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## The Correlation between Falls Incidence and Quadriceps Muscle Strength of Patients with COPD Presented to National Hospital for Respiratory Diseases, Welisara and Chest Clinic at Medical Research Institute Sri Lanka

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**Background:** Skeletal muscle dysfunction is observed in some patients with chronic obstructive pulmonary diseases (COPD). Quadriceps muscle strength plays an important role in maintaining the postural stability.

**Objectives:** To recognize the falls incidence and identify the probability of risk of falls among out-patients suffering from COPD in relation to their quadriceps muscle strength.

**Methods:** This descriptive cross-sectional study was conducted with 35 COPD patients aged 40-60 years, who were attended to the respiratory clinics within the 3<sup>rd</sup> month of the year 2021. The sample was collected according to the convenience sampling method. Quadriceps strength of bilateral lower limbs were measured using the one-repetition maximum (1RM) strength test and the data of falls incidence were collected using the interviewer administered questionnaires. Spearman's correlation coefficient test was used to measure the correlation between falls incidence and quadriceps muscle strength.

**Results:** There were 27 male and 8 female patients participated in this study. The test results indicated a significant positive correlation between falls incidence and right side 1RM ( $p=0.019$ ,  $r=0.395$ ) and left side 1RM ( $p=0.033$ ,  $r=0.362$ ). The logistic regression test was used to measure the probability of risk of fall in relation to quadriceps muscle strength and the results showed a significant positive relationship between probability of risk of falls and right side 1RM ( $p=0.030$ ,  $r=0.601$ ) and left side 1RM ( $p=0.040$ ,  $r=0.537$ ).

**Conclusions:** According to the results of the study, a significantly positive correlation between falls incidence and quadriceps muscle strength of COPD patients was identified.

**Keywords:** COPD, Falls incidence, Quadriceps muscle strength, Risk of falls, 1RM strength test.