Comparison of routine physical therapy exercises with and without core stability exercises in total knee replacement patients by Warner et al.

To the Editor:

In the recently published article Comparison of routine physical therapy exercises with and without core stability exercises in total knee replacement patients by Warner et al,[1] it was found that 6 weeks of core stability exercises in addition to routine physical therapy exercises were more effective in improving lower extremity function than routine physical therapy exercises alone in patients with total knee replacement (TKR). However, the link between core stability and knee or lower extremity function was not clearly explained.

It is well known that stability and kinematics of the knee may be altered following TKR.[2] The goals of core stability exercises are to improve the strength and stability of the trunk, pelvis, and hips (also known as the lumbopelvic-hip complex).[3] The lumbopelvic-hip or core musculature is responsible for optimizing the production, transfer, and control of force and motion to the extremities.[4] In view of the foregoing, it is logical to suggest that improving core stability through increasing activation pattern of the core musculature also improves the activation of the lower extremity musculature.

Karaman et al[5] found that the addition of core stability training to standard exercise program improved balance, functional performance and quality of life than standard exercise program alone in patients with TKR. Thus, core stability training may be considered as a potential adjunct treatment in TKR as reported for other knee-related conditions such as knee osteoarthritis[6] and post anterior cruciate ligament reconstruction[7].

With regards to the methodology, first, the sample size calculation is rather unclear. Second, dependent t-test (paired sample t-test) was the only statistical method reported whereas the results reported was based on the comparison between two independent groups (control *vs.* experimental). It should be noted that dependent t-test is used to compare the means of one group in different measurements (i.e. before and after intervention). The independent t-test should, therefore, have been used to analyze data. The pretreatment scores in the lower extremity function scale should have been indicated and the effect size should have been calculated to indicate the magnitude of the change. The authors adopted a single-blind randomized controlled trial design, it is unclear as to who was blinded (i.e. therapists, assessors, or patients).

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Reply by the authors:

Core stability exercises help to strengthen the hip abductors, adductors and quadricep muscles which holds the knee stability.[1] It has a complex relationship between hip and trunk muscle capacity and motor control. core deficiency may increase the risk of lower extremity injury. This explains how trunk and lower extremity muscles are interlinked.[1]

The side-bridge exercise could be used for strengthening the gluteus medius and the external oblique abdominis muscles, and the quadruped arm/lower extremity lift exercise may help strengthen the gluteus maximus muscle. All the other exercises produced EMG levels less than 45%, so they may be more beneficial for training endurance or stabilization in healthy subjects.[2]

Our study results indicated that both types of exercises were effective in improving dynamic balance, spinal stability, and hip mobility in female office workers.[3] This study provides practical evidence in combining core exercises for optimal lower limbs strength balance development in young soccer players.[4]There is a clear relationship between trunk muscle activity and lower extremity movement.[6]

Kinematics of knee altered with TKR might be another research topic. Our study only included comparison between two exercises that is with and without in making patient mobile or gaining score on lower extremity functional scale.

In our study, patients were blinded. Independent t test was applied also but was not mentioned in the study. Sample size was 19 but decided to go for 22. If patient may with draw from research. So total sample size was 44.

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