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Feature Article

Finding Your Balance

An Investigation of Recovery–Stress Balance in Vocational Dance Training

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ABSTRACT Professional dance careers require years of intensive training. Stress experienced during training must be balanced with adequate recovery to prevent overtraining and burnout. Little is known, however, about how dancers achieve recovery–stress balance. This study examined dancers' recollection of stress and recovery during their vocational dance training to identify potential stressors and recovery behaviors in vocational dance training. Twelve current and ex-professional ballet (n=4) and contemporary dancers (n=8) participated in the study. Four general dimensions, based on the extant overtraining literature in athletes, were identified: dance culture, intrapersonal, interpersonal, and situational factors. Cultural norms, health factors related to injury and illness, and transition periods within vocational dance training were sources of stress for participants. Dancers' responses to stress were categorized as adaptive or maladaptive. Maladaptive behavioral responses (e.g., ignoring injury, pain, and fatigue) were related to negative training outcomes associated with overtraining and burnout. Interventions that encourage adaptive behaviors for dance students to support health and well-being are recommended to address the recovery–stress balance in vocational dance training identified in this study.

Vocational dance training programs are a standard, and often prerequisite, pathway for aspiring dancers to develop as professional dancers. Often embedded within a university or conservatory setting, vocational dance training programs focus on equipping students with industry-specific skills to assist with gaining employment. Students must balance the physical stress of high training loads, external stressors (e.g., living away from home for the first time, dealing with academic workloads), and cultural factors specific to the vocational dance environment (McEwen and Young 2011), with adequate recovery to successfully progress through vocational dance training. Performing arts institutions are increasingly providing training programs that promote health and well-being, alongside the development of the skill and artistry required for elite performance (Clark, Gupta, and Ho 2014). However, the application of empirical knowledge relating to dancer health and well-being into dance training environments is still limited (Redding 2010).

There is a growing body of research around dancers' experiences of stress in training and performance contexts. Known sources of physical stress, related specifically to dance training, include high physical workloads (Wyon 2010) and the technical requirements of skill mastery and choreographic demands (Grove, Main,

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and Sharp 2013). Psychosocial stressors in dance include factors related to environment (e.g., facilities, equipment, temperature), daily hassles (e.g., managing finances, misunderstandings, obligations), personal roles (e.g., perceptions of autonomy or control within group or organization, social support, competition with others), and major life events (e.g., death of a loved one, moving home, career transitions, injury) (Noh, Morris, and Andersen 2003; Grove, Main, and Sharp 2013). Further, studies on coping in dance have shown an association between maladaptive coping and high levels of stress among student and professional dancers (Barrell and Terry 2003; Noh, Morris, and Andersen 2009) and a relationship between coping styles and injury frequency (Noh, Morris, and Andersen 2005). Elite performers must be able to cope with and recover from these stressors to maintain and improve performance, and avoid negative outcomes such as injury, underrecovery, overtraining syndrome, and burnout (Kellmann 2002). Empirical research investigating recovery from physical and psychosocial stressors in dance is limited and little is known about how dancers achieve (or fail to achieve) recovery–stress balance in dance.

The relationship between stress and recovery is complex and best understood from a holistic perspective as a "*psychosocialphysiological* balancing act" (Kenttä and Hassmén 2002, 67). Attempts to understand recovery–stress dynamics have been further complicated through the interchangeable use of terms such as overtraining, overreaching, staleness, underperformance, underrecovery, and burnout in the literature (Richardson, Andersen, and Morris 2008). However, recent consensus statements regarding overtraining syndrome (Meeusen et al. 2013) and recovery and performance in sport (Kellmann et al. 2018) have greatly assisted in the following conceptualization. Overtraining describes a process whereby an accumulation of intense training or nontraining stress results in the possible outcomes of functional overreaching (positive adaptation), nonfunctional overreaching (negative adaptation), or overtraining syndrome (a maladaptive outcome that could be caused by training or nontraining factors) (Meeusen et al. 2013; Kellmann et al. 2018). Further, Sean Richardson and colleagues (2008) contended that investigation of early precursors of overtraining such as recovery–stress imbalance and underrecovery allows for examination of "effective and ineffective training and recovery processes and behaviors in the context of the stress–recovery balance" (12). This investigation could allow for a broader understanding of overtraining processes and resultant adaptive and maladaptive outcomes in dance training.

Symptoms indicative of overtraining syndrome have been noted in dance research (Koutedakis 2000) and one of the most commonly perceived reasons for injury, as reported by dancers, is fatigue due to overload (Liederbach, Schanfein, and Kremenic 2013). Professional dancers are expected to undertake large training loads, which often increase in volume in the lead-up to performances (Wyon 2010; Grove, Main, and Sharp 2013). Overtraining and recovery are highly individualized processes (i.e., one training context might produce optimal performance for one dancer and result in another dancer becoming overtrained). Dancers need to be able to monitor and manage their own recovery–stress state to consistently produce elite performance and minimize the risk of negative outcomes associated with long-term recovery–stress imbalance.

Models of overtraining and recovery developed within the sports sciences could prove valuable in beginning to investigate these concepts in a dance-specific context. The overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) conceptualizes four stages of stress, recovery, and overtraining in athletic populations. Stage 1 outlines risk factors that might increase stress and includes three main categories: situational factors (e.g., major life events, financial concerns), intrapersonal factors (e.g., personality, injury or illness status), and interpersonal factors (e.g., perceptions of teachers, parental attitudes toward training). These categories are embedded within a fourth category, the sociocultural context of the sporting environment (e.g., norms and expectations, social influences). Stage 2 concerns recovery–stress imbalance, whereby an increase in stress, unmatched by adequate recovery, leads to early signs of overtraining. The athlete's behavioral response to recovery–stress imbalance (Stage 3) determines the outcome experienced (Stage 4). Adaptive behavioral responses lead to a return to a state of balance, and maintenance or improvement in performance, whereas maladaptive behavioral responses lead to negative outcomes, such as psychological distress, physical illness or injury, ongoing fatigue, and overtraining syndrome.

Application of the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) to dance has the potential to elucidate the stressors and behavioral responses of dancers to support dancer health and well-being. Additionally, it allows for the physical and psychological factors influencing stress and recovery to be considered within the sociocultural environment in which they operate. The cultural environment of dance can encourage behaviors associated with overtraining, such as pushing through pain, normalizing injury, and overconformity to the dance-sport ethic to preserve identity and status (Aalten 2005; McEwen and Young 2011). Examination of the interrelationship of sociocultural, intrapersonal, interpersonal, and situational factors that affect the stress–recovery balance is essential for understanding how dancers manage their responses to stressors in the dance environment.

Grounded in a pragmatic approach, this study used the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) to examine professional dancers' recollection of their experiences of stress and recovery during their vocational dance training. Research guided by pragmatism aims to generate information that

answers concrete, real-world problems (Patton 2015). As such, this research sought to capture the experiences of professional dancers who had completed vocational dance training to better understand factors that are related to stress during vocational dance training, and the coping mechanisms used by dance students for recovery and maintaining recovery–stress balance. Specifically, the research sought to address two research questions: (1) What factors do dancers perceive to be sources of stress during vocational dance training? (2) What behavioral responses do dancers use to cope and recover from stressors encountered during vocational dance training?

METHODS

Participants

Participants for this study were recruited from networks within the Australian dance industry. Eligibility criteria required participants to have completed at least one year of vocational dance training and worked as a professional dancer. Twelve current and ex-professional ballet ($n = 4$) and contemporary ($n = 8$) dancers (nine female, three male) took part in this study. Participants age ranged from 23 to 46 years ($M = 34.06$ years, $SD \pm 7.34$) with professional dance experience ranging from 1 to 25 years ($M = 9.96$, $SD \pm 7.69$). Most of the participants had trained in Australia, although three participants had undertaken either all or part of their training at international institutions. The participants included freelance, independent, young, and principal artists, with five of the participants currently teaching contemporary, ballet, or both in vocational dance institutions and community classes.

Procedure

Following university ethics approval and obtaining informed consent from all participants, interviews were conducted. Participants volunteered to take part in either group or individual interviews, which were held at a time and location of convenience and lasted between 50 and 90 minutes. One participant requested an individual interview due to confidentiality concerns, and two participants were interviewed individually due to time constraints and availability. The remaining nine participants were divided into three groups ranging in size from two to four participants each. Allocation was based on participant availability. In two out of the three groups, the participants were all known to each other, creating a relaxed and safe environment.

Semistructured interview questions were developed in line with the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) with the aim of identifying sources of stress for the participants, and their resulting behavioral responses. Definitions of overtraining ("a long-term imbalance between stress and recovery resulting in a performance 'slump'"), recovery ("process that restores performance capacity"), training stress ("factors relating to physical training load that produce an increased stress response"), and nontraining stress ("any other factors that produce an increased stress response") were provided at the beginning of each session to provide context to the interviewee.

Data Analyses

The interviews were transcribed verbatim and data were analyzed qualitatively. Thematic analyses were conducted using a template analysis approach (Brooks et al. 2015) to assess how participants' experiences fit within the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008). In line with pragmatic principles of inquiry, multiple analytic processes were conducted (Patton 2015). Inductive and deductive analyses were performed given the main research aim was to apply the findings to a current theoretical model and to allow exploration of unique themes that emerged from the data. Manual hand-coding produced initial codes that were collated into first-order themes and further reviewed to assist in defining and refining the specifics of each theme (Braun and Clarke 2006). Higher order themes were developed by grouping together similar first-order themes. Higher order themes were then grouped and categorized into general dimensions. The second author independently coded a random selection of the interview transcripts to enhance data reliability and trustworthiness. Differences in the coding and themes generated were discussed and debated between investigators until agreement was reached. Following hand-coding, a spreadsheet was generated with themes and dimensions in columns and individual cases in rows. Summarized data from transcripts were entered into the relevant cells with representative quotes noted to illustrate the key features of first-order themes.

RESULTS

The thematic analyses identified four general dimensions related to risk factors for overtraining in vocational dance training: dance culture, intrapersonal factors, interpersonal factors, and situational factors, mirroring the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) Stage 1 categories. These general dimensions encompassed 12 higher order themes relating to professional dancers' recollections of their experiences of stress during vocational dance training and are summarized in Table 1.

Dance Culture

Dance culture relates to the cultural and societal influences, expectations, and norms of dance, and is presented here first

TABLE 1 **Factors Related to Stress During Vocational Dance Training.**

General Dimension	Higher Order Theme	First-Order Theme
Dance culture	Pushing through	Personal limitations
		Fatigue, pain, and injury
	Normalization of injury	Experiences of injury
	Industry demands	Respect and reputation
		Physical appearance
		Early entry to profession
		Endorsement of overtraining
Intrapersonal factors	Personality	Supermotivation and obsession
		Competition and confidence
	Developmental concerns	Maturity
		Technique
	Health	Injury and illness status
		Injury management
Interpersonal factors	Organizational relationships	Teachers
		Peers
		Organizational staff
	External relationships	Partners and friends
	Social identity	Dance community
		Social media
Situational factors	Transitions	Within course
		Into profession
		Organizational transitions
	Major events	Assessments
		Nondance events
	Training demands	Training load
		Balance
		Dance genre
		Versatility
	Lifestyle	Finances
		Job security
		Living arrangements

because all themes identified in the data are ultimately embedded within the culture of the dance environment. Three higher order themes within dance culture emerged from the data: pushing through, normalization of injury, and industry demands.

Pushing Through

Personal Limitations. Participants reported difficulty recognizing personal limitations in how far they could (and should) push themselves, exacerbated by the cultural norm within the dance environment to push through. All participants acknowledged they had pushed through at some time, with one dancer commenting, "I think if you asked any [dancer], they'd all say that there are points where they pushed through" (C2). Participants also experienced stress related to knowing how to maintain balance and not push beyond personal physical and mental limitations. One participant recalled asking herself, "Do I just keep pushing this? Is it actually going to make me a better dancer to push when I'm in a lot of pain or do I take a rest and then feel guilty because I'm not being a hard worker?" (C5). Similarly, participants had difficulty recognizing normal levels of fatigue related to dance training, acknowledging, "everyone is exhausted so … you don't know if you're more exhausted than anybody else" (C7).

Fatigue, Pain, and Injury. The learned response of pushing through pain, fatigue, and injury, and ignoring personal limitations and warning signs of exhaustion, was perceived to be encouraged and expected across all levels within the dance community (students, teachers, and organizational staff), and across various aspects of the dance environment (training, professional life, personal expectations of self and others). One participant noted:

> I think it's even beyond vocational training, there's quite a lot of bravado, you know. "Just work through it" … And I don't even think it's particularly conscious … if you've spent your developmental years in dance school it's just the subliminal thing that you pick up, "good dancers work through things," and I think we expect that of each other. (C7)

Pushing through was acknowledged as an accepted response to injury, with participants recalling participating in assessments and performances while being injured, resulting in physical pain during and after the performance, and exacerbation of the injury.

Normalization of Injury

Participants' comments indicated how normalized the experience of injury was within the dance environment: "When you're training a lot, I think that you're going to have injuries … it's not something that you can avoid" (B2), and "injury is a very very normal part of ballet" (B1). Participants also experienced pressure to return quickly from injury, and had difficulty managing their personal health and rehabilitation while trying to conform to industry expectations.

Industry Demands and Expectations

Respect and Reputation. Power relationships and respect within organizations, pressure to accept and conform to the dance environment, and body issues such as weight management and physical appearance were factors related to stress for participants. Reputation was perceived to be associated with the ability to push through, with negative connotations attached to being seen as a "lazy dancer" versus being seen as a "hard worker." Dancers embodied these cultural norms and pushed beyond physical limitations to conform to perceived expectations, to preserve their personal identity, and to maintain their reputation, resulting in denial of health issues. Reputation was also related to individuals' ability to endure whatever was asked of them, to "save face," knowing that they might have to work with that particular teacher or choreographer in the future. One dancer noted, "You've got to take the hits" (B1).

Physical Appearance. Participants spoke of dancers' physical appearance and nutritional needs as an area that is inadequately supported within vocational dance training environments. One participant noted that despite recent research and guidelines around nutritional recommendations for dancers, dance culture requires female dancers to be below recommended healthy weights and employment opportunities are limited for dancers who do not conform to aesthetic ideals, even if health is compromised to maintain a slim physical appearance.

> Everybody knows what a good ballerina looks like, especially people that are dancing and coming in to train … so subconsciously there's all this, no matter how many things you put in place to prevent it, it's always going to come back to this is what a ballerina is. And if you don't make that grade, then it's not going to happen. And no company is going to hire you. (C2)

Several participants recalled being encouraged to lose weight, explicitly or implicitly, and could not recall receiving support to effectively manage their weight in relation to nutrition and dance training demands.

Early Entry to Profession. Participants spoke about dancers leaving training early to join professional companies and the detrimental effect this can have on a dancer's physical and psychological development. One participant noted:

> It's like, they can't get you quick enough … if they see talent they want it now. I was supposed to have another three years training, but retrospectively, I think that … would have cemented my ability to have a long-term successful career. … If you start young and there's certain aspects of your training that haven't been covered, there's no opportunity to develop that. Because if you're not ready to do it when you have your opportunity that's it, you're done. (B2)

Endorsement of Overtraining. Some participants believed a culture of overtraining was endorsed within the training environment and that institutions intentionally overtrained dance students: "In training circumstances they overtrain you so that when you [dance professionally] it's easier … because if you just plod along you won't improve, that's just how ballet works" (B1). Another dancer spoke of a culture of overtraining being endorsed within the professional dance environment, recalling, "There was a really unhealthy kind of 'you are working at all times, from 9:30 in the morning till 6 at night. No exceptions, no excuses, if you're sitting down doing nothing then there's a problem'." However, most participants felt that once they entered the professional sphere, the physical demands decreased dramatically from what was expected of them during vocational training.

Intrapersonal Factors

Intrapersonal factors included stressors specifically related to individual characteristics and beliefs, and included the three higher order themes of personality, developmental concerns, and physical health.

Personality

Supermotivation and Obsession. Participants recalled being supermotivated and obsessive about dance during their vocational dance training, rejecting other aspects of life such as romantic relationships and outside interests to dedicate themselves to dancing. Some participants did additional training on top of their vocational dance training, both dance specific (e.g., external dance classes and examinations) and other forms of physical training (e.g., weight training, cycling, yoga). One participant stated, "I really wanted it, so I would do crazy things like always putting ankle weights on after class, and going to the gym lots and working really hard, and working after every class even though I had multiple classes a day. … The key was overtraining really … the only way to get through it is to do the intense overtraining" (B1). Another participant reflected on being stuck in "the ballet rut" (B4) where an obsession with ballet, and an inability to think about or do anything else, caused a performance plateau and led to injury.

Competition and Confidence. Participants reported perceptions of competition with peers for positions and status in class, roles in performances, and jobs at the end of training. Competition was also linked with stress related to confidence, in that participants compared themselves negatively with other dancers and reported feelings of inadequacy.

Developmental Concerns

Maturity. Participants noted that commitment to dance training throughout their youth and early exposure to adult situations (e.g., living away from family at a young age) were associated with delayed development of life skills necessary for

dealing with events they encountered during their dance training. One participant noted, "I feel like I didn't have the skills to care for myself inside of all that" (C8).

Technique. Perceptions of inadequate dance technique, particularly in comparison to other dancers in the course, was a source of stress for some participants who felt that other students were more technically advanced than themselves. Several participants commented on working hard to make up for a "late start" in dance or for inadequate levels of elite training prior to entering their vocational dance course, and for one participant, the perception of being behind and needing to work harder than colleagues had persisted into the professional career.

Physical Health

Injury and Illness Status. Several participants entered training with a significant injury history and 83 percent of participants experienced an injury during their vocational training. Participants felt pressure to continue dancing through injuries, or return quickly from injury, and worried about falling behind classmates, or being forgotten as the rest of the class moved on: "You see everybody improving so quickly and then you're like, "I can't dance! I can't jump!" (C6).

Stress related to illness was a factor for several participants, particularly relating to time off from dance training. This was related in part to attendance monitoring within the dance course and to the length of time they were permitted to take off by health care professionals. Some participants reported that health care professionals associated with their dance course were instructed to only allow students one or two days off when ill, and two participants reported experiencing undiagnosed glandular fever during their vocational dance training. Both participants were not allowed to take time off from their course and continued training because they attributed feeling exhausted to their dance training rather than a symptom of illness.

Injury Management. Participants reported stress related to knowing how to care for themselves when injured and a perceived lack of understanding or dance-specific knowledge from health care professionals. Stress was also associated with perceived pressure from organizational staff to return quickly for assessments or performances, with the threat of failing the course sometimes held over the student to encourage their return. "When I got injured, in school, they wanted me back as quick as possible, they said that I would fail the year if I didn't get back by a certain time and that I needed to be back so I could do this piece at the end of the year" (B1). Choreographic demands also had an impact on injury, particularly when the injured site was being overworked with repetition in a routine.

Interpersonal Factors

Interpersonal factors included stressors related to the influence of and interactions with significant others, and included the three higher order themes of organizational relationships, external relationships, and social identity.

Organizational Relationships

Teachers. Participants experienced stress related to making sense of different teaching styles and approaches to learning, with some teachers being more open to an individual-focused approach to learning and others leading from the top down. Perceived differences in teacher expectations concerning injury, feedback, and reputation were also sources of stress for student dancers: "There's no consistent … thinking coming from faculty so you did have different attitudes from everybody that you're trying to take in and know where to go" (C7).

Peers. Relationships with peers were often supportive; however, for some participants they were a source of stress, particularly those who were involved in romantic relationships with classmates that broke down during the training course. Peers were often a source of competition, having both positive and negative impacts on participants. Competition encouraged participants to work harder and achieve more, but sometimes caused them to push beyond personal limitations or to compare themselves negatively with their classmates in terms of ability and physicality.

Organizational Staff. Whereas teachers were generally seen in more of a nurturing and supportive role, organizational leaders and directors were often seen to be the cause of stress related to power imbalance and perceived expectations.

External Relationships

Participants experienced stress related to external relationships, such as romantic relationships and friendships outside of dance training. A source of stress was lack of understanding from friends and partners regarding the workload and time demands of vocational dance training. Participants reported feeling abandoned or rejected by friends outside of dancing, and experienced stress trying to maintain these relationships.

Social Identity

Dance Community. Social identity related to how participants perceived themselves within their immediate and wider dance community. Participants reflected on the importance of fitting in with their peers in their vocational dance training course and reported stress related to the perception of not fitting in, either because they were actively trying to remain separate from the group, or because they felt they were an introverted or shy personality trying to find their place within an extroverted environment. One participant noted, "I had that drive but I couldn't see how, because I was always quite shy, how I could work in a way and I found that quite stressful" (C4).

Social Media. Another aspect of social identity related to social media and the Internet. Some participants believed that access to unhealthy images of dancers online (e.g., images of extreme flexibility) caused stress for dance students, providing them with an unrealistic aesthetic ideology about what their bodies should look like and what they should be able to do. However, others believed social media was a positive influence for dance students and could help them recognize multiple pathways and opportunities for success.

Situational Factors

Situational factors related to the specific demands of a vocational dance training environment and included the four higher order themes of transitions, major events, training demands, and lifestyle.

Transitions

Transitions within Course. The second year (of a three-year degree) was a key factor associated with stress. Most participants said their second year was their most challenging year. One participant noted, "I remember going into second year and one of the people in the year above telling us 'you will cry in the toilets at some point' and that was true. Everyone cried in the toilets at some point" (C4). Participants believed that in their second year both the physical and academic demands of their course increased and they felt ill-equipped to cope with the increased demands.

Transition into Profession. Participants reported stress related to a perceived change in expectations as they prepared for the transition from the final year into the workforce. A shift in teacher expectations was a key stressor for one participant who felt "the language that teachers use in the classes changes and there's all this reference to 'it's your final year and you're leaving and you should be hitting this standard and you'll be going to auditions soon' . . . I remember [finding] that really confronting" (C8).

Organizational Transitions. Participants reported stress related to transitions of staff within the organization, and although not directly involved, organizational tensions had a negative effect on their training and performance. One participant described an event where tension between teaching staff in the faculty resulted in a major incident during an assessment that had a negative impact on all students involved: "I think for me, that was probably the most stressful time and that one in particular was horrific. Like we all came out completely devastated at the end of that" (C2).

Major Events

Assessments. Stress associated with assessments related to performing in front of a panel and having to wear specific clothing (i.e., leotard and tights). Some participants did not perceive that they had the mental skills necessary to deal with anxiety and nerves, for example:

> I had no idea how to combat nerves and I'm an extremely nervous person and I would freak out, like I'd be crying up until the moment I walked into the studio for assessments. . . . I just remember feeling completely overwhelmed and like I'd never been comfortable in pink tights and a leotard, and I know that sounds stupid, but again I didn't have the skills to dismiss all those insecurities in the class to just get on with the work. (C8)

Nondance Events. Major life events unrelated to dance training were perceived to have an influence on the stress experienced during vocational dance training. Some participants attended school on top of their vocational dance training and school examination periods were a source of stress. Some participants also had significant family issues that occurred during their vocational dance training that affected their performance during training and their perceived levels of family support.

Training Demands

Training Load. Overall, participants did not report that physical training load contributed to stress. In fact, participants who did not receive high training loads in the initial stages of their course were disappointed and questioned the value of their training because they believed they were being undertrained. However, stress was experienced when faced with additional demands to physical training (e.g., academic workloads or external life events). Several participants felt that they always had to be at their training institution and were not provided with adequate breaks, recovery time, or modules within the course that focused on recovery, such as somatic practices.

Balance. Balancing academic and physical workloads was a challenge for some participants, with many unable to apply mental effort for written work following a day of heavy physical training. Time management was also an issue, with academic work suffering due to poor organizational and time management skills. Balance was also important in a social sense. Dancers who did not engage in social interactions outside of dance training reported experiencing high levels of stress, particularly when faced with adversity (e.g., becoming injured). For participants lacking in social support, injury meant isolation from peers and support networks, leading to stress and a poor recovery response. Some participants reported frustration at not being able to maintain social interactions with others outside of dancing due to the heavy time commitments required of their course and the perceived expectation that they should always be training, even during evenings and holiday periods.

Dance Genre. Participants noted differences between the demands of ballet and contemporary, and the effect that

dance genre has on physical and psychological stress. It was noted that ballet is a more fixed dance genre than contemporary dance, with images and ideals of success being more rigid and harder to attain physically for some dancers, leading to physical and emotional stress. Participants also discussed the different choreographic demands of dance genres, particularly in contemporary dance, relating to the type of piece they were rehearsing and the academic work demands of the time. For example, when working on a mentally taxing contemporary piece, it was harder for the dancers to also expend mental effort in completing academic work. Participants recalled that if they were enjoying the piece they were working on it seemed to be easier to cope with other stressors.

Versatility. Participants spoke of an increasing demand for versatility within the dance industry, with dancers needing to be able to cross dance genres and perform skills that might fall outside of traditional requirements. For example, "a ballerina doesn't just do 32 fouettés, that is no longer what the requirement is . . . a ballerina has to be able to do everything" (B4). Participants felt that the technical demands and standards required of dancers currently in vocational dance training had increased since they undertook vocational dance training.

Lifestyle

Finances, Job Security, and Living Arrangements. Job security and finances were a source of stress (e.g., getting a job, keeping a job, competition with others for roles, positions), and these concerns continued after participants had transitioned from training to professional careers. A major lifestyle factor for vocational students is living arrangements, with many vocational students having to travel and live away from family to attend their chosen institution. Along with the stress related to learning how to care for yourself in an independent living situation (e.g., knowing how to cook healthy meals, having to do your own laundry, grocery shopping, financial management, etc.), participants also reported stress related to dealing with flatmates and living with other dance students. One participant was unaware that one of her flatmates had an eating disorder and noted that her own eating habits changed based on the behavior of her flatmate: "I was so naive I thought anorexics eat zero, so therefore because she ate . . . I didn't have that realization that it equalled anorexia . . . it was just like 'wow, she doesn't eat much and I'm a pig!'" (B2).

Factors Related to Behavioral Responses to Stress

Analyses identified two general dimensions related to behavioral responses to stress in vocational dance training, maladaptive responses and adaptive responses, reflective of Stage 3 in the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008). These general dimensions encompassed six higher order themes relating to professional dancers' recollections of their behavioral responses to stress during vocational dance training and are summarized in Table 2.

TABLE 2 **Behavioral Responses to Increased Stress During Vocational Dance Training.**

General Dimension	Higher Order Theme
Maladaptive responses	Denial
	Harmful behaviors
	Overtraining and burnout
Adaptive responses	Social support
	Health and well-being
	Program alteration

Maladaptive Responses

Denial

The most common response from participants regarding how they coped with stress was to "get on with it" or "keep pushing through." Most of the participants interviewed could not state particular practices or strategies they used to recover from stress, other than "I pushed through and kept going!" (C7) or "Just time" (B2). Participants ignored advice from health care practitioners when stopping dance was recommended, choosing instead to adapt personal practice so that they could continue participating in classes and rehearsals.

Harmful Behaviors

Participants reported resorting to harmful behaviors when dealing with stress, including drinking alcohol and smoking cigarettes. Participants also reported risky eating behaviors to maintain the aesthetic bodily ideal demanded from their training institution.

Burnout

Three participants had serious health issues while in vocational dance training, related to undiagnosed glandular fever (exacerbated by being unable to take time off from dance training) and mental health issues related to experiencing an injury and extreme social isolation. Two participants reported symptoms indicative of burnout. One participant had ongoing fatigue and described experiencing repeated "boom and bust cycles" (C7). These cycles would begin with a period of performance improvement, but when the early signs of recovery–stress imbalance were ignored, would result in injuries and illness, followed by time off dancing as participation was no longer physically or mentally possible. Another participant had a psychological breakdown marked by psychotic episodes, a lack of motivation, and a change in personality, becoming withdrawn and antisocial. In

hindsight these participants recognized their experiences were symptomatic of burnout.

Adaptive Responses

Social Support

Several participants reported adaptive responses to stress, including deriving support from family and peers and maintaining relationships outside of the dance training environment. Participants believed dance teachers were a source of social support, and many had a particular teacher who fulfilled a supportive "parental" role during their dance training. Participants felt social relationships and hobbies outside of dancing helped to maintain balance and deal with stress experienced as a result of dance training.

Health and Well-Being

Participants undertook proactive injury management, using massage, early interventions, and seeking treatment for "niggles" to manage early-stage injuries that could develop into something more serious. Participants also discussed the importance of finding a balanced lifestyle, including taking time out from their training and enjoying activities away from dancing to cope with stress.

Program Alteration

Two participants extended the duration of their vocational dance training program to help cope with the demands of the course. One participant felt it was too challenging "to pump out so much energy and then to think at night" (C3), but by extending the course over a six-year period was able to find a balance between the physical and mental workloads required. Another participant took four years to complete a three-year training program, effectively adapting the training program to promote individual balance, health, and well-being.

DISCUSSION

To identify potential risk factors for overtraining among vocational dance students, this study investigated factors associated with stress during vocational dance training and behavioral responses related to maintaining recovery–stress balance. The findings suggest the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) is applicable to a dance-specific context and provides a useful starting point to examine the highly complex recovery–stress dynamic. Theoretical and practical implications in relation to the findings of this study are discussed, alongside recommendations for future research.

Contribution to Theory

This study provides support for the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) within a dance training context, with stress-related risk factors derived from interpersonal, intrapersonal, and situational factors, operating within a dance-specific sociocultural context. In line with previous research, sources of stress were related to "pushing through," particularly in relation to fatigue, pain, illness, and injury (Aalten 2005; Anderson and Hanrahan 2008; McEwen and Young 2011; Winsley and Matos 2011), physical appearance and aesthetic ideals (Aalten 2005; McEwen and Young 2011), health and injury (Liederbach, Schanfein, and Kremenic 2013), personal characteristics and overconformity to dance ethic (Coker-Cranney et al. 2017), and relationships with organizational and teaching staff that provided both a trigger for and a buffer to stress (Noh, Morris, and Andersen 2009; Aujla, Nordin-Bates, and Redding 2014). These findings indicate that there are numerous factors that could be considered risk factors for increased stress in dancers; however, it is the dance-specific sociocultural context that provides reinforcement of ideals and might provide exposure to, or protection from, sources of stress.

This study extends theoretical knowledge by introducing factors less common in the literature around sources of stress in dance training. Specifically, the role of social media and stress related to transitions in dance training are two areas of interest. Dancers spoke of the importance of social media and social identity as a buffer to, or exacerbating, stress experienced. Acceptance and conformity to dance culture and ideals have been shown to be important in the development of dancers' identity and approaches to health (McEwen and Young 2011). Social media influence is a relatively new area and warrants further investigation as to the impact on dance training and performance. Although it can be used as a tool for good (e.g., seeing different types of "bodies" succeeding in dance, opening up opportunities for dancers that might have been unknown due to lack of network), it could also be potentially harmful, such as dancers seeing videos and images of others on social media who encourage unsafe dance practices.

With regard to transitions as a source of stress, our dancers identified the second year of a three-year dance training program as particularly demanding and a time when performance declines were noted, a finding in line with research in university environments where this phenomenon has been coined "the second year slump" (McBurnie, Campbell, and West 2012). Although efforts have been made to support the initial transition for first-year students into university-level dance training (Huddy 2016) our findings suggest that the second year is an equally important time for assisting dancers to cope with the demands and pressures of their training.

Practical Implications

This study makes an important contribution to the literature on dance training by extending work from the sports sciences into a dance-specific context. Our findings suggest that the nature of the dance-specific sociocultural environment in which dancers are trained provides a basis for developing either adaptive or maladaptive attitudes and responses to increased stress.

Therefore, endorsement of cultural norms that encourage dance students to reject behaviors related to overtraining, that demonstrate a supportive and proactive response to injury, and that are supportive of a variety of body shapes and sizes, is essential for developing adaptive responses to stress. Considering the organizational structure and wider relationships within the dance training environment is important when providing supportive training environments for students (Hernandez 2012) and is one way in which organizations could embrace cultural change. For example, dancers reported experiencing stress when there were inconsistencies encountered between teachers regarding approaches to learning and management of injuries and illnesses. Thus, it could be beneficial to include organizational-level guidelines for learning and injury management so practices are applied consistently by staff.

This study supports the literature that dancers endure high workloads (Wyon 2010; Grove, Main, and Sharp 2013), but it is interesting that the dancers reported feeling unmotivated and disappointed when the workload was not perceived to be high enough. Nonetheless, dancers' abilities to cope with large training loads was impaired when faced with additional challenges, such as major life events or academic workloads and deadlines. This finding suggests that there is benefit in improving dancers' understanding of the delicate balance between training and recovery, and the impact that nontraining stress might have on recovery–stress balance. Introducing monitoring systems within dance training will allow dancers to understand their individual response to training and identify their personal recovery needs. Monitoring routines are used successfully in elite-level sport to maintain and enhance recovery (Kellmann et al. 2018), and the introduction of similar practices in dance training environments might prove beneficial for dancers.

Monitoring routines that allow dancers to track their recovery might also provide an additional benefit in assisting dancers to identify coping strategies that help to maintain recovery–stress balance. In this study many dancers struggled to identify coping strategies used when experiencing stress, apart from "time" or "getting on with things." Literature around pain in dance reports similar findings where dancers might attempt to ignore, silence, or deny pain experienced if it is seen as a normal and often necessary part of being a dancer (McEwen and Young 2011). Dancers in this study who could not identify coping strategies also reported negative outcomes related to maladaptive behaviors–exacerbation of injury, illnesses such as stomach cramps, and prolonged fatigue-related illness–and two participants reported symptomatology indicative of overtraining and burnout. Conversely, dancers who could identify coping strategies, such as using social support networks, proactive approaches to health care, and adapting the training program to suit personal needs, reported positive outcomes related to recovery–stress balance. Two participants spoke about extending their university training program beyond three years, which allowed them time to balance physical and academic workloads and deal with internal and external stressors. Adapting training to individual needs has positive benefits for recovery and performance enhancement, and is regularly practiced in athletic training environments (Kellmann 2002). Although personalization of dance training is certainly not a straightforward process given that training environments are typically group based and uniform in delivery, the potential benefits to dancer health and well-being by allowing for individualization within the training environment cannot be overlooked.

Future Research

The findings of this study provide support for the application of a sports-based model of overtraining risks and outcomes within a dance-specific context and highlight the need for greater understanding of recovery–stress balance in dance training environments. Recovery has not been widely studied in dance research and despite the identified need for a better understanding of rest and recovery in dance (Batson 2009), this area of research is still in its infancy. Thus, the possibilities for future research abound. Based on current knowledge in sports research, and the preliminary findings of this study, we would argue for the application of theory derived from the sport sciences to assist in a better understanding of individual responses to the physical and psychological demands of dance training and performance. Of particular interest is the application of monitoring practices to dance training environments. Researchers could investigate the relationship between training load, stress, and recovery in dance students to establish changes across time, or across performance contexts (e.g., class, rehearsal, performance). Future research could also examine the relationship between training load and injury, particularly in relation to the cyclical nature of injury and overtraining that has been identified among athletes (Richardson, Andersen, and Morris 2008).

This study represents a first step in the investigation of recovery–stress balance in dance. As such it provides a useful starting point for research to investigate ways to enhance recovery in dance. Future research would benefit from investigating methods of improving recovery in dance and increasing dancer awareness of the importance of recovery practices in dance training. However, a number of limitations exist that would be helpful to address. Given that the aim of the study was to examine the overtraining risks and outcomes model (Richardson, Andersen, and Morris 2008) in full, and appreciating the complexity of investigating recovery–stress states, the broad scope of themes identified restricted in-depth investigation of the individual aspects of the model. Future research could focus on specific elements of the model to extrapolate the findings presented in this article. This study was also limited to a relatively small and homogenous sample size, meaning that the viewpoints disclosed here are not likely exhaustive and might not be generalizable. Therefore, additional research is needed to establish support for these findings and extend them to other populations of dancers. Greater understanding of current vocational dance student experiences of training is needed, alongside comparisons of teachers' attitudes toward overtraining and recovery in

vocational dance training environments. Finally, examination of behavioral responses to stress and methods for enhancing recovery in dance training and performance is required to establish mechanisms for improving training outcomes for dance students.

CONCLUSION

Vocational dance students encounter many potential stressors during training relating to intrapersonal, interpersonal, and situational factors embedded within the dance culture. Experiences of stress, and subsequent behavioral responses, should be supported at an individual and organizational level. The overtraining risks and outcomes model provides a sound basis for examining overtraining and recovery in dance. A comprehensive understanding of overtraining and recovery in vocational dance training will assist in developing interventions that encourage adaptive behavioral responses to recovery–stress imbalance and improve training outcomes for vocational dance students.

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