PASIG PERFORMING ARTS
SPECIAL INTEREST GROUP

ORTHOPAEDIC SECTION
AMERICAN PHYSICAL THERAPY ASSOCIATION

APTA
American Physical Therapy Association
The Science of Healing. The Art of Caring.

PASIG MONTHLY CITATION BLAST: No.81 **April 2013**

Dear Performing Arts SIG members:

We hope you can join us for the APTA's **First Annual Orthopaedic Section Meeting**, held May 2 to 4, 2013 at the beautiful Orlando World Center Marriott in Orlando, Florida! This 2-day meeting will provide the physical therapist attendee an opportunity to attend general session lectures and hand's-on breakout sessions related to physical therapist examination and treatment of the lumbosacral spine and lower extremity. Attendees will have the ability to choose between multiple small-group breakout sessions during both days of this conference. ***REGISTRATION IS NOW OPEN!***

http://www.orthopt.org/events/registration/general-info.php?id=1

CALL FOR POSTER and PLATFORM PRESENTATION ABSTRACTS! *Please consider submitting your poster or platform presentation abstracts. We need more research reports, case studies, and systematic reviews in performing arts.* ***CSM 2014 will be Feb 3-6, 2014, in Las Vegas, NV. The platform and poster presentation abstract submission site is now open! Abstract submission deadline is May 20th, 2013, so please put your abstract together now and send it in! The link for the abstract submission is:***
http://apta-csm2014.abstractcentral.com/

Reminder to those interested in participating in the production of a wellness screen for the young, pre-professional dancer:
contact Brooke Winder, PT, DPT, OCS, brookeRwinder@gmail.com

Consider compiling Performing Arts-related abstracts for a citation blast this year. It's easy to do, and a great way to become involved with PASIG! Just take a look at our Performing Arts Citations and Endnotes, look for what's missing, and email me your contribution or ideas on future citation blasts.
http://www.orthopt.org/content/special_interest_groups/performing_arts/citations_endnotes

This month's citation blast is on chronic pain in the musician. I have included citations on the development of the MPQM as an outcome measure specific to musicians, types of pain syndromes commonly found, and several treatment approaches. One interesting find is the article on neurobiological differences between musicians and another is the article on "instrument-focused rehabilitation." Enjoy!

Best regards,

Annette

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PERFORMING ARTS CONTINUING EDUCATION, CONFERENCES, AND RESOURCES

Orthopaedic Section Independent Study Course. *20.3 Physical Therapy for the Performing Artist*.
Monographs are available for:
- Figure Skating (J. Flug, J. Schneider, E. Greenberg),
- Artistic Gymnastics (A. Hunter-Giordano, Pongetti-Angeletti, S. Voelker, TJ Manal), and
- Instrumentalist Musicians (J. Dommerholt, B. Collier).

Contact: Orthopaedic Section at: www.orthopt.org

Orthopaedic Section Independent Study Course. *Dance Medicine: Strategies for the Prevention and Care of Injuries to Dancers*.
This is a 6-monograph course and includes many PASIG members as authors.
- Epidemiology of Dance Injuries: Biopsychosocial Considerations in the Management of Dancer Health (MJ Liederbach),
- Nutrition, Hydration, Metabolism, and Thinness (B Glace),
- The Dancer's Hip: Anatomic, Biomechanical, and Rehabilitation Considerations (G. Grossman),
- Common Knee Injuries in Dance (MJ Liederbach),
- Foot and Ankle Injuries in the Dancer: Examination and Treatment Strategies (M. Molnar, R. Bernstein, M. Hartog, L. Henry, M. Rodriguez, J. Smith, A. Zujko),
- Developing Expert Physical Therapy Practice in Dance Medicine (J. Gamboa, S. Bronner, TJ Manal).
Contact: Orthopaedic Section at: www.orthopt.org

Orthopaedic Section-American Physical Therapy Association,
Performing Arts SIG
http://www.orthopt.org/content/special_interest_groups/performing_arts
Performing Arts Citations and Endnotes
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ADAM Center
http://www.adamcenter.net/
Publications:
http://www.adamcenter.net/#!vstc0=publications
Conference abstracts:
http://www.adamcenter.net/#!vstc0=conferences

Dance USA
Annual conference: Philadelphia, PA, June 12-15, 2013
http://www.danceusa.org/
Research resources:
http://www.danceusa.org/researchresources
Professional Dancer Annual Post-Hire Health Screen:
http://www.danceusa.org/dancerhealth

Dancer Wellness Project
http://www.dancerwellnessproject.com/
Becoming an affiliate:
http://www.dancerwellnessproject.com/Information/BecomeAffiliate.aspx

Harkness Center for Dance Injuries, Hospital for Joint Diseases
http://hjd.med.nyu.edu/harkness/
Continuing education:

http://hjd.med.nyu.edu/harkness/education/healthcare-professionals/continuing-education-courses-cme-and-ceu
Resource papers:
http://hjd.med.nyu.edu/harkness/dance-medicine-resources/resource-papers-and-forms
Links:
http://hjd.med.nyu.edu/harkness/dance-medicine-resources/links
Informative list of common dance injuries:
http://hjd.med.nyu.edu/harkness/patients/common-dance-injuries
Research publications:
http://hjd.med.nyu.edu/harkness/research/research-publications

International Association for Dance Medicine and Science (IADMS)
http://www.iadms.org/
The 23rd Annual Meeting of the International Association for Dance Medicine & Science (IADMS) will be held in Seattle, Washington, USA from October 17 - 19, 2013. Meeting activities and sessions will be held at the Renaissance Seattle Hotel. On Sunday, October 20, 2013, Special Interest Groups (SIG) Day will be held, with special programs available.
Resource papers:
http://www.iadms.org/displaycommon.cfm?an=1&subarticlenbr=186
Links:
http://www.iadms.org/displaycommon.cfm?an=5
Medicine, arts medicine, and arts education organization links:
http://www.iadms.org/displaycommon.cfm?an=1&subarticlenbr=5
Publications:
http://www.iadms.org/displaycommon.cfm?an=3

Performing Arts Medicine Association (PAMA)
http://www.artsmed.org/
Annual symposium: July 20-23, 2013 Medical Problems of Performing Artists: "Maximizing Performance, Artistry, Implementation, and Empowerment"
http://www.artsmed.org/symposium.html
Interactive bibliography site:
http://www.artsmed.org/bibliography.html
Related links:
http://www.artsmed.org/relatedlinks.html
Member publications:
http://artsmed.org/publications.html

(Educators, researchers, and clinicians, please continue to email me your conference and continuing education information and I will include it in the upcoming blasts.)

Chronic Pain in the Musician

Ackermann, B., T. Driscoll, et al. (2012). "Musculoskeletal pain and injury in professional orchestral musicians in Australia." Med Probl Perform Art **27**(4): 181-187.

This paper reports on the major findings from the questionnaire component of a cross-sectional survey of the musicians in Australia's eight fulltime professional symphonic and pit orchestras, focusing on performance-related musculoskeletal disorders (PRMDs). METHODS: All musician members of the orchestras participating in this project were invited to complete a self-report survey. The overall response rate was about 70% (n = 377). In addition to general health and experience questions, respondents who reported a current or previous PRMD were asked to report on a range of associated factors. RESULTS: Of the participants, 84% had experienced pain or injuries that had interfered either with playing their instrument or participating in normal orchestral rehearsals and performances. Fifty percent reported having such pain or injury at the time of the survey, mostly with disorders perceived by the musicians to be work-related. Twenty-eight percent had taken at least 1 day off from work for such pain in the previous 18 months. The most common broad sites affected were the trunk (primarily the back), the right upper limb and neck, the left upper limb and neck, and the neck alone, but the relative proportions varied by instrument. Of those musicians who reported at least one episode of pain or injury in the past, less than 50% reported that they had completely recovered. The most commonly cited performance-related factors that had contributed to injury or pain all related to training and playing load (including practice and performance). CONCLUSION: This study provides strong evidence that PRMDs are a common complaint in professional orchestral musicians and identifies a range of factors suggested as contributing to the occurrence or persistence of these disorders.

Altenmuller, E. and R. Kopiez (2010). "Suffering for her art: the chronic pain syndrome of pianist Clara Wieck-Schumann." Front Neurol Neurosci **27**: 101-118.

Clara Schumann was an outstanding pianist, systematically trained as a child prodigy by her father Friedrich Wieck. Married to the composer Robert Schumann she gave birth to 8 children, however, was able to continue performing regularly in public. After the mental breakdown of her husband, she had to increase her public performance activities due to the need to earn a living for her large family. In this time, the first pains in the right arm occurred, which at the beginning were of shorter duration, however increasingly required prolonged periods of rest. Later, when attempting to work on the highly demanding piano works of Johannes Brahms, especially on his first piano concerto, she developed chronic pain, which forced her to interrupt any concert activities for more than 1

year. Obviously, Brahms' modern treatment of the piano in an almost orchestral way imposed technical difficulties which Clara Schumann was not properly prepared to deal with. Finally, she underwent a multimodal pain therapy in the private sanatorium of Dr. Esmarch, which consisted of an integrated interdisciplinary approach comprising pain medication, psychotherapy, physiotherapy and modification of playing habits. She fully recovered and successfully continued her career as an internationally renowned concert pianist. The case report impressively demonstrates the stressors an outstanding female elite musician had to cope with in the 19th century. Furthermore, it is a convincing example of how the intuition and mere experience of a sensitive and understanding doctor lead to the right conclusions and to a modern multimodal pain therapy in chronic overuse injury. Furthermore the case report demonstrates the important role of prevention, including physical exercises, self-awareness, and reasonable practice schedules.

Boyette, J. (2005). "Splinting for adaptation of musical instruments." Work **25**(2): 99-106.

Classic instrument design does not always match the physical capacity of the musician, as instruments are often chosen because of the pleasing sound and not the ease of play. Devices that are commercially available to create a more ergonomic structure may not address the specific needs of a musician with a chronic condition. Through basic splinting of the musician with an injury, these physical stressors can be reduced, allowing the continuation of musical practice and performance. Appropriate design modification requires a solid understanding of upper extremity anatomy, splint design technique, and the biomechanic principles of playing the instrument. Through knowledge of music theory and appreciation, one may modify the instrument while protecting tonal flexibility, resonance, mechanical freedom, and sound quality. Two case studies present a range of splint design, from small to large, static to dynamic, and for congenital or chronic conditions.

Brandfonbrener, A. G. (2003). "Musculoskeletal problems of instrumental musicians." Hand Clin **19**(2): 231-239, v-vi.

Musculoskeletal problems are frequent among professional instrumental musicians as well as music students and serious amateurs. Typically they are the result of the confluence of many risk factors rather than of a single acute injury. These risk factors include the particular instrument, the musician's gender and individual physical characteristics such as hand size and joint properties, and the duration and intensity of playing. While most are medically not serious, almost all potentially have adverse affects on musicianship. Successful assessment and treatment selection and outcomes depend on an appreciation of the mechanics of playing each instrument along with a familiarity of the multiple risks of being a musician, including lifestyle issues.

Dommerholt, J. (2010). "Performing arts medicine - instrumentalist musicians: part III - case histories." J Bodyw Mov Ther **14**(2): 127-138.

In parts I and II of this article series, the basic principles of examining musicians in a healthcare setting were reviewed [Dommerholt, J. Performing arts medicine - instrumentalist musicians: part I: general considerations. J. Bodyw. Mov. Ther., in press-a; Dommerholt, J. Performing arts medicine - instrumentalist musicians: part II: the examination. J. Bodyw. Mov. Ther., in press-b]. Part III describes three case reports of musicians with hand pain, interfering with their ability to play their instruments. The musicians consulted with a performing arts physiotherapist. Neither musician had a correct medical diagnosis if at all, when they first contacted the physiotherapist. Each musician required an individualized approach not only to establish the correct diagnosis, but also to develop a specific treatment program. The treatment programs included ergonomic interventions, manual therapy, trigger point therapy, and patient education. All musicians returned to playing their instruments without any residual pain or dysfunction.

Hassler, M. (2000). "Music medicine. A neurobiological approach." Neuro Endocrinol Lett **21**(2): 101-106.

Music medicine is a relatively new medical specialty for most countries in the world and a rediscovery of a discipline for some countries in Europe. In the scope of music medicine are health problems of musicians like stage fright and psychic stress, pain syndromes and motor disturbances. Specific demands of musicianship like performing before the public, performing under the constant critical scrutiny of conductors, being expected to perform perfectly, and the physical demands of performing on a musical instrument were seen as the determinants of the complaints, and treatment does usually not differ between musicians and non-musicians with comparable diseases. In the present article, growing neurobiological evidence will be summarized showing that musicians differ from non-musicians on brain structure and function and on some hormonal and immunological parameters. Musicians tend to have atypical brain organization for verbal and non-verbal materials, their auditory system tracks sound levels more accurately, musicians attend pre-consciously to musical material and they react to music as if it is a stressor, i.e. with increased activity of the autonomic nervous system and with an increase in stress hormone production. A musician is more likely than a non-musician to be non-righthanded and to be vulnerable to atopic diseases. Testosterone levels are assumed to be lower (male) and higher (female) than controls. Melatonin was found to be elevated, and ACTH was related to musical talent. His/her brain reflects early music practice by enlarged structures, like the anterior part of the corpus callosum and the representation for piano tones and for the left thumb and little finger in

string players. In addition, the left planum temporale was found to be larger in musicians with absolute pitch. These differences between musicians and non-musicians may have implications for music medicine in theory and practice, and further research should help to improve treatment of musicians.

Hunter, E. K. (2011). "Integration of rehabilitation and acupuncture in the treatment of a professional musician with temporomandibular joint dysfunction." Acupunct Med **29**(4): 298-301.

This case study describes the use of acupuncture in a professional musician with myogenic temporomandibular dysfunction. The 3-year history of symptoms was associated with persistent episodic tension-type headaches. Acupuncture was used for trigger point release, primarily of the masticatory muscles, in conjunction with exercise therapy. After 8 weekly acupuncture sessions, the patient's pain had completely resloved, headaches had resolved and the Patient-Specific Functional Scale showed significant improvements.

Karalezli, N., S. Karakose, et al. (2006). "Linburg-Comstock anomaly in musicians." J Plast Reconstr Aesthet Surg **59**(7): 768-771.

Anomalous tendon connections from the flexor pollicis longus to the index finger flexor digitorum profundus cause lack of independent excursion of the flexor pollicis longus, first described in 1979 by Linburg-Comstock. This anatomical variation is potentially problematic for musicians. The purpose of this study was to evaluate the incidence of this anomaly in musicians and to operate on the symptomatic patients with a limited incision with the help of magnetic resonance imaging. We studied the incidence of the anomaly among 136 musician volunteers. A lower incidence rate of the anomaly was determined in this study. One of the symptomatic musicians was operated on and the tendinous connection was excised. Clinical examination of 136 volunteers suggested that the anomaly was present in 13% of the volunteers; unilateral in 9% and bilateral in 4%. Follow-up of the patient who was operated on revealed full pain-free function without any complaint. Surgical treatment although rarely necessary, is simple and effective.

Lamontagne, V. and C. Belanger (2012). "Development and validation of a questionnaire on musculoskeletal pain in musicians." Med Probl Perform Art **27**(1): 37-42.

Musculoskeletal pain is known to be prevalent among musicians. Unfortunately, there are a lack of standard measures to quantify perceived pain in this population. The principal objective of the present study was to develop a self-reported questionnaire targeting musculoskeletal pain that is specific to musical activity. The Musculoskeletal Pain Questionnaire for Musicians (MPQM) is composed of 10 items investigating diverse areas

related to musculoskeletal pain, divided into three components: a set of items related to disability associated with pain (4 items, component 1), a second one related to pain intensity (4 items, component 2), and a third one related to the frequency and duration of pain episodes (2 items, component 3). Thirty-one professional musicians, from the province of Quebec (Canada), entered the study and answered to the MPQM. Data collected from the MPQM was submitted to a principal component analysis. It found that results from the 10 items of the questionnaire were structured around three factors: pain-related disability (32.71% of variance), pain intensity (25.42% of variance), and frequency and duration of pain (18.2% of variance). Convergent validity was also tested, and an adequate correlation was obtained between the MPQM and the Chronic Pain Grade Questionnaire ($r = 0.65$, $p = <0.01$). Internal consistency for the whole instrument was measured and supported by a Cronbach's alpha of 0.768. Because the MPQM shows adequate psychometric characteristics, it is believed that it could be helpful in research on the correlates of musculoskeletal pain in musicians.

Lederman, R. J. (2002). "Neuromuscular problems in musicians." Neurologist **8**(3): 163-174.

BACKGROUND: Musicians are an occupational (or avocational) group that may on occasion have highly specific health care problems apparently caused by or adversely affecting instrumental performance. Neurologists have been intimately involved in the development of a burgeoning interest in these disorders and, because of the nature of the most common symptoms, neurologists can expect to be called upon to evaluate such patients. REVIEW SUMMARY: In this review, the most common playing-related disorders are discussed. These include the regional pain syndromes, primarily involving the neck and upper extremity, the focal neuropathies, again predominantly involving the upper extremity, and the focal dystonias or occupational cramps, which typically affect the hand or the cranial-innervated muscles involved in the embouchure (the relationship of the facial musculature to the mouthpiece of the instrument). Risk factors contributing to the development of these disorders are reviewed, the diagnostic approach is described, and the management of these playing-related problems is summarized. Aspects in which the instrumental musician may differ from other patients commonly seen by the neurologist, particularly with respect to the types of problems seen, methods of evaluation, and therapeutic strategies, are emphasized. CONCLUSIONS: Many unanswered questions remain in each of these areas. Neurologists and neuroscientists are in an excellent position to help fill the voids in our knowledge base. It is hoped that the reader will be stimulated to participate in this effort.

Pampel, M., H. A. Jakstat, et al. (2013). "Impact of sound production by wind instruments on the temporomandibular system of male

instrumentalists\footnotemark[1]." Work.

BACKGROUND: Playing a wind instrument can be either a reason for overuse or a protecting factor against certain diseases. Some individuals have many findings but low morbidity while others have few findings but high morbidity. This contradictory phenomenon should be researched. OBJECTIVE: The temporomandibular system (TMS) is a functional unit which comprises the mandible, associated muscles and bilateral joints with the temporal bone. The TMS is responsible for the generation of sound when wind instruments are played. Over the long-term and with intensive usage, this causes changes in the musculature and in the temporomandibular joint (TMJ) of wind musicians, often resulting in temporomandibular disorders (TMD). The aim of this study is to examine evidence that TMD constitute an occupational disease in wind musicians.PARTICIPANTS: TMD patients and wind musicians were examined by dental clinical functional analysis. 102 male subjects were divided into three groups: "healthy" individuals, wind musicians, and patients with TMD. METHODS: Dental Examination was carried out based on focused inclusion of the research diagnostic criteria - TMD [1,7]. Findings were evaluated for statistical significance by first transferring data into a digital database [2,15], then generating T-Test und Wilcoxon-Test when non-Gaussian distribution appears and applying the Mann-Whitney rank sum test using Sigmaplot Version 11 software (Systat Software Inc, Washington, USA). RESULTS: The evaluation revealed that wind instrument musicians show a high incidence of developing TMD as the researchers found almost 100% morbidity regarding parafunctional habits and preauricular muscle pain of each adult and highly active musician. The result is highly significant ($p < 0.001$) for protrusion distance of the mandible.CONCLUSIONS: A higher prevalence of functional disorders of the musculoskeletal system has previously been demonstrated in wind musicians. New research results and the typical functions of various wind instruments provide evidence that playing a wind instrument generates occupational risks to the TMS.

Papandreou, M. and A. Vervainioti (2010). "Work-related musculoskeletal disorders among percussionists in Greece: a pilot study." Med Probl Perform Art **25**(3): 116-119.

The performing arts medicine literature indicates that the prevalence of work-related musculoskeletal disorders in musician instrumentalists is approximately 43%. The primary purpose of this study was to record rates of the most common musculoskeletal disorders among professional and student percussionists in Greece. The secondary aim was to uncover relationships between the percussionists' musculoskeletal disorders and work-related factors such as their age, main musical activity, and practice time in musical training. METHODS: Thirty percussionists of both sexes, in

active musical activity, aged 20 to 60 years, participated. The Musicians Health Questionnaire was used to record their musculoskeletal disorders as assessed in four factors: personal data, musical activity, total body musculoskeletal disorders, and treatment. RESULTS: In the 30 percussionists, 32% of musculoskeletal disorders involved the upper limb, 20% the vertebral column, 8% muscle tissue, 13% psychological problems, and 27% the rest of the body. The most common problems were tremor (20%, n = 6), neuralgia in the arms (17%, n = 5), and backache (20%, n = 6). Statistically significant correlations were found between upper-limb tremor and main musical activity ($r = 0.53$, $p = 0.01$), backache and age ($r = 0.48$, $p = 0.01$), and neuralgia in the arms and musical practice time (in hrs/day; $r = 0.45$, $p = 0.01$). CONCLUSIONS: The findings of this study indicated that most musculoskeletal disorders among percussionists in Greece affect the upper limbs and involve multiple risk factors. Because of the limited number of respondents, this study should be considered as a pilot population study.

Quarrier, N. F. (2011). "Is hypermobility syndrome (HMS) a contributing factor for chronic unspecific wrist pain in a musician? If so, how is it evaluated and managed?" Work **40**(3): 325-333.

OBJECTIVES: The musician complaining of chronic pain commonly presents with subtle and complicated findings. Joint hypermobility is common in these individuals. The diagnosis of joint hypermobility syndrome (HMS) does not merely involve joint laxity, but connective tissue impairment throughout the body as well as perhaps involving the neurological system. As the aging process gradually reduces joint laxity, chronic pain and various impairments may linger. This report investigates HMS as it relates to a case study involving a musician suffering with chronic joint pain and HMS. METHODS: Literature review and case description. RESULTS: HMS involves more than just joint laxity and may be the cause of various chronic pain dysfunctions. The prognosis for recovery from HMS is poor, but the education and psychological aspect is extremely beneficial to the patient's health and well-being. CONCLUSIONS: This case report identified a musician with CUWP and HMS. Joint hypermobility syndrome does not merely involve joint laxity, but involves connective tissue impairment throughout the body as well as perhaps involving the body's neurological system. Joint hypermobility is common in musicians.

Warrington, J. (2003). "Hand therapy for the musician: instrument-focused rehabilitation." Hand Clin **19**(2): 287-301, vii.

Extraordinary hand therapy goals and treatment approaches are required for the professional musician. Rehabilitation using the instrument includes early return to modified playing, instrument-specific exercises, sensory reeducation and manual therapy, improving musical fitness, a multidisciplinary team approach, and instrument modifications and splinting when necessary. Education

regarding good practice habits is essential to avoid secondary problems on return to full playing. This treatment approach is valuable following traumatic injury, for degenerative conditions, and for nonspecific wrist and hand pain.

Yavari, M., S. E. Hassanpour, et al. (2010). "Multiple trigger fingers in a musician: a case report." Arch Iran Med **13**(3): 251-252.

> Trigger finger is a common disease which particularly occurs in middle-aged women. We present a rare case of a male musician with six trigger fingers (five in the left hand and one in the right hand). Mostly these fingers had been used for playing the guitar. The patient had previously been treated with local steroid injections in his fingers, however no response was seen. Therefore, we performed a surgical procedure. Four weeks after surgery, the patient could play the guitar without discomfort in his hands.

Please remember to update your orthopaedic section profile, thank you!
https://www.orthopt.org/surveys/membership_directory.php