

TITLE: Association of Quadriceps Torque with Lower Extremity Dysfunction in Women with Early Degrees of Knee Osteoarthritis.

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Abstract Details

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ABSTRACT BODY:

PURPOSE : The purpose of this study was to investigate whether or not there is an association between concentric and eccentric torque of quadriceps muscle with lower Extremity Dysfunction represented by WOMAC including (pain, knee stiffness and physical function) in women with early stages of knee OA.

BACKGROUNDS/SIGNIFICANCE: Osteoarthritis (OA) is the most common form of arthritis and the incidence is increasing markedly due to an ageing population. Recent observational studies suggest that quadriceps muscle weakness is associated with an elevated risk for incident symptomatic and progressive knee OA. However, few studies have evaluated this association in a population with early stages of knee OA especially in women.

SUBJECTS: Forty females patient had participated in this study. With age ranged from forty to fifty five years represented their mean age (50.05 ± 4.006) years, mean weight (82.13 ± 8.16) (Kg), mean height (158.07 ± 7.25) (Cm) and mean BMI (30.5 ± 4.86) (Kg/m²). With knee OA grades I or II (according to Kellgren and Lawrence criteria)

METHODS AND MATERIALS: The concentric and eccentric quadriceps peak torque were assessed using a Biodex Isokinetic Dynamometer ,Multi-Joint System 3, at a speed of 90°/s. Self-reported symptoms and disability were assessed using the WOMAC questionnaire with each item corresponds to a particular dimension (pain, stiffness and physical function). This questionnaire was translated and validated for Egyptian language.

ANALYSES : Spearman's r correlation coefficients was used to analyze the

relationship between the dependent variables (WOMAC subscales for pain, stiffness and physical function) and the independent variables (the normalized mean peak concentric and eccentric quadriceps torques). Significance level set at $p < 0.05$ for all comparisons.

RESULTS: The results of this study demonstrated that there is strong negative correlation between the concentric quadriceps torque and pain ($r = -0.68$, $p < 0.001$) and physical function ($r = -0.63$, $p = 0.011$). Eccentric quadriceps torque presented a moderate and negative correlation with pain and physical function of the two subscales of the WOMAC ($r = -0.50$ to 0.53 , $p < 0.05$). There is poor inverse correlation between concentric ($r = -0.25$, $p = 0.11$) and eccentric ($r = -0.28$, $p = 0.07$) torque of quadriceps and stiffness

CONCLUSIONS : It can be concluded that the concentric and eccentric quadriceps torque is significantly associated with (pain and physical function) in initial stages of knee OA. Also there is no significant association between the concentric and eccentric quadriceps torque and stiffness. Therefore, the strengthening of the quadriceps muscles is indicated in order to minimize pain and physical dysfunction.

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