reliable data capture with minimal noise and their chromophore alteration patterns corresponded to those already observed in other voluntary muscles. There are limitations (sample size, use of speculum and unfeasibility of further statistical analyses), however, good quality data were presented with individualized and careful assessment of the muscles submitted to training regardless of the dysfunction.
Conclusion: NIRS has the potential for acquiring information not previously accessible, but it is not yet ready for clinical practice, requiring further studies to explore its potential in providing PCO, currently not available through other means.
Implications: In PFM training, we lack standardized methodologies to quantify strength and resistance measurements, which is a challenge for clinical treatment planning. Obtaining PCO, through NIRS technology, can improve the understanding of PFM dysfunctions and respond to the call for techniques that improve care.
Keywords: NIR spectroscopy, Pelvic Floor Disorders, Functional Performance

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ASSOCIATION BETWEEN "TEXT NECK" AND NECK PAIN IN ADULTS: A LONGITUDINAL STUDY

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Background: "Text neck" is defined by the cervical flexion adopted when using mobile devices. The possible causal relationship between this posture and neck pain is still widely discussed.
Objectives: The aim of this study was to investigate this association.
Methods: It is a longitudinal observational study. The sample consisted of 396 volunteers without neck pain aged between 18 and 65 years. Sociodemographic, anthropometric, lifestyle (level of physical activity, smoking, sleep quality), psychosocial (anxiety, depression, social isolation) and smartphone use issues were assessed using a self-reported questionnaire. Text neck was assessed by measuring the cervical flexion angle of participants standing while typing text on their smartphones, using the cervical range of motion (CROM) device at baseline. Two questions were used to assess the point prevalence and frequency of neck pain one year after baseline: "Did you have neck pain today?" With the following answer options "yes" or "no" and "How often do you have neck pain?", the answer options were "very often", "often", "from time to time", "rarely" and "never".
Results: Of the total, 84% (n=335) of participants completed the one-year follow-up. Neck pain was reported by 10% (n=40) of the sample. The average cervical flexion angle of the standing participants using the smartphone was 34° (SD=12). Multiple logistic regression analysis showed that participants' neck flexion angle while standing using a smartphone was not associated with neck pain (OR = 1.01; 95% CI: 0.98-1.04; p=0.64) or frequency of neck pain (OR = 1.01; 95% CI: 0.99-1.03; p=0.44) one year after baseline. Of the potential confounders, sleep quality was associated with neck pain (OR = 1.76; 95% CI: 1.18−2.62; p=0.006) and frequency of neck pain (OR = 1.53, CI 95 %: 1.19−1.96; p=0.001). When compared to active participants, insufficiently active participants increased the chances of neck pain (OR = 2.42; 95%CI: 1.04−5.63; p=0.04).
Conclusion: "Text neck" was not associated with neck pain or frequency of neck pain in adults.
Implications: These results challenge the belief that poor neck posture while using smartphones leads to neck pain and may help mitigate the impact of negative information on the cervical spine.
Keywords: Neck pain, Posture, Text neck

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ANALYSIS OF ANXIETY INVENTORY SCALE FOR RESPIRATORY DISEASES (RAI) FOR INDIVIDUALS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Background: Anxiety is a frequent comorbidity in patients with Chronic Obstructive Pulmonary Disease (COPD) and with important repercussions, such as functional impairment, decreased quality of life and adherence to treatment, and increased risk of hospitalization. In this context, the Anxiety Inventory for Respiratory Diseases (AIR), the only instrument specifically developed to investigate anxiety symptoms in this population, was cross-culturally adapted for use in Brazil. Still, the measurement properties of the face-to-face version have not yet been investigated.
Objectives: To investigate the internal consistency, test-retest and inter-rater reliability, convergent and divergent validity of the face-to-face AIR in patients with COPD.
Methods: This is a cross-sectional methodological study. On the first day, after signing the Free and Informed Consent Form, the Mini-Mental State Examination, the sociodemographic and clinical questionnaire were applied, and anthropometric data were collected, followed by spirometry. Subsequently, patients answered the Modified Medical Research Council (mMRC), the COPD Assessment Test (CAT), the AIR, the Hospital Anxiety and Depression Scale (HADS), the Beck Anxiety Inventory (BAI), and the London Chest Activity of Daily Living (LCADL). To determine the test-retest and inter-rater reliability of the IAR, seven days after the first application of the questionnaire, the leading researcher reapplied the scale with a control form via telephone contact, and a second rater contacted patients 48 hours later. The internal consistency of the AIR was measured using Cronbach's alpha and reliability using the Intraclass Correlation Coefficient (ICC). Spearman's correlation test (rho) was used to determine validity ($p<0.05$).
Results: Twelve individuals [7 female, age 60.5 (min. 53.7-max.70.8) years] participated in the study; nine were included in the test-retest reliability analyses and eight in the inter-rater reliability. For internal consistency, Cronbach's α was 0.94. For test-retest reliability, the ICC was 0.73; for inter-rater reliability, it was 0.88. Regarding convergent validity, significant correlations of high magnitude were observed between the AIR and the HADS anxiety domain (rho = 0.82), depression domain (rho = 0.87), and the total score (rho = 0.79), and of moderate magnitude between the AIR and the BAI (rho = 0.70). For divergent validity, non-significant

correlations of weak magnitude were observed between AIR and LCADL (rho = 0.39), AIR and CAT (rho = 0.10), and AIR and MRC (rho = 0. 17).
Conclusion: The study's preliminary results indicate that the AIR demonstrates adequate measurement properties for assessing anxiety symptoms in patients with COPD. The study will be continued to expand the sample number.
Implications: This study will provide a measurement instrument for investigating anxiety symptoms in patients with COPD with appropriate measurement properties, which may facilitate early identification and proper treatment.
Keywords: Chronic Obstructive Pulmonary Disease, Anxiety, Reproducibility of Tests

Conflict of interest: The authors declare no conflict of interest.
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Ethics committee approval: Federal University of Santa Catarina through number CAAE 21334419.6.0000.0121.

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ANALYSIS OF THE RELATIONSHIP BETWEEN FUNCTIONAL TESTS PERFORMANCE AND LOWER LIMB STRENGTH

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Background: Lower limb stabilizing muscle strength imbalance and changes in functional performance and dynamic balance have been reported as predictors of lower extremity injuries. Lower limb functional tests are commonly applied in clinical practice to assess functional performance as well as used as a measure of progression during rehabilitation. Among them, the Star Excursion Balance Test (SEBT) and the Single Leg Hop Test (SLHT) stand out as easy-to-apply and low-cost tools.
Objectives: To evaluate the relationship between lower limb stabilizing muscle strength and performance in functional tests in individuals without history of injury.
Methods: This is a quantitative cross-sectional study. As eligibility criteria, male individuals, aged 18 to 30 years, with no history of previous injury to the lower limbs were included. The data collection was divided into two days. On the first day, anamnesis was performed, anthropometric data were collected, familiarization with the muscle strength test was carried out and the functional tests SLHT and SEBT were applied to the Dominant Limb (DL) and Non-Dominant Limb (NDL). On the second day, the strength of the stabilizing muscles of the hip (lateral rotators and abductors), knee (quadriceps and hamstrings) and ankle (inverters and evertors) were assessed using a portable Lafayette® dynamometer stabilized by an inelastic band. Three maximal voluntary isometric contractions were performed, lasting five seconds, with a thirty-second interval between each contraction, bilaterally. The peak strength of each movement was recorded and later normalized by body mass. Statistical analysis was performed using the SPSS 18.0® software, applying the Shapiro-Wilk normality test and the Pearson correlation test. A significance level of $\alpha<0.05$ was adopted.
Results: 20 male individuals were collected. A moderate positive correlation was observed between peak strength of the NDL lateral rotators and hip abductors with performance in the DL SLHT and posteromedial SEBT. In addition, the strength of the knee extensors of both limbs was positively correlated with performance in the SLHT of the NDL. Furthermore, a correlation was observed between peak strength of NDL lateral rotators, DL ankle inverters and hip abductors with NDL posteromedial SEBT.
Conclusion: The maximum isometric strength of the lower limbs stabilizing muscles is related to the performance in functional tests.
Implications: The weakness of the stabilizing muscles of the hip and knee is directly related to a lower performance in functional tests, which may cause instability during movements, resulting in biomechanical changes that increase the risk of injury to the lower limbs. Still, the findings of this study elucidate that the performance analysis should take into account the bilateral force for the parameters of rehabilitation and injury prevention.
Keywords: Muscle Strength, Physical Functional Performance, Muscle Strength Dynamometer

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EFFECTS OF TRAINING WITH BLOOD FLOW RESTRICTION ASSOCIATED TO ELECTROSTIMULATION ON MUSCLE THICKNESS AND PERFORMANCE: CLINICAL TRIAL PROTOCOL

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Background: Among the factors that can influence an athlete's performance, muscle strength stands out in relation to performance and risk of injuries in sports. As an alternative to quadriceps strength training, blood flow restriction (BFR) and neuromuscular electrical stimulation (NMES) are two techniques used to enhance muscle recruitment with less risk of mechanical damage and joint overload.
Objectives: Evaluate the effects of strength training with BFR and BFR associated with NMES of the quadriceps muscle in physically active subjects on parameters of muscle thickness and lower limb performance.
Methods: This is a randomized clinical trial. The volunteers will sign the informed consent form. Will be recruited 60 individuals of both sexes, aged between 18 and 35 years, physically active according to the International Physical Activity Questionnaire (IPAQ). An initial anamnesis will be carried out to characterize the sample and anthropometric data will be collected, as well as thigh cytometry. Then, the volunteers will be randomized into three groups: Blood Flow Restriction Group (BFRG), Blood Flow Restriction Associated with Electrostimulation Group (BFREG) and Conventional Exercise Group (CEG). The evaluators will be blind in relation to the group that the individual was allocated, as well as the person responsible for the statistical analysis. Ultrasonography will be used in vascular