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Annals of Medicine

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/iann20

Benefits of condylar distraction in patients with temporomandibular dysfunction

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To cite this article: Rita Castro, Pedro Lima, Marion Fernandes, João Martinho, Paula Moleirinho Alves & Ângela Maria Pereira (2021) Benefits of condylar distraction in patients with temporomandibular dysfunction, Annals of Medicine, 53:sup1, S139-S140, DOI: 10.1080/07853890.2021.1896442

To link to this article: https://doi.org/10.1080/07853890.2021.1896442

Published online: 28 Sep 2021.

among the elderly population due to its multifactorial causes [2]. One strategy to promote greater adherence and motivation to intervention in Physical Therapy is the use of virtual environment programs. This associated with a balance exercise program is an effective method for preventing falls, because it improves balance levels [3]. The purpose of this study is to analyse the benefit of a virtual environment exercise program in non-institutionalized elderly at the end of six weeks.
Materials and methods: In this randomised controlled trial 68 non-institutionalized elderly from a day care institution in Corroios, were included. Thirty two subjects, age 80.6 ± 7.0 yrs constituted the experimental group (EG); and 36, age, 81.7 ± 7.1 yrs constituted the control group (CG). The EG was submitted to 6 weeks of a virtual environment exercise program performed on a Nintendo Wii, and to a set of recreational activities. The CG only performed the activities. The instruments used in the present study to evaluate performance were Tinetti's index which evaluates the static balance and the gait to quantify the risk of fall, and the Fullerton's functional fitness tests to assess physical parameters such as strength, aerobic endurance, flexibility and agility/balance [4]. All subjects sign an informed consent. This study follows all the principles of the Declaration of Helsinki.
Results: At the end of the 6 weeks of intervention in a virtual environment, significant improvements in upper limb strength, agility and static balance were observed. In the intragroup comparison, it was possible to verify improvements in all tests of the battery of physical fitness. The values of the functional fitness test were significantly different ($p < .05$) between EG and CG groups for the following variables: 30-second chair stand 14.4 ± 2.5 vs. 10.0 ± 3.4 times ($p = .037$); arm curl 16.1 ± 3.9 vs. 13.5 ± 5.9 times ($p = .041$); 8-foot up-and-go 9.2 ± 2.1 vs. 15.3 ± 6.6 sec ($p = .021$); two min. step 120.0 ± 35.8 vs. 75.3 ± 38.4 steps ($p = .016$), respectively; as well as for the Tinetti index.
Discussion and conclusions: Performing an exercise program through a virtual environment with biofeedback can provide several benefits in the elderly population due to the provision of instant feedback. Studies suggest that an exercise program with virtual environment may be an effective tool to improve balance levels and specific components of physical fitness, such as aerobic capacity, speed, agility, muscle strength and flexibility [5], which was verified in this study.

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DOI: 10.1080/07853890.2021.1896441

Benefits of condylar distraction in patients with temporomandibular dysfunction

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ABSTRACT
Introduction: Temporomandibular disorders (TMD) are considered as a heterogeneous group of psychophysiological disorders of the stomatognathic system [1]. They are frequently initiated by pain, joint sounds and limited function/mandibular movement, being considered one of the main cause of orofacial pain of non-dental origin [2]. Among the TMD of articular origin, disc displacements with and without reduction, osteoarthrosis and osteoarthritis are the most frequent alterations in patients [3]. Conservative and non-invasive treatment is considered as the first choice [4] and physical therapy is indicated as one of the most frequently recommended types of treatment [5]. The objective of the present study is to analyse the effects of the condylar distraction technique after four weeks of intervention regarding pain, joint noises and amplitude of mouth opening.
Materials and methods: A prospective, quasi-experimental study, was performed. We include 16 patients with a diagnosis of temporomandibular joint dysfunction according to the Research Diagnostic Criteria for temporomandibular

disorder. Patients were randomised into two groups: 8 (39.0 ± 13.2 years old) in the experimental group (EG) and 8 (39.8 ± 13.9 years old) in the control group (CG). Patients from both groups performed home-based exercises daily at home, GE patients performed 4 sessions of physiotherapy, having undergone condylar distraction techniques, CG patients did not perform any other type of intervention. All patients were evaluated before (T0) and after (T1) the intervention. The range of the mandible was evaluated through a digital calliper, the intensity of the pain through the numeric scale of the pain and the presence of articular noises, through palpation. All participants signed informed consent. The study was approved by the Ethics Committee of the Egas Moniz

Results: Condylar distraction technique increased motion range values of the mandible from T0 to T1 in GE group ($p = .012$) and decrease value of pain intensity in T1 when compared to T0 in the GE group ($p = .008$). The obtained results were analized using Student's *t* test. There were no changes in joint noises when comparing T0 with T1 in both groups.

Discussion and conclusions: It is concluded that the condylar distraction technique has positive effects on pain and range of motion of the mandible. However, joint noises remained present after intervention, concluding that condylar distraction has no effect on noise reduction. Recent evidence suggests that manual therapy is a legitimate treatment for TMD promoting improvement in mouth opening and reduction in jaw pain [6]. However, further investigations should be carried out with larger samples in the future.

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DOI: 10.1080/07853890.2021.1896442

Central synthesis of temporomandibular dysfunction

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ABSTRACT

Introduction: Temporomandibular dysfunction (TMD) is a group of conditions that affect bone structures and soft tissues of the orofacial region and are characterised mainly by pain [1]. Patients with TMD often have chronic pain, which in turn results from the mechanisms of sensitisation which is thus responsible for the hypersensitivity of pain [2]. Central sensitisation can be examined experimentally using a conditioned pain modulation paradigm; it can function as a form of inhibition of pain in humans [3]. This study aim to evaluate the conditioned modulation of pain in patients with temporomandibular dysfunction and chronic pain, and also to relate the influence that it has on anxiety and quality of life.

Materials and methods: An analytic observational study was carried out, involving a group of 19 individuals with chronic pain (34.1 ± 14.9 yrs), and sample selection was performed using Research Diagnostic Criteria for Temporomandibular Disorder. (RDC/TMD). The subjects were submitted to the application of a mechanical (algometer) and thermal stimulus (ice) alone and to two mechanical and thermal stimuli simultaneously and independently. The interval application between stimulus, isolated and simultaneously was 5 min. All participants signed informed consent. The study was approved by the Ethics Committee of the Egas Moniz.

Results: It was verified that the intensity of the pain perceived by the patients in the orofacial region during the simultaneous application of the two mechanical stimuli was in 100% of the cases lower than that perceived during the application of one stimulus. Regarding the thermal stimuli, it was verified that the intensity of the pain perceived in the orofacial region during the simultaneous application of the two thermal stimuli was 47% of the times inferior to that perceived during the application of one stimulus.