

USE OF VIBRATION-ASSISTED EXERCISE IN FIBROMYALGIA PATIENTS

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Objective: Vibratory-assisted exercise is a relatively new concept in the US; however, there is supportive research in Europe indicating its effectiveness on athletes and the general population through providing the benefits that include improved muscle strength, increased flexibility and range of motion, enhanced blood flow, increased bone density, enhanced pain reduction, and reduced stress. The purpose of this project was to determine the effects of such an exercise program on a group of patients with Fibromyalgia Syndrome (FMS).

Design: Twenty patients, all of whom satisfied the specific criteria of the American College of Rheumatology for the diagnosis of Fibromyalgia and have never used vibratory-assisted exercise, were initially invited to participate in a vibratory-assisted exercise program that involved performing sixteen exercises while standing on a vibrating machine twice a week, for a total of eight weeks. The exercises performed by the patients were all designed by a certified personal trainer with over 25 years of experience in the field. Each exercise was designed to work on specific upper and lower body muscle groups, such that the program had a whole body approach with an emphasis on addressing the tender point areas associated with Fibromyalgia. In addition, the upper body exercises were isometric strength exercises performed against resistance. At the beginning of the program, all exercises were performed for 30 seconds per exercise on the vibration machine with a vibrating frequency of 30 Hertz. Over the course of the study, the frequency and intensity of the vibration was increased for those patients who felt comfortable doing so. Furthermore, the patient group had two different vibration machines to choose from, each provided by a separate company. Upper body exercises on the Galileo machine were performed with the aid of a medical student providing resistance. On the Power Plate machine, two straps attached to the base of the machine provided the resistance for the patient during the upper body exercises.

After at least one session on each machine, patients were allowed to choose which machine they preferred to work on for the remainder of the program. During each week, each patient was also asked to fill out a 22-item Fibromyalgia Impact Questionnaire (FIQ) form, indicating his/her level of pain, fatigue, etc. on a numeric scale. The FIQ consisted of two sections, the Pain/Affect Visual Analog Scale comprising of questions pertaining to pain, fatigue, stiffness, anxiety, and depression, and the Physical Functioning Scale composing of questions relating to physical activities such as shopping, driving, walking, cooking, etc. Each weekly item score was then compared to its respective pre-program score to track the progress of the patient. The quantitative results of the study were derived from the evaluation of the patient responses on the Fibromyalgia Impact Questionnaire over the length of the program. At the conclusion of the eight weeks, our certified personal trainer provided the group of patients with a series of exercises that the patients could perform individually without the

use of a vibration machine to help maintain the progress that had been made during the study.

Results: Two patients dropped out of the program after their first introductory sessions due to time conflict. Of the remaining 18 patients, six could not complete the program and averaged 6.33 sessions completed. Under this group of six, three patients discontinued due to time conflict, whereas each of the other three described exacerbation of his/her symptoms from either increased fatigue, increased generalized bone pain, or increased neck pain from a pre-existing bulging disc.

Twelve patients completed the program and averaged 16 sessions completed. Ten of the twelve preferred the Power Plate Machine to the Gallielo.

Although both groups showed improvements on both the Pain Visual Analog and the Physical Functioning Scales, the patients who completed the program improved in 16 total items, while those who did not complete the program, showed an improvement in 8 total items. Of the 8-item difference between the two groups, the most noticeable improvements made by the completed group--and not by the incompleting group--included decreased pain in the last 48 hours (particularly after the training sessions), decreased number of workdays missed in the last seven days, increased days felt good in the last seven days, and decreased anxiousness and depression. Moreover, the completed group also showed higher levels of physical activities by showing improvements in 7 items on the Physical Functioning Scale, while the incompleting group showed improvements in only 2 items.

Conclusion: Patients who completed the program showed more improvements than those who did not. In a post-program survey, ten of the twelve patients who completed the program showed interest in continuing in such a program, even if it means paying for the machine usage. Additionally, a follow-up study is being conducted to see the effects of the same exercises without vibratory assistance.