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Sent: Sunday, October 09, 2005 6:05 PM
To: scott hopson
Subject: RE:expanded abstract

We had a call from the American Academy of Academic
Physiatrists....they suggested we submit Lee and Dankos paper to a
contest sponsored by the Electrode Store for best paper submitted by a
medical student researcher....the students worked on an expanded
abstract this weekend which will be submitted today. Thought you might
want to see it although it cannot be published or used in any way while
the submission process is going on.

G Waylonis

USE OF VIBRATION-ASSISTED EXERCISE IN FIBROMYALGIA PATIENTS

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.