The role of muscle strengthening exercises in knee osteoarthritis

SCIENCE

Abstracts

Key Take-Away:

Osteoarthritis (OA) of the knee is a common, nonfatal, chronic condition that causes pain and physical disability in older people. Persons with knee OA report difficulty with activities that require ambulation and transfer from sitting to standing position. Exercise interventions, especially muscle strengthening therapies can potentially benefit the patients suffering from acute pain and instability associated with osteoarthritis (OA). The present systematic review assessed if the increase of 30% in knee strength is associated with the improvement in illness and disability in OA patients.

To analyze if exercise interventions for patients with knee osteoarthritis (OA) following the American College of Sports Medicine (ACSM) definition of muscle strength training differs from other types of exercise, and to analyze associations between changes in muscle strength, pain, and disability.

ABSTRACT:

Background:

To analyze if exercise interventions for patients with knee osteoarthritis (OA) following the American College of Sports Medicine (ACSM) definition of muscle strength training differs from other types of exercise, and to analyze associations between changes in muscle strength, pain, and disability.

Methods:

A systematic search in 5 electronic databases was performed to identify randomized controlled trials comparing exercise interventions with no intervention in knee OA, and reporting changes in muscle strength and pain or disability assessed as standardized mean differences (SMD) with 95% confidence intervals (95% CI).

Interventions were categorized as American College of Sports Medicine (ACSM) interventions or not-ACSM interventions and compared using stratified random effects meta-analysis models. Associations between knee extensor strength gain and changes in pain/disability were assessed using meta-regression analyses.

Results:

A total of 45 eligible trials with 4699 participants and 56 comparisons (22 ACSM interventions) were included in the analysis. A statistically significant difference favoring the ACSM interventions concerning knee extensor strength was found [SMD difference: 0.448 (95% CI: 0.091–0.805)].

No differences were observed in effects on pain and disability. The meta-regression indicated that increases in knee extensor strength of 30–40% would be necessary for a likely concomitant beneficial effect on pain and disability, respectively.
Conclusion:

Exercise interventions following the ACSM criteria for strength training provide superior outcomes in knee extensor strength, but not in pain or disability.

An increase of less than 30% in knee extensor strength is not likely to be clinically beneficial regarding changes in pain and disability.

Source: Seminars in Arthritis and Rheumatism

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