

DON'T TELL ME TO REST!

The Reality of Performing Arts Healthcare

Australian Society for
Performing Arts Healthcare

Symposium & AGM

25th November 2017

Peppers Salt Resort and Spa, Kingscliff, NSW



ASPAAH

Australian Society for
Performing Arts Healthcare



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Performing Arts Healthcare

Brought to you by ASPAAH

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Mr David Peirce
Dr Luke Hopper

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Welcome to the ASPAH 2017 Symposium

I am excited to be presenting to you the 9th Australian Society for Performing Arts Healthcare conference in beautiful Kingscliff.



I have been involved in the organisation and scientific committee of the last 5 ASPAH conferences. During this time, I have also presented and attended numerous performing arts medicine conferences nationally and internationally. I can truly say that the rigour and breadth of performing arts medicine research has surged in Australia, making us one of the world leaders in this field of

research and practice. I am very proud to be able to help facilitate and foster the growth and spread of performers' health and education through the work that ASPAH does so ceaselessly and proactively.

I hope you will gain invaluable knowledge and make invaluable connections with the wonderful group that ASPAH attracts and keeps. Please do not hesitate to let me or one of the executive committee members know if there are any areas of this conference that you would like to see further improved. We are here to serve you to ensure performing artists have enduring and enriched careers, being able to perform at their peak, never to be told to rest as their only sole management option.

Dr Clifton Chan
Senior Lecturer in Functional Anatomy and Physiotherapist
Scientific Chair and Treasurer of ASPAH

Timetable

8.15am **Registration desk open**

8.45am **Welcome**

Dr Luke Hopper (ASPAH President)

David Peirce (ASPAH Vice President)

Dr Clifton Chan (Conference Coordinator)

9.00am **Keynote Presentation**

Pain and Performance – the gifts of neuroscience

A/Prof David Butler

10.00am Morning Tea

10.30am **Free Papers Session 1**

Chaired by Prof Gene Moyle

Integrating supplementary training into a professional contemporary dance performance season

Dr Luke Hopper

Recovery from Chronic Fatigue Syndrome: Possibilities and limitations in a dance training environment

Ms Daisy Sanders

How does structured dance fare as a physical health intervention: A systematic review and meta-analysis

Dr Clifton Chan

Applying implicit learning research to enhance dancers' motor skills

Ms Janet Karin

11:10am **Free Papers Session 2**

Chaired by Dr Paul Duff

Relationship stress in performing arts: Why performers need to learn resilience to stop sabotaging their lives

Dr Mark Seton

Performance anxiety, mindfulness and wellbeing in musicians

Dr Margaret Osbourne

Developing an online music performance skills program for teachers and students: Challenges and triumphs

Ms Anneliese Gill

Development and evaluation of two brief group treatments for music performance anxiety in community musicians

Dr Naomi Halls

12.00pm **Annual General Meeting (12.30 – 1.30pm)**

LUNCH

All conference attendees are welcome to attend the AGM, however only ASPAH members will have voting rights

Poster Presentations

Developing a holistic approach to singing practice, using the principles of hatha yoga

Ms Sarah Collyer

Early maladaptive schemas associated with performance anxiety aetiology and phenomenology in classically-trained musicians

Dr Jennifer Kirsner

Bone mineral density in elite female adolescent ballet dancers: A systematic review and meta-analysis

Dr Rachel Ward

1.45pm **Free Papers Session 3**

Chaired by Dr Margaret Osborne

Ergonomics in pianists: The relationship between different sized keyboards and hand size

Mr Ju Yang Chi

Practicing, rehearsing and performing on woodwind instruments whilst fasting during Ramadhan in Malaysia

Dr Karen Lonsdale

Injuries in Australian dancers

Dr Claire Hillier

Overtraining and recovery in dance: A case study approach

Ms Peta Blevins

2.45pm **Keynote Workshop:**

When the neuroimmune system screams: Practical applications of DIMS and SIMS

A/Prof David Butler

3.45pm **Afternoon Tea + Poster Presentations**

4.30pm **Workshops**

Workshop A: **Mindfulness training in vocational dance**

Ms Peta Blevins and Prof Gene Moyle

Workshop B: **Exercises to address spinal stiffness and pain in instrumental musicians**

Dr Clifton Chan

4.45pm **Award Presentations**

Best Student Paper, Best Clinical Paper, and Best Poster awards

5.00pm **Panel Discussion: Mental health across the performing artist's lifespan**

Chaired by Dr Luke Hopper

5.45pm **Official Closing + Acknowledgements +**

Announcement of 2018 ASPAH Executive Committee

Map and Information



Conference sessions are located at area 3 on the map above. Breakfast is served in the Season Restaurant 6.30am – 10.30am for those who are staying at Peppers Resort.

Transfer Details to and from the airport:

Tweed Coast and Country Limousines and Transfers

Phone: 0409661589 or 0409775501

Email: tcclimos@bigpond.com

KEYNOTE PRESENTATION

Assoc Professor David Butler, B.Phty, M.App.Sc, EdD



We are thrilled to announce this year's keynote speaker, Assoc Professor David Butler. David Butler is a physiotherapy graduate of the University of Queensland (1978). He has a graduate diploma in advanced manipulative therapy (1985), a masters degree by research from the University of South Australia (1996) and a doctorate in education from Flinders University (2010). He is a director of the Neuro Orthopaedic Institute - an international organisation teaching biopsychosocial based pain treatment (www.noigroup.com), and an Adjunct Associate Professor at the University of South Australia.

Understanding and explaining pain are David's passions, and he has a reputation for being able to talk about pain sciences in a way that everyone can understand. David is a

physiotherapist, an educationalist, researcher and clinician. His professional interests focus around the integration of neurobiology into clinical decision making and public and professional education in pain, stress and performance management.

Among many publications, his texts include "Mobilisation of the Nervous System" 1991, "The Sensitive Nervous System" (2000), and with Lorimer Moseley, "Explain Pain" (2003, 2013), The Graded Motor Imagery Handbook (2012), The Explain Pain Handbook: *Protectometer* (2015) and in 2017, "Explain Pain Supercharged".

Keynote Lecture: Pain and performance – the gifts of neuroscience

There is not much difference between pain and performance. They are both ultimately homeostatic brain constructions which respond to various elements of desire, threat, curiosity and the perceived need to protect. Their relationship is not linear as is usually assumed - both are emergent phenomena, the results of collective and simultaneously active processes.

This presentation is about some of the gifts of knowledge from the current neuroscience and neuroplasticity revolution. These include pain as natural and normal, distributed processing in the brain, the critical role of the immune system in pain, notions of treating rather than managing pain and a new awareness of language as both pain provoking but also transformative. Such gifts are discussed along with their possible meanings, clinical consequences and their place in pain treatment and performance enhancement. After the presentation, participants may well reflect on their potential role as immunotherapists, linguists, sensory and motor freedom therapists.

Integrating supplementary training into a professional contemporary dance performance season

Luke Hopper¹, Peta Blevins², Danica Hendry³, Shona Erskine⁴, Raewyn Hill⁵ and Richard Longbottom⁶

¹ PhD, Western Australian Academy of Performing Arts, Australia

² MSc, Western Australian Academy of Performing Arts, Australia

³ MSc, Curtin University, Australia

⁴ PhD, Western Australian Academy of Performing Arts, Australia

⁵ Co3 Dance Company, Australia

⁶ BA, Co3 Dance Company, Australia

Keywords: workload, wellbeing, recovery

Background: The professional dance industry is highly competitive and demands a unique level of athletic prowess in order to fulfil the demands of the art form (Koutedakis & Jamurtas, 2004). Many dancers and dance companies are looking to the human sciences in the interests of reaching the elite performance capacities demanded of professional dancers (Clark, Gupta, & Ho, 2014). To date, a modest evidence base has been developed which demonstrates that dancers respond positively to traditional athletic training regimes for improving dancer performance and preventing dancer injuries (Angioi, Metsios, Twitchett, Koutedakis, & Wyon, 2013; Beck, Redding, & Wyon, 2015; Girard, Koenig, & Village, 2015). The artistic staff of the flagship Western Australian Contemporary Dance Company Co3 have afforded the unique opportunity to examine the question of how new training methods can be incorporated within the 2017 company rehearsal and performance seasons. This offer has afforded the unique opportunity to work with a proactive artistic staff who are willing to openly consider how the company training is conducted in the interests of supporting dancer wellbeing, improving physicality in performance while maintaining the artistic integrity of the company productions.

Methods: This study is currently in progress. Company dancers have undergone preliminary assessments through psychological (acceptance and commitment therapy) and physical (range of motion and functional movement screen) formative assessments. Physical and psychological skills training in the pre-rehearsal season has been adapted to each dancer in consultation with the assessing psychologist and physiotherapist. Dancers will be reassessed at the commencement and completion of the upcoming main rehearsal and performance season. The performance season will involve load management scheduling, supplemental training and active recovery procedures. In order to evaluate the program, the dancers will participate in daily monitoring tracking wellbeing throughout the performance season. On completion of the 2017 performance season the company staff and dancers will be consulted to provide feedback on their perceived efficacy of the program.

Main Contribution: This project provides an exemplar of how dance training can be restructured and the possibilities for diversifying dance training across the industry. Dance is an increasingly competitive industry which pressures dancers into positions of high injury risk

(Liederbach, Hagins, Gamboa, & Welsh, 2012). Injury frequency in elite dancers is high and greater than in many sporting populations (Allen, Ribbans, Nevill, & Wyon, 2015). As a result of the industry evolution and repercussions on dancers' wellbeing, new models for training are being sought to balance the performance and associated training demands of elite dance. Demonstrating that elite dance training can be achieved through a deliberate, evidence-based approach will make a significant contribution to the culture change that is needed, and is occurring, in the dance sector in response to the high pressure demands of artistic and athletic contemporary dance.

Conclusions: Dissemination of this research will likely open new directions for investigation in the interests of optimising dance training through coordinated and scientifically structured research interventions. In addition, it will provide the dance sector an exemplar of how dance training can be reimaged in the interests of progressing the dance industry.

New insights: opportunities and barriers associated with implementing new training approaches into a professional contemporary dance company

Implications: An exemplar of applying evidence based practices into the schedule of a professional performing arts company

Correspondence

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Biography

Dr Hopper completed a PhD specialising in the biomechanics of dance and injury prevention at the University of Western Australia's School of Sport Science, Exercise and Health in 2011. Dr Hopper coordinated the biomechanics module in the pioneering Master's of Dance Science at the Trinity Laban Conservatoire of Music and Dance in 2010 before commencing as a lecturer in biomechanics at the University of Notre Dame Australia. Dr Hopper's work in dance science and performing arts health has involved several collaborations with international ballet companies such as the Birmingham Royal Ballet and with industry partners Harlequin Floors. Dr Hopper continues to work with the International Association of Dance Medicine and Science and as the current president of the Australian Society for Performing Arts Healthcare in the development and dissemination of health evidence in preventing injury and illness in performing artists. In his position at ECU, Dr Hopper is developing a health education and research program for the performing arts using his specialised skills in biomechanical 3D motion capture facilities and in collaboration with the WAAPA staff and students.

Recovery from Chronic Fatigue Syndrome: Possibilities and limitations in a dance training environment

Daisy Sanders

BA, Western Australian Academy of Performing Arts, Edith Cowan University, Australia.

Keywords: Graded Exercise Therapy (GET), somatic practice, intensity, heart rate/BPM, rest, recovery, 'body listening', intentional somatic rest

Background: As a dance artist with chronic fatigue syndrome (CFS) I attempted a recovery program within the tertiary contemporary dance environment. The recovery program included principles of graded exercise therapy (GET) and the practice of somatic techniques (Alexander Technique, The Feldenkrais Method, somatic centered dance pedagogy), as well as observation and analysis of mental/emotional and dance-specific factors that impacted the recovery. The goal of my practice-led research was to maximise positive health outcomes towards a full recovery from CFS and a return to peak performance as a dance artist.

Methods: The study was undertaken as a personal case-study, via a qualitative approach to practice-led research, including reflection-in-and-on-action and ongoing reflexivity. The central GET principles applied within the recovery program were a. gradual incremental increases of activity (via the measure of intensity, heart rate BPM), b. a balance between exertion and rest and c. awareness and response to the limits of the body via the practice of somatic 'body listening'. There were three distinct phases of research with accompanying data collection: 1). ongoing reflexive research with reflective journaling 2). three focused action research phases lasting six, seven and fourteen days with detailed data collection/analysis and 3). augmentation of health recovery via creative practice (rest-focused dance pedagogy and a durational research-as-performance dance work).

Observations: The GET principles were difficult to utilise in the dance environment primarily due to a significant lack of high intensity activity. Cognitive, emotional and behavioural factors had a high impact on my successful physical participation in the dance environment and a complex interrelationship with the improvement or deterioration of my overall health and wellbeing. There was an absence of rest and recovery in the dance environment (both information and practice): dedicated and effective recovery activities were only available/accessed outside of the dance environment. These included specific somatic techniques and I found that a somatic quality of attention was essential in increasing physiological quality of rest and my corresponding ability to participate in the dance environment.

Potential implications: Increasing my tolerance of high intensity activity (limited due to CFS) may be more effective if undertaken outside of the dance environment. The somatic practice of intentional rest is underutilised in the dance environment but was of considerable benefit to my recovery from CFS and may also benefit training dancers. Via my CFS recovery I have developed an autonomous method for navigating the dance environment and effectively balancing my training volume. This has ensured I can remain engaged in the dance environment by undertaking an active but effective recovery process. My case study may

provide an exemplar for other dance artists, particularly those recovering from long periods of injury or illness.

New insights: a reflection on the unique embodied skills of the contemporary dancer and an insight into the distinctive ecologies of the dance-training environment. It reveals that an approach to dance training, which effectively considers training volume combined with quality rest and recovery (particularly supported by somatic practices), could benefit the overall health and wellbeing of dancers as well as their performance outcomes.

Implications: an exemplar for recovery in the dance environment offers information that may assist clinicians who treat dance artists recovering from injury or illness. It may also provide valuable insights relevant to training and professional dancers for the prevention or treatment of injury or illness.

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Biography

Daisy Sanders is an independent dance and physical performance artist. She has worked for Company Upstairs and Sensorium Theatre, and presented her own choreographic work with support from The Australia Council, Healthway and The West Australian Government Department of Culture and the Arts (DCA) including a 2017 Young People and the Arts Fellowship. Daisy has a 2013 Bachelor of Arts (Dance) from The Western Australian Academy of Performing Arts (WAAPA), Edith Cowan University (ECU), with Honours awarded mid 2017. Her first foray into post-graduate research combines artistic practice with her interests in the health and sustainable careers of performing artists.

How does structured dance fare as a physical health intervention: A systematic review and meta-analysis

Cliffton Chan¹, Leslie Nicholson¹, Claire Hiller², Evangelos Pappas², Rachel Ward³, Stephen Cobley⁴, Roslyn Brown⁵, Yu Gu⁵, Bronwyn Trevor⁵, Amy Vassallo⁶, Michael Wewege⁷, Alycia Fon Yang⁴.

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Keywords: Weight management, cholesterol, compliance, exercise, physical inactivity.

Background: Physical inactivity is a serious global health challenge. Sedentary lifestyles significantly increase the risk of developing life-threatening cardiovascular and metabolic diseases, cancers and osteoporosis. There is growing evidence to support dance as a health intervention, improving cardiovascular fitness, bone health, lower body muscle strength and flexibility, and reducing cardiovascular disease mortality. However, as control groups are typically sedentary, it is not known whether dance interventions differ in efficacy to structured exercise programs. The purpose of this systematic review was to investigate the effectiveness of structured dance interventions, in comparison to structured exercise programs, on a range of physical health outcome measures.

Methods: Seven databases were searched from earliest records to 1 Aug 2016. Studies with a dance intervention lasting ≥ 4 weeks that included physical health outcomes and had an active comparison group were included in the study. Data extraction was performed by two independent reviewers at all stages. All reviewer disagreements were resolved by one of the authors (AFY). A meta-analysis or an effect size estimate was generated where possible.

Results: Of 11,432 records identified, 26 studies met the inclusion criteria. Total sample size of all included studies was 1,227 participants (260 males, 785 females, 182 unreported). Dance genres studied included aerobic dance, Latin, folk/traditional, ballroom and Zumba. Body composition, cardiovascular function, blood biomarkers, functional musculoskeletal and functional mobility questionnaire outcomes were analysed.

Conclusions: Undertaking structured dance, of genres with identifiable movement sequences, is equivalent and occasionally more effective than other types of structured exercise for improving a range of health outcome measures. Although dancing has been associated with lower limb musculoskeletal problems and injuries, progressive increases and regular dancing is highly protective against many chronic and systemic diseases. It should be recommended that dancers continue recreational dance after retirement, and recreational dancers should be encouraged to maintain dance as a regular hobby to receive these aforementioned health benefits.

New insights: Structured dance interventions of four weeks or more are as efficacious if not more so than structured exercise.

Implications: Clinicians can recommend dance as an alternative form of physical activity/exercise to reduce fat mass, lower triglycerides, and improve cardiovascular fitness, flexibility and day-to-day functionality.

Correspondence

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Biography

Dr Chan is a senior lecturer of functional musculoskeletal anatomy at the Discipline of Biomedical Science, Sydney Medical School, The University of Sydney. He is a co-leader of the Hypermobility and Performance Laboratory, Bosch Institute. He also continues to consult as a Senior Musculoskeletal Physiotherapist at Potts Point Physio, Sydney. His research area is focused on early detection and management of performance-related musculoskeletal disorders of performing artists, especially musicians and dancers. Dr Chan specialises in designing population-specific rehabilitation programs and clinical assessment tools. Another major branch of his research is in developing clinically based tools to measure and diagnose generalised joint hypermobility and associated connective tissue disorders.

Applying implicit learning research to enhance dancers' motor skills

Janet Karin O.A.M.^{1,2}

¹ Clinical Fellow, Australian Catholic University, Australia

² Professional Associate, University of Canberra, Australia

Keywords: Sensorimotor, imagery, somatic, performance, injury, rehabilitation

Background: Decades of motor learning research show that implicit motor learning is more effective and more robust than explicit motor learning. Due to its complexity, ballet technique is usually taught by explicit instruction, often specifying individual muscle activation and joint action. The student is responsible for translating explicit instruction into cues that will stimulate optimal motor programs - a process that leaves much room for error and often leads to injury and inadequate performance.

Methods: The presenter will summarise the literature pertaining to the development of expert motor skills and describe the application of the findings to dancers' skill development and rehabilitation. Although recent research in motor programming specific to dance is sparse, Wulf et al (1997, 2001) recommended against the effectiveness of explicit instruction in skills such as dance. The acquisition and maintenance of movement expertise through implicit learning has been researched in laparoscopy (Zhu et al, 2011), golf (Maxwell et al, 2000, 2008; Zhu et al, 2011), table-tennis (Liao & Masters, 2011), stroke recovery (Boyd & Winstein, 2004), rugby (Gabbet & Masters, 2011), billiards (Taylor, Ivry, 2013), and ACL injury (Benjaminse, Otten, 2011). This research, supplemented by research in sensorimotor control (including Calvo-Merino et al, 2005, 2010; Bläsing et al, 2012; May et al, 2011; Jola et al, 2011), and pain (Claus & MacDonald, 2017; Wallwork et al, 2017; Bellan et al, 2017; Gildea et al, 2013, 2014; Moseley & Butler, 2015), underpins the strategies to be presented.

Main Contribution: Implicit learning strategies can establish efficient and robust motor programs and improve performance in many physical skills. The presenter proposes that they can be similarly effective in dancers and may be applicable to musicians and other performing artists.

Conclusions: In the performing arts and music, chronic injury, under-performance and pain can be resistant to explicit technical correction and other treatment modalities. A focus on implicit sensorimotor control may help to re-program a safer, more efficient and more robust motor response to previously challenging technical demands.

New insights: Although the strategies have been developed for dancers, a focus on implicit motor learning may help address similar problems in musicians and other performing artists.

Implications: The strategies in this presentation may encourage attendees to investigate and research the value of implicit motor learning in dancers, musicians and other performing artists.

Correspondence

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Biography

After retiring as a Principal Dancer of The Australian Ballet, Janet Karin trained many outstanding dancers and developed dance studies courses for the Australian National University and the ACT Education Department. She facilitated a range of international dance courses, conferences and workshops, and chaired the host consortium for the 2007 International Association for Dance Medicine & Science (IADMS) conference in Australia. After serving as Education Committee Chair and a Board Director, Ms Karin was elected President of the IADMS Board (2013-2015). Her awards include the Medal of the Order of Australia, the 2014 Australian Dance Award for Services to Dance Education, and the IADMS Dance Educator Award for 2015.

As Kinetic Educator at The Australian Ballet School (2001-2016), Ms Karin applied motor learning research in coaching elite adolescent ballet students, and participated in researching the effect of sensory feedback and various instruction methods on dancers' health and performance. She is a Clinical Fellow of Australian Catholic University and a Professional Associate of the University of Canberra, focusing on the application of neuroscience and somatic theories to dance. The psychological and performance impact of her strategies on students at the Royal Swedish Ballet School is under research this year.

Relationship stress in performing arts:

Why performers need to learn resilience to stop sabotaging their lives.

Dr Mark Seton

¹ PhD, Theatre and Performance Studies, The University of Sydney, Australia

Keywords: Acting, Stress, Mental Health, Resilience

Background: The 2013 Actors Wellbeing Study, conducted by The University of Sydney, in collaboration with the Equity Foundation of the Media Entertainment Arts Alliance, surveyed 782 professional actors in Australia. At least half of them shared that they had experienced significant stresses in their relationship with peers, partners, family, friends, due to the expectations and demands of the job. Yet these peers, partners, family and friends would also be the ones to whom the actors would be most likely to look for support and renewal after the physical and emotional demands of performance. So, what happens if the stress-prone lifestyle of the performing artist has the potential to harm the very relationships that will most likely ensure the longer term health and wellbeing of both actors and the significant others in their lives?

Methods: The aims of the 2013 Actors Wellbeing Study were:

1. to gather qualitative data about a range of factors pertaining to actors' physical, psychological, and emotional health, and to use that data to compare actors to other populations;
2. to gather demographic data about the population of actors;
3. to gather data about the training and working experiences of actors; and
4. to use this data to better understand the factors that bear upon the health and wellbeing of actors, and to identify correlations between experiences of training and in the workplace and actors' health and wellbeing.

In 2015 the Actors Wellbeing Study Report (Maxwell, Seton, Szabo) was published, identifying the quantitative findings of the Study. The qualitative findings have now been analysed and are currently being prepared for publication in various journals and a forthcoming book.

Results: 406 actors (out of 419 responses) described a wide variety of both negative and positive effects on relationships of their work or often, more specifically, aspirations to work as actors. Responses described factors that contribute to the stresses impacting relationships as well as descriptions of impacts. Key industrial factors included isolation from family and friends (due to touring, unsociable working hours, working at a distance) – 96 responses; work/income/financial uncertainty stresses – 66 responses; and lack of energy and time for relationships due to income and work demands – 11 responses. The creative work context also created disconnection through the perceived need for total commitment to the 'work' – 45 responses; and a need to keep significant others 'safe' from the creative process – 20 responses. Personal costs included mood swings (being in and out of work) – 20 responses; feelings of worthlessness that impacted others – 18 responses; family judgements – 49

responses; and sometimes even betrayals of intimacy – 4 responses. We expect actors to be vulnerable in their performances but require them to be ‘professional’/uncaring about the impacts of their artistic practices in their lives and relationships. We are thereby doing both them and those who care about them a great injury.

Conclusions: Actors need to recognize how this profession can both enhance and exacerbate their lifestyles and significant relationships. I have introduced training in identifying healthy and unhealthy relationships, trust, interpersonal boundaries and conflict management to several acting schools. Early feedback from this training has shown promising signs that these emerging actors are now more proactive and conscious of the actions they can take to surround themselves with mutually supportive and respectful relationships. Performing arts training institutions should include relationship skills and practical conversations about the relational stresses associated with the profession. If resilience is the ability to absorb and negotiate both bodily and inter-personal disturbances and still retain an emerging, recognisable sense of identity and meaning-making, then we need to support actors in their interpersonal relationships, so that emergent identity and meaning-making can contribute to the health and wellbeing of all involved.

New insights: An integral aspect of performers’ ongoing wellbeing is how they are able to interact with significant others in their everyday lives as they pursue their creative professional careers

Implications: Like other areas of healthcare that take a holistic perspective on a client’s everyday and relational life with regard to their specific professional health-related concerns, performing arts medicine practitioners need to consider how they can involve active engagement with significant others in performers’ lives, given that it will be those significant others who will probably identify early signs of ill-health before anyone else.

Correspondence

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Biography

Dr Mark Seton is the director of Sense Connexion www.senseconnexion.com, founder of the Resilient Vulnerability © paradigm, and an Honorary Research Associate (Department of Theatre and Performance Studies) at the University of Sydney. He lectures in health for actors at the International Screen Academy and Academy of Film Theatre and Television, and theatre history at Excelsia College. He was the recipient of the 2009 Gilbert Spottiswood Churchill Fellowship and conducted a study tour of actor training healthcare practices in the UK. His research interests include the psychological wellbeing of performing artists and ethical teaching and research practices in Higher Education Creative and Performing Arts. Alongside membership of the Editorial Board of the *Journal of Applied Arts and Health*, Mark is a member of the Executive Committee of the Australian Society for Performing Arts Healthcare, of which he was a founding member.

Performance anxiety, mindfulness and wellbeing in musicians

Dr Margaret S. Osborne¹, Ms Amanda Kuek² and Dr John Baranoff³

¹ BPsych(Hons) PhD, Melbourne School of Psychological Sciences, The University of Melbourne, Australia.

² BA(Hons), Melbourne School of Psychological Sciences, The University of Melbourne, Australia.

³ BSci(Hons) MClInPsych PhD, Centre for Treatment of Anxiety and Depression, SA Health/University of Adelaide, Australia.

Keywords: Psychological flexibility, early maladaptive schemas, phenomenology, intervention

Background: Performance anxiety presents a substantial challenge to the health and wellbeing of musicians. Negative cognitions and early maladaptive schemas predict high levels of music performance anxiety (MPA). Psychological flexibility is a fundamental aspect of psychological health, and recent evidence suggests that psychological flexibility mediates the negative effect of early maladaptive schemas on depression and anxiety. The relationship between psychological flexibility and MPA has not yet been empirically explored in the research literature.

Methods: This study uses a two-stage mixed-method design. Stage One is an online survey including measures of MPA, psychological flexibility, early maladaptive schemas, and wellbeing including musculoskeletal pain and injury. Structural equation modelling will be used to assess predictive relationships with MPA and wellbeing as outcome variables. Stage Two will involve a semi-structured interview of approximately 60 minutes length. Participants will be selected from Stage One based on their MPA scores (one standard deviation above/below the mean). Interviews will be investigated using Interpretative Phenomenological Analysis.

Main Contribution: We hope to provide a new, nuanced understanding of cognitive processes which support peak performance. It is expected that musicians high on dispositional psychological flexibility are likely to experience less performance anxiety, through functional acceptance of anxious thoughts and anxiety provoking events. Data is being collected in 2017, and results will be presented at the conference.

Conclusions: Findings should provide insight into areas of psychological flexibility integral for performance and wellbeing. We anticipate this will promote psycho-education and targeted interventions in music performance, as well as the general population.

New insights: This study may improve our understanding of the relationship between the development of social cognition from early in life and the emergence of music performance anxiety, balanced by individual skills in one's ability to be mindful in the present, to cognitively defuse from distressing thoughts, and change or persist in behaviour which serves valued ends.

Implications: This research can expect to highlight areas of psychological flexibility and early maladaptive schemas that may be most important for interventions and psycho-education programs for musicians to manage extreme and debilitating anxiety, and enhance their wellbeing.

Correspondence

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Australia.

Biography

Dr Margaret Osborne is a registered psychologist, research fellow and lecturer at the Melbourne Conservatorium of Music and Melbourne School of Psychological Sciences at The University of Melbourne. She is also an occupational rehabilitation and careers counsellor, and past-President of the Australian Society for Performing Arts Healthcare. Margaret specializes in performance science and psychology, examining motivation and practice quality in elite music performance, and is passionate about finding the best psychological strategies to manage anxiety and optimise performance. Margaret has worked at various institutions including the Sydney Conservatorium of Music High School, Melbourne Conservatorium of Music, and the New Zealand Symphony Orchestra, and provided individual counselling to many performing artists.

Developing an online music performance skills program for teachers and students: Challenges and triumphs

The University of Melbourne

Ms Anneliese Gill¹, Dr Margaret S. Osborne² and Professor Gary E. McPherson³

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²BPsych(Hons) PhD, Melbourne Conservatorium of Music, The University of Melbourne, Australia.

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Keywords: Adolescent, Self-efficacy, Well-being, Music Performance, Music Education, Curriculum

Background: The psychological well-being of the performer is a critical factor in achieving performance success. Yet musicians are at high risk of developing mental health issues with around 60% of music students suffering from performance-related disorders such as performance anxiety. Self-efficacy is a key factor in both performance success and well-being. However, few interventions have been designed for adolescent musicians or targeted self-efficacy in music performance. Since the quality of the therapeutic relationship is considered to be crucial to the success of any intervention teachers could play a vital role in teaching, and motivating students to employ preventative measures.

Methods: A 14-week, teacher-directed, online program adopted from the sports domain has been designed for adolescent musicians. The program combines brief weekly online tutorials with specific activities incorporated into lessons and practice, aiming to develop self-efficacy, psychological performance skills and performance preparation across six key areas: confidence, focus, performance simulation, imagery, pre-performance routines, and music performance anxiety and arousal management. A trial study investigating the effects of this program on self-efficacy, anxiety and performance is currently being conducted within private instrumental lessons and school music classes.

Main Contribution: Training in psychological performance skills is not a standard part of the teaching curriculum likely due to the extensive effort that is involved in producing a comprehensive program of this nature. This new program is hoped to be part of the solution to change the prevailing culture.

Conclusions: It offers an accessible, cost-effective intervention requiring minimal time commitment that is teacher-directed, promoting early intervention and prevention, and performance enhancement. It will also extend previous research by assessing a unique combination of variables for this age-group.

New insights: Very few music performance interventions have been designed for adolescent musicians. This program is unique in that it:

- Is teacher-directed, embedding performance skills training into lessons and practice;
- Delivered online; and,
- Targets self-efficacy to enhance performance and well-being.

Implications: This study is the first to develop and implement a sequential, online performance skills curriculum adopted from the sports domain that is aimed at adolescent musicians and offers a multi-tiered approach enabling students, instrumental teachers and class music teachers to work individually or in conjunction with one another from a common theoretical framework. It is particularly innovative in that it will be the first program designed to assist teachers in developing these skills in their students allowing for early intervention and prevention.

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Biography

Anneliese Gill is a musician, and Fulbright Scholar. She has a Masters of Music from the Manhattan School of Music, New York, a BA in music from the Victorian College of the Arts, Melbourne and a graduate and post-graduate diploma in psychology from Monash University, Melbourne. With over 20 years experience as a music teacher, and performer she has also spent a number of years as a member of the music- psychology research team at Monash University. In 2016 she was awarded an Australian Post-Graduate Award to complete a PhD in music performance psychology at The University of Melbourne.

Development and evaluation of two brief group treatments for music performance anxiety in community musicians

Naomi Halls

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B.Soc. Sci. (Honours), MPhil, Doctor of Clinical Psychology (Vice Chancellor's Commendation)
Macquarie University

Keywords: Music performance anxiety, community musicians, cognitive behavioural therapy, anxiety sensitivity, performance quality

Background: This presentation reports the results of the author's doctoral study (Kenny and Halls, 2017). The study developed, administered, evaluated and compared two brief group treatments for music performance anxiety aimed at reducing anxiety and improving performance quality.

Methods: A cognitive behavioural therapy treatment was developed from an existing empirically proven treatment, Chilled (Rapee et al., 2006), including cognitive, physiological and behavioural symptoms. The second treatment targeted physiological symptoms and delivered relaxation strategies (Gardenswartz and Craske, 2001). Treatments were administered in a workshop format over one day with four treatment sessions, preceded by a pedagogic practice skills session functioning as a placebo treatment with no active treatment component.

A quasi-experimental group randomisation design was used to compare treatments in a heterogeneous sample of community musicians. Sixty-eight participants completed measures of trait anxiety, anxiety sensitivity, depression and music performance anxiety and were assessed for performance quality by two expert judges at four points (pre- and post-placebo, post-treatment and follow-up).

Results: The results indicated that both treatments offered significant gains for the musicians: anxiety was reduced and performance quality improved after treatment. There were no statistically significant differences between treatments; both groups improved significantly over baseline.

Conclusions: Treatment efficacy was demonstrated at different points for each treatment, thus indicating the need for further exploration of the key components of each treatment that were associated with reduced anxiety and enhanced performance.

New insights: Results of the study shows evidence based psychological interventions can be adapted and presented in brief workshop format to support musicians experiencing music performance anxiety and the often accompanying deficits in performance quality.

Implications: While results indicated that both treatments offered significant gains for the musicians: Anxiety Sensitivity reduction showed a trend to exceed the cognitive behavioural treatment, however further study is needed to explicate this possible advantage.

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Biography

Dr. Naomi Halls is a musician, teacher, examiner and clinical psychologist. Naomi's qualifications include ASCM (NSW Conservatorium), Graduate Diploma of Psychology (Distinction), Bachelor of Social Science (Psychology) (Honours) (Charles Sturt University), Bachelor of Arts (English, History), Master of Philosophy (Psychology) and Doctor of Clinical Psychology Macquarie University. Her doctorate, for which she was awarded the Vice Chancellor's Commendation, focused on understanding and developing strategies for music performance anxiety. In 2012 in conjunction with The Emotional Health Centre at Macquarie University, Naomi developed an effective treatment for music performance anxiety using cognitive behavioural therapy.

Naomi was appointed AMEB examiner in 1988, Senior Examiner in 1995 and has examined candidates for Licentiate and Fellowship awards. She has been Principal Flute with the Sydney Youth Orchestra (1982–1985) and Penrith Symphony Orchestra (1995–2001) and performed internationally including the Edinburgh Fringe Festival. Naomi directed an innovative jazz-fusion concept as part of the Winter series (Joan Sutherland Performing Arts Centre, 2006-2008).

Naomi has presented papers at The National Flute Convention (2005), The Flute Teacher's Forum of NSW (2005–2007), and The World Forum for Music in Brisbane (2013). She has adjudicated for Armidale, Coffs Harbour, Hawkesbury, Macarthur, St George, Penrith and Sydney Flute eisteddfods.

Ergonomics in pianists - the relationship between different sized keyboards and hand size

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Keywords: hand span, piano keyboards, electromyography, muscle activity

Background: The size of piano keyboards has been suggested to unfairly discriminate against smaller-handed pianists in terms of being able to play repertoire that requires considerable finger spreads. Recent pilot explorative studies support these findings, with smaller-handed pianists showing increased muscular effort to spread their hands to reach notes, particularly in the performance of Romantic and 20th century repertoire. However, there is a lack of scientific muscle activity data on small-handed pianists and objective evaluation of the effectiveness of switching to reduced-size keyboards. The aim of this study is to evaluate whether there are measurable physiological and sound quality differences that are affected by individual hand size when a pianist plays on three pianos with different key sizes – 6.5 inch (standard size), 6 inch (15/16 of normal size) and 5.5 inch (7/8 of normal size) octave span distance.

Methods: 10 to 12 classically trained pianists, with AMEB LMusA level or above (or equivalent) standard of playing, perform 15 randomly ordered music excerpts of 2-3 minutes duration on three pianos with different size keyboards. Body height, hand span data and the length of arms and forearms of the subject were collected, and then surface electromyography (sEMG) readings of 16 muscles of the upper torso, shoulders and bilateral upper limbs were measured during musical performance. In addition, joint angular motion of the neck, trunk, joints in the upper and lower extremities were simultaneously recorded to observe possible effects on movement patterns with the different size keyboards. Self-assessment of keyboard preference and perceived exertion (RPE) were also obtained at the completion of playing all excerpts.

Results: Data is currently still being collected, and results to be presented will include information on at least 10 pianists. So far with the 6 subjects to date, a trend towards reduced muscle activity levels (within each pianist) on pianos with smaller size keyboards has been observed, particularly of the muscles in the bilateral forearms and hands. This has occurred regardless of hand size. Of these subjects, an association has been found ($p < .05$) between subjects with a smaller hand span (digit 1 to 5) and higher perceived exertion on the largest key size piano (6.5 inch octave). In addition, an association has also been

observed in narrower hand width pianists who report higher preference ratings on the reduced size keyboards ($p < .05$). Further statistical analysis and results will include another 4-6 pianists booked to participate in the study.

Conclusions: This study will indicate whether different size keyboards affect the muscle activity and movement patterns of performers, and evaluate the potential impact of different size hand spans. This may potentially support wider availability and use of different size keyboards for learning piano and for competitions. Understanding the effect of key sizes on effort required in piano performance may facilitate smaller-handed pianists to more safely and effectively pursue their playing career.

New insights: This is the first observational study scientifically investigating the effect of hand size when playing on different sized keyboards on muscle activity, movement pattern and performance quality in pianists collected simultaneously. The results may provide further insight into injury prevention and management of piano related injury.

Implications: Raising the awareness of hand span issues regarding piano playing and the accessibility of ergonomically scaled piano keyboards.

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Biography

Mr. Ju Yang Chi is the PhD candidate in the Discipline of Biomedical Science, The University of Sydney. He received his M.S., Acupuncture Science from China Medical University in 2014 and his B.S. Physiotherapy from National Taiwan University. He was a physiotherapist in Taiwan who is interested in musician healthcare. His current research focuses ergonomics for musicians. He presented a review of ergonomics in violin playing at the ASPAH conference in 2015.

Practicing, rehearsing and performing on woodwind instruments while fasting during Ramadhan in Malaysia

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Keywords: music performance, music education, nutrition, Islam, woodwind performance.

Background: Ramadan fasting is a legal requirement for all Malaysian Muslims, with only some exemptions given. This paper aims to bring awareness to the performing arts healthcare community about the challenges facing Malaysian woodwind players who continue to perform while fasting.

Methods: A descriptive, micro-level case study, where tertiary level woodwind players (n=16) from two Malaysian universities participated in an 11-item semi-structured interview, and self-report questionnaire about their experiences of playing while fasting, during a week in Ramadan. This study used a comparative approach, where the experiences of fasting musicians were compared and contrasted with earlier studies of fasting athletes.

Results: Similar to previous studies of fasting athletes, participants reported feeling tired, thirsty, hungry and lacking energy by the afternoon, with some not being able to practice, while others practiced for a shorter duration than usual. Some participants reported having dry lips, a dry mouth and abdominal discomfort, which impacted on their playing. Some skipped the meal '*sahur*' at dawn after limited sleeping time, then ate a late evening meal ('*iftar*'), while being involved in heavy playing schedules throughout the day and evening. Some of the positive effects of fasting included improved focus, quality and efficiency of practice.

Conclusions: As fasting is obligatory for Muslims, a set of recommendations for optimising performance on woodwind instruments during Ramadan would be beneficial.

New insights: This paper provides insights into the area of Muslim musicians' health and wellness while fasting, which have not previously been addressed in the performing arts medicine literature.

Implications: Recommendations for optimising practicing, rehearsing and performing during Ramadhan.

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Biography

Karen Lonsdale holds a Bachelor of Music (1988) and Graduate Diploma of Music (1989) from the Queensland Conservatorium of Music, a Meisterklassendiplom (1992) from the Hochschule für Musik in Munich, and a Doctor of Musical Arts from Griffith University (2011). She has performed with the Queensland Symphony Orchestra, Queensland Philharmonic Orchestra, Sydney Symphony, Australian Opera and Ballet Orchestra, Tasmanian Symphony, Munich Symphony, Queensland Pops Orchestra, Camerata of St. John's, and X-Collective Cabaret Ensemble. She has adjudicated at the Australian National Band Championships, Sultan Idris National Wind Orchestra Competition (Malaysia), Finale Wind Orchestra (Malaysia), as well as various eisteddfods in Queensland, New South Wales, Victoria and South Australia. She has presented flute playing-related research papers at the Australian Flute Festival; Australian Society for Performing Arts Healthcare Conference; National Flute Association Convention, Performing Arts Medicine Symposium (USA), and the University of Cambridge (UK). Dr Karen Lonsdale is currently a Senior Lecturer at the Faculty of Music and Performing Arts, Universiti Pendidikan Sultan Idris (UPSI) in Perak, Malaysia.

Injuries in Australian dancers

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Keywords: Musculoskeletal, safe dance, dance injury

Background: Professional dance can be a vibrant career, however its physical demands place dancers at high risk for injury. Appropriate injury prevention and management by experienced health care professionals is essential, however there is a paucity of data regarding injury occurrence from many sectors of the Australian dance industry, which is required to inform evidence based practice.

Methods: A national, cross-sectional survey of independent and company-based dancers in Australia. Both electronic and paper based surveys were distributed. Data were analysed in SPSS using descriptive statistics to determine characteristics of Australian dancers and their occurrence of injury.

Results: 195 eligible dancers returned questionnaires. The average age was 28.5 years and 65% identified as female. Australian professional dancers, on average, started dancing at the age of 7 and 92% completed full time dance training. 73% of dancers sustained a dance-related injury in the past 12 months that affected their ability to participate fully in normal dance training or performance. There were 2 overuse injuries for every 1 traumatic injury and 75% of injuries occurred during performance periods of the year.

Conclusions: Despite significant progress, injuries remain common in professional dance. Clinicians need to familiarize themselves with the physical demands of different genres in order to effectively treat injured dancers and practically advice on injury prevention and management of both chronic and acute injuries.

New insights: The current state of Australian professional dance injury will be presented. Traumatic dance injury is a greater proportion of injury than previously appreciated.

Implications: A wide range of dance genres and their specific injuries need to be appreciated. Expect to prevent and treat both traumatic and overuse injury.

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Biography

Dr Claire Hiller is a physiotherapist with over 25 years experience, mainly in private practice and dance injury management. Claire received her PhD in 2008 for work in chronic ankle instability (CAI), including adolescent dancers and ankle sprains. She now manages the Musculoskeletal Health Theme at the Faculty of Health Sciences at the University of Sydney, and continues her work in dance injury and also CAI. She founded the Dance Research Collaborative at the University of Sydney and is committed to ensuring dancer health throughout their career and beyond.

Overtraining and recovery in dance: A case study approach

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Keywords: Burnout, stress-recovery balance, training load, well-being

Background: Elite level dance performance involves intense physical training (Wyon, 2010). Dancers are susceptible to overtraining (Koutedakis, 2000), burnout (Quested & Duda, 2011), stress (Noh, Morris, & Andersen, 2003), and fatigue due to overload (Leiderbach, Schanfein, & Kremenic, 2013). Sport science research indicates a balance between training and non-training stress and recovery is needed to achieve performance improvements (Kellmann, 2002; Richardson, Andersen, & Morris, 2008). Little is known about how dancers manage stress-recovery balance to maintain and improve performance. This research provides insight into the experiences of dancers managing the heavy training loads and stress of vocational and professional dance environments.

Methods: Professional ballet (n=4) and contemporary (n=8) dancers participated in semi-structured interviews. Thematic analysis revealed participant experiences indicative of underrecovery, overtraining, and burnout.

Results: This study supported the suggestion that dancers experience high levels of physical and psychological stress (e.g., Noh, Morris, & Andersen, 2003), and may have limited understanding of the importance of recovery in preventing maladaptive responses to training such as overtraining or burnout. Further investigation should focus on the importance of recovery as a key component of dance training, including monitoring training load and stress-recovery balance in vocational dance, and investigating methods for improving recovery in dance training.

Conclusions: This research encourages discussion regarding best practice for dealing with stress-recovery balance in dance and increasing awareness and responsibility for individual recovery needs.

New insights: A 'real-world' example of overtraining, burnout, and recovery within a dance specific context, which will highlight the importance of understanding the risk factors that may contribute to these conditions.

Implications: The presentation will alert teachers and healthcare professionals to dancers' perceptions of training and non-training related risk factors that could lead to underrecovery, overtraining, and burnout.

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Biography

Peta completed the MSc Dance Science at Trinity Laban Conservatoire of Music and Dance in 2006 and since graduating has worked as a freelance dance teacher, lecturer and researcher specialising in Dance and Performance Psychology, Safe Dance Practice, and Dance Fitness. She has worked with a number of institutions and dance companies in the UK, including London School of Musical Theatre, Bird College, British Ballet Organisation, Dance 2XS, Greenwich Dance and Pineapple Dance Studios. Peta also has a bachelor degree in Psychology and is a qualified theatrical dance teacher, having trained, taught and performed in Australia and the UK in a variety of dance styles. Peta is currently based in Australia and is completing a PhD at the Western Australian Academy of Performing Arts, with a focus on overtraining and recovery in vocational dance training.

POSTER PRESENTATIONS

Developing a holistic approach to singing practice, using the principles of hatha yoga

Sarah Collyer

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Keywords: Singing, Hatha yoga, holistic education, community, action research, wellbeing

Background: The health of the body and mind are important considerations for maintaining a healthy, functioning singing voice. Hatha yoga has been identified as a holistic practice tool that could be used to address the body, mind and voice of the singer, however no studies exploring the experience of singers participating in a purpose designed yoga for singers class have been documented. My research aims to understand the experience of singers participating in such a class, and by doing so, inform future approaches to vocal pedagogy.

Methods: This study used an action research methodology to design, implement and refine a yoga for singers program, delivered as a one hour class per week in three, six-week iterations. Eleven participants aged between 18 and 65, living in Brisbane, Australia, who identified as amateur or professional singers were recruited. Course outcomes were informed by qualitative data from participant feedback in the form of semi-structured interviews and reflective journals. Quantitative data was also collected in the form of filmed pre and post intervention performances, which were then rated by an expert panel of five professional singing teachers.

Main Contribution: At the time of writing, ongoing qualitative analysis is exploring the emergent themes of delivery, community, wellbeing and learning. Findings thus far indicate that participants found practising in a group with other singers created a sense of community and support, fostering peer learning. Elements of transformative learning are also emerging as participants report on how they applied their learning in practice, rehearsal, performance and teaching, and also in everyday life.

Conclusions: Yoga for singers represents an alternative, holistic practice tool that addresses the body, mind and voice of the singer, giving singers tools for enhancing their practice and overall wellbeing. As a group practice, yoga for singers provided singers with a sense of community and belonging whilst also fostering peer learning.

Trial Registration: This study has been approved by the QUT Human Research Ethics Committee (approval number 1600000511).

New insights The practice of hatha yoga can be used as a tool for addressing body use, mind focus and relaxation for singers. Practising within a supportive environment with other singers fosters peer learning and a sense of community and belonging.

Implications: By exploring new and novel ways to address the body, mind and voice, educators can equip students with tools that can not only be used in practice and performance, but also in their everyday lives.

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Biography

Sarah Collyer is a singer, songwriter, voice coach and researcher. Sarah holds a Bachelor of Music with first class Honours from James Cook University and a Masters of Music Studies from Griffith University Conservatorium of Music, where she also received the Griffith award for Academic excellence 2006. Currently, completing a Doctor of Philosophy in Music at Queensland University of Technology, Sarah has been designing and trialling a holistic body and voice practice for singers – using the principles of hatha yoga. Sarah has released an EP – This Way (2008) and an Album – Yesterday’s Blues (2012). Both receive nation-wide airplay (Australia) and are distributed globally. Songs from both recordings can also be heard in Coffee Clubs throughout Australia. Sarah has toured Australia, Japan and London with her music and performs regularly as an original artist and jazz and blues vocalist. Sarah also writes and performs with rock band The Madistones. Passionate about education, Sarah has been teaching voice for over fifteen years. Her approach is grounded in humanistic and holistic philosophy.

Early maladaptive schemas associated with performance anxiety aetiology and phenomenology in classically-trained musicians

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Keywords: Music Performance Anxiety; Early Maladaptive Schemas

Background: Investigations into the development of anxiety disorders has demonstrated that early social environments are important contributors to the development of Social Phobia, of which MPA has been defined as a subtype. This indicates that understanding the early social environments of musicians and the resultant social schemas (cognitive frameworks) that develop may be particularly pertinent in better understanding the development of MPA. This study applied Jeffrey Young's Early Maladaptive Schema (EMS) framework to provide a social and emotional processing schema model for understanding the aetiology of MPA in a developmental context.

Methods: This study incorporated the Young Schema Questionnaire and the Kenny Music Performance Anxiety Inventory via an online survey, which was completed by 100 adult classical musicians. Factor analyses were performed on EMS scores to investigate particular themes. Multiple regression analyses were then applied to these factors to investigate their role in predicting MPA scores.

Results: Analyses indicated that EMSs are strongly predictive of MPA in adulthood, and factor analyses identified themes of EMSs that may be particularly pertinent in predicting MPA; namely, themes of helplessness, hopelessness, fear, and inadequacy. A second qualitative study has commenced to further elucidate findings.

Conclusions: Study findings may provide rich insight for clinicians working with musicians experiencing MPA to better understand aetiological factors and vulnerabilities, and assist teachers and parents in developing adaptive environments for students to enable them to develop into resilient, confident performers.

New insights: Due to the dearth of developmental research into MPA to-date, this research provides a valuable contribution to the field in understanding the impact of early life experiences on the development and maintenance of MPA.

Implications: It is anticipated that this presentation will assist attendees working with musicians or experiencing MPA themselves to better understand potential underlying schemas and developmental experiences that may have contributed to its development. Through this improved understanding, musicians may be then better able to address underlying issues in treatment rather than addressing only the symptoms associated with MPA.

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Biography

Jennifer is a clinical psychologist who has been in private practice for approximately seven years. After completing a Doctor of Psychology (Forensic) at The University of Melbourne, Jennifer worked in the forensic field for several years before completing her clinical psychology training. Her private practice work integrates psychoanalytic/psychodynamic perspectives working with a broad range of clients, including musicians struggling with performance anxiety. Jennifer also has a Bachelor of Music (Hons) from the University of Melbourne, and continues to perform as a violinist with various ensembles including the Melbourne Chamber Orchestra, the Australian Romantic and Classical Orchestra, and the Orchestra of the Antipodes.

Bone mineral density in elite female adolescent ballet dancers: A systematic review and meta-analysis

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Keywords: Dance, physical training, bone health, puberty, menarche

Background: Adolescence is a key period for development of bone mineral density (BMD), and a time during which elite ballet dancers typically increase their training loads. The combination of increased training demands along with pressure to meet aesthetic expectations may increase the risk of low BMD and other health deficits during adolescence. This review aimed to quantitatively compare BMD between elite adolescent ballet dancers and controls.

Methods: Six electronic databases were systematically searched up to January 2017. Included articles examined BMD in elite adolescent female ballet dancers and healthy age-matched controls. Adolescent dancers were aged 10-19 years and trained at least 5 hours per week to be considered elite. If available, body fat percentage (BF%), body mass index (BMI) and menarche data were also extracted. BMD was measured via dual x-ray absorptiometry, BF% was measured via DXA or bioelectric impedance, and BMI was calculated as body mass/height².

Results: From 3933 potential articles, 9 were accepted for inclusion, which compared 696 participants (328 dancers; mean age 17.0 ± 0.9 years vs. 368 controls; 17.0 ± 0.8 years). BMD was significantly ($p < 0.05$) higher in dancers at lower-limb weight bearing sites and significantly lower in the upper-limb ($p < 0.001$). No significant difference was noted at the lumbar spine. No study adjusted BMD values for nutrition or physiological maturation. BMI and BF% were both significantly ($p < 0.001$) lower in dancers, while menarche occurred 1.2 years later than age-matched controls ($p < 0.001$). The overall quality of studies was low due to cross-sectional design, and inter-study heterogeneity was present.

Conclusions: This meta-analysis revealed the site-specific osteogenic effect of classical ballet training, with a notable and concerning finding of reduced upper-limb BMD in female adolescent ballet dancers. This study highlights the need for development of strategies to improve upper limb BMD in young ballet dancers.

New insights: Our study is the first meta-analysis to investigate BMD in adolescent ballet dancers and revealed the site-specific osteogenic effect of classical ballet training. The finding of significantly reduced upper limb BMD in elite adolescent dancers compared to controls is notable and raises concern about bone health in this population.

Implications: We believe that this study can inform clinicians, dance instructors and dance students about the potential health risks for elite young dancers, and may contribute to development of guidelines for programs to improve upper limb BMD in young dancers.

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Biography

Dr Rachel Ward is a former professional dancer who has completed numerous tertiary qualifications including a Bachelor of Medical Science, Masters in Biomedical Engineering, Certificate in Ballet Teaching Studies, Diploma in Dance Teaching and Management, Graduate Certificate in University Learning and Teaching, and Doctor of Philosophy (PhD) in Dance Biomechanics. Rachel's doctoral thesis was titled "Biomechanical Perspectives of Classical Ballet Technique and Implications for Teaching Practice". Rachel currently holds the position of Program Authority and Academic Advisor for the Bachelor of Exercise Physiology at the University of New South Wales (UNSW) and teaches undergraduate courses in biomechanics and motor learning theory. Her research interests include analysis and promotion of safe dance strategies for dance students and teachers, and investigation of the therapeutic benefits of recreational dance across the lifespan. Rachel is a member of the International Association of Dance Medicine and Science (IADMS) and the Australian Society for Performing Arts Healthcare (ASPAH). She is a registered teacher of the Royal Academy of Dance (RAD), and in addition to her academic work, currently teaches classical ballet at various dance studios in Sydney. She has been recognised for her contribution to teaching through receipt of the 2016 UNSW Vice-Chancellor's Award for Teaching Excellence.

WORKSHOPS

Assoc Professor David Butler: When the neuroimmune system screams. Practical applications of DIMs and SIMs

Background: Over the past two decades there has been a knowledge revolution in our understanding of how pain is constructed. This knowledge can be clinically integrated within the formula – *“we will have pain when our brain’s credible evidence of danger to our body is greater than our brain’s credible evidence of safety to our body.”* Perceptions of credible evidence of danger (DIM = danger in me) and credible evidence of safety to our body (SIM = safety in me) emerge from many domains including visual, auditory, cognitive and social as well as input from injured body parts. Logical therapies should aim to remove or reduce the dangers (DIMs), enhance the safety (SIMS) and/or turn DIMS into SIMs.

New insights: This breakout session provides a practical method of identifying, categorising and managing DIMs and SIMs.

Implications: Multiple examples are provided with many more surely arising from the group interaction.

Peta Blevins & Professor Gene Moyle: Mindfulness training in vocational dance

Peta Blevins: MSc, PhD Candidate – Western Australian Academy of Performing Arts, Edith Cowan University
Prof Gene Moyle: DPsych, Head of School – School of Creative Practice, QUT Creative Industries Faculty

Keywords: Mindfulness, Dance, Performance Psychology, Vocational Training, Wellbeing

Background: Interest regarding the impact of mindfulness on performance has grown dramatically over the past decade, with research focused primarily on its application within the sporting domain. Recent research has explored the integration of mindfulness into the curriculum within vocation dance programs (see Moyle, 2016) with current research building upon these studies investigating mindfulness training programs across two University dance training institutions. This workshop will explore the current research focusing upon the content and delivery of the respective mindfulness programs, with a focus on sharing current observations and findings to-date that may be relevant to practitioners, educators and researchers interested in this field.

Evidence: Sport research has shown mindfulness based approaches (e.g., Mindfulness-AcceptanceCommitment (MAC) (Gardner & Moore, 2007); Acceptance Commitment Therapy (ACT) (Hayes & Wilson, 1994)) facilitate enhanced sport performance and improved personal and psychological wellbeing (Gardner & Moore, 2017). Whilst body-mind connection could be argued to be inherent in dance training, there is limited research investigating specific relationships between mindfulness, dance performance and dancer well-being (Moyle, 2016).

Outcomes: This workshop will present two mindfulness training programs that have been implemented in dance courses at the Queensland University of Technology (QUT) and the Western Australian Academy of Performing Arts (WAAPA). Conclusions: These programs, while developed independently, both draw from aspects of the MAC and ACT approaches, with content tailored to be dance specific and focused on mindfulness skills that may provide students with strategies to produce optimal performance.

New insights: This workshop will provide insight into the benefits of mindfulness training for vocational dance students, and will highlight some of the progress made and challenges faced in implementing mindfulness training into vocational dance programs.

Implications: Attendees will learn about the basic principles of mindfulness and how they can be applied to dance training, along with gaining an understanding of the potential benefits of mindfulness to dancers' performance and general well-being.

Biographies

Peta Blevins – See page 33

Professor Gene Moyle - <http://staff.qut.edu.au/staff/moyleg/>

Dr Cliffton Chan: Exercises to address spinal stiffness and pain for instrumental musicians

Background: The long hours spent in asymmetrical postures and the repetitive nature of muscle and joint use can lead musicians to develop instrument-specific postural adaptations. These adaptations can have benefits for musical performance as established postures and ingraining highly refined motor patterns can make the body more efficient for playing. However, musicians should also be aware that if left without some regular maintenance, chronic adaptations could lead muscles to become shortened or lengthened.

Evidence: Muscles are less able to generate maximum or the desired strength and speed when overly shortened or lengthened. Joints can become stiff (hypomobile) and difficult to move when held in set positions for sustained periods of time over many weeks, months and years. These changes often result in sub-optimal functioning of the neuromusculoskeletal system, impeding musical performance and may result in pain or increase the risk of injury.

Outcomes: This workshop aims to demonstrate effective and safe exercises that targets common spinal problems faced by musicians, and allow attendees to practice and become confident to perform these exercises. Neck, upper back and low back mobility and postural control exercises will be demonstrated and practiced, with discussion on how to modify them for various instrumental groups based on their specific demands (e.g. brass and woodwind – association between thoracic spine stiffness and rib expansion).

New insights: Effective and safe exercises for common spinal problems faced by musicians

Implications: Attendees will learn how to complete these exercises and discuss how to modify them for various instrumental groups based on their specific demands.

Conference Evaluation Survey

1. What is your occupation/ field of work?

2. How did you hear about the symposium?

3. Have you previously attended an ASPAH conference? Yes No

4. Would you say the cost of the symposium was :

Below expectation At expectation More expensive than expected

5. Which presentations did you take the most away from this year?

6. What activities/topics would you like to see ASPAH present in future?

7. What did you enjoy most about the symposium?

8. What improvements would you suggest to the symposium format?

Thank you very much for your feedback. Please place your completed evaluation form in the 'survey'

box at the reception desk.