

APTA Innovative Practice Award Submission 2025

Name: Dr. Kristen Schuyten

APTA #: 385647

Address: 24 Frank Lloyd Wright Drive, Lobby A, Suite 1000, Ann Arbor, Michigan, 48106, USA

Email: kbalfour@umich.edu

Practice Setting: Outpatient Clinic – Michigan Medicine, MedSport Clinic

Innovation Name: Development & future implementation of the *Progressive Return-To-Performance Protocol* to support post-concussion management among university performing arts students.

Research Team:

Kristen H. Schuyten, PT, DPT, MS, SCS, CSCS

Physical Therapy Clinical Specialist & Performing Arts Rehabilitation Coordinator, Michigan MedSport Clinic, Ann Arbor, Michigan, USA

Lecturer and Physical Therapist with Wellness Initiative, School of Music, Theatre & Dance, University of Michigan, Ann Arbor, Michigan, USA

Role: Co-Investigator

Allyssa K. Memmini, PhD, LAT, ATC

Assistant Professor of Athletic Training, Department of Health, Exercise & Sports Sciences, University of New Mexico, Albuquerque, New Mexico, USA

Email: amemmini@unm.edu

Role: Principal Investigator

Paola Savvidou, DMA, NCTM

Wellness Initiative Program Manager & LEO Lecturer III, School of Music, Theatre & Dance, University of Michigan, Ann Arbor, Michigan, USA

Email: savvidou@umich.edu

Role: Co-Investigator

Practice Innovation Description:

i. Description: The research team conducted a systematic review in 2024 to identify post-concussion clinical recommendations to support university performing arts students. Unfortunately, the analysis yielded a nearly “empty” review (<https://pubmed.ncbi.nlm.nih.gov/38859678/>), highlighting a dearth of literature to adequately support the unique demands of university performing arts students.

Thus, we conducted a modified Delphi study from May-December 2024 to generate the first iteration of clinical recommendations to support university performing artists in: dance, music performance, and theatre-related disciplines. During the Delphi study, we asked a group of panelists (i.e., clinicians, concussion researchers, performing arts faculty/staff, and students/alumni with concussion history during their university training) how they would modify the most recently updated six-step progressive return-to-sport (RTS) strategy developed by the International Concussion in Sport Group (CISG) (<https://pubmed.ncbi.nlm.nih.gov/37316210/>). Specifically, we asked panelists to make suggestions in consideration of each discipline (i.e., dance, music performance and theatre). Once the statements were generated, the panel anonymously rated each statement on a scale of 1-9, with “1” rated as “not very important” and “9” as “very important.” The panel completed two rounds of anonymous voting, with the opportunity to view their individual score adjacent to the group’s score for each statement. Consensus criteria was established *a priori* if statements earned an average of ≥ 7 following the second round of voting. The final product resulted in the *Progressive Return-to-Performance (RTP) Protocol* (see Table 1 below).

Briefly, our protocol uses the same exercise progressions proposed within the International CISG's RTS strategy: first beginning with symptom-limited activity (Stage 1), followed by light (55% HRmax; Stage 2A) then moderate (70% HRmax; Stage 2B) aerobic exercise. The following stages include individual sport-specific exercise (Stage 3), followed by non-contact training (Stage 4), full contact practice (Stage 5) and full return to physical activity (Stage 6). The *Progressive RTP Protocol* uses the same framework as described above, but with specific considerations for dance, music performance, and theatre. For example, recommendations to control audio, lighting, and/or engaging with other performers (e.g., beginning with individual lessons followed by group work, limiting partner lifts, etc.). The goal of our work is to equip both medical and academic teams with clinical guidance to support the specific needs of university performing arts students to safely return to their learning environment(s), as their coursework largely relies on physical activity in contrast to other disciplines with more cognitive demands (e.g., biology, engineering, business, etc.).

****Please note:** our work is currently in writing, and will be submitted for peer-review in Spring 2025. Therefore, the protocol outlined in Table 1 should not be used or modified for clinical practice until it has undergone the appropriate peer-review process. We would be happy to share the publication with the APTA membership once it is available by the scientific journal.

- ii. **Application:** The *Progressive RTP Protocol* is to be used among university performing arts students enrolled in dance, music performance, and/or theatre-related programs. While this protocol can be used beyond the university setting, further modifications may be required to meet the demands of professional performing artists. Nonetheless, this protocol is the first step to addressing a strong need in the performing arts community to ensure safe return to performance progressions after concussion.
- iii. **What Makes It Innovative?:** To the best of our knowledge, this is the *first* post-concussion RTP protocol specific to the unique needs of university performing arts students enrolled in dance, music performance, and theatre-related disciplines. The protocol includes a stepwise approach to progressively advance performing arts students while also taking into consideration the necessary modifications required of their performing environments (e.g., lighting, sound amplifiers, co-performers, etc.).
- iv. **Unique Attributes of the Innovation:** One of the most noteworthy attributes about this innovation was the Delphi panel who participated in generating these newly established clinical guidelines. Indeed, modified Delphi studies have been previously utilized in clinical research as a means to develop recommendations for healthcare teams on topics with limited, if any, peer-reviewed studies. Typically, the Delphi panel consists of “experts” in their given discipline, with greater diversity resulting in more generalizable findings. For the purpose of our study, we included: concussion researchers (ranging from tenured faculty to post-doctoral research fellows), clinicians on university campuses (including physical therapists, athletic trainers, and physicians), and performing arts faculty/staff. Furthermore, we felt it was critically important to include the voices of those who were directly affected by their concussion during their university performing arts training. Thus, we also included a subset of Delphi panelists who were either current or prior students who sustained a concussion during their university performing arts career.
- v. **Impact on the Profession:** This work will support several prospective clinical and research initiatives within physical therapy, particularly under the Academy of Orthopedic Physical Therapy (AOPT), including the Performing Arts Special Interest Group (PASIG). Moreover, this work supports recent legislative initiatives, such as Direct Access, PT Compact, and recent bylaws passed specifically in Utah classifying Physical Therapists as Primary Healthcare Providers, by equipping physical therapists with evidence-based return to performance guidelines to enhance their foundational knowledge on

managing performing artists with concussions. With these advancements, physical therapists are positioned to become strong leaders in performing arts clinical care.

Overall, this protocol will enhance cross-campus collaboration between allied healthcare providers, including, but not limited to, physicians, physical therapists, and athletic trainers, along with academic teams (e.g., counselors, faculty, staff, etc.) to ensure students are safely returning to their performing arts environment(s) without putting themselves or others at risk for further injury.

- vi. *Impact/Relevance of Practice Innovation to Patient Care/Treatment:*** Our research team was invited to give a two-hour lecture at the 2025 APTA: Combined Sections Meeting in Houston, Texas entitled, “Concussion Discussion in the Performing Arts.” Briefly, our lecture included the following topics: 1) acute management of concussion; 2) clinical assessment, treatment & rehabilitation progressions; 3) administrative concerns; and 4) updates to current research and future initiatives (which included an overview of our newly established *Progressive RTP Protocol*). Our lecture was very well received by the PASIG and other APTA members, suggesting this is a clear need among our practitioners on how to best support performing artists after concussion. We are confident our protocol will have a direct impact on orthopaedic physical therapy patients and/or special populations under AOPT.
- vii. *Outcomes of the Practice Innovation:*** Outcomes of the *Progressive RTP Protocol* have yet to be evaluated in clinical practice. However, we aim to evaluate the implications of this work using implementation science-based frameworks to measure the protocol’s feasibility, acceptability, and appropriateness among physical therapists and other allied healthcare providers, as well as faculty and staff, who work with university performing arts students.
- viii. *Cost of Innovation:*** There are no costs to using the *Progressive RTP Protocol*. Once the manuscript has undergone the peer-review process, the protocol will be available for use among healthcare and academic teams.
- ix. *Training Required for Utilizing the Innovation:*** There is no additional training required to utilize the *Progressive RTP Protocol* in clinical practice. The six-step progression follows the post-concussion RTS proposed by the International CISC, but with specific recommendations to address the unique demands of university performing arts students.
- x. *Justify AOPT Funding This Innovation:*** We would use AOPT funding to support future research initiatives to assess the clinical utility of this protocol across universities in the United States. Specifically, these funds could support either: 1) summer research salary among the co-investigators; or 2) participant incentives to for prospective semi-structured interviews to evaluate the implications and/or barriers to implementing this tool in clinical practice. Since this award would only support a portion of our research goals, we would seek additional external funding to investigate implementation procedures across university campuses.
- xi. *Benefit(s)/Value to Clinical Practice:*** Our protocol aims to facilitate interprofessional collaboration between medical and academic teams on university campuses. Specifically, this work will offer the opportunity to empower performing arts faculty and staff with specific recommendations to consider when supporting students as they return to their performance conditions following concussion. On the other hand, this protocol provides healthcare team with important context on the specific demands required of university performing arts students, which is significantly lacking in contemporary concussion literature. Ultimately, our goal is to ensure a safe return to performance progression for all university performing arts students to limit their risk of prolonged recovery and/or secondary injury, as well as decrease risk of injury to others.