

Title: The efficacy of strength and conditioning training on dance injury in pre-professional dancers

Purpose: To examine the effects of a strength and conditioning training intervention on dance injury, physical fitness, and dance performance in Chinese pre-professional dancers.

Study design: A prospective non-randomized controlled trial.

Methods: A total of 89 full-time pre-professional dancers participated in this study. Sixty-seven dancers volunteered for a 12-week (2-session/week, 40-60-min/session) strength and conditioning training intervention, and 22 dancers acted as a control group. The intervention group, pre- and post-intervention, carried out seven physical fitness tests (6 movement tests and a vertical jump height test that measured by “My Jump 2” application) and a dance performance test scored by dance teachers using a ratified 10-item performance proficiency tool. Injury was self-reported by the dancers using a weekly remote dance injury monitoring tool. An inclusive definition of injury was used in this study to record all injuries, even if they didn’t cause a cessation of training.

Multivariate analysis of variance was used to compare the difference in physical fitness and dance performance pre and post-intervention. Injury data was initially analyzed between the intervention and non-intervention groups; the intervention groups’ injury data were further analyzed in comparison to data collected during the same period the previous year. These data were analyzed by one-way ANOVA, paired-sampled t-test, Mann-Whitney U test, and Wilcoxon signed ranks test.

Results: The intervention group reported significant increases in physical fitness ($p < 0.001$) but their dance performance data did not change ($p > 0.05$). The intervention group self-reported lower weekly injury prevalence percentages (28% vs 15.1%, $p < 0.001$) and injury incidence (8.09 vs 5.16 injuries per 1000hrs, $p < 0.05$) compared to the control.

Conclusion: Strength and conditioning training potentially improves physical fitness levels and decreases the risk of injury in pre-professional dancers without detrimentally affecting dance performance.