Steinberg N, Adams R, Waddington G, Karin J, Tirosh O. Is there a correlation between static and dynamic postural balance among young male and female dancers? J Mot Behav. 2017 Mar-Apr;49(2):163-71.

To investigate whether young male and female dancers have different patterns of association between static and dynamic postural balance (PB), 60 dancers from the Australian Ballet School (14 to 19 years old) were tested for static and dynamic PB with head and lumbar accelerometers. Monotonic relationships between static and dynamic PB were found in head movements among young female dancers in all three directions, but were found for young male dancers in the mediolateral (ML) and anteroposterior (AP) directions only. In lumbar movements, monotonic relationships were found for young female dancers in the AP direction only. Comparing head with lumbar movements in static PB, young male dancers demonstrated monotonic relationships between head and lumbar movements in all 3 directions; however, young female dancers demonstrated monotonic relationships in the AP direction only. In the dynamic measurements, both male and female dancers demonstrated monotonic relationships between head and lumbar movements for all parameters measured in the ML and vertical directions (p < 0.05). In conclusion, among female dancers static PB ability is correlated with their dynamic ability, whereas among male dancers, no relationship between the static and dynamic PB in the AP direction exists. Male dancers showed head and lumbar coordination in the static PB movement, but neither gender manifested head and lumbar coordination in the AP direction as measured for dynamic PB.

Heyer JH, Rose DJ. Os trigonum excision in dancers via an open posteromedial approach. Foot Ankle Int. 2017 Jan;38(1):27-35.

This study is a retrospective case series of 40 ankles in 38 dancers who underwent os trigonum excision via an open posteromedial approach with FHL tenolysis between 2000 and 2013. All patients were interviewed and charts retrospectively analyzed. Collected variables included pre- and post-operative pain level, time to return to dance, and subjective satisfaction. The average age of patients was 19.2 years; ballet was the primary dance form in 36 (95%) of patient-cases. Eight (20%) of the patient-cases were professional dancers, and 30 (75%) were students or pre-professional dancers. Average pre-operative pain level was 7.7/10, which decreased to 0.6/10 post-operatively. Seventeen (42.5%) experienced concurrent pre-operation-associated FHL symptomatology, which was relieved post-operatively. The average time to return to dance was 7.9 weeks, and time to pain-free dance was 17.7 weeks. Of the 37 patient-cases desiring to return to dance, 35 (94.6%) returned to their pre-operative level of dance. There were no neurovascular or other major complications. Four (10%) had minor wound complications that resolved, and 38 patients (95%) considered the procedure a success. Open posteromedial excision of an os trigonum in dancers provided satisfactory pain relief, return to dance, and complication rates compared to other approaches, and allowed for identifying and treating any associated FHL pathology.

Morelli F, Mazza D, Serlorenzi P, Guidi M, Camerucci E, Calderaro C, Iorio R, Guzzini M, Ferretti A. Endoscopic excision of symptomatic os trigonum in professional dancers. J Foot Ankle Surg. 2017 Jan-Feb;56(1):22-5.

The present study reports the clinical results of excision of a symptomatic os trigonum using an endoscopic procedure in professional ballet dancers. The hypothesis was that posterior endoscopic excision of the os trigonum would be safe and effective in treating posterior ankle impingement syndrome related to the os trigonum. Twelve professional dancers underwent excision of a symptomatic os trigonum for PAIS using a posterior endoscopic technique after failure of conservative treatment. The patients were evaluated pre- and post-operatively according to the American Orthopaedic Foot and Ankle Society hindfoot scale score, the Tegner activity scale score, and the visual analog scale score. The surgical time, timing of return to dance, patient
satisfaction, and any complications related to the procedure were recorded. The average post-operative follow-up duration was 38.9 ± 20.6 (range: 12 to 72) months. The mean Tegner activity scale score increased from 4.3 ± 0.8 (range 3 to 5) pre-operatively to 9 ± 0.2 post-operatively (p < 0.05). The mean American Orthopaedic Foot and Ankle Society scale score increased from 67.8 ± 6.0 (range: 58 to 76) preoperatively to 96 ± 5.1 (range: 87 to 100) postoperatively, with 7 of 12 patients (58.3%) reporting the maximum score of 100 points (p < 0.05). The mean return to dance was 8.7 ± 0.7 (range: 8 to 10) weeks. No major complications were recorded. The results of the present study demonstrate that the endoscopic excision of symptomatic os trigonum using a two-portal technique after failure of conservative treatment is characterized by excellent results with low morbidity.

**Imura A, Lino Y. Comparison of lower limb kinetics during vertical jumps in turnout and neutral foot positions by classical ballet dancers. Sports Biomech. 2017 Mar;16(1):87-101.**

The purpose of this study was to investigate the effect of hip external rotation (turnout) on lower limb kinetics during vertical jumps by classical ballet dancers. Vertical jumps in a turnout (TJ) and a neutral hip position (NJ) performed by 12 classical female ballet dancers were analysed through motion capture, recording of the ground reaction forces, and inverse dynamics analysis. At push-off, the lower trunk leaned forward 18.2° and 20.1° in the TJ and NJ, respectively. The dancers jumped lower in the TJ than in the NJ. The knee extensor and hip abductor torques were smaller, whereas the hip external rotator torque was larger in the TJ than in the NJ. The work done by the hip joint moments in the sagittal plane was 0.28 J/(Body mass·Height) and 0.33 J/(Body mass·Height) in the TJ and NJ, respectively. The joint work done by the lower limbs were not different between the two jumps. These differences resulted from different planes in which the lower limb flexion-extension occurred, i.e., in the sagittal or frontal plane. This would prevent the forward lean of the trunk by decreasing the hip joint work in the sagittal plane and reduce the knee extensor torque in the jump.

**Moita PP, Nunes A, Esteves J, Oliveira R, Xarez L. The relationship between muscular strength and dance injuries. Med Probl Perform Art. 2017 Mar;32(1):40-50.**

The physical demands placed on dancers put them at significant risk for injury, with rates similar to those sustained by athletes in sports at the same level of performance. Muscle strength has been suggested to play a preventative role against injury in dancers. To systematically search and examine the available evidence on the protective role of muscle strength in dance injuries, five electronic databases and two dance-specific science publications were screened up to September 2015. Study selection was based on a priori inclusion criteria on the relation between muscle strength components and injuries. Methodologic quality and level of evidence were assessed using the Downs and Black (DB) checklist and the Oxford Centre of Evidence-Based Medicine (OCEBM) 2011 model. RESULTS: From 186 titles found, only 8 studies met the inclusion criteria and were considered for review. Because of the significant heterogeneity of the included studies, meta-analysis was deemed inappropriate. The DB quality assessment results ranged from 18.7% to 75% (mean: 42.3 ± 16.9) and the OCEBM between 2b and 4. Some level 2b evidence from 2 studies suggested that pre-professional ballet dancers who get injured exhibit lower overall muscle strength scores for the lower extremity, and that lower extremity power gains may be associated with decreased bodily pain but not injury rate. Although there might be an association trend toward low muscle strength and dance injuries, the nature of that relationship remains unclear, and presently the state of knowledge does not provide a solid basis for designing interventions for prevention.

**Stracciolini, A, Quinn BJ, Gemeniani E, Kinney SA, McCrystal T, Owen M, Pepin MJ, Stein CJ. Body mass index and menstrual patterns in dancers. Clin Pediatr (Phila). 2017;56(1):49-54.**

Questionnaires were distributed to investigate body mass index (BMI) and menstrual patterns in female dancers. The study cohort consisted of 105 dancers, mean age 14.8 ± 1.1 years and mean BMI 19.5 ± 2.3 kg/m². In all, 92% were healthy weight for height. First menses age ranged from 10 to 15 years (mean 12.9 ± 1.1 years). A total of 44% reported irregular menses; of those, 14% described irregularity as “every other month,” 37% as “every 3 months,” and 49% as “skips a month occasionally.” Thirty-six percent of the dancers stop getting their menses during times of increased activity and dance, and 30% had gone more than 3 months at any time without getting their menses. A significant negative correlation between BMI and age of first menses was found, with lower BMI associated with increased age of first menses (linear regression, β = −0.49, p = 0.021). This study supports an association between BMI and age of menarche among young female dancers. Given bone health reliance on hormonal milieu in female dancers, future research is warranted.

To ensure that they are not overlooked in our selection process, we encourage authors to e-mail their recent articles for consideration to: ruthsol@ucsc.edu.