International Symposium on Performance Science
ISBN 978-94-90306-02-1

The role and value of implementing health screening programs within music conservatoires

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Interest in musicians' health and wellbeing is growing, reflected by increasing numbers of investigations into the physicality and psychology of music performance. Within sport and dance, screening and profiling programs have furthered understanding of not only physical and psychological capabilities and demands, but also injury mechanisms and susceptibility. Drawing on experience gained from musicians' screening conducted over a two year period, the current paper engages with questions relating to the development and delivery of musician-specific health screening programs. An effective screening program can offer a variety of benefits and provide informed recommendations for musicians' training. Employing an interdisciplinary approach when developing screening programs is essential, as is the ecological appropriateness of the measures used. At present, three types of musician-specific screening programs are currently in use at Trinity Laban. These programs, together with implications inherent in the delivery of successful screening programs, are discussed.

Keywords: musicians' health; screening; injury prevention; program development; interdisciplinarity

Music making is an activity with high physical and mental demands that put musicians at risk in the execution of their art form. For a long time, our understanding of the musician's body has been anecdotal, typically based upon tradition and personal experience rather than scientific principles. However, more recently, interest has been shown in the potential usefulness of practices normally employed in the field of performing arts medicine and science

and how such practices might contribute to an interdisciplinary understanding of musicians and music making. While interest in musicians' health and wellbeing is steadily growing, the application in music of relevant science-based physiological and psychological research is considerably behind that of sport and dance. For example, dance wellness programs have been implemented into some dance schools and institutions with a view to promoting dancer health (Potter *et al.* 2008). Such programs also provide a means of collecting information regarding dancers' physical and psychological wellbeing. The comparative infancy of music-specific research may in part be because much of what has been learned about the musician's body has come from research focusing predominantly on treatment of, and rehabilitation from, injury (Hansen and Reed 2006). While contributing to our understanding of the individual musician, this approach has arguably created a treatment-orientated culture that could be counterproductive to our understanding of the musician as a "whole."

This paper therefore addresses questions relating to the development and delivery of musician-specific health screening programs. In particular, it suggests why a music conservatoire may wish to instigate some form of physical and psychological screening for students, and also considers the wider implications surrounding the development and delivery of a music-specific health screening program.

MAIN CONTRIBUTION

Benefits of screening

An effective screening program can offer a variety of benefits for musicians, teachers, and those researching music performance. Screening programs can facilitate health promotion and injury prevention among students (Fuller and Peirce 2009). While it has yet to be scientifically proven that screening programs can predict injuries, the identification of individual characteristics can inform recommendations for supplemental training and appropriate support for musicians. In addition to promoting optimal health for students, screening may help institutions promote safe and healthy music practice.

More broadly, screening can generate an understanding of the "whole" musician. Screening programs help establish norms for various performance-related parameters and question the significance of those parameters to the functionality of learning and performance. Although screening and profiling musicians does not define the physical and psychological demands of music performance, longitudinal screening programs can enable assessment of the impact of music training regimes on musicians across time. Additionally, the

development of musician profiles at different levels of expertise provides the opportunity to identify and examine adaptations resulting from long-term intensive involvement in an activity. This information may allow researchers to provide informed recommendations for those entrusted with developing musicians' training programs.

Variables to include

When developing screening programs, an interdisciplinary approach comprising physiology, biomechanics, psychology, health, and behavior has been shown to be important (Ostwald *et al.* 1994). Within dance, it has been recommended that medical, musculoskeletal, fitness, technical dance skills, psychological, and nutrition areas are addressed (Potter *et al.* 2008). Collaboration and reflection are fundamental within this. Consequently, the content of screening programs needs careful consideration, in order to ensure that variables tested are both ethically and ecologically appropriate, as are the tests used to measure them. Additionally, given the varying biomechanical demands associated with different instruments and musical styles and genres, and subsequent playing-related injuries (Greer and Panush 1994), screening programs need also to be instrument-specific. Furthermore, the variables tested will largely depend on the overall objectives of the screening program; what might be tested within an injury prevention program could very well differ from what might be tested within a profiling program. For example, a recent musicians' health profiling program assessed psychology, health attitudes and behaviors, body composition, balance, flexibility, upper body strength, and fitness in order to examine music students' physical and mental fitness for performance (Williamon *et al.* 2009).

The development of screening programs for musicians is currently hindered by a lack of understanding of the physical and psychological demands of musical performance. For instance, while there is growing advocacy for the importance of fitness for musicians (Llobet and Odam 2007), very little is known about what aspects of fitness might facilitate performance and help prevent the onset of performance-related injuries. Of what is known, the presence of hypermobility in musicians has been linked to pain in joints such as the knees and spine (Larsson *et al.* 1993) and finger/hand span has been linked to pianists' pain (Yoshimura *et al.* 2006). It also seems that many musculoskeletal problems in musicians arise from faults embedded in the playing, such as poor technique and posture and inappropriate practice procedures (Wynn Parry 2004). It is significant that musicians are often unaware of their own postural misalignments

(Dommerhold *et al.* 1998). Given these factors, assessment of musicians' physical interaction with their instrument and postures assumed while playing clearly warrant inclusion within screening programs.

Musician screening programs at Trinity Laban Conservatoire of Music and Dance

At Trinity Laban, we currently run three screening programs for our music students: one for instrumentalists, one for singers, and one for musical theatre students. The objectives of the programs are to: (1) identify and support students potentially at risk of developing playing-related injuries ; (2) determine the interactive relationship between biomechanical, physiological, and psychological factors relevant to music performance in order to better understand the "whole" musician; and (3) empower students to feel responsible for their own training, development, and health promotion.

The screening programs comprise three parts (with some variations between the programs) and have developed and evolved via an action research-type methodology (Zuber-Skeritt 1990). [*Note.* "Inst" refers to instrumentalists completing the assessment only, "Voc" refers to vocalists, "MT" refers to musical theatre students.] In the first part, students complete a series of surveys and questionnaires addressing demographic and background information, practice and exercise behaviors, past medical history, eating behaviors (MT), and psychological variables. In the second part, the students are taken through a range of physiological and biomechanical assessments. These include body composition, finger and hand span (Inst), balance, core stability, arm strength (Inst), joint flexibility and range of motion, hypermobility, and proprioception. In the third part, students undertake a postural assessment while playing or singing, with the singers and musical theatre students also receiving a vocal health assessment. In addition, musical theatre students take part in our dance-specific screening program. Following their assessments, all students are given a full explanation of their results. Students for whom concerns surrounding injury susceptibility have emerged are offered referral pathways to relevant therapists.

IMPLICATIONS

Understanding the whole musician from a psychological, physical, and behavioral view point clearly has implications for the practicing musician. If screening results can be disseminated back into the study context (namely the practice room) students will have the advantage of understanding risk factors involved with music making and be able to take responsibility for both their

training and their journey into the music profession. Arjmand (2009) states that music training needs to produce a curriculum representative of the inter- and multidisciplinary nature of the performing arts. But despite inferring that musicians should draw from other disciplines as a way of understanding their bodies, screening programs can only be implemented if training institutions are proactive in their responsibility for students' health (Brandfonbrener 2004) and committed to health screening as an integral part of music training. Lastly, program effectiveness requires detailed knowledge of the unique characteristics of each instrumental/vocal group, to ensure that music-specific testing parameters are found, and supplementary programs are introduced.

In terms of implementation, collaboration with institutional members of staff is of the utmost importance. Similarly, advice from experts within each field must be sought to ensure that the delivery of tests and dissemination of feedback are carried out appropriately. It is also important that educators and administrators involved with the implementation of a screening program are aware that participants may still be reluctant to undergo screening. A common misunderstanding is that the application of scientific principles may in some way change the artistry of music performance. Further intervention and longitudinal research will assist with determining associations between screening results and outcomes, the relationship between various characteristics and music-making, and variance between vocalists, instrumentalists, and composers. Further research will provide the impetus for the development of standardized music-specific screening procedures together with a better informed understanding of the music student, who ultimately represents the future of the music profession.

Acknowledgments

We would like to thank the Leverhulme Trust and Trinity Laban for their generous support.

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