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APPLICATION OF NEUROMUSCULAR TRAINING PROGRAM FOR ANTERIOR CRUCIATE LIGAMENT INJURIES PREVENTION IN FEMALE ATHLETES

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ABSTRACT

Background and Purpose: Anterior cruciate ligament (ACL) injuries are common in sports, and need high cost-effective surgeries to repair ACL. Because of gender differences, female have higher risk than male, and athletes' sports performances were influenced. Neuromuscular training (NMT) is a skill which teaches the athlete's conscious control of movements to improve their knee stability and to prevent ACL injuries. Many kinds of NMT are used in athlete's training, but the incidences are rare to study. So, we used a literature review to explore the application of NMT for ACL injury prevention.

Materials/Methods: EBSCOhost and PubMed were used to search literatures, which were published from 1995 to 2009. We used the key words, knee injuries, ACL injures prevention, and NMT, to search. Included criteria were that subjects were female athletes in high-risk sports, NMT was intervened, and outcome measure had an incidence rate. We compared the NMT, assessment and outcome in the searched literatures.

Results: 4 literatures were collected and used 4 sets of NMT. The jump, strengthening, plyometric, and balance exercises were used during the training sessions. In the results of all studies, decreasing incidence rates of ACL injury were found in follow-up. Comparing pre- and post-training, statistically significant differences in incidence rates were found in jump exercise, and compound training program (strengthening and plyometric exercises). Compound training program (jump and balance exercises) had a minimal incidence rate.

Conclusions and Clinical Relevance: It is possible to prevent ACL injuries with specific NMT, and compound training program is suggested.