

## LOW BACK PAIN IN YOUNG DANCERS

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### Purpose

To assemble information on the nature of low back pain (LBP) in dancers during their childhood and adulthood and to determine the risk factors for this pain.

### Relevance

In the pursuit of excellence and self-accomplishment through the physical practices of dance, the dancer continually faces the challenge of dealing with injuries and pain. The rigors of dance training lead to LBP unique to dancers. Causative factors include anatomical structures, heredity, training regimen, improper technique, age, body mass index, nutrition, menstrual function, and dance discipline. Hence, preparing the dancer for a career in dance is accompanied by a high potential risk for back pain.

Screening the young dancers can yield information on the dancers' joints range of motion (ROM), their body type and shape, their techniques etc. It can moreover determine the risk factors for LBP and ways to prevent them.

### Method

A group of 1,571 female dancers aged 8 - 16 years participated in this study. Each subject was screened and her profile was recorded:

- a) personal details (menarche onset age, frequency of menarche, and hours of practice per week);
- b) anthropometric measurements;
- c) physical examination of ROM;
- d) physical examination of hyper-laxity of the joints;
- e) recording of anatomical anomalies;
- f) technique evaluation and
- g) examination of injuries and pain (including LBP) by physician.

### Analysis

Statistical analysis (Pearson Correlation, Chi-square test) were carried out using SPSS 12 for Windows.

### Results

58 out of 1,571 dancers (3.7%) reported current LBP during their screening. The incidence of LBP increased steadily and considerably with age: At age 8 years, none of the girls reported LBP, at the age of 12 years, 2.3% reported LBP, while at age 16 the prevalence increased to 7.2%.

Risk factors for LBP among dancers were: limited 'Pointe' of ankle and foot joints ( $\approx 80^\circ; 75^\circ$ ); extreme dorsiflexion of ankle joint; hind-foot varum; knee pain (e.g., chondromalacia patella); ankle and foot injury (e.g., ankle sprain).

### Conclusions

- a- There is an increased risk of LBP among young dancers with age;
- b- Ankle and foot ROM and anomalies are associated with LBP;
- c- Dancers with knee and ankle injuries were more prone to complain on LBP;
- d- All other parameters are not risk factors for LBP among young dancers.

### Implications

LBP is a source of significant morbidity to the dancer, which can be attributed to the various forms of dance and repetitive movement. The mobility and flexibility of the trunk, pelvis and hip joint must be considered when planning a training program in dancers, especially when the dancer has limited range of motion in peripheral joints (e.g., limited 'pointe' in the foot). In these cases the dancer implies an increased force on proximal joints, which in

turn may cause injury and pain. A modification of the training program and type of exercise conducted in dance training may reduce the risk of LBP.

**Keywords**

Dancers; LBP; Risk factors; ROM; Anatomical anomalies; Injuries.