Interventions (or Assessment of Risk Factors) Risk of re-injury and osteoarthritis following knee surgery in professional folk dancers.

Results The dancers suffered 14 knee injuries requiring arthroscopic surgery (3 meniscus tears, 4 anterior cruciate ligament tears one of which is with posterolateral corner tear, 1 posterior cruciate ligament tear, 1 patellar dislocation, 1 infrapatellar bursitis, 2 Hoffa’s fat pad syndromes, 2 symptomatic medial plicaes) during a ten-year period. Following surgeries, the dancers could restart to perform live on the stage in 19.5 ±12 (range:5 to52) weeks on average. Injuries and postoperative times to return to dance was 56.7±23 (26–108) months to follow-up with the same clinic and same surgeon for the patients. One dancer had re-operation due to meniscus retear after 4 years. The rate of re-injury is 7.14% after knee surgery. All of the dancers who underwent arthroscopic knee surgery were evaluated for osteoarthritis according to the Kellgren Lawrence classification. The osteoarthritis were classified as G:0 in 7 patients, G:1 in 3 patients, and G:2 in 4 patients on final knee radiographs. All of the operated patients continued with their careers in dancing.

Conclusions Knee surgeries for the cases mentioned above do not necessarily put an end to their dancing career. This may consider the associations of changing body composition over a training season with low BMD.

Results The mean whole-body BMD was 1.03 g/cm² (SD:0.10) in dancers and 1.14 g/cm² (SD:0.08) in athletes. LE BMD was 1.10 g/cm² (SD:0.11) in dancers and 1.19 g/cm² (SD:0.08) in athletes. Age was positively associated with whole-body BMD (b=0.008,97.5%CI:0.004,0.012) and LE BMD (b= 0.007,97.5%CI:0.002,0.010). Activity modified the relationship between BMI and BMD (p<0.001), for example, for a BMI of 20.1 kg/m² (mean of participants) the difference between dancers and athletes is -0.389 g/cm² [97.5% CI: -0.566, -0.195] and -0.381 g/cm² [97.5% CI: -0.552, -0.197] for whole body and LE BMD respectively. No other variables were associated with BMD.

Conclusions Older age is associated with higher BMD in female pre-professional dancers and sport athletes. The relationship between BMI and BMD depends on activity type for both whole-body and lower extremity sites. Efforts to prevent bone injury should focus on younger dancers and athletes and consider the associations of changing body composition over a training season with low BMD.

Background As an aesthetic activity, dancers are susceptible to Relative Energy Deficiency in Sport (RED-S), specifically low bone mineral density (BMD). Compared to sedentary dancers, dancers have significantly higher BMD, but little is known about how BMD in dancers relates to other athletic populations. This knowledge may better inform comparative values and risk of bone injury.

Objective To evaluate associated factors of BMD among female dancers and sporting athletes.

Design Cross-sectional study.

Setting Human Performance Lab, University of Calgary.

Patients (or Participants) 275 females [138 pre-professional dancers (18.4 years IQR: 15.3, 19.9); 137 recreational sport athletes (23.2 years IQR: 21.9, 24.7)] participated.

Interventions (or Assessment of Risk Factors) Factors evaluated: Age (years), BMI (kg/m²), supplement intake (Ca+, vitD; yes/no), stress fracture history (yes/no), irregular menses (yes/no), and MRI/bone scan (yes/no), one-year injury history (yes/no), and activity (dance/sport). All two-way interactions were evaluated.

Main Outcome Measurements Whole-body BMD (g/cm²) was estimated from dual-energy x-ray absorptiometry. Lower extremity (LE) segmentation followed published protocols.

Results The mean whole-body BMD was 1.03 g/cm² (SD:0.10) in dancers and 1.14 g/cm² (SD:0.08) in athletes. LE BMD was 1.10 g/cm² (SD:0.11) in dancers and 1.19 g/cm² (SD:0.08) in athletes. Age was positively associated with whole-body BMD (b=0.008,97.5%CI:0.004,0.012) and LE BMD (b= 0.007,97.5%CI:0.002,0.010). Activity modified the relationship between BMI and BMD (p<0.001), for example, for a BMI of 20.1 kg/m² (mean of participants) the difference between dancers and athletes is -0.389 g/cm² [97.5% CI: -0.566, -0.195] and -0.381 g/cm² [97.5% CI: -0.552, -0.197] for whole body and LE BMD respectively. No other variables were associated with BMD.

Conclusions Older age is associated with higher BMD in female pre-professional dancers and sport athletes. The relationship between BMI and BMD depends on activity type for both whole-body and lower extremity sites. Efforts to prevent bone injury should focus on younger dancers and athletes and consider the associations of changing body composition over a training season with low BMD.