

Annotated Bibliography

Roos EM, Dahlberg L. Positive Effects of Moderate Exercise on Glycosaminoglycan Content in Knee Cartilage. *Arthritis and Rheumatism*. 2005; 52: 3507-3514.

The article looks to address the problem of osteoarthritis, especially in patients with a previous meniscectomy earlier in life. The purpose is to see if moderate exercise will increase the amount of glycosaminoglycan(GAG) in the cartilage of the knee, which should improve knee function and reduce pain. Patients included had a medial meniscectomy 3-5 years earlier, between the ages of 35-50 years old, from the medical records of the Malmo University hospital and a willingness to participate in the study. Also the patient could not have had a previous ACL surgery, too low of activity, too high of activity, and not being in the area of where the study was to take place. 45 patients were included in the study and were randomized into 2 groups, a control group which received no treatment or exercise guidelines and an exercise group which had to go to 3 out of the 5 group exercise sessions that were offered per week by physical therapists. Each session was an hour long with a basic warm up and each individual had a specific exercise plan, which was formed after evaluation by a physical therapist. Measurements were taken before intervention and 4 months later. The measurements taken were a dGEMRIC MRI for GAG content, Knee Injury and Osteoarthritis Outcomes Scale (KOOS) as to correlate change in outcomes to GAG content, the 1 leg jump, square hop, and 1 leg rising for muscular performance, a bicycle ergometer for aerobic capacity and an isokinetic peak torque test for knee extension at 60 degrees per second using a biodex. The clinicians taking the measures were blinded to which group the patients were in. 15 patients were lost to follow up with the dGEMRIC. At follow up the study found that there was a significant difference in T1(GD) in the exercise group as a value of +15 was shown as compared to the control group which had a value of -15. The changes in aerobic capacity and peak torque correlated positively with the increase in exercise. There was also an improvement shown in the KOOS when there was an increase in GAG content. The article has level 2 evidence according to the AAOS scale because it is a randomized control trial with a dropout rate greater than 80%.

The relevance of the article to athletic training is that it proves that a valid treatment or prevention of osteoarthritis is exercise of at least an hour 3 days a week. Athletic trainers working with patients rehabilitating from a medial meniscectomy can treat the patient by just having them exercise. Since exercise does increase GAG content and help with the treatment of osteoarthritis an athletic trainer can also rehabilitate a patient with osteoarthritis by giving them exercise to do. Instead of just icing and NSAIDs for the treatment of osteoarthritis athletic trainers can get their patients exercising. The patient implication is that the patient has to want to exercise and get moving to treat their osteoarthritis. Also the article did lose a big group of patients to follow up and there was a short follow up so long term results are not known. Further research needs to be done looking at long term results and in patients with osteoarthritis who did not have medial meniscectomies.