

Assessing quadriceps muscle strength as a tool to determine the approach to and prognosis in COPD patients

Avaliação da força do quadríceps como ferramenta para se estabelecer a conduta e o prognóstico em pacientes com DPOC

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In a recent systematic review, Evans et al.⁽¹⁾ compared 728 COPD patients with 440 healthy individuals in terms of quadriceps endurance. The authors found that, in fact, quadriceps endurance was reduced in the COPD patients, regardless of the task measured or requested. Muscle dysfunction, which is present in COPD patients, manifests among other ways as deficits in peripheral muscle strength, affecting upper limb muscles and, more specifically, the quadriceps muscle.^(2,3) These losses culminate in worsened functioning and worsened activities of daily living, when thinking of upper limbs, and in decreased physical fitness, when thinking of lower limbs, which leads to impaired quality of life.⁽²⁻⁴⁾ Muscle dysfunction is also prominent in various other lung diseases, such as bronchiectasis,⁽⁵⁾ cystic fibrosis,⁽⁶⁾ idiopathic pulmonary fibrosis,⁽⁷⁾ etc. However, although muscle dysfunction is widely addressed, until quite recently, the equations used for the Brazilian population, as well as the predictive values, were those derived from distinct populations.

In this issue of the JBP, Nellessen et al.,⁽⁸⁾ in a study involving 56 COPD patients, elegantly compared the characteristics of and assessed agreement among three different equations for predicting peak quadriceps muscle force—those of Neder et al.,⁽⁹⁾ Decramer et al.,⁽¹⁰⁾ and Seymour et al.⁽¹¹⁾—which take into consideration factors such as age, weight, gender, and even fat-free mass.⁽⁹⁻¹¹⁾ In this study,⁽⁸⁾ the authors sought to bring the applicability and comparison of the equations as much as possible into line with the situation in Brazil, such as by assessing body composition by bioelectrical impedance and by measuring knee extensor muscle strength with a hand-held dynamometer. The authors concluded that, even though there is no clearly established cut-off point, no fixed value, for determining

the degree of quadriceps muscle weakness, the equations were statistically equivalent, although the equation proposed by Neder et al.⁽⁹⁾ gave higher peak force values and showed greater agreement with the other two equations studied.

It is of utmost importance to highlight the clinical relevance of this article⁽⁸⁾ for professionals working with patients with lung disease, as well as highlighting that predictive equations for estimating six-minute walk distance,⁽¹²⁻¹⁴⁾ shuttle walk distance,⁽¹⁵⁾ and respiratory muscle strength (maximal inspiratory and expiratory pressures) are already available,^(16,17) the study by Nellessen et al.⁽⁸⁾ has come to compose this scenario. In addition to facilitating the comparison of our data with those by the international scientific community, this will allow us in the near future to propose multicenter studies with an excellent sample size: the Brazilian population.

Undertaking to assess COPD patients for physical fitness, functioning, and activities of daily living is not an easy task.⁽¹⁸⁾ For this reason, we should always rely on studies that consistently present predictive equations and reference values that can guide us in proposing new therapeutic interventions to such patients.^(3,4)

Culturally, we have some difficulty in citing studies of the Brazilian population. In contrast, it is increasingly important today that national journals enjoy greater visibility. Therefore, here is an invitation: appreciate and make use not only of the articles featured by the JBP, but also of those featured by other national journals. I am sure that you will find excellent approaches and data that can be useful in your future studies.

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