of the sample of 438 college- and university-level volleyball players, 143 did not complete the Time 2 questionnaire (32.6% of attrition). Results of attrition analyses indicated that latent scores of our Time 1 variables did not significantly differ between the participants who dropped after the first questionnaire and those who completed both questionnaires: Time 1 HP (B = 0.14, p = .57), Time 1 OP (B = -0.11, p = .79), Time 1 goal attainment (B = 0.63, p = .10), and Time 1 burnout (B = -0.07, p = .68). Seventeen participants were not training because they were either injured at Time 1 or Time 2; these participants were excluded because the goal of our analyses was to measure psychological experiences associated with training. Therefore, 278 eligible athletes participated in this study at both time points. However, provided that data appeared to be missing at random, we decided to use the full information maximum likelihood (FIML) with robust estimation available in Mplus. This approach has several advantages over listwise deletion because it retains sufficient statistical power without systematically biasing the regression coefficients and standard errors (Enders, 2006). Thus, the sample used for the analyses comprised 421 (male n = 219) college- and university-level volleyball players (Mage = 19.68 years, SD = 1.83 years). Participants had competed in volleyball at the collegiate level for an average of 2.28 years (SD = 1.29 years) and in total had been involved with volleyball for an average of 8.14 years (SD = 2.60 years). The majority of participants identified as being Caucasian (88.60%).

Measures

Passion (Time 1). Passion was measured with the Passion Scale (Vallerand, 2010). The Passion Scale consists of two subscales measuring HP (6 items; e.g., “Volleyball is in harmony with the other activities in my life”), and OP (6 items; e.g., “I have difficulties controlling my urge to play volleyball”). To make the items more specific to volleyball, the words “my activity” were replaced with “volleyball.” Items were presented on a scale from 1 (not agree at all) to 7 (very strongly agree). Research using the Passion Scale has provided evidence for validity and reliability of the test scores (Vallerand et al., 2003). The latent variables of HP and OP were each modeled using three separate parcels created with an item-to-construct approach in which the item with the highest loading was anchored with the item with the lowest loading (Little, Cunningham, Shahar, & Widaman, 2002). The composite reliability of the latent variable representing HP (CR = .79) and OP (CR = .83) was adequate.

Coping (Time 2). In this study, we were interested in examining coping with training demands because this particular situation has been identified as a stressor that may play an important role in the development of athletic outcomes (Gustafsson et al., 2008). No measure is currently available to specifically measure coping with the demands of training for competitive sports. Therefore, eight subscales from the Coping Inventory for Competitive Sport (CICS; Gaudreau & Blondin, 2002) were adapted to measure task-oriented coping (mental imagery, thought control, effort expenditure, logical
analysis, relaxation, and seeking support; sample item from the seeking support subscale: “I talk to a trustworthy person”) and disengagement-oriented coping (venting of unpleasant emotions and disengagement-resignation; sample item from the disengagement-resignation subscale: “I wish that the training demands would end immediately”).

The original CICS was designed to measure how athletes had coped during a specific competition. A recent version has been validated to measure habitual coping during sport competitions (Hurst, Thompson, Visek, Fisher, & Gaudreau, 2011). On the basis of prior work, we adapted the CICS to measure habitual coping with training demands. A number of adaptations were made to create the Dispositional Coping Inventory for Competitive Sport Training (DCICS-T): (a) the tense of the items was changed from past to present to measure typical rather than specific coping responses (Hurst et al., 2011), (b) the term “competition” was replaced with the term “training demands,” (c) athletes were asked how they typically manage the training demands associated with volleyball during this season rather than how they had coped during a recent competition or training session, (d) one item was omitted from logical analysis (“I analyze the weaknesses of my opponents”) because this item was deemed not applicable to coping with training demands, and (e) one item was omitted from thought control (“I try not to be intimidated by other athletes”) because it was found to be problematic in unpublished validation studies of the CICS (Gaudreau, 2004). The DCICS-T contains three 3-item subscales and five 4-item subscales, for a total of 29 items that were each rated on scale from 1 (does not correspond at all) to 5 (corresponds very strongly).

We conducted a confirmatory factor analysis with eight correlated latent variables and found that the fit of the DCICS-T was acceptable and comparable to prior work on the original CICS (Gaudreau & Blondin, 2002) and a dispositional version of the CICS (Hurst et al., 2011): $\chi^2 = 557.19$, df = 349, $p < .01$, CFI = .919, TLI = .905, RMSEA = .048, RMSEA 90% CI = .041 – .055, SRMR = .057. In this study, we created four indicators of task-oriented coping and disengagement-oriented coping using a domain-representative approach (Little et al., 2002). The first, second, third, and fourth items of each coping subscale were averaged to create four parcels. The composite reliability of the latent variables of task-oriented coping (CR = .90) and disengagement-oriented coping (CR = .85) was acceptable.

**Burnout (Time 1 and Time 2).** Burnout was assessed using the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2009). The ABQ comprises three 5-item subscales measuring emotional/physical exhaustion (e.g., “I feel overly tired from my participation in volleyball”), reduced sense of accomplishment (e.g., “I am not achieving much in volleyball”), and sport devaluation (e.g., “I’m not into volleyball like I used to be”). Participants were asked to indicate how frequently they experience the content of each item. As recommended by Raedeke and Smith (2009) the words “my sport” were changed to “volleyball” to make the items more sport specific. Items were presented on a scale from 1 (almost never) to 5 (almost always). Evidence for the reliability and validity of the ABQ test scores has been reviewed by Raedeke and Smith (2009). Five indicators of burnout were created using a domain representative approach. The first, second, third, fourth, and fifth items of each of the three subscales of burnout were averaged to create five parcels. The composite reliability of the latent variables of burnout was acceptable at Time 1 (CR = .91) and Time 2 (CR = .90).

**Goal Attainment (Time 1 and Time 2).** Goal attainment was measured using the Attainment of Sport Achievement Goals Scale (A-SAGS; Gaudreau, Amiot, Blondin, and Blanchard, 2002, as cited in Gaudreau and Blondin, 2004). The A-SAGS is a 12-item scale that contains three 4-item subscales measuring three categories of goal attainment: mastery (e.g., “During the past four weeks, I have been executing my movements correctly”); self-improvement (e.g., “During the past four weeks, I have been doing my best performances of the season”); and performance (e.g., “During the past four weeks, I have been showing that I am superior to other athletes”). Items of the A-SAGS were rated on a scale ranging from 1 (does not correspond at all) to 7 (corresponds completely). Athletes responded to the items of the A-SAGS in relation to their experiences during the previous four weeks of training. Previous research has provided evidence of reliability and validity of the test scores of the A-SAGS (Gaudreau & Antl, 2008; Gaudreau & Blondin, 2004). The first, second, third, and fourth items of each of the three subscales of goal attainment were averaged to create four parcels. The composite reliability (Time 1 = .90, Time 2 = .93) of goal attainment was acceptable.

**Overview of Analyses**

Structural equation modeling with latent variables was used to examine the proposed model using true latent change modeling (Steyer, Partchev, & Shanahan, 2000). All analyses were conducted using Mplus 6.12 with the maximum likelihood estimator robust (MLR) to account for potential multivariate non-normality of the data. Although fit indices remain controversial (Barrett, 2007) and should not be interpreted as “golden rules” (Marsh, 2007), we relied on multiple fit indices and “sources of evidence” (e.g., interpretation of parameter estimates, model comparison, theoretically driven hypotheses) to evaluate the tenability of the proposed model (Marsh, Martin, & Jackson, 2010, p. 444). The fit of the model was evaluated using the MLR chi-square (MLR$\chi^2$), the confirmatory fit index (CFI), Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA). For the CFI and TLI, values from .90 to .94 indicate acceptable model fit although values of .95 or greater are preferable (Hu & Bentler, 1999). Values smaller than .08 for the RMSEA can be interpreted as an indication of acceptable model fit, whereas values smaller than .06 suggest a relatively good fit. In addition, the model was assumed to reach close fit when the upper bound
of the RMSEA 90% CI was below .06 (Hancock & Freeman, 2001). Scaled difference in MLR $\chi^2$ between nested models was calculated using an online calculator available on the website of Scott Colwell: http://www.uoguelph.ca/~scolwell/lldiftest.html. Standard errors of parameters were corrected for non-normality.

**Results**

**Measurement Model**

The measurement model was tested using the three-step approach for modeling true intraindividual change latent variables (Steyer et al., 2000). A first measurement model was tested in which each of the 32 indicators loaded on one of the eight latent variables. The error terms of the indicators of goal attainment and burnout were free to correlate across the two measurement points. The eight latent variables were free to correlate. This model provided an acceptable fit: MLR $\chi^2 = 876.50$, $df = 427$, $p < .01$, CFI = .937, TLI = .926, RMSEA = .050, RMSEA 90% CI = .045–.055, SRMR = .055. A second measurement model was tested in which the free factor loadings of goal attainment and burnout were constrained to equality across time. The addition of these equality constraints—a prerequisite to create true intraindividual change latent variables—did not worsen the fit of the measurement model: $\Delta$MLR $\chi^2 = 10.51$, $df = 7$, $p > .05$; ACFI < .02. The fit of this model was acceptable: MLR $\chi^2 = 887.01$, $df = 434$, $p < .01$, CFI = .936, TLI = .927, RMSEA = .050, RMSEA 90% CI = .045–.054, SRMR = .056.

Finally, a true change measurement model was tested to create latent variables that would represent true intraindividual change in goal attainment and burnout (see Figure 1 for the exact model specifications). This true change measurement model provided an acceptable fit: MLR $\chi^2 = 22.95$, $df = 4$, $p < .01$. The fit of this model was acceptable: MLR $\chi^2 = 878.37$, $df = 435$, $p < .01$, CFI = .938, TLI = .929, RMSEA = .049, RMSEA 90% CI = .045–.054, SRMR = .056. Foremost, this model enabled the estimation of the total effect between the independent and the dependent variables as well as its decomposition into direct and indirect effects. Indirect effects were tested using 95% biased-corrected bootstrapped confidence intervals estimated using the ML estimator because these estimates are not available using the ML robust estimator in Mplus. The significance of the indirect effects was tested by focusing on the magnitude of these effects, and coping was considered to act as a suppressor if the sign of the indirect effect was opposite to that of the total effect, while mediation was supported if the sign of the indirect effect was the same as the total effect (Rucker, Preacher, Tormala, & Petty, 2011).

Our hypotheses predicted that coping would act as a mediator, meaning that the direct relationships between passion types and both outcomes would be attenuated when coping was included in the model. However, in the absence of a direct effect, the expected relationships between passion types, coping tendencies, and both outcomes would suggest that coping in this situation would act as a suppressor; that is, after controlling for coping in the model, the direct relationships between passion types and outcomes would strengthen (MacKinnon, Krull, & Lockwood, 2000; Paulhus, Robins, Trzesniewski, & Tracy, 2004). This appeared to be the case in our analysis. Table 1 reports the results of our analysis, which indicated that (a) task-oriented coping significantly suppressed the relation between HP and changes in goal attainment, and (b) disengagement-oriented coping significantly suppressed the relation between OP and changes in goal attainment, and (c) disengagement-oriented coping significantly suppressed the relation between OP and changes in burnout. No mediator or suppression effects reached significance.

**True Change Structural Model**

The true change structural model was tested to examine the proposed associations between Time 1 passion, Time 2 coping, and changes in both burnout and goal attainment. A first model, which assumed full mediation, included direct paths between passion and coping as well as the direct paths of coping with the latent variables of changes in burnout and goal attainment. Three model specifications deserve further explanations. First, the relation between a latent variable at Time 1 and its corresponding latent change variable (e.g., Time 1 burnout on change in burnout) was freely estimated to create a latent variable that would specifically measure true latent change (rather than changes contaminated by baseline level on that variable). Second, Time 1 burnout and goal attainment were also set to predict coping at Time 2. These two model specifications allowed us to control for interindividual differences in baseline level of goal attainment and burnout to estimate the unique incremental effect of passion variables on coping. Third, HP and OP were both set to predict task-oriented and disengagement-oriented coping whereas both dimensions of coping were set to predict latent changes in burnout and goal attainment. In a similar manner as the partial correlation used by passion researchers (e.g., Vallerand et al., 2003), these model specifications were needed to partial out the effect of one dimension of passion from the effect of the other dimension. All aforementioned model specifications were kept in all analyses (even if nonsignificant) to provide a more stringent test of the proposed model. This true change structural model provided an acceptable fit: MLR $\chi^2 = 890.27$, $df = 439$, $p < .01$, CFI = .936, TLI = .928, RMSEA = .049, RMSEA 90% CI = .045–.054, SRMR = .058.

A second model, which assumed partial mediation, added four direct paths between the Time 1 passion latent variables and the latent changes in goal attainment and burnout. This model provided a significantly better fit: $\Delta$MLR $\chi^2 = 27.46$, $df = 4$, $p < .01$. The fit of this model was acceptable: MLR $\chi^2 = 878.37$, $df = 435$, $p < .01$, CFI = .938, TLI = .929, RMSEA = .049, RMSEA 90% CI = .045–.054, SRMR = .056. Foremost, this model enabled the estimation of the total effect between the independent and the dependent variables as well as its decomposition into direct and indirect effects. Indirect effects were tested using 95% biased-corrected bootstrapped confidence intervals estimated using the ML estimator because these estimates are not available using the ML robust estimator in Mplus. The significance of the indirect effects was tested by focusing on the magnitude of these effects, and coping was considered to act as a suppressor if the sign of the indirect effect was opposite to that of the total effect, while mediation was supported if the sign of the indirect effect was the same as the total effect (Rucker, Preacher, Tormala, & Petty, 2011).

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Table 1  Error-Free Correlations From the True Change Measurement Model

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tbody>
<tr>
<td>1</td>
<td>Harmonious passion (Time 1)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Obsessive passion (Time 1)</td>
<td>.583**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>3</td>
<td>Goal attainment (Time 1)</td>
<td>.308**</td>
<td>.193**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4</td>
<td>Athletic burnout (Time 1)</td>
<td>— .512**</td>
<td>— .201**</td>
<td>— .325**</td>
<td>— —</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5</td>
<td>Task-oriented coping (Time 2)</td>
<td>.375**</td>
<td>.321**</td>
<td>.276**</td>
<td>— .217**</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>Disengagement-oriented coping (Time 2)</td>
<td>— .158*</td>
<td>.102</td>
<td>.021</td>
<td>.487**</td>
<td>— .068</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7</td>
<td>Goal attainment change (Time 2 – Time 1)</td>
<td>— .072</td>
<td>.016</td>
<td>— .457**</td>
<td>— .028</td>
<td>.165*</td>
<td>— .301**</td>
<td>—</td>
</tr>
<tr>
<td>8</td>
<td>Athletic burnout change (Time 2 – Time 1)</td>
<td>.138</td>
<td>— .054</td>
<td>.269**</td>
<td>— .257**</td>
<td>— .083</td>
<td>.290**</td>
<td>— .447**</td>
</tr>
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</table>

Note. N = 421. **p < .01. *p < .05.
in the relationship between HP and changes in burnout. Standardized parameter estimates are reported in Figure 2.5

Discussion

This study assessed the role of coping in the relationship between types of passion and changes in burnout and goal attainment between the start and end of a competitive season. We tested a model that predicted true intraindividual change in burnout and goal attainment from levels of HP and OP and task- and disengagement-oriented coping, and the results supported a model whereby coping suppressed the relationship between passion types and changes in these stress-related outcomes.

Passion, Coping, and Changes in Burnout and Goal Attainment

In support of our hypotheses, coping was identified as a mediating variable between both types of passion and changes in burnout and goal attainment. The relation between HP and changes in goal attainment was suppressed by task-oriented coping, whereby controlling for this coping dimension strengthened the direct association. Task-oriented strategies such as effort exertion, thought control, and logical analysis may help individuals develop skills and mobilize resources that could be used when striving for desired goals, and can enable athletes to actively confront demands that may impede goal progress. Disengagement-oriented coping, on the other hand, suppressed the relationship between OP and changes in both goal attainment and burnout. Disengagement-oriented coping strategies may reduce an athlete’s ability to manage training demands and resulting emotions by drawing inner resources away from the demands of the situation, which may lead to changes in goal attainment and burnout over time. The overall pattern of these relationships suggests that HP is associated with coping tendencies that can positively predict changes in goal attainment, whereas OP is associated with coping tendencies that can positively predict changes in burnout and negatively predict changes in goal attainment. By altering these coping tendencies, passionate athletes may be able to experience more positive and fewer negative stress-related outcomes.
Table 2  Standardized Estimates of Total, Direct, and Indirect Effects With 95% Biased-Corrected Bootstrap Confidence Intervals

<table>
<thead>
<tr>
<th>Paths</th>
<th>Total Effect</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
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<tr>
<td></td>
<td>( \beta )</td>
<td>95% CI</td>
<td>( \beta )</td>
</tr>
<tr>
<td>Harmonious passion ( \rightarrow ) changes in goal attainment</td>
<td>–.079</td>
<td>[–.236, .078]</td>
<td>–.162*</td>
</tr>
<tr>
<td>Task-oriented coping</td>
<td></td>
<td></td>
<td>( .067^* )</td>
</tr>
<tr>
<td>Disengagement-oriented coping</td>
<td></td>
<td></td>
<td>( -.016 )</td>
</tr>
<tr>
<td>Obsessive passion ( \rightarrow ) changes in goal attainment</td>
<td>( .123 )</td>
<td>[–.13, .258]</td>
<td>( .143^* )</td>
</tr>
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<td>Task-oriented coping</td>
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<td></td>
<td>( .046 )</td>
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<tr>
<td>Disengagement-oriented coping</td>
<td></td>
<td></td>
<td>( -.067^* )</td>
</tr>
<tr>
<td>Harmonious passion ( \rightarrow ) changes in burnout</td>
<td>( .088 )</td>
<td>[–.114, .290]</td>
<td>( .151 )</td>
</tr>
<tr>
<td>Task-oriented coping</td>
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<td>( -.031 )</td>
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<tr>
<td>Disengagement-oriented coping</td>
<td></td>
<td></td>
<td>( -.032 )</td>
</tr>
<tr>
<td>Obsessive passion ( \rightarrow ) changes in burnout</td>
<td>( -.169^* )</td>
<td>[–.330, –.008]</td>
<td>( -.276^* )</td>
</tr>
<tr>
<td>Task-oriented coping</td>
<td></td>
<td></td>
<td>( -.021 )</td>
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<tr>
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<td>( .129^* )</td>
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</tbody>
</table>

Note. Estimated with ML estimator because bootstrapped confidence intervals are not available with the robust ML estimator in Mplus. \( ^* p < .05 \).
A suppressor variable increases the predictive validity of another set of variables when it is included in an analysis (MacKinnon et al., 2000), and this appeared to be the case in our analysis. Overall, the total effects (i.e., ignoring coping from the analysis) between both types of passion and changes in burnout and goal attainment conflict with our a priori hypotheses and with previous research studying these associations. We expected both types of passion to be positively associated with goal attainment, and although the zero-order correlations between passion types and goal attainment at Time 1 supported this hypothesis, no association was found between passion types and changes in goal attainment. In addition, previous research has found athlete burnout to be negatively associated with HP and either positively related or unrelated to OP (Curran et al., 2011; Gustafsson et al., 2011); however, we found that change in athlete burnout was unrelated to HP and negatively related to OP. There may be two reasons for these inconsistencies. First, previous research that studied the passion–burnout connection in athletes relied on cross-sectional designs, and this study extended this research by examining changes in burnout between the start and end of a season. While HP may be negatively associated with athlete burnout when measured concurrently, our results suggest that HP is not directly related to changes in burnout over time. Second, although HP is generally associated with more adaptive outcomes in sport relative to OP, athletes with an OP may fare better than their harmoniously passionate counterparts in certain highly competitive and demanding environments. Amiot, Vallerand, and Blanchard (2006) found that hockey players in highly competitive leagues reported higher levels of psychological adjustment if they reported having an OP rather than an HP for hockey. Certain features of the collegiate volleyball environment, such as performance pressure, time commitments, travel schedule, and competing obligations (i.e., academics) can create a person–environment fit for athletes with an OP, which may be responsible for experiencing fewer symptoms of burnout over the course of a season. Future research testing the person–environment fit hypothesis in collegiate sport is warranted.

Passion and Coping

The relations between passion and coping are not only important to better understand changes in burnout and goal attainment, but they also further our understanding of how passionate athletes adapt and self-regulate when confronted with setbacks, challenges, demands, and threats (Bélanger, Lafrenière, Vallerand, & Kruglanski, 2013). Future research should investigate the processes that could explain the passion–coping relationship. For example, motivation is linked with both passion and coping, and research is needed to determine whether relationships between types of passion and coping remain after controlling for motivational regulation. Cognitive appraisal, a process that is inherent in the stress process (Lazarus & Folkman, 1984), should also be considered as a potential mediator of the passion–coping relationship because athletes with more HP and OP may tend to appraise person–environment transactions differently, which may in turn influence their coping strategies.

Limitations and Future Directions

A number of limitations of this research should be addressed. First, the correlational design of this study does not allow causality to be inferred. Although changes in burnout and goal attainment were assessed, future research using an experimental design is needed to replicate the relationships found in this study. Second, this study approached coping from a dispositional perspective, and future research may wish to replicate this study using a process approach, and ask athletes to recall coping strategies that were used in a recent competition, or adopt a daily process method to provide daily accounts of their coping efforts (see Crocker, Mosiewich, Kowalski, & Besenski, 2010). Third, this study focused on training demands in general, and future research may consider examining passion–coping–outcome relationships for important specific training stressors, such as time and physical/emotional demands (Crocker et al., 2010). In addition to mediating the relationships between passion and burnout and goal attainment, coping may also moderate the connection that these two outcomes have with perceived stress, and future research could test models that would conceive coping as both a mediator and a moderator (Muller, Judd, & Yzerbyt, 2005; Wu & Zumbo, 2008). Finally, the sample used in this study consisted of collegiate-level volleyball players, and future research is needed to replicate these results with athletes who participate in other sports at different levels of competition. Replication with independent samples is needed in order for the proposed model to generalize to other populations, and until this is done, the relationships that we found cannot extend beyond the current sample. Despite these limitations, this study contributes to the literature by revealing the indirect role of coping with training demands in the differential associations of HP and OP with changes in burnout and goal attainment during the course of a competitive season.

Notes

1. The distinction between HP and OP is closely related to the distinction made in self-determination theory between intrinsic and extrinsic forms of motivation; however, a fundamental difference between these concepts is the relationship that the activity has with the self. According to the dualistic model of passion, although an activity that is intrinsically or extrinsically motivating can be integrated into the self, an activity that is a passion is a more fundamental part of the individual’s identity (Vallerand, 2010). For instance, individuals with an HP or an OP for volleyball would call themselves “volleyball players,” while the same may not be said for those who are intrinsically or extrinsically motivated to play volleyball. In addition, both harmoniously and obsessively passionate individuals are those who like or love the activity, whereas those who are intrinsi-
cally or extrinsically motivated may not have this same type of special relationship with the activity (Vallerand, 2010). Previous research has found that associations between HP, OP, and outcomes such as positive and negative affect have remained after controlling for intrinsic and extrinsic motivation (e.g., Vallerand et al., 2003, Study 2).

2. The Passion Scale also contains four items assessing the passion criteria outlined by Vallerand et al. (2003). We chose not to exclude participants who failed to qualify as being “passionate” for volleyball (i.e., those who scored below a certain threshold on each of these four items) to have maximal power for our SEM analysis.

3. The negative correlation between Time 1 burnout and Time 2 change in burnout should be interpreted as an association between baseline score of burnout and true latent change in burnout rather than as a typical estimate of test–retest stability. The same interpretation applies to the correlation between Time 1 goal attainment and Time 2 change in goal attainment.

4. Some researchers have recommended against using the terms “full” or “partial” mediation (e.g., Rucker, Preacher, Tormala, & Petty, 2011). We use the terms here to differentiate between the two structural models that we tested, which specified different direct and indirect paths between the latent variables.

5. Volleyball players were nested in teams, and a complementary true change structural model was tested in which this clustering effect was added as a nuisance parameter to estimate unbiased standard errors of the parameter estimates (O’Connell & Reed, 2012; Stapleton, 2008). All of the significant parameters in Figures 1 and 2 remained statistically significant using these unbiased standard errors. Accounting for nesting of the data (or not) did not alter the statistical significance of the parameters and the interpretation of the results. We decided to present the results with the regular standard errors because the unbiased standard errors of some parameters may not be trustworthy because the model contains more parameters than the number of teams/clusters in the dataset.

Acknowledgments

This research was funded by the Social Sciences and Humanities Research Council of Canada and by a Faculty of Education Graduate Award from the University of British Columbia awarded to the first author and a Teaching Release Award from the Faculty of Social Sciences awarded to the second author. We also thank Mark Beauchamp for his collaboration during the design of this project and Kristina Kljajic for her help in preparing this manuscript.

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Manuscript submitted: October 16, 2012
Revision accepted: January 12, 2013