ESSAY BY KATY COLEMAN (2019)

For the Sport and Exercise Psychology Module at Oxford Brookes University

Evaluate the premise that sport and exercise professionals need to be fully conversant with the psychology of activity in order to optimally develop and maintain fitness and well-being in their clientele. Directly consider the role of Leadership, Adherence and Stress Management within your consideration.

Introduction

Sport can be defined as "all forms of physical activity which, through casual or organized participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels" (Association of Applied Sport Psychology, 2019).

Circus performance is comparable to sport and the genre includes ex-athletes from disciplines such as gymnastics and diving (Shrier and Halle, 2010). Analogous to athletes, circus artists perform through pain, "compete" in demanding situations and risk serious injury (Dick et al, 2013).

Sport psychology is "a proficiency that uses psychological knowledge and skills to address optimal performance and well-being of athletes, developmental and social aspects of sports participation, and systemic issues associated with sports settings and organizations" (American Psychological Association, 2019).

Sport excellence is achieved by multiple factors including applied sport psychology however sports psychology specific to circus performers is under-researched (Filho, Aubertin and Petiot, 2016). Because circus arts is an acrobatic, performance-art discipline, psychological research from both sports and performance-arts can be applied by circus professionals (Ross and Shapiro, 2017).

Frequent exercise brings benefit to all the physiological systems in the body and is endorsed globally (Carron, Hausenblaus and Estabrooks, 2003). Stress, leadership and adherence in exercise are well researched but to the writer's knowledge their relationship as a triad has not been studied. This essay outlines the main theoretical considerations of stress, leadership and adherence;

discusses how these impact upon one-another and finally theorizes their inter-dependent relationship. Impact upon well-being is brought in throughout along with research deemed relevant to aerial circus performance.

Theoretical Considerations of Stress Management

Colman (2015) defines stress as "Psychological and physical strain or tension generated by physical, emotional, social, economic, or occupational circumstances, events, or experiences that are difficult to manage or endure." Yoga has been shown to improve stress management (Bryan, Zipp and Parasher, 2012) and the writer includes a yoga-based warm-up during aerial classes. This could help prepare students for dangerous aerial tricks, as fear of injury is the main stressor for professional aerialists (Filho, Aubertin and Petiot, 2016). "[injury is] a pretty big aspect of aerials because you're dealing with height and you're dealing with relying solely on your apparatus." (aerialist in: Ross and Shapiro (2017)). The transactional model (figure 1) can be used to understand the cognitive appraisal an aerialist undergoes upon executing tricks.

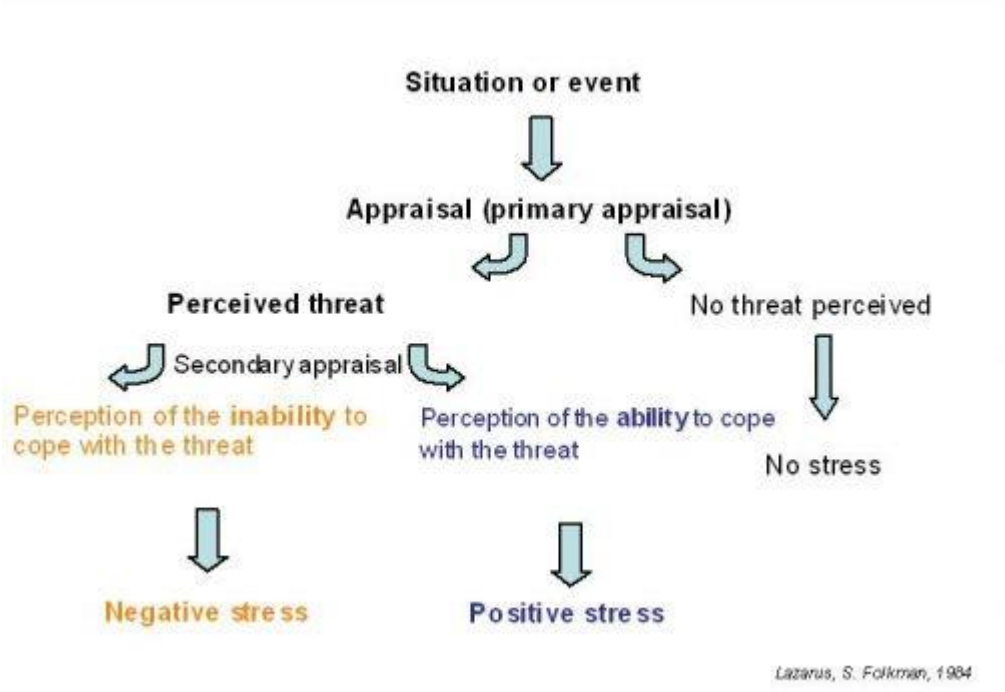

Figure 1. Transactional Model of Stress (Lazarus and Folkman, 1984)

Execution of the aerial trick is the *situation*; upon *primary appraisal* aspects of person and environment are integrated in a transaction that forms the *perceived threat* (fear of falling from

equipment); during *secondary appraisal* positive/negative stress is experienced as a product of the perception of ability/inabilty to cope (e.g. adrenaline rush perceived as either excitement or fear (Ross and Shapiro, 2017) with perceived threat. However Hobfoll (1989) argues that perception alone is not enough; knowledge of how individuals use their coping resources in response to a perceived degree of threat, helps to "anchor the perceptive component" and instead proposed a resource-oriented model whereby individuals aim to build upon their resources and it is the loss of these resources that threatens them. Interventions such as attention control training and pre-performance routines are invaluable solutions for professional aerialists (Filho, Aubertin and Petiot, 2016) and may build coping resources.

Theoretical Considerations of Leadership

Leadership is "a process that includes influencing the task objectives and strategies of a group" (Yukl and Van Fleet, 1992). Leadership cannot be explained by a single theory but how different perspectives compliment one another and these have geared toward a number of specific issues in sport psychology which are described below (Lavallee, 2003).

The Smith and Smoll (1989) cognitive-behavioural model (see figure 2) hypothesizes that individual differences and situational factors affect core components and suggests relationships between these variables.

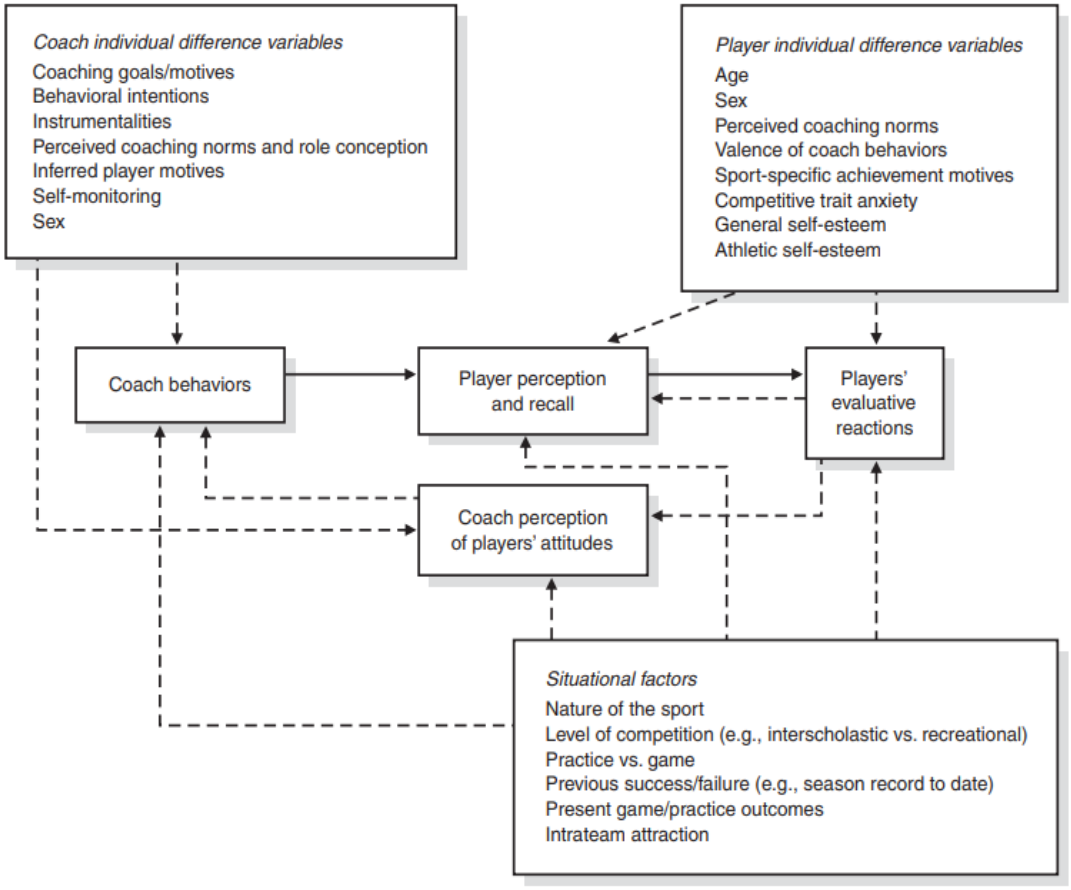

Figure 2. Mediational Model of Leadership (Smoll and Smith, 1989)

The Leadership Scale for Sport (LSS) (Chelladurai and Saleh, 1980) is a questionnaire used to investigate the effectiveness of coaching behaviour. The LSS contains five factors: Training and Instruction, Democratic Behaviour, Autocratic Behaviour, Social Support and Positive Feedback. Coaches who exhibited more supportive and instructional behaviours were better responded to by youth baseball players (Smith, Smoll and Curtis, 1978); aerobics was enjoyed more by participants when a positive and supportive leadership style was combined with an enriched and supportive social environment (Fox, Rejeski, and Gauvin, 2000).

The Coaching Behaviour Assessment System (CBAS) allows direct observation and coding of coaching behaviour that is known to impact individuals in athletic training and games (see figure 3) (Smith, Smoll and Hunt, 1977).

Table 5.1 Response Categories of the Coaching Behavior Assessment System

	Class I: Reactive Behaviors
Responses to Desirable Performance	
Reinforcement	A positive, rewarding reaction, verbal or nonverbal, to a good play or good effort
Nonreinforcement	Failure to respond to good performance
Responses to Mistakes	
Mistake-contingent encouragement	Encouragement given to a player following a mistake
Mistake-contingent technical instruction	Instructing or demonstrating to a player how to correct a mistake
Punishment	A negative reaction, verbal or nonverbal, following a mistake
Punitive technical instruction	Technical instruction given in a punitive or hostile manner following a mistake
Ignoring mistakes	Failure to respond to a player mistake
Response to Misbehavior	
Keeping control	Reactions intended to restore or maintain order among team members
	Class II: Spontaneous Behaviors
Game-Related	
General technical instruction	Spontaneous instruction in the techniques and strategies of the sport (not following a mistake)
General encouragement	Spontaneous encouragement that does not follow a mistake
Organization	Administrative behavior that sets the stage for play by assigning duties, responsibilities, positions, etc.
Game-Irrelevant	
General communication	Interactions with players unrelated to the game

Figure 3. The Coaching Behaviour Assessment System (Smith, Smoll and Hunt, 1977)

The CBAS was adapted for balletic technique to structure two leadership styles in a socially-enriched (positive feedback and encouragement) vs socially-bland (negative comments and ignoring hard work) beginners ballet class for females. Participants in the socially-enriched condition were reported more positive engagement and enjoyment (Turner, Rejeski, and Brawley, 1997).

Theoretical Considerations of Adherence

Exercise adherence can be defined as the “maintenance of an active involvement in physical exercise” (Kent, 2006) however the majority of those in Western society fail to exercise a sufficient amount (Fox, Rejeski, and Gauvin, 2000). Sport England reported an increase of nearly 500,000 adults engaged in regular physical activity from 2017 – 2018, with the adventure sports category second smallest but the fastest growing (Active Lives Report, 2018).

In a Tae Kwon Do vs Aerobics study, intrinsic (competence and enjoyment) rather than extrinsic (fitness and appearance) motives predicted greater adherence in both activities. Tae Kwon Do exercisers rated intrinsic motives higher and were less likely to drop out than aerobics perhaps because this skill-based activity satisfies feelings of competence (Ryan et al, 1997). Furthermore, Deci and Ryan (2000) reported that those who pursue goals based upon extrinsic rather than intrinsic motives may have a decreased sense of well-being. Enjoyment is the primary motive for

participating in performing arts (Nordin-Bates, 2012), “the joy that it brings to people...just creating a spectacle that people find so much joy in.” (aerialist in: Ross and Shapiro, 2017).

Carron, Widmeyer and Brawley (1988) stressed that knowledge of the group is as important as knowledge of the individual in understanding exercise-adherence: they found that in both elite and recreational sport, higher adherence was influenced by greater perception of social closeness whilst affiliation was the most important incentive for young teens to participate in an ice hockey summer programme (Alderman, 1976). Group size impacts adherence: large archival data of participation at aerobic exercise classes of various settings was analyzed by Carron, Brawley and Widmeyer (1990); adherence was highest in the smallest (5-17 members) and largest (32-46 members) classes in comparison to medium sized classes.

Stress / Leadership Interaction

The CBAS is not “equipped to capture the intricacies of specific dyadic relations” (Smoll and Smith, 1989) thus therapeutic psychology may be a better approach. Hanrahan and Anderson (2010) stress that the quality of the coach-athlete relationship underpins both positive and negative well-being in athletes: athletes thrive when coaches are caring but become stressed when coaches are uncaring.

Nicholls and Perry (2016) argue that dyadic coping is applicable to the coach-athlete dyad. A reciprocal phenomenon normally reserved for couples, dyadic coping is triggered when stress is communicated from one party to another. In a study involving 158 coach-athlete dyads from both individual and team-sports, positive dyadic coping (e.g. empathetic responses) correlated with increased relationship satisfaction and likelihood to appraise stress as a challenge as opposed to a threat.

Self Determination Theory (SDT) states that individuals have three basic psychological needs (competence, relatedness and autonomy) and that when these needs are not met their well-being decreases and thus stress increases (Deci and Ryan, 2000). Quested and Duda (2010) found that vocational dancers' satisfaction of the three needs predicted their positive well-being however lack of autonomy did not predict negative well-being, perhaps explained by dancers pre-expectations of receiving a typical authoritarian leadership style from their dance-school teachers.

Stress / Adherence Interaction

Jouper and Hassmén (2009) reported that individuals with higher stress base-line levels adhered less to Qigong exercises; Stults-Kolehmainen and Sinha (2013) undertook a literature review - the majority of 55 studies showed that both objective and subjective stress predicted decreased engagement in physical activity; Englert and Rummel (2016) found that university students were less likely to exercise on days they reported as stressful, potentially due to decreased self-control resources.

These findings support Hobfoll's (1989) conservation of resources theory whereby individuals strive to protect their resources in order to cope with stress. An aerial class participant may choose not to attend if the class is perceived as taking valuable time resources, contrastingly they may attend if they perceive the class as stress-reducing and giving them more resources to cope with external stress: highly cohesive groups share resources and increase an individual's sense of relatedness (Deci and Ryan, 2000).

The Andersen and Williams model (1988) shows that those with few coping resources and more life-stress have an increased likelihood of appraising a stressful situation as stressful which can lead to injury and therefore decreased adherence (see figure 4).

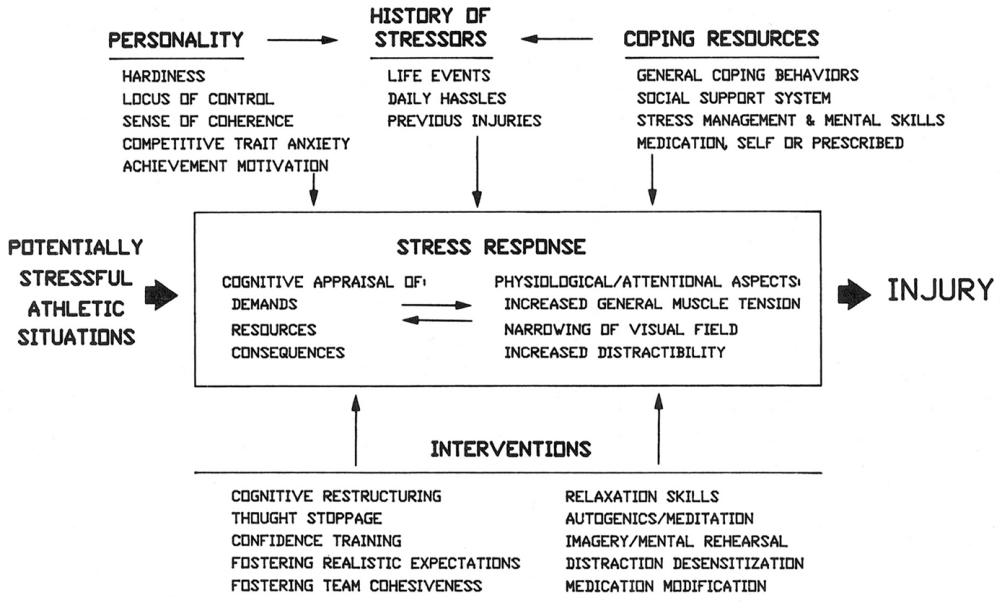

Figure 1 — A model of stress and athletic injury.

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Figure 4. A Model of Stress and Athletic Injury: Prediction and Prevention (Andersen and Williams, 1988)

Leadership / Adherence Interaction

In a meta-analysis on adherence behaviour in various exercise settings, Carron, Hausenblaus and Mack (1996) reported a medium positive effect of task-cohesion on participant adherence, directing leaders to structure group tasks directing to specific outcomes. The writer led a three-month aerial-silks course where participants created group acts to perform in a theatrical show, all four participants adhered to the program.

The Carron, Hausenblaus and Mack (1996) meta-analysis revealed a negative adherence relationship with exercisers who perceived the locus of control rested in the hands of the powerful others. Despite the lack of confidence in the small effect size, Carron, Hausenblaus and Mack (1996) pointed toward SDT as a mechanism for this: if leaders are supportive but not overtly controlling, participants feelings of self-determination increase and greater adherence is exhibited. Deci and Ryan (2000) state that when an individual is autonomous in their goals their resulting behaviour, health and well-being is more positive, and their intrinsic motivation toward their goal grows - leading to greater adherence. Attendance rates on a 10-week exercise programme were significantly higher in an autonomy-supportive leadership condition as opposed to a typical teaching style (Edmunds, Ntoumanis and Duda, 2008)

Mears and Kilpatrick (2008) advise that leaders can enhance an individual's autonomy by providing them with choices in order to meet their goals. Almagro, Saenz-Lopez and Moreno (2010) conducted a correlational questionnaire study on 608 adolescent athletes including rhythmic gymnasts. When coaches were supportive in allowing athletes to make decisions and offer input, athletes perceived autonomy increased. Perceived autonomy significantly correlated with intrinsic motivation which predicted the intent to remain physically active.

Inter-dependent Discussion

The Integrated model of Sport Injury (Wiese-bjornstal et al, 1998) shows how many factors, including stress and coach-influence impact recovery from a sport injury (see figure 5). Heil (1993) designed a coach's injury checklist that leads the coach through a systematic guide to identify problems (e.g. life-stress) that hamper recovery, via conversation with the athlete (this process also shows the athlete that the coach has interest in their well-being). However this practice is not always adopted by leaders, and athletes are often expected to perform whilst injured in a widely accepted sport-culture which 'pushes-on' through injury (Wiese-bjornstal et al, 1998). Whilst in a

physically-demanding performance role, the writer was undergoing significant life-stress and the supervisor expected long hours with peak performance. The writer suffered a knee-injury and 'pushed-on' through the injury but once the job had finished burn-out symptoms were so severe that months of recovery was necessary.

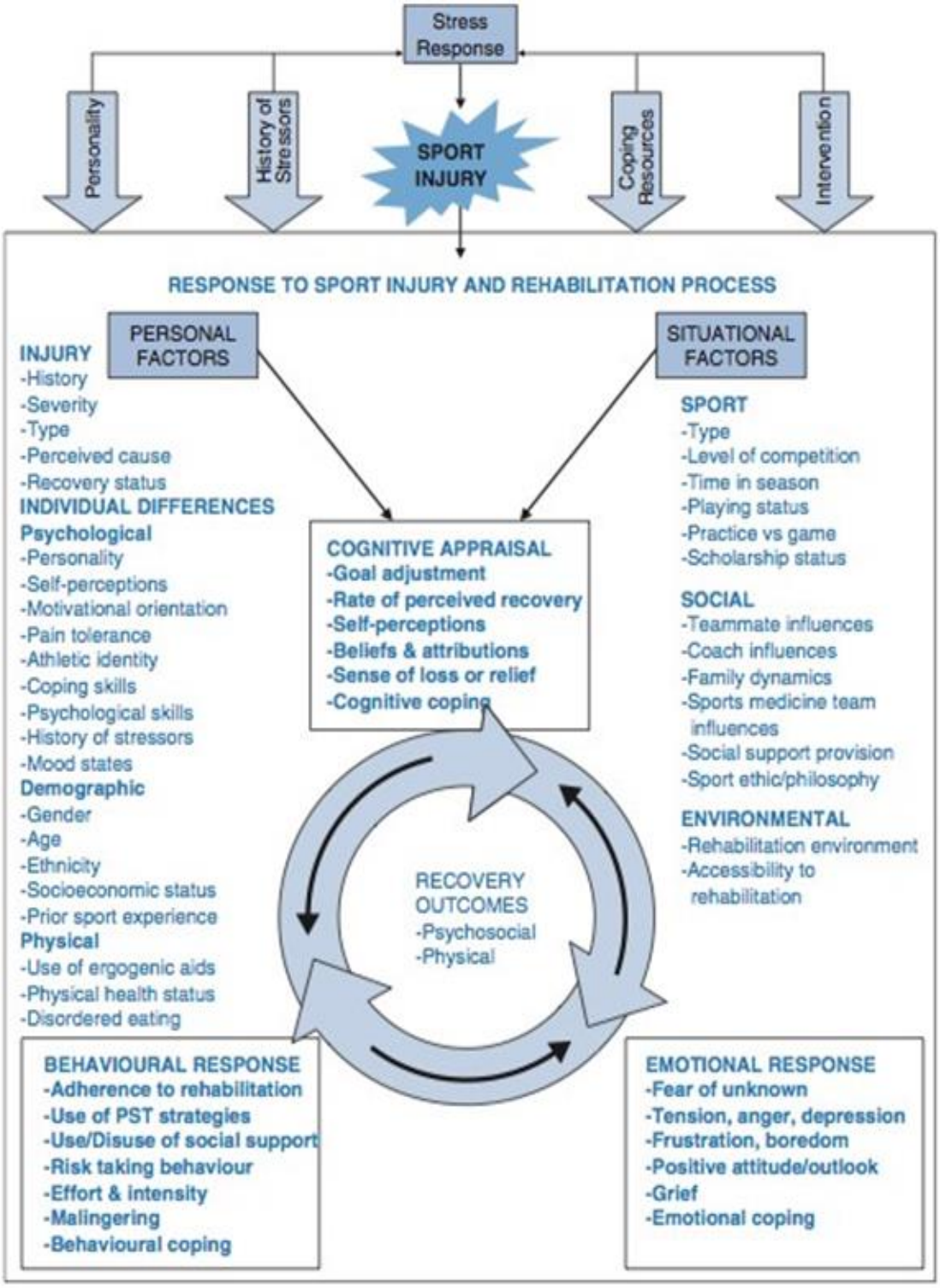

Figure 5. An integrated model of response to sport injury: Psychological and sociological dynamic (Wiese-bjornstal et al, 1998).

The Athlete Burnout Questionnaire (ABQ) was used to assess burnout in vocational dancers in the Quested and Duda (2011) longitudinal study using SDT as a framework: when dancers perceptions of autonomy-supportive teachers decreased, their basic needs satisfaction decreased, which increased burnout risk. However in Quested and Duda's (2010) study that also utilised the ABQ, lower basic needs satisfaction was unrelated to dancers burnout which questions the stability of SDT in predicting long-term well-being in athletes when leader style is considered.

The impact of a stressed leader upon adherence has affected the writer who was to execute a dangerous aerial stunt during rehearsal. The coach was experiencing life-stress which led to impatient behaviour in preparing for the stunt. The lack of care caused the writer to fall head-first from height, causing serious muscle strain and a loss of trust in the leader (ultimately leading to withdrawal from the coach-athlete dyad).

The writer has found that leading yoga-based warm-ups for her aerial class participants not only decreases their stress but also her own. This is invaluable in ensuring the safety and well-being of participants during the class. Focus on mind-body programs was recommended by Bryan, Zipp and Parasher (2012) who found that bi-weekly yoga classes increased previously sedentary adults adherence to physical activity whilst their ability to manage stress improved.

Conclusions

Sport professionals are unlikely to manage their clients well-being optimally unless they are well versed in the psychology of activity. Prepping aerialists safely in learning new tricks involves knowledge of cognitive and emotional processes that place demand upon coping resources. Aerial classes are conducted in small groups and often 1:1s, as such a positive coach-athlete dyad should be cultivated and specific goals set to enhance task-cohesion. Participant needs are individual so framing questions that assess an individual's well-being upon arrival to class is recommended. SDT is frequently cited as a vehicular determinant of well or ill-being in individuals, thus circus practitioners should ensure that verbal comments and instruction promote competence, autonomy and relatedness within their clientele. A structured synthesis of performance-art and sport psychology would benefit circus practitioners and future research should address this issue.

Word count: 2190

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