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Mobile Physical Therapy

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April 2011

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IN-HOME GERIATRIC
PHYSICAL THERAPY
(FOR MEDICARE "PART

--Client of the Month: Mattie

Meet our April patient of the month, Mattie. Mattie is 77 and became a client of Mobile Physical Therapy after her daughter noticed she was walking slower, having trouble getting up and down steps, and had several falls.

Mattie's daughter contacted Mobile Physical Therapy after getting a referral from the doctor for physical therapy. Mattie has been seen in PT two times a week for three months at home.

Mattie has made progress with her balance, walking speed, and strength. Because she works hard during therapy, **she can now stand up without using her hands and is walking faster and steadier.** Great Job Mattie!



--Mobile PT Attends second certification course in San Marcos, Texas.

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Mobile Physical Therapy attended the second of a three course series in late March 2011. The process to attain the credential of "Certified Exercise Expert for Aging Adults" (CEEAA) is to complete formal didactic education, and to participate in supervised and mentored skills development, home-based reflection, critical thinking, and written and practical exams.

The courses have been held at the campus of Texas State University. The second course covered the beneficial response to exercise for each body system. Also covered was safe exercise prescription for the aging adult: including training for aerobic conditioning/endurance, balance, coordination, agility, flexibility, gait and locomotion, strength, power, and muscular endurance.

This newsletter will focus on the importance of strength training and its beneficial effects on multiple systems, and most importantly, on feeling better! If you have doubts about whether strength training is for you, read on...

The third and final part of the course is in mid-May. Stay tuned for updates from San Marcos, Texas.

--1945: The beginning of Strength Training in Medical Research



Young Tom DeLorme started lifting weights at 16 in 1932. After quickly becoming disenchanted with traditional methods of weightlifting, he set out to develop his own system of progressive resistance exercise. When World War II broke out, the shortage of hospital beds for injured soldiers prompted the need for speedier rehabilitation. This led to the development of an accelerated exercise therapy based

on heavy resistance exercise. DeLorme, by then an orthopedic surgeon, applied his methods with great success.

Later, in 1951, Dr. Thomas L. DeLorme M.D. and Arthur L. Watkins M.D. published their findings a book so simple, forthright, and unassuming that it had only one edition and quickly disappeared into obscurity.

Doctor DeLorme provided the first **results** showing the importance of strength training as a rehabilitation tool.

ORIGINAL ARTICLE ABOUT PROGRESSIVE RESISTANCE TRAINING AND THE SPECIFICITY OF STRENGTH TRAINING

DeLorme, T. L. (1945). Restoration of muscle power by heavy-resistance exercises. *Journal of Bone and Joint Surgery*, 27, 265-647.

This article introduced the concept of Progressive Resistance Exercise. It showed that **strength is developed by increasing the load and not by increasing repetitions.** It also emphasized that exercises aimed at developing endurance and power were different, and doing one category of exercise does not lead to improvements in a different category.

That was the first strong advocacy for the specificity of training for strength improvement.

--Strength Training Comes of Age

Strength training programs have been studied in medical research since 1945 and before. There are now literally thousands of articles and studies which document the benefits of strength training in healthy and chronically ill individuals. But can you ever be **too old** to strength train?

Researcher Maria Fiatarone was the first researcher to use strength training to muscle fatigue on a group of ten 90 year old nursing home residents, all women. In this pilot study, the women were trained on leg weightlifting machines 3 times per week for 8 weeks. The average strength gain was 174%. In addition the women saw real improvements in their everyday lives: they could walk faster and go up and down stairs.

NO injuries were reported and all women participated for the full eight weeks. Why do you think this is? Probably because the ladies saw how much better they were doing since they were getting stronger. **(For a link to the article abstract, click here.)**

Dr. Fiatarone conducted another larger study with 100 nursing home men and women (average age 87) and

found similar strength gains. ([For an abstract of this article, click here.](#))

What is the secret to strength training? What techniques did Dr. Fiatarone use to get these results? Well, its no secret, and it doesn't matter how old you are. Read the following: Strength Training for Success below.

--Strength Training for Success (for all Ages)

Older adults gain strength similarly to younger people.

Muscle strength increases with 60-100% of the maximum load a muscle can lift one time (1 Rep Max= 1RM). This means you must be lifting a challenging weight/resistance. For most people this means having a resistance heavy enough so that you can only do the exercise 8-12 times. The muscle must be very tired! If you can do the exercise 20 times, the intensity is too low. When the intensity is too low, you will achieve only small increases in strength (approx 10%). If the intensity (the weight) is challenging, you can acheive strength gains of 100=%. The muscle is fatigued if you can't lift the weight again, or you can't lift the weight again in a controlled manner.

Resistance exercises should be slow and controlled. Correct weightlifting speed is where the exerciser can "STOP ON A DIME" when instructed. The exerciser should control the weight, instead of the weight controlling them.

Research support is lacking that multiple sets of a single exercise is better than only one set. One study found that those exercises performing three sets had only a 2.9% increase of strength of those who performed only one set. So, its okay to stick to only one set, but it has to be good one!

So, the three keys are:

Use challenging resistance--perform 8-12 reps to muscle fatigue. If your muscle isn't fatigued (fatigue is when you can't lift the weight again, or you can't lift the weight again in a controlled manner), increase the weight!

Slow and Controlled

One Set is Enough.