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The Roles of the Talent Development Environment on Athlete Burnout: A Qualitative Study

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1 Abstract

2 Grounded on basic psychological needs theory (Deci & Ryan, 2000), this qualitative study
3 investigated the impacts of the talent development environmental factors on athlete burnout.
4 Talented youth athletes with high and low burnout levels ($n = 38$; each group had 19
5 participants) were recruited to attend focus-group interviews. Thematic analysis led to five
6 environmental themes: long-term development focus, holistic quality preparation, support
7 network, communication, and alignment of expectations. Athletes with high burnout levels
8 were likely to experience more detrimental and less conducive talent development
9 environmental antecedents compared to those who were with low burnout levels. It was
10 concluded that the talent development environmental factors are important antecedents for
11 burnout prevention.

12 *Keywords:* athletic development, environmental factors, needs, exhaustion, sport

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1 The Roles of the Talent Development Environment on Athlete Burnout: A Qualitative Study

2 Athlete burnout is defined as “a syndrome of physical/emotional exhaustion, sport
3 devaluation, and reduced athletic accomplishment” (Raedeke, 1997, p. 398). *Physical and*
4 *emotional exhaustion* refers to feelings of extreme low energy and tired. *Sport devaluation*
5 describes feelings of detached and negative attitudes toward sport. *Reduced sense of*
6 *accomplishment* is conceived as feelings of lack of improvement and success. Studying
7 athlete burnout is important as athlete burnout is negatively related to health (Cresswell &
8 Eklund, 2006), sports performance (Gustafsson, Kenttä, & Hassmén, 2011), and sports
9 participation (Boiché & Sarrazin, 2007).

10 Given the importance of studying athlete burnout, various models or theoretical
11 frameworks such as cognitive-affective model (Smith, 1986), total-quality-recovery model
12 (Kenttä & Hassmén, 1998), perspective of stress and recovery (Kallus & Kellmann, 2000),
13 and failure-adaptation model (Tenenbaum, Jones, Kitsantas, Sacks, & Berwick, 2003) have
14 been proposed (see Gustafsson et al., 2011 for reviews of these models). These models
15 generally suggest that athlete burnout is a result of maladaptation to overtraining or
16 insufficient recovery (Goodger, Gorely, Lavallee, & Harwood, 2007). More recently,
17 increasing research has applied basic psychological needs theory (BPNT) for studying athlete
18 burnout (Li, Wang, Pyun, & Kee, 2013; Perreault, Gaudreau, Lapointe, & Lacroix, 2007).
19 BPNT provides a different perspective for understanding athlete burnout when compared to
20 those aforementioned frameworks and models.

21 **Needs Satisfaction and Burnout**

22 According to BPNT (Deci & Ryan, 2000), people have three basic psychological
23 needs: autonomy (the need to have ownership of actions and choices), competence (the need
24 to feel competent in accomplishing optimally challenging tasks), and relatedness (the need to
25 sense belongings and connectedness). BPNT posits that people’s three basic psychological

1 needs must be satisfied for positive functioning and growth (Deci & Ryan, 2000). On the
2 other hand, needs dissatisfaction and even thwarting will result in negative outcomes such as
3 burnout (Deci & Ryan, 2000). The tenets of BPNT have been supported by several empirical
4 studies. Specifically, early studies have shown that needs satisfaction was negatively related
5 to athlete burnout (e.g., Hodge, Lonsdale, & Ng, 2008; Perreault et al., 2007; Quedstedt &
6 Duda, 2011), whereas needs thwarting was positively associated with athlete burnout (e.g.,
7 Balaguer et al., 2012; Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani,
8 2011).

9 BPNT also considers the impacts of the environmental antecedents on needs
10 satisfaction, dissatisfaction, and thwarting (Deci & Ryan, 2000). Positive environmental
11 factors (e.g., parental support) will enhance one's three basic psychological needs while
12 negative environmental antecedents (e.g., lack of feedback) will negatively affect needs
13 satisfaction. A close examination on environmental factors has been recommended to
14 understand critical antecedents of athlete burnout (Curran, Appleton, Hill, & Hall, 2011;
15 Quedstedt & Duda, 2011). Guided by BPNT (Deci & Ryan, 2000), environmental antecedents
16 of athlete burnout were examined in early research. Quantitative research has consistently
17 showed that coaching environments such as interpersonal styles were associated with athletes'
18 burnout level (e.g., Balaguer et al., 2012; Quedstedt & Duda, 2011). These quantitative findings
19 support the tenets of BPNT.

20 A few qualitative studies also investigated the impacts of the environmental
21 antecedents on athlete burnout through the lens of BPNT. Cresswell and Eklund (2006)
22 interviewed adult New Zealand professional rugby players with various burnout levels and
23 reported that burnout experiences were more likely to be found in players who failed to meet
24 needs satisfaction of competence and autonomy due to situational and environmental
25 demands (e.g., heavy training loads, injuries, and competitive rugby environments). These

1 qualitative findings were replicated with adult professional rugby players from New Zealand
2 and United Kingdom (Cresswell & Eklund, 2007a, 2007b). More recently, Gustafsson,
3 Hassmén, Kenttä, and Johansson (2008) interviewed adult Swedish athletes and found that
4 antecedents (e.g., multiple demands, lack of recovery, and high expectations) affected
5 athletes' competence and burnout experiences. In short, a qualitative approach examining
6 environmental antecedents of athlete burnout has received little attention from scholars
7 (Goodger et al., 2007).

8 **Environment, Needs Satisfaction, and Burnout**

9 One of the important contextual antecedents of athlete burnout may be the talent
10 development environment. The talent development environment concerns every aspect of the
11 environments, where athletes with athletic potential are situated (Henriksen, 2010; Martindale,
12 Collins, & Daubney, 2005). Several talent development environmental factors that are
13 important for effective talent development have been identified based on comprehensive
14 literature reviews (Li, Wang, & Pyun, 2014; Martindale et al., 2005). These key talent
15 development environmental factors were further conceptualized as a five-factor framework
16 (Li, Wang, Pyun, & Martindale, 2015). The five factors are long-term development focus
17 (e.g., fundamental development), holistic quality preparation (e.g., clear training guideline),
18 support network (e.g., sports science support), communication (e.g., feedback), and alignment
19 of expectations (e.g., goal setting; see Li et al., 2015).

20 According to BPNT (Deci & Ryan, 2000), environmental antecedents within the five-
21 factor framework may affect athlete burnout via the three basic psychological needs. The
22 characteristics of the five effective talent development environmental factors are to
23 deemphasize winning, give choices in training, adjust goals regularly, provide tasks with
24 optimal challenges, and offer interpersonal support (Li et al., 2015). These effective
25 environmental antecedents are expected to nurture athletes' autonomy, competence, and

1 relatedness. For example, de-emphasize on winning helps athletes to understand that winning
2 is not very important at early developmental stages, which will enhance their autonomy.
3 Offer training tasks with optimal challenges to athletes will help them develop their motor
4 skills and competence. Provide interpersonal support will make athletes feel connected with
5 others and facilitate their relatedness (Deci & Ryan, 2000). The three satisfied basic
6 psychological needs will then help to prevent athlete burnout (Hodge et al., 2008; Quested &
7 Duda, 2011). On the other hand, negative environmental antecedents (e.g., winning at all
8 costs, unclear training guideline, and negative feedback) will negatively affect and even
9 thwart athletes' needs satisfaction, and consequently contribute to athlete burnout (Balaguer
10 et al., 2012; Bartholomew et al., 2011). However, direct evidence regarding the impacts of
11 the talent development environmental antecedents on athlete burnout was lack.

12 **The Current Study**

13 In summary, little attention has paid to investigate the environmental antecedents of
14 athlete burnout from a qualitative perspective (Goodger et al., 2007). There was lack of direct
15 evidence supporting the impacts of the talent development environmental factors on athlete
16 burnout. Further, it has been suggested that future studies should compare environmental
17 antecedents for athletes with different burnout levels (Eklund & Crewell, 2007). Therefore,
18 this qualitative research aimed to explore the impacts of the talent development
19 environmental factors on burnout experiences among athletes with low and high burnout
20 levels. Specifically, how talented athletes with two contracting burnout levels experienced
21 their talent development environmental antecedents were explored through focus group
22 interviews. The interview findings were interpreted using BPNT (Deci & Ryan, 2000).

23 **Method**

24 **Participants**

1 Participants ($n = 38$, male = 20, female = 18) were talented youth athletes sampled
2 from five schools hosting talent development programs in Singapore. Participants had a mean
3 age of 14.08 years ($SD = 1.00$) and participated in a variety of sports such as basketball,
4 football, hockey, shooting, and swimming. On average, participants had involved in their
5 sport for 5.91 ($SD = 2.66$) years. They were purposefully selected based on their burnout
6 scores measured by the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). In line with
7 the definition of athlete burnout, the scale measures three burnout factors: physical and
8 emotional exhaustion, sport devaluation, and reduced sense of accomplishment (see Raedeke
9 & Smith, 2001). Reliability and validity of the scale has been supported (e.g., DeFreese &
10 Smith, 2014; Quested & Duda, 2011; Raedeke & Smith, 2001). The subscale score can range
11 from 1 to 5. A higher subscale score indicates a greater burnout level (Raedeke & Smith,
12 2001). The three burnout factors showed adequate internal reliability with the current sample
13 ($\alpha s = .75$ to $.95$).

14 As there were not well established cut-off values for determining high and low
15 burnout levels, the criteria created in the early studies were followed (Cresswell & Eklund,
16 2006; Cresswell & Eklund, 2007b). Accordingly, the high burnout group ($n = 19$) referred to
17 those players who had high scores on all burnout factors ($M s = 3.43$ to 4.19 , $SD s = 0.44$ to
18 0.60) and the low burnout group participants ($n = 19$) were those players who had low scores
19 on all burnout factors ($M s = 1.37$ to 2.41 , $SD s = 0.47$ to 0.75). The results of independent t -
20 tests showed that there was a significant difference in burnout scores between the two groups
21 with very large effect sizes ($p s < .01$, $d s = 1.94$ to 6.06 ; Cohen, 1988). Thus, the sampling
22 strategy enabled researchers to investigate how the perceived talent development
23 environmental factors may lead to the two different burnout levels.

24 **Interview Guide and Procedures**

1 Ethics approval was obtained from the principal investigator's institution. Before the
2 data collection, ethical clearance and informed consent were obtained. An interview guide
3 was developed based on the literature of talent development (e.g., Li et al., 2014; Martindale
4 et al., 2005) and past studies on athlete burnout (e.g., Gustafsson, Kenttä, Hassmen,
5 Lundqvist, & Durand-Bush, 2007). Questions of the interview guide mainly revolved around
6 the effects of respective talent development environmental factors on their perceptions of
7 burnout symptoms (e.g., "what were the factors that kept you in your sport?"). Follow-up
8 probes were used to obtain detailed responses. The interview guide is available from the first
9 author upon request.

10 Forty-six athletes were contacted via their head coach or department head, and 38 of
11 them agreed to attend focus group interviews. Eight participants declined to attend the
12 interview because of their tight schedule. The interviews were arranged about 2 to 4 weeks in
13 advance under the help of head coaches or department heads. Participants from the same
14 school formed a focus group for eliciting more discussions among them (Krueger & Casey,
15 2000). Each focus group had six to ten participants, and the group size was considered
16 suitable (Krueger, 1994). Given the suitable size of each focus group and the good sampling
17 strategy (i.e., between group differences were well controlled), five interviews were
18 conducted to achieve "data saturation" (Zeller, 1993). Namely, no new codes emerged after
19 completing the five interviews. All focus group interviews were conducted in quite
20 classrooms or consulting rooms, where group members sat around a table to make them feel
21 at ease. Using focus group interviews has several advantages: (a) the technique allows
22 researchers to tap the views of a number of participants in groups; (b) this method provides
23 information derived from interactions among participants; (c) the interviewing approach
24 offers a relative "safe" forum for participants to express their views; and (d) participants may
25 feel to be supported in a sense of group memberships (Krueger & Casey, 2000).

1 A primary researcher and/or a sport psychologist conducted and coordinated all the
2 interviews. Before commencing on an interview, participants were informed the objective of
3 the interview, the procedure, and their right to refrain from answering any questions. All the
4 interviews were audio-taped, and written field notes were also taken (Krueger, 1994). The
5 term burnout was not mentioned once participants understood the term to minimize the
6 sensitivity of being stigma of burnout (Gustafsson et al., 2008). Instead, this sensitive term
7 was replaced by other terms such as “motivation loss” and “negative feelings at this stage”
8 (Cresswell & Eklund, 2007b; Gustafsson et al., 2008). All the interviews were conducted in
9 English, and the duration of interviews ranged from 44 to 82 ($M = 60$) minutes.

10 **Data Analysis**

11 The audio tapes and field notes were converted to verbatim transcriptions. To ensure
12 that participants’ responses were kept confidential, each participant was assigned by a unique
13 code. For example, H1 referred to the first interviewee in the high burnout group, and L2
14 referred to the second interviewee in the low burnout group. Thematic analysis was used for
15 analyzing the transcribed data. Both inductive and deductive analytic approaches were
16 applied (Hsieh & Shannon, 2005). The inductive analysis was first conducted without trying
17 to fit into the five-factor framework of the talent development environment. The inductive
18 approach included three steps: (a) coding participants’ statements according to their key
19 concepts, (b) combining the coded concepts, and (c) refining the identified themes (Fiese &
20 Bickman, 1998). Deductive analysis was then employed to identify the themes in the data in
21 light of the five-factor framework (e.g., Li et al., 2015) after the inductive approach. The use
22 of both inductive and deductive approaches ensured that data analysis was guided by both the
23 collected data (athletes’ descriptions of their experiences) and the theory (the five-factor
24 framework). The data were analyzed by the primary researcher. However, to avoid
25 subjectivity and potential bias of data interpretations, another sport psychologist who has

1 expertise in qualitative research reviewed and agreed the primary researcher's explanations
2 on the data (Marshall & Rossman, 2006).

3 **Trustworthiness**

4 Trustworthiness was established through several steps. Firstly, open-ended questions
5 were carefully structured to ensure truly open-ended responses from our participants (Patton,
6 2002). Secondly, the primary researcher and the sport psychologist were well trained in
7 qualitative research methods, and they conducted all the interviews. As such, they were able
8 to generalize discussions on the interview questions (Patton, 2002). Thirdly, more than one
9 focus groups were conducted, and the results were sent back to some of the participants ($n =$
10 18), also known as member checks, to see if any changes were required to establish the
11 credibility of the findings (Krueger, 1994; Patton, 2002). Those participants required no
12 further changes. Finally, the preliminary findings were verified by the other two independent
13 researchers. They discussed the identified dimensions and sub-themes to reached consensus
14 (Marshall & Rossman, 2006).

15 **Results and Discussion**

16 Similarities and differences in the raw data were conceptualized and led to 18 sub-
17 themes, and these sub-themes were represented by five higher-order dimensions of the talent
18 development environmental factors that influenced burnout experiences. The five dimensions
19 were long-term development focus, holistic quality preparation, support network,
20 communication, and alignment of expectations. The results support the five-factor framework
21 of talent development environment (Li et al., 2015). A breakdown of the five dimensions was
22 presented in Table 1. Most sub-themes were common across the two burnout groups, and a
23 few were unique in either group. Environmental antecedents between the two groups were
24 compared if they shared a common sub-theme. Each of the dimensions and sub-themes are
25 explained in detail below.

1 **Long-Term Development Focus**

2 According to Ericsson (2007), it takes a long-term journey, may be ten years, for
3 athletes to achieve sporting success. The dimension of long-term development focus
4 represents the extent to which talent development programs are specifically designed to
5 facilitate long-term sporting success (Li et al., 2015). Four sub-themes under this dimension
6 emerged: selection pressure, developmental rationales, mistakes, and winning.

7 **Selection pressure.** It has been suggested that practitioners should select as many
8 youth talents as possible to let them involve in training and competitions, as well as to
9 maintain the size of talented pool in talent development programs (Martindale, Collins, &
10 Abraham, 2007). Several athletes in the high burnout group, however, described that they had
11 huge pressure from selection process for competitions or from securing a starting position.
12 These athletes were unable to control the situation, which made them feel exhausted. One
13 athlete explained: “I don’t think I’m good enough to secure my position. Sometimes I was
14 replaced” (H8). This result is similar to the previous studies showing that adult or
15 professional athletes with a high burnout level had to live up to the selection or non-selection
16 issue (e.g., Cresswell & Eklund, 2007b; Gustafsson et al., 2008).

17 It was interesting to find that a few athletes in the high burnout group mentioned that
18 they never worried about the selection because they performed better than their teammates: “I
19 don’t have pressure in selection, because generally I’m selected for competitions” (H1). Most
20 of the athletes with low burnout scores showed no or low pressure from being selected. One
21 athlete commented: “My teammates feel under pressure because I’m always in the starting
22 list” (L2). The current study adds to the literature that one’s ability in sports may compound
23 the selection pressure. It seems that athletes who were usually selected had lower selection
24 pressure compared with those who were seldom selected. In short, the selection pressure
25 might attribute to a high burnout level for some athletes. When these athletes were unable to

1 control the selection pressure and their autonomy was negatively affected (Deci & Ryan,
2 2000).

3 **Developmental rationales.** Providing the rationale for long-term development is a
4 feature of the effective talent development (Martindale et al., 2005). Many interviewees in the
5 high burnout group did not realize the pathway to be an elite performer is very long. This
6 made them feel incompetent and thwarted their competence. On the contrary, a few
7 participants in the low burnout group mentioned that they knew that it could take a long time
8 for them to be a good athlete and/or to be involved in a high-level competition. For example,
9 L11 made a remark: “Why I’m not selected, because I’m not as good as other players.” Thus,
10 providing rationales for the long-term athletic development may be perceived to be a positive
11 antecedent for preventing burnout via needs satisfaction. Needs satisfaction of athletes was
12 believed to be enhanced through receiving rationales for athletic development (e.g., Adie,
13 Duda, & Ntoumanis, 2012; Kipp & Weiss, 2013).

14 **Mistakes.** A few interviewees with high burnout scores stated that they were afraid of
15 making mistakes in training or competitions because they would be punished if they made
16 mistakes. For example, H8 mentioned that “We are not allowed to make mistakes. If you
17 make mistakes in today’s match, the next day you will definitely get in trouble”. This finding
18 was contrary to the effective feature of long-term development focus, as the athletes were
19 neither allowed to make mistakes nor given long-term opportunities to train or compete.
20 Early studies showed that limited long-term opportunities were credited with causing athlete
21 burnout (Gould, Tuffey, Udry, & Loehr, 1996; Gustafsson et al., 2007). This is because
22 athletes’ autonomy could not be fulfilled when they were given limited long-term
23 development opportunities or lack of ownership for their own development (Ryan & Deci,
24 2000).

1 **Winning.** Many interviewees with low burnout levels mentioned that their coaches
2 required them to focus on improving skills and deemphasizing on winning. Below were a few
3 examples: “He [coach] doesn’t emphasize too much on winning or beating others. But, he
4 says that he wants to see our efforts” (L3); and “He [coach] doesn’t emphasize too much on
5 winning. He asks us to try our best” (L4). In the case that the coach did not focus on winning,
6 it could be because the team was strong and he/she did not have to worry about the winning
7 or losing. One athlete explained: “Our coach doesn’t really emphasize on winning. Our team
8 is quite strong” (L5). Consequently, the positive experience that coaches deemphasized on
9 winning may help athletes to avoid burnout. Past studies also supported deemphasizing on
10 winning was a negative predictor of burnout (e.g., Isoard-Gautheur, Guillet-Descas, & Duda,
11 2013; Reinboth & Duda, 2006). According to BPNT (Deci & Ryan, 2000), knowing the
12 rationale that winning was not important at the early stage of development enhanced athletes’
13 autonomy and thus helped them to prevent burnout.

14 **Holistic Quality Preparation**

15 This dimension represents the extent to which talent development programs are
16 holistically prepared both inside (e.g., coaching) and outside (e.g., social lives) the sports
17 setting (Li et al., 2015). The dimension consisted of four sub-themes: demands, overtraining,
18 good coaches, and social lives.

19 **Demands.** Many student-athletes in the high burnout group mentioned that time was
20 a big demand for sports participation even they realized the importance of training. For
21 example, “During terms 2 and 3, the training was just too much. I was trying to keep up with
22 the training schedule. But I didn’t go for training often during that time, because I didn’t have
23 too much time” (H6). A school demand was another factor that distracted some athletes’
24 training and made them feel stressed and tired: “Study is another main source making me feel
25 stressed. I’m only good at certain subjects...” (H10). It seems that the school demand was a

1 unique environmental antecedent among our student-athletes. This antecedent was not found
2 in early studies with adult professional players (e.g., Cresswell & Eklund, 2006, 2007a).

3 On the contrary, most interviewees in the low burnout group either perceived lower
4 demands from training or study, or were able to cope with the demands as illustrated by the
5 example below: “Besides school and sports, I don’t have other things to do. It is quite easy
6 for me” (L9). A few participants with low burnout scores added that during the period of
7 examination, they felt more anxious and stressed. L18 stated that “I get distracted sometimes
8 especially during the exam period...you can’t really focus on your training”. In short, the
9 interviewees with high burnout scores generally perceived more demands for time and study
10 than the low burnout group. They also felt obligations to invest efforts on sports training
11 when they concurrently had other demands such as spending time on learning. As such, they
12 might feel lack of control for the demands, which undermined their autonomy (Deci & Ryan,
13 2000).

14 **Overtraining.** Many participants with high burnout levels indicated that they were
15 excessively trained and/or lack of recovery. H19 complained that: “The training hours are too
16 long.” The long training hours indirectly shortened their sleeping hours: “I spend most of my
17 time on training and have no time to sleep...I will go home and sleep whenever there’s no
18 training” (H9). Lack of sleep and poor recovery negatively influenced the interviewees’
19 training motivation: “There is really no time for recovery. After you recover over the
20 weekend, Monday comes and everything starts again. The night before the training, I feel like
21 I don’t want to go training” (H5). This is supported by previous studies that the continuing
22 fatigue caused by overtraining and lack of recovery led to athlete burnout (Cresswell &
23 Eklund, 2006; Gould et al., 1996).

24 More reasonable training loads and sufficient recovery, on the other hand, were found
25 in the low burnout group. Several athletes indicated their satisfaction with training loads and

1 sufficient recovery: “I train about 2.5 hours per session. The training load is OK” (L1). High-
2 quality recovery was important for motivating athletes to participate in training: “Usually, it
3 [the tired feeling] doesn’t last for very long...and we recover. We just really want to go for
4 training again” (L7). To sum up, the findings highlighted that overtraining and/or insufficient
5 recovery may result in burnout through the reduced satisfaction of competence. The
6 insufficient recovery might make athletes feel incompetent and inefficient in completing
7 optimally training tasks, which subsequently affected their satisfaction of competence (Ryan
8 & Deci, 2000).

9 **Good coaches.** Many athletes in the high burnout group expressed their
10 disappointments, mentioning that they did not have good coaches to build necessary
11 techniques and skills at their levels. For instance, H1 commented: “My coach can’t coach
12 actually”. Failing to provide an authentic program to help athletes master or improve skills
13 influenced their needs satisfaction of competence (Ryan & Deci, 2000). A few interviewees
14 were unhappy with their coaches because they were criticized or punished by their coaches.
15 An athlete (H15) added that the criticism made him feel controlled and affected his
16 motivation in training. A repetitive training routine also undermined a few athletes’ training
17 motivation: “We train every day and subsequently the same thing over and over again. That is
18 boring” (H16). According to past research (Mouratidis, Lens, & Vansteenkiste, 2010; Podlog
19 & Dionigi, 2009), behaviors such as scolding, punishment, and lack of choices in training
20 were found to negatively affect athletes’ autonomy.

21 For the low burnout group, most interviewees expressed their satisfaction with the
22 coaches such as rich experiences and improvement of weaknesses. A few examples were
23 highlighted as follows: “The coach is good. Basically, she has more experiences than my
24 previous one” (L6); and “My coach is good. She knows our weaknesses well, and she tells us
25 how we can improve” (L16). However, a few interviewees with low burnout levels who were

1 keen to improve their skills noted that they were unsatisfied with their current coaching
2 programs because they were not sophisticated enough. Taken together, the athletes instructed
3 by low-level coaches were less likely to fulfill their basic psychological needs because of the
4 low-quality training programs and controlling behaviors (e.g., scolding, punishment, and lack
5 of choices). On the other hand, having a coach who provided a right coaching program was a
6 good source to build athletes' competence to avoid burnout.

7 **Social lives.** Sacrificing social and recreational activities were found to positively
8 predict burnout (e.g., Gould et al., 1996; Gustafsson et al., 2008). In the current study, a few
9 interviewees with a high burnout level described that they were forced to sacrifice their social
10 lives and spend more time on training: "I have a long-term relationship with my batch mates.
11 Occasionally, we eat outside together. We did more during year 1. Nowadays, we don't have
12 too much time to do that" (H6). Athletes who had no or little time off to stay with friends
13 tended to have a higher burnout level. This is because these athletes were asked to give up
14 recreational activities and social relations, which lowered their degree of autonomy and
15 relatedness (Deci & Ryan, 2000).

16 **Support network**

17 This dimension concerns the extent to which a coherent and approachable support
18 network is available for athletes (Li et al., 2015). Four sub-themes of the dimension emerged:
19 school support, facilities and equipment, parental support, and peer support.

20 **School support.** A few players who reported high burnout scores believed the
21 inflexible school policy that never allowed them to switch to the other sports event caused
22 bad feelings and undermined their motivation to continue sports participation: "I was forced
23 to choose my current sport [discus]" (H4). Similar to H4's descriptions, H2 commented: "I
24 don't want to play this sport [volleyball] anymore. I prefer to play soccer, but I'm not allowed
25 to change". This supports the finding by Coakley (1992) that the social organization of sport

1 (e.g., the school policy inhibits athletes' control over their sports participation) predicted
2 burnout. According to BPNT (Deci & Ryan, 2000), the refrained choice to switch to others
3 sports will undermine athletes' autonomy.

4 In the low burnout group, several interviewees perceived that they had received
5 support from schools and teachers, which relieved their stress and pressure: "They [teachers]
6 will talk to us and comfort us during our stressful time" (L9). Athletes who were living inside
7 schools reported they were able to get close to their classmates or teammates and to build
8 friendship with them (e.g., L15: "It has been OK to stay in the school. I get to know more
9 people and my friends better"). Overall, athletes' autonomy was affected by the inflexible
10 school policy, which did not allow them to change to other sports. Athletes in the low burnout
11 group were supported by the school policy. The school played an important role in enhancing
12 athletes' autonomy and relatedness as well as in reducing their burnout experiences.

13 **Facilities and equipment.** A few interviewees in the high burnout group complained
14 that they had insufficient training facilities. The problem affected their training and emotion.
15 Athletes with high burnout levels might want to participate in training more often but they
16 were unable to control the facility and/or venue issue, which appeared to reduce their degree
17 of autonomy (Podlog & Dionigi, 2009). On the contrary, players with low burnout levels
18 reported they had enough training facilities. A female athlete expressed her happiness with
19 the easy accessibility to her training venue and the flexibility of her training program: "The
20 training venue is just right opposite our campus...when it rains, we can't train in that room
21 and we will do drills instead in other places" (L7). Therefore, the insufficient training
22 facilities might affect athletes' autonomy and competence in sports participation because they
23 were unable to fix the issue and had fewer opportunities to develop their motor skills, which
24 in turn caused burnout.

1 **Parental support.** Negative parental support was occasionally found in the high
2 burnout group. The negative parental support might increase players' burnout level. For
3 example, H17 described her parents were not supportive in her sports participation: " They
4 [parents] will keep asking me why not you just keep off from the track for a while and just
5 focus on your study. I have pressure to perform well from them". This example illustrated
6 how the lack of parental support contributed to burnout and supports the previous findings
7 (e.g., Goodger et al., 2007; Gould et al., 1996). In general, most interviewees from both
8 groups expressed their positive experiences regarding parental support (e.g., support athletes
9 on the spot, provide informational support, and comfort bad feelings). These parenting
10 behaviors can be characterized as autonomy-supportive styles facilitating needs satisfaction
11 because they conveyed caring, encouraging, confidence, and acceptance to athletes (Deci &
12 Ryan, 2000).

13 **Peer support.** Influences of peers and teammates on burnout have received increasing
14 attention from scholars (e.g., DeFreese & Smith, 2014). Most of the interviewees with low
15 burnout levels generally described they received support from their teammates, role models,
16 and/or siblings. The peer support produced many benefits such as enhancing friendships and
17 motivation. However, a few interviewees in the high burnout group showed low sense of
18 belongings with their teammates. They just played alone or played with other people outside
19 the team: "I just don't bother other teammates during basketball training. I go out swimming
20 with other people who are not my teammates" (H7). The nature of sports they were involved
21 could contribute to this behavior or phenomenon, as explained by H4: "We [my teammates
22 and I] just do our own work because of the nature of my sport [discus]. We don't work very
23 closely to each other". In short, in an effort to avoid burnout, it might be of significance to
24 provide peer support as a source to facilitate athletes' relatedness. The nature of sport might
25 influence the positive interactions among teammates.

1 **Communication**

2 Communication refers to the extent to which coaches communicate effectively with
3 athletes in both formal and informal settings (Li et al., 2015). The dimension had three sub-
4 themes: communication climates, feedback, and “mute” coaches.

5 **Communication climates.** Coaches and athletes can be communicated in either an
6 autonomy-supportive way (e.g., acknowledgement of personal feeling) or a controlling
7 fashion (e.g., nonverbal criticism; Mouratidis et al., 2010). According to H5, athletes in the
8 high burnout group felt controlled and incompetent when they were forced to do something
9 that they were not good at: “It is more about what my coach wants, and I have no choice. It is
10 about what he asks you to do, and you just do it”. Even when athletes were asked to provide
11 inputs about their training programs, they perceived that as a negative experience because
12 their coaches never considered the provided inputs: “He [coach] never used our suggestions.
13 That wastes our time; anyhow, don’t ask us” (H10). These results were in line with the
14 findings from the early studies (e.g., Balaguer et al., 2011; Gould et al., 1996). They found
15 that the negative communication climates such as failing to understand athletes and take
16 athletes’ perspectives caused burnout.

17 In the low burnout group, a few participants mentioned that a balance between good
18 and bad communications was acceptable: “There is a balance between the good and bad stuff”
19 (L17). Sometimes, knowing or understanding coaches well helped athletes to get rid of bad
20 moods as remarked by L4: “ I hope my coach don’t shout so much in future. I have known
21 him for long and I quite get used to it, but other athletes who don’t really know him will feel
22 scared”. To sum up, a more autonomy-supportive communicating style (e.g., taking athletes’
23 perspectives and better understanding of coaches) should be implemented. This is important
24 as ineffective communication styles frustrate athletes’ needs satisfaction (Mouratidis et al.,

1 2010). To this end, using the autonomy-supportive communicating fashion may help athletes
2 to relieve and avoid burnout symptoms.

3 **Feedback.** Several interviewees with high burnout scores mentioned that they were
4 discouraged by their coaches' controlling feedback. For example, "My coach often says that I
5 have been training for so long but without making any progress" (H7). On the other hand,
6 coaches provided timely feedback with useful tips during training for the low burnout group:
7 "Rather than just let our problems carry on, he [coach] has been quite good and given quite a
8 lot of reminders to help us solve the problems timely" (L10). The positive feedback increased
9 the training effectiveness and improved athletes' skills, satisfying their needs of competence
10 (Carpentier & Mageau, 2013). One female athlete with low burnout commented that simple
11 encouragement with considerate tone of voice from coaches relieved her tiredness especially
12 during the high intensity training sessions: "Sometimes during the hard training sessions, she
13 compliments us. That makes us feel happy about our performance" (L17). According to
14 Carperntier and Mageau (2013), feedback with a considerate tone of voice was defined as an
15 autonomy-supportive behavior. Thus, the findings from this study suggest that timely
16 feedback with useful tips and a considerate tone of voice may be used to increase athletes'
17 autonomy and competence, which help to prevent burnout.

18 **"Mute" coaches.** Many interviewees in the high burnout group stated that their coach
19 were like a stranger who rarely talked to them, or the conversations between them were only
20 limited to a very general topic. This was illustrated by H5: "When we see the coach in the
21 training, we are likely to say 'hi coach!' and after training we say 'goodbye coach!' That's
22 all". In this situation, these athletes felt that they were not cared, which negatively affected
23 the coach-athlete relationship and relatedness (Mageau & Vallerand, 2003). On the other
24 hand, an interviewee in the low burnout group mentioned that although her coach did not talk
25 to her often, she felt comfortable because she understood the rationale behind that: "She

1 [coach] is more likely to talk to you only when you shot badly without knowing why and
2 when you feel frustrated about your performance” (L6). According to previous studies (e.g.,
3 Carperntier & Mageau, 2013; Mouratidis et al., 2010), it could be useful for athletes to be
4 explained by coaches regarding why they were not provided with feedback. This
5 communication style was considered as a positive behavior facilitating athletes’ needs
6 satisfaction (Mouratidis et al., 2010).

7 **Caring coaches.** Gustafsson et al. (2008) reported that athletes with high burnout
8 scores described their coaches were lack of caring (e.g., no interactions between athletes and
9 coaches outside training). Although this event was not found in the high burnout group, the
10 current study showed that several interviewees in the low burnout group described their
11 positive experiences with their coaches both within and outside training settings. The
12 interacting experiences enhanced the coach-athlete relationship as supported by the following
13 quotes: “I have strong emotional bond with my coach. We are chatting more than just training;
14 some are about my school and life” (L6). In addition, many interviewees with low burnout
15 scores described that they interacted more with their coaches, which enhanced the positive
16 coach-athlete relationship. For example, L9 remarked: “During training he [coach] is very
17 strict... However, outside training, he acts like a friend... That makes us feel good”. This
18 finding was supported by previous studies (e.g., Creswell & Eklund, 2006, 2007). Obviously,
19 the positive coach-athlete interaction made them sense independent and close to their coaches.
20 Hence, caring coaches who made athletes feel being connected may be a positive event to
21 increase their relatedness and then to prevent burnout.

22 **Alignment of Expectations**

23 The dimension of alignment of expectations refers to the extent to which goals for
24 talent development are set and aligned coherently (Li et al., 2015). This dimension had two
25 sub-themes: expectations toward athletes and individual goals.

1 **Expectations toward athletes.** Some high burnout interviewees expressed that they
2 felt pressured to meet their coach's expectations. For example, one athlete said: "Our coach
3 expects too much. You know that he mentioned winning or losing doesn't matter, but he
4 wants us to get the championship title" (H9). Sometimes, athletes felt controlled, as there
5 were discrepancies between a coach's expectations and an athlete's goals. A few athletes with
6 high burnout levels also perceived pressure from their parents' high expectations resulting in
7 incompetence: "My parents hope I can become a good athlete as well as to do well in my
8 study. But I don't think I can make both" (H1). An excessive expectation was also found to
9 be a predictor of athlete burnout in past research (e.g., Goodger et al., 2007; Gustafsson et al.,
10 2008). These athletes might feel controlled and incompetent when they were unable to realize
11 those unrealistic expectations set by their parents and/or coaches, which led them to burnout.
12 On the contrary, several interviewees in the low burnout group perceived no demands of
13 expectations from their coaches and parents: "He [coach] sets realistic goals" (L9); and "My
14 parents don't have a high expectation on me, and they just want me to enjoy the game" (L1).
15 Hence, a more realistic goal may be set to avoid needs frustrations for autonomy and
16 competence.

17 **Individual goals.** Most participants in the high burnout group mentioned that
18 although there were goals for the team, their coaches rarely set a personal goal for each
19 athlete. Even in the case that a personal goal was set, the goal was difficult for an athlete to
20 achieve. For the athletes in the low burnout group, their coaches set personal and task goals
21 that focused on self-improvement: "Her [coach] goal is to help you stay calm before you
22 shoot. It isn't that kind of goal that you should shot 10" (L6). Setting a personal goal based on
23 one's own experiences enhances sport performance (Martindale et al., 2007), which may
24 indirectly reduce the feelings of lack of accomplishment. In addition, a strong self-referenced
25 goal was negatively related to athlete burnout. This is because a self-referenced goal helps

1 athletes to focus on self-improving, which is more controllable compared to an ego-involving
2 goal such as beating others (Isoard-Gauthier et al., 2013; Reinboth & Duda, 2006). As such,
3 setting an individualized and task goal is helpful for improving athletes' sports performance
4 and competence (Deci & Ryan, 2000).

5 **General Discussion**

6 Grounded on BPNT (Deci & Ryan, 2000), this qualitative study was innovative to
7 compare the talent development environmental antecedents between youth athletes with high
8 and low burnout levels. The results led to five effective talent development environmental
9 dimensions (i.e., long-term development focus, holistic quality preparation, support network,
10 communication, and alignment of expectations) that were consistent with the literature (Li et
11 al., 2015). Consistent with BPNT (Deci & Ryan, 2000), the participants with high burnout
12 levels tended to confront with more negative and less positive environmental antecedents,
13 which frustrated and even thwarted their needs satisfaction, and subsequently resulted in
14 burnout experiences. Conversely, the participants with low burnout levels were likely to
15 experience more positive and less negative environmental antecedents. Therefore, our
16 findings support the tenets of BPNT and the link between the five talent development
17 environmental factors and athlete burnout. Findings of current research provide the first
18 qualitative evidence regarding the roles of the five talent development environmental factors
19 on athlete burnout.

20 Some identified burnout antecedents such as selection pressure and overtraining from
21 this study were similar to those from previous studies (e.g., Cresswell & Eklund, 2006;
22 Gustafsson et al., 2008). That means, these antecedents could be salient in predicting athlete
23 burnout even the participants' characteristics (e.g., age, sports, and culture) of the current
24 research were different from those of the past studies. On the other hand, many of the
25 identified burnout antecedents were unique in this research (e.g., developmental rationales

1 and mistakes). These findings highlight the significance to further investigate environmental
2 antecedents of burnout (Goodger et al., 2007).

3 It is interesting to find that although some athletes might be situated in a similar
4 talent development environment, they had different burnout levels. The intrapersonal factors
5 such as perfectionism trait may contribute to the difference (e.g., Gould et al., 1996;
6 Gustafson et al., 2008). Another interesting finding is that athletes who had low burnout
7 levels also suffered from negative environmental antecedents (e.g., time demand), whereas
8 athletes with high burnout levels also benefited from positive environmental antecedents (e.g.,
9 parental support). Given the participants with high burnout levels tended to confront with
10 more negative and less positive environmental antecedents than the low burnout group, it
11 seems that there was a “dose effect” regarding the impacts of the environmental antecedents
12 on athlete burnout. Further, the positive experiences may help buffer the negative ones.

13 **Limitations and Implications**

14 There are several limitations and implications of this study. First, although some
15 contextually sensitive data or findings were derived from this study (Marecek, 2003), the
16 results are related to talented young athletes in Singapore and might not be generalized to
17 other populations. However, there is potential to transfer the study findings to other contexts
18 given the similarity of youth sports settings (e.g., building fundamental skills during early
19 stage of talent development).

20 Second, using retrospective interviews for data collection was one limitation of this
21 study. This method relies heavily on participant recall (Jonson & Sherman, 1996). Participant
22 recall can be influenced by a variety of factors such as one’s satisfaction with sports
23 (Cresswell & Eklund, 2006). Nevertheless, it is important to emphasize that the use of this
24 method rather than intervention studies for investigating burnout experiences was necessary
25 given the ethical limitations for conducting research (e.g., purposely inducing burnout

1 syndromes in an intervention study is unethical; Gustafsson et al., 2008). Alternatively, future
2 studies may use prospective interviews. It might be also useful to adopt a longitudinal design
3 to prospectively examine potential factors that may lead athletes who are situated in a similar
4 context (e.g., schools, parents, and coaches) to different burnout levels.

5 Finally, this study identified various positive and negative talent development
6 environmental events affecting athletes' needs satisfaction and then contributed to burnout
7 (see Table 2). As there were large variations in terms of experiences reported across the
8 participants, the identified events were not intended to represent all participants. It might be
9 possible that the events could be antecedents and/or consequences of burnout syndromes
10 because of the person-environment interactions (Bronfenbrenner, 2005) and the dynamic
11 nature of burnout (Cresswell & Eklund, 2007b). Regardless of that, these identified events are
12 likely to be adopted by practitioners for preventing or avoiding burnout from a practical
13 perspective. Significant others (e.g., coaches and parents) are suggested to avoid giving high
14 selection pressure to athletes, overtraining athletes, providing athletes discouraging feedback,
15 discouraging athletes' sports participation, and setting unrealistic goals or expectations for
16 athletes. Instead, they are recommended to provide athletes the rationale of long-term
17 development, reasonable training loads, positive personal support and feedback, and
18 individualized and task goals.

19 **Conclusions**

20 Findings of this qualitative research attest to the five-factor framework of talent
21 development environment and the tenets of BPNT. Athletes in the high burnout group are
22 likely to experience more detrimental and less conducive talent development environmental
23 antecedents compared to the low burnout group. The current research sheds light on how to
24 better prepare talented athletes to elite levels by facilitating their needs satisfaction and
25 avoiding burnout through providing positive talent development environmental events.

References

- 1
2 Adie, J. W., Duda, J. L., & Ntoumanis, N. (2012). Perceived coach-autonomy support, basic
3 need satisfaction and the well-and ill-being of elite youth soccer players: A
4 longitudinal investigation. *Psychology of Sport and Exercise, 13*, 51-59.
5 doi: 10.1016/j.psychsport.2011.07.008
- 6 Balaguer, I., González, L., Fabra, P., Castillo, I., Mercé, J., & Duda, J. L. (2012). Coaches'
7 interpersonal style, basic psychological needs and the well-and ill-being of young
8 soccer players: A longitudinal analysis. *Journal of Sports Sciences, 30*, 1619-1629.
9 doi:10.1080/02640414.2012.731517
- 10 Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C.
11 (2011). Self-determination theory and diminished functioning: The role of
12 interpersonal control and psychological need thwarting. *Personality and Social
13 Psychology Bulletin, 37*, 1459-1473. doi: 10.1177/0146167211413125
- 14 Boiché, J. C. S., & Sarrazin, P. G. (2007). Self-determination of contextual motivation, inter-
15 context dynamics and adolescents' patterns of sport participation over time.
16 *Psychology of Sport & Exercise, 8*, 685-703. doi:10.1016/j.psychsport.2006.10.004
- 17 Carpentier, J., & Mageau, G. A. (2013). When change-oriented feedback enhances
18 motivation, well-being and performance: A look at autonomy-supportive feedback in
19 sport. *Psychology of Sport and Exercise, 14*, 423-435.
20 doi:10.1016/j.psychsport.2013.01.003
- 21 Coakley, J. (1992). Burnout among adolescent athletes: A personal fail or a social problem?
22 *Sociology of Sport Journal, 4*, 95-106.
- 23 Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale,
24 NJ: Lawrence Erlbaum.

- 1 Cresswell, S. L., & Eklund, R. (2006). The nature of player burnout in rugby: Key
2 characteristics and attributions. *Journal of Applied Sport Psychology, 18*, 219-239.
3 doi:10.1080/10413200600830299
- 4 Cresswell, S. L., & Eklund, R. C. (2007a). Athlete burnout and organizational culture: An
5 English rugby replication. *International Journal of Sport Psychology, 38*, 365-387.
- 6 Cresswell, S. L., & Eklund, R. C. (2007b). Athlete burnout: A longitudinal qualitative study.
7 *Sport Psychologist, 21*, 1-20.
- 8 Curran, T., Appleton, P. R., Hill, A. P., & Hall, H. K. (2011). Passion and burnout in elite
9 junior soccer players: The mediating role of self-determined motivation. *Psychology
10 of Sport and Exercise, 12*, 655-661. doi:10.1016/j.psychsport.2011.06.004
- 11 Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and
12 the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.
13 doi:10.1207/S15327965PLI1104_01
- 14 DeFreese, J. D., & Smith, A. L. (2014). Athlete social support, negative social interactions,
15 and psychological health across a competitive sport season. *Journal of Sport &
16 Exercise Psychology, 36*, 619-630.
- 17 Eklund, R. C., & Cresswell, S. L. (2007). Athlete burnout. In G. Tenenbaum & R. C.
18 Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 621-641). New York,
19 NY, United States: Wiley & Sons.
- 20 Ericsson, K. A. (2007). Deliberate practice and the modifiability of body and mind: Toward a
21 science of the structure and acquisition of expert and elite performance. *International
22 Journal of Sport Psychology, 38*, 4-34.
- 23 Fiese, B. H., & Bickman, N. L. (1998). Qualitative inquiry: An overview for pediatric
24 psychology. *Journal of Pediatric Psychology, 23*, 79-86. doi:10.1093/jpepsy/23.2.79

- 1 Goodger, K., Gorely, T., Lavallee, D., & Harwood, C. (2007). Burnout in sport: A systematic
2 review. *Sport Psychologist, 21*, 125-151.
- 3 Gould, D., Tuffey, S., Udry, E., & Loehr, J. (1996). Burnout in competitive junior tennis
4 players: II. A qualitative analysis. *Sport Psychologist, 10*, 341-366.
- 5 Gustafsson, H., Hassmén, P., Kenttä, G., & Johansson, M. (2008). A qualitative analysis of
6 burnout in elite Swedish athletes. *Psychology of Sport & Exercise, 9*, 800-816.
7 doi:10.1016/j.psychsport.2007.11.004
- 8 Gustafsson, H., Kenttä, G., & Hassmén, P. (2011). Athlete burnout: An integrated model and
9 future research directions. *International Review of Sport and Exercise Psychology, 4*,
10 3-24. doi:10.1080/1750984x.2010.541927
- 11 Gustafsson, H., Kenttä, G., Hassmén, P., Lundqvist, C., & Durand-Bush, N. (2007). The
12 process of burnout: A multiple case study of three elite endurance athletes.
13 *International Journal of Sport Psychology, 38*, 388-416.
- 14 Henriksen, K. (2010). *The ecology of talent development in sport: A multiple case study of*
15 *successful athletic talent development environments in Scandinavi* (Unplished
16 doctoral dissertation). University of Southern Denmark, Denmark.
- 17 Hodge, K., Lonsdale, C., & Ng, J. Y. (2008). Burnout in elite rugby: Relationships with basic
18 psychological needs fulfilment. *Journal of Sports Sciences, 26*, 835-844.
19 doi: 10.1080/02640410701784525
- 20 Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis.
21 *Qualitative Health Research, 15*, 1277-1288. doi:10.1177/1049732305276687
- 22 Isoard-Gautheur, S., Guillet-Descas, E., & Duda, J. L. (2013). How to achieve in elite
23 training centers without burning out? An achievement goal theory perspective.
24 *Psychology of Sport and Exercise, 14*, 72-83. doi:10.1016/j.psychsport.2012.08.001

- 1 Kallus, K. W., & Kellmann, M. (2000). Burnout in athletes and coaches. In Y. L. Hanin (Ed.),
2 *Emotions in sport* (pp. 209-230). Champaign, IL, United States: Human Kinetics.
- 3 Kentta, G., & Hassmen, P. (1998). Overtraining and recovery: A conceptual model. *Sports*
4 *Medicine, 26*, 1-16.
- 5 Kipp, L. E., & Weiss, M. R. (2013). Social influences, psychological need satisfaction, and
6 well-being among female adolescent gymnasts. *Sport, Exercise, and Performance*
7 *Psychology, 2*, 62-67. doi:10.1037/a0030236
- 8 Krueger, R. A. (1994). *Focus groups: A practical guide for applied research* (2nd ed.).
9 Thousand Oaks, CA, United States: Sage.
- 10 Krueger, R. A., & Casey, M. A. (2000). *Focus groups: A practical guide for applied*
11 *research*. Thousand Oaks, Calif.: Sage Publications.
- 12 Li, C., Wang, C. J., & Pyun, D. Y. (2014). Talent development environmental factors in sport:
13 A review and taxonomic classification. *Quest, 66*, 433-447.
14 doi:10.1080/00336297.2014.944715
- 15 Li, C., Wang, C. J., Pyun, D. Y., & Kee, Y. H. (2013). Burnout and its relations with basic
16 psychological needs and motivation among athletes: A systematic review and meta-
17 analysis. *Psychology of Sport and Exercise, 14*, 692-700.
18 doi:10.1016/j.psychsport.2013.04.009
- 19 Li, C., Wang, C. K. J., Pyun, D. Y., & Martindale, R. (2015). Further development of the
20 Talent Development Environment Questionnaire for sport. *Journal of Sports Sciences,*
21 *33*, 1831-1843. doi:10.1080/02640414.2015.1014828
- 22 Marecek, J. (2003). Dancing through minefields: Toward a qualitative stance in psychology.
23 In P. Camic, J. E. Rhodes, & L. Yardley (Eds.), *Qualitative research in psychology:*
24 *Expanding perspectives in methodology and design* (pp. 49-69). Washington, DC,
25 United States: American Psychological Association.

- 1 Marshall, C., & Rossman, G. B. (2006). *Designing qualitative research* (4th ed.). Thousand
2 Oaks, CA, United States: Sage.
- 3 Martindale, R. J. J., Collins, D., & Abraham, A. (2007). Effective talent development: The
4 elite coach perspective in UK sport. *Journal of Applied Sport Psychology, 19*, 187-
5 206. doi:10.1080/10413200701188944
- 6 Martindale, R. J. J., Collins, D., & Daubney, J. (2005). Talent development: A guide for
7 practice and research within sport. *Quest, 57*, 353-375.
- 8 Mageau, G. A., & Vallerand, R. J. (2003). The coach-athlete relationship: A motivational
9 model. *Journal of Sports Sciences, 21*, 883-904. doi: 10.1080/0264041031000140374
- 10 Mouratidis, A., Lens, W., & Vansteenkiste, M. (2010). How you provide corrective feedback
11 makes a difference: The motivating role of communicating in an autonomy-
12 supporting way. *Journal of Sport & Exercise Psychology, 32*, 619-637.
- 13 Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Newbury Park,
14 CA, United States: Sage.
- 15 Perreault, S., Gaudreau, P., Lapointe, M. C., & Lacroix, C. (2007). Does it take three to tango?
16 Psychological need satisfaction and athlete burnout. *International Journal of Sport
17 Psychology, 38*, 437-450.
- 18 Podlog, L., & Dionigi, R. A. (2009). Psychological need fulfillment among workers in an
19 exercise intervention: A qualitative investigation. *Research Quarterly for Exercise &
20 Sport, 80*, 774-787. doi:10.1080/02701367.2009.10599619
- 21 Quested, E., & Duda, J. L. (2011). Antecedents of burnout among elite dancers: A
22 longitudinal test of basic needs theory. *Psychology of Sport and Exercise, 12*, 159-167.
23 doi:10.1016/j.psychsport.2010.09.003
- 24 Raedeke, T. D. (1997). Is athlete burnout more than just stress? A sport commtment
25 perspective. *Journal of Sport & Exercise Psychology, 19*, 396-417.

- 1 Raedeke, T. D., & Smith, A. L. (2001). Development and preliminary validation of an athlete
2 burnout measure. *Journal of Sport & Exercise Psychology*, *23*, 281-306.
- 3 Raedeke, T. D., & Smith, A. L. (2004). Coping resources and athlete burnout: An
4 examination of stress mediated and moderation hypotheses. *Journal of Sport &
5 Exercise Psychology*, *26*, 525-541
- 6 Reinboth, M., & Duda, J. L. (2006). Perceived motivational climate, need satisfaction and
7 indices of well-being in team sports: A longitudinal perspective. *Psychology of Sport
8 and Exercise*, *7*, 269-286. doi:10.1016/j.psychsport.2005.06.002
- 9 Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and
10 new directions. *Contemporary Educational Psychology*, *25*, 54-67.
11 doi:10.1006/ceps.1999.1020
- 12 Smith, R. E. (1986). Toward a cognitive-affective model of athlete burnout. *Journal of Sport
13 Psychology*, *8*, 36-51.
- 14 Tenenbaum, G., Jones, C. M., Kitsantas, A., Sacks, D. N., & Berwick, J. P. (2003). Failure
15 adaptation: An investigation of the stress response process in sport. *International
16 Journal of Sport Psychology*, *34*, 27-62.
- 17 Zeller, R. A. (1993). Combining qualitative and quantitative techniques to develop culturally
18 sensitive measures. In D. G. Ostrow & R. C. Kessler (Eds.), *Methodological issues in
19 AIDS behavioural research* (pp. 95-116). New York, NY, United States: Plenum.

Table 1

Overview of General Dimensions and Sub-Themes among Participants

General dimension	Sub-theme	Common/unique sub-theme
Long-Term Development Focus	● Selection pressure	Both groups
	● Developmental rationales	Both groups
	● Mistakes	High burnout group
	● Winning	Low burnout group
Holistic Quality Preparation	● Demands	Both groups
	● Overtraining	Both groups
	● Good coaches	Both groups
	● Social lives	High burnout group
Support Network	● School support	Both groups
	● Facilities and equipment	Both groups
	● Parental support	Both groups
	● Peer support	Both groups
Communication	● Communication climates	Both groups
	● Feedback	Both groups
	● “Mute” coaches	Both groups
	● Caring coaches	Low burnout group
Alignment of Expectations	● Expectations toward athletes	Both groups
	● Individual goals	Both groups

Table 2

Events Related to the Burnout Groups within a Needs Satisfaction Framework

Dimension	High burnout group	Low burnout group	Relations to needs satisfaction/thwarting
Long-Term Development Focus	<ul style="list-style-type: none"> ● High selection pressure ● Lack of long-term developmental vision ● Afraid to make mistakes 	<ul style="list-style-type: none"> ● Low/no selection pressure ● Understanding of the rationale of long-term development ● “Dilution” of winning 	Autonomy, competence, and relatedness
Holistic Quality Preparation	<ul style="list-style-type: none"> ● Time, travelling, and/or study demands ● Excessive training and insufficient recovery ● Inappropriate training guidance ● Lack of social life 	<ul style="list-style-type: none"> ● Manageable time and study demands ● Reasonable training load and sufficient recovery ● Proper training programs 	Autonomy, competence, and relatedness
Support Network	<ul style="list-style-type: none"> ● Inflexible school policies ● Short of training facilities/venues ● Negative parental support ● Low senses of belongings 	<ul style="list-style-type: none"> ● Positive school and teacher’s support ● Sufficient training facilities/venues and easy accessibility ● Positive parental support ● Good peer support 	Autonomy and relatedness
Communication	<ul style="list-style-type: none"> ● Controlling climate ● Discouraging feedback ● Lack of feedback ● “Mute” coaches 	<ul style="list-style-type: none"> ● Autonomous climate ● Timely and formative feedback ● Easy communication and interaction ● Caring coaches 	Autonomy, competence, and relatedness
Alignment of Expectations	<ul style="list-style-type: none"> ● High expectations ● Conflicting goals ● Lack of personal goals 	<ul style="list-style-type: none"> ● Realistic goals ● Individualized and task goals 	Autonomy and competence

Note. These events were not found in all participants