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## INFLUENCE OF AN EXERCISE PROTOCOL ON THE REDUCTION OF VENOUS ULCER AREA: CASE STUDY

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*Background:* Venous ulcers (VU) are open wounds that attack the integumentary system and are caused by venous dysfunction. They are a serious public health problem, affecting approximately 14% to 22.8% of the world's population and generating social impacts such as isolation, absence from work, early retirement, low self-esteem and depression. In addition, there is the economic impact that is related to the difficulty of healing and frequent recurrence of the wound, which generates costs for the health system and for the person with VU. Physical therapy interventions can be used to assist in the healing process. Among the therapies, physical exercises stand out.
*Objective:* To evaluate the area of chronic venous ulcers in patients submitted to an exercise protocol.
*Methods:* Case study, with two volunteers and three UV, composed of a physical exercise protocol for lower limbs during sixteen sessions, two per week. Eligibility criteria were: >18 years; having chronic venous insufficiency CEAP 6, without associated arterial disease; and ulcers >1 $cm^2$. Study with blinding of the evaluator and the researcher who performed the analyses.
*Results:* UV 01 started with an area of 40.7 $cm^2$ after treatment the area became 17.8 $cm^2$; the UV 02 before the treatment was 42 $cm^2$, after, the area became 27 $cm^2$. UV 03 had an area of 73.9 $cm^2$ before treatment and ended with 35.5 $cm^2$.
*Conclusion:* The physiotherapeutic treatment with physical exercises for the lower limbs, consisting of stretching, strengthening, aerobic, proprioception and relaxation exercises, provided a reduction in the area of the venous wound.
*Implications:* Physical exercise can help in the conventional treatment of wounds, thus helping in healing time, delaying ulcer recurrence, in addition to all the already known benefits of exercise. In this way, this case study can be the basis for work with a larger sample number so that an adequate treatment protocol can be defined that enhances healing and improves the patient's vascular condition, preventing or reducing cases of recurrence.
*Keywords:* Venous ulcer, Healing, Physical exercise

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## COGNITIVE FUNCTION AND CARDIOVASCULAR RISK FACTORS IN AGED WITH AND WITHOUT DIABETES

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*Background:* Chronic subclinical inflammation (inflammaging) and changes in the predominance of type, destruction and endocrine function of adipose tissue are related in aging. Both contribute to the pathogenesis of chronic noncommunicable diseases, such as diabetes and cognitive decline. Considering that age-related cognitive decline is characteristic of physiological aging, and that Type 2 Diabetes Mellitus (DM2) can accentuate the decline in cognitive function and is a risk factor for the development of dementia, it is of interest to study the relationships of cognitive function and anthropometric markers and analyze its difference in older adults with and without diabetes.
*Objectives:* To investigate differences in cognitive function and anthropometric indices of older adults with and without DM2.
*Methods:* Sixty-four older adults participated (women = 62), including 20 participants with diabetes (69.32 $\pm$ 4.48 years old, 8.3 $\pm$ 4.0 years of schooling) and 44 participants without diabetes (67.91 $\pm$ 5.40 years of age, 9.0 $\pm$ 4.5 years of schooling). The groups were matched by age, education, and physical activity. All participants underwent cognitive (Mini-Mental State Examination - MMSE) and anthropometric assessment, including Body Mass Index (BMI), Waist Circumference (WC), Hip Circumference (HC), Waist-Height Ratio (WHR), Waist-Hip Ratio (WHR), Body Adiposity Index (IAC) and Conicity Index (C Index). Based on the analysis of normality (Shapiro-Wilk) the Student's t test and the Mann-Whitney U test were performed for non-parametric variables. The significance level was set at $p<0.05$.
*Results:* All participants had normal cognitive performance, considering the cut-off point adjusted for education. Despite the cognitive performance within the normal range, the older adults with DM2 showed lower cognitive performance (26.92 $\pm$ 2.26 points) in the MMSE assessment when compared to participants without diabetes (28.09 $\pm$ 1.56 points; $p < 0.03$). No significant differences were found between participants with and without diabetes, respectively, in: BMI (30.09 $\pm$ 5.41; 28.46 $\pm$ 4.97; $p < 0.722$); WC (99.62 $\pm$ 12.43 cm; 94.56 $\pm$ 11.54 cm; $p < 0.560$); HC (103.83 $\pm$ 11.56; 100.16 $\pm$ 13.03; $p < 0.252$); WHR (0.66 $\pm$ 0.10; 0.63 $\pm$ 0.07; $p < 0.078$); WHR (0.96 $\pm$ 0.05; 0.95 $\pm$ 0.72; $p < 0.412$); IAC (37.51 $\pm$ 8.68; 36.52 $\pm$ 7.48; $p < 0.426$); C index (1.35 $\pm$ 0.09; 1.33 $\pm$ 0.11; $p < 0.663$).
*Conclusion:* Cognitively healthy older adults with DM2 showed lower cognitive performance compared to participants without DM2, even without differences in anthropometric markers.
*Implications:* To recognize the influence of DM2 in accelerating age-related cognitive decline is important for the inclusion of preventive cognitive stimulation strategies for the healthier aging of older adults with diabetes
*Keywords:* Diabetes mellitus, Cognition, Aging

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## PRELIMINARY RESULTS OF THE EVALUATION OLFACTION, TASTE, ORAL STEREOGNOSY AND SWALLOWING IN COVID-19 AFFECTED INDIVIDUALS AFTER CLINICAL RECOVERY

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*Background:* In 2019 a highly contagious virus responsible for the current pandemic, called SARS-CoV-2, emerged in China. Among the main symptoms are fatigue, fever, dry cough, and respiratory failure. However, some symptoms have stood out and attracted researchers: anosmia and dysgeusia. Sensory function is related to motor function. Thus, the evaluation of the sensory-motor-oral system in a broader way becomes indispensable, allowing a better understanding of these alterations in this public.
*Objective:* The purpose of this study was to preliminarily analyze, by means of standardized clinical protocols, the orofacial myofunctional function aspects of adult individuals affected by SARS-CoV-2 after clinical recovery, from a comparative study with a control group, and to relate the literature findings to the aspects identified.
*Methods:* This is a descriptive observational study. Individuals recovered from COVID-19 will be recruited to the study to compose the research group. Those who did not have the disease will be included in the control group, considering the inclusion and exclusion criteria for both groups. Specific tests were selected, according to feasibility, to evaluate the functions of smell, taste, oral stereognosis and swallowing, which will be applied during an individual session, according to the manufacturer's/tenderer's instructions, by previously trained evaluators.
*Results:* As for the orofacial myofunctional system and swallowing, the GP (research group) showed better performance in the evaluation, although with a low difference in the results. Although the CG (control group) and GP had adequate answers higher than 50% in the oral stereognosy test, when compared, the GP showed better performance. There is an alteration of the olfactory system when the groups are compared, with greater impairment in the GP.
*Conclusion:* It was possible to confirm the existence of orofacial myofunctional manifestations in individuals recovered from COVID-19. It was possible to have an integral and direct evaluation of the patient, which will allow the maintenance of care after the cure of the underlying disease.
*Implications:* It is difficult to find collections on taste disorders, oral stereognosia, and swallowing in post-COVID-19 patients, highlighting the importance of this study. Moreover, there is no research on these disorders, specifically for the public from the Federal District. Most studies are focused on patient survival; thus, this research aims to investigate the sequelae the disease to enable a holistic view for the maintenance of care.
*Keywords:* COVID-19, Smell, Taste

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## THERMOMONITORING OF THE CALCANEAL TENDON DURING ISOMETRIC AND ISOTONIC EXERCISES ASSOCIATED WITH PHOTOBIOMODULATION

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*Background:* To establish effective protocols for the prevention and treatment of calcaneal tendinopathies, it is necessary to previously understand the physiological adaptations and thermal alterations provided by exercise in the tendinous tissue. The relationship between the onset of pathological processes and tendon temperature is not clear in the scientific literature, in addition to the fact that it is still unknown whether benefits can be added to the treatment through the application of photobiomodulation (PBM) on the tendon immediately before resistance exercise.
*Objective:* To analyze the thermal pattern of the skin over the Achilles Tendon (AT) of healthy individuals submitted to PBM in association with isometric and isotonic exercises, in addition to verifying whether the protocols have an acute effect on the muscle strength of the triceps surae, subjective perception of exertion and occurrence of pain.
*Method:* Experimental, randomized, single-blind study. The sample consisted of 32 healthy, physically active volunteers, divided into 2 groups (n= 16), submitted to evaluation by infrared thermography (T360, Flir Systems) in 10 times (rest, during and after the protocol), of strength triceps surae muscle using the DD-300 isometric dynamometer; of perceived exertion by the modified Borg scale and pain by the Numerical Scale, before and after the execution of the protocols. The isometric group performed 3 contractions maintained for 45s and the isotonic group performed 3 sets of 15 repetitions, lowering the heel to the maximum range of dorsi and plantar flexion (1s concentric phase and 2s eccentric phase). Both used the dominant limb with the forefoot on a step, adopted a 15s interval between series and totaled 165s of execution. The exercises were preceded by PBM by LED (TENDLITE, California, USA) sham and real, with a total dose of 20.3 J distributed in 4 points over the AT, with a washout of one week between the two interventions. Data were processed in SPSS version 20.0 adopting a significance level of 5% and a confidence interval of 95%. The paired t-Test was used to compare strength, pain and perceived exertion, and the repeated measures Anova was used to compare temperature means.
*Results:* There were significant interactions in the analysis time x exercise, in which the isotonic group presented higher temperatures than the isometric group (p=0.001 CI T10=0.387 to 1.010 $\eta$2=0.141), greater perception of effort (p=0.001) and pain (p=0.001). There were no significant changes in strength measures with prior application of PBM for the isometric (p=0.790) and isotonic (p=0.597) groups.
*Conclusions:* Isometric exercise can be better tolerated in the early stages of rehabilitation because it presents less thermal stress and discomfort. Isotonic exercise considered the gold standard in the treatment of tendinopathies of the calcaneus, mainly with eccentric overload, presented greater thermal amplitude. However, this increase in tendon temperature, as well as the changes caused by it, still needs to be studied as to the real benefits. The dose of PBM applied did not cause immediate changes in muscle strength or pain perception.
*Implications:* This study contributes to knowledge about the thermal behavior of the tendon in response to exercise, its association with PBM, and its applicability in prevention and rehabilitation.
*Keywords:* Thermography, Physical exercise, Achilles tendon, Phototherapy

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