

VCP DISEASE AND EXERCISE

Improving what you have and slowing the disease

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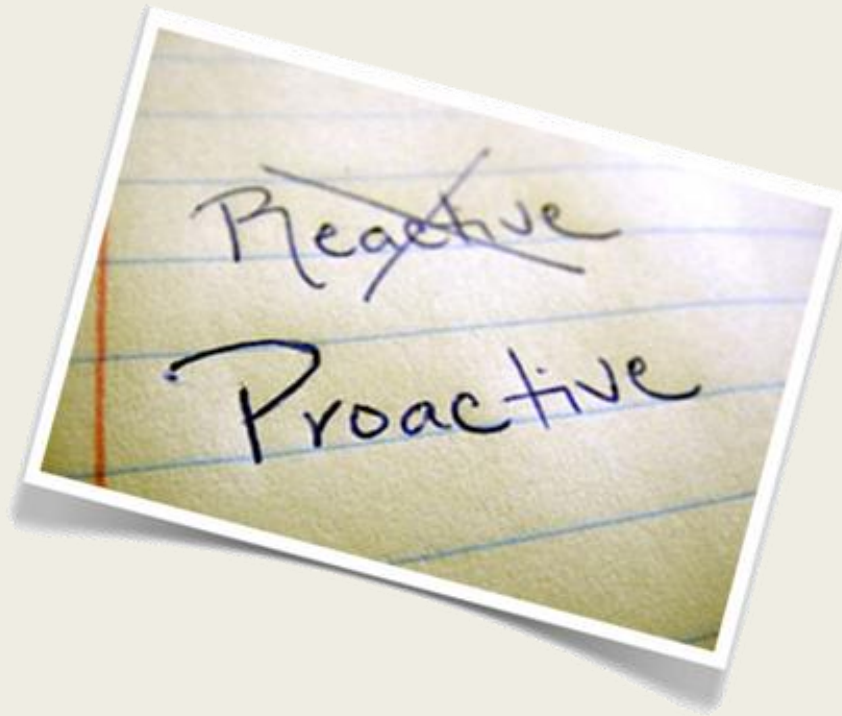
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VCP Disease and Exercise

- What we know about care and exercise from other diseases
- Occupational therapy to improve and maintain function
- Physical therapy and exercise

Reactive to Proactive



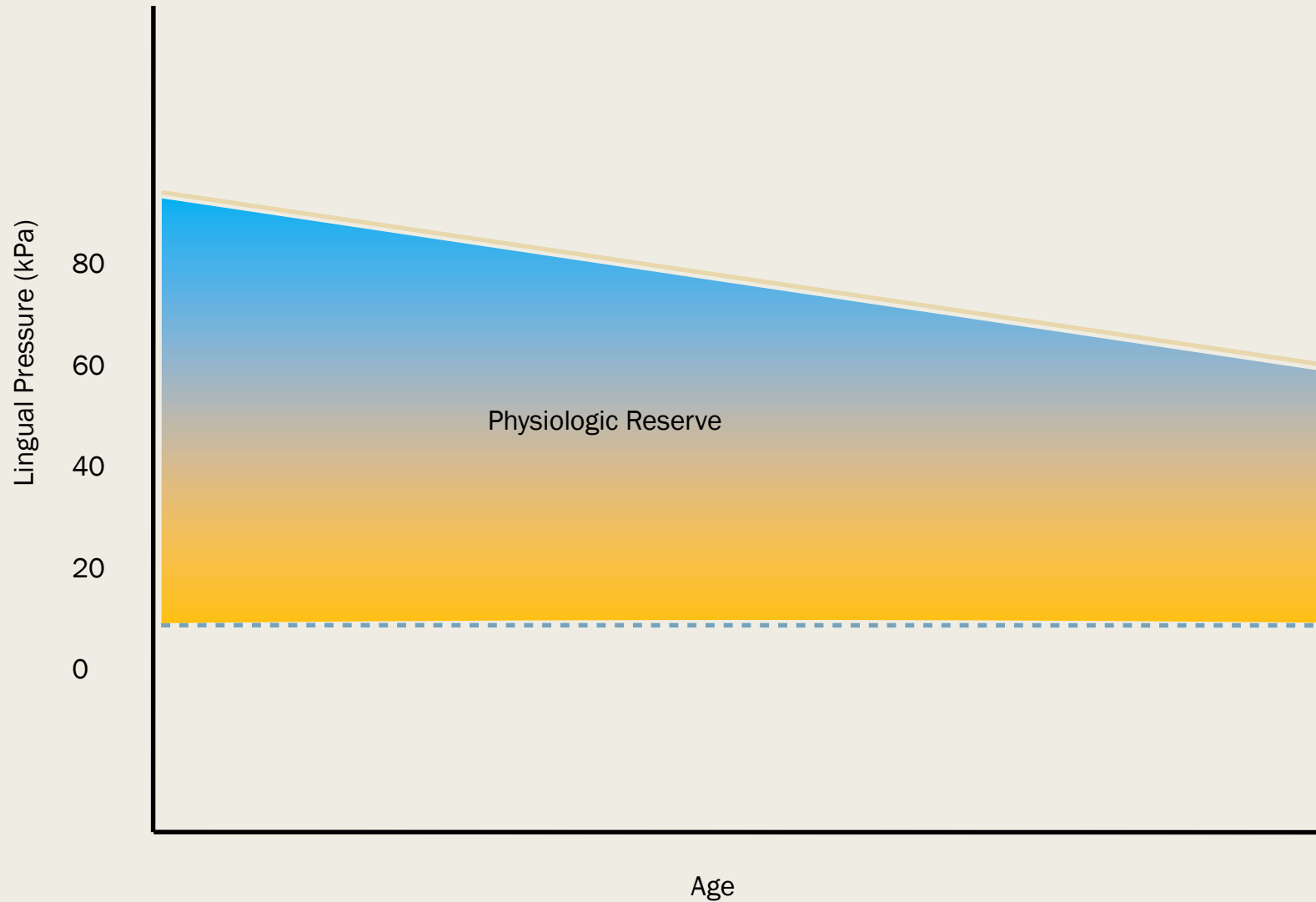
Fighting VCP



THE OPPORTUNITY...

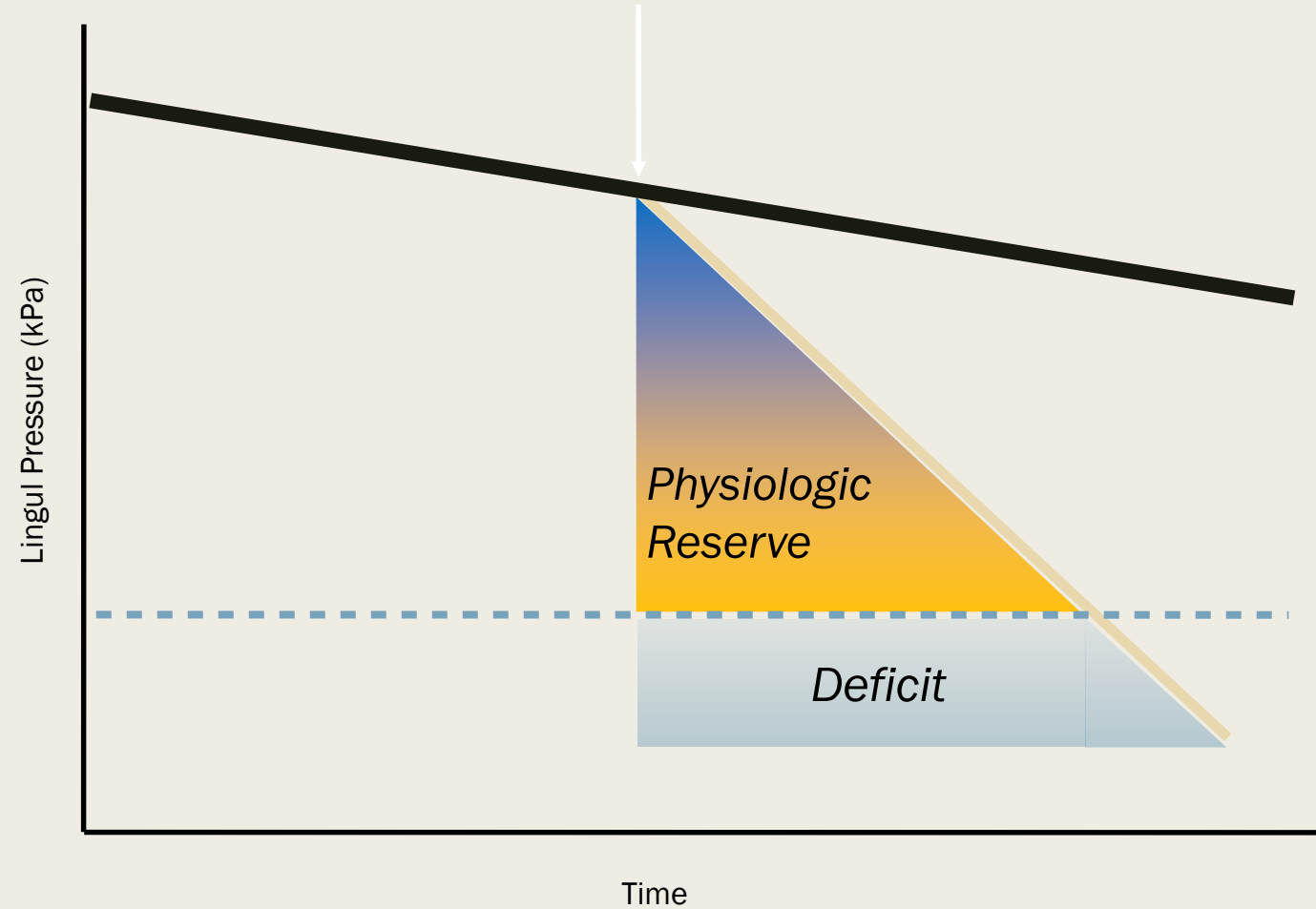
Can we be doing something to improve and/or maintain strength and function to fight this?

Physiologic Reserve

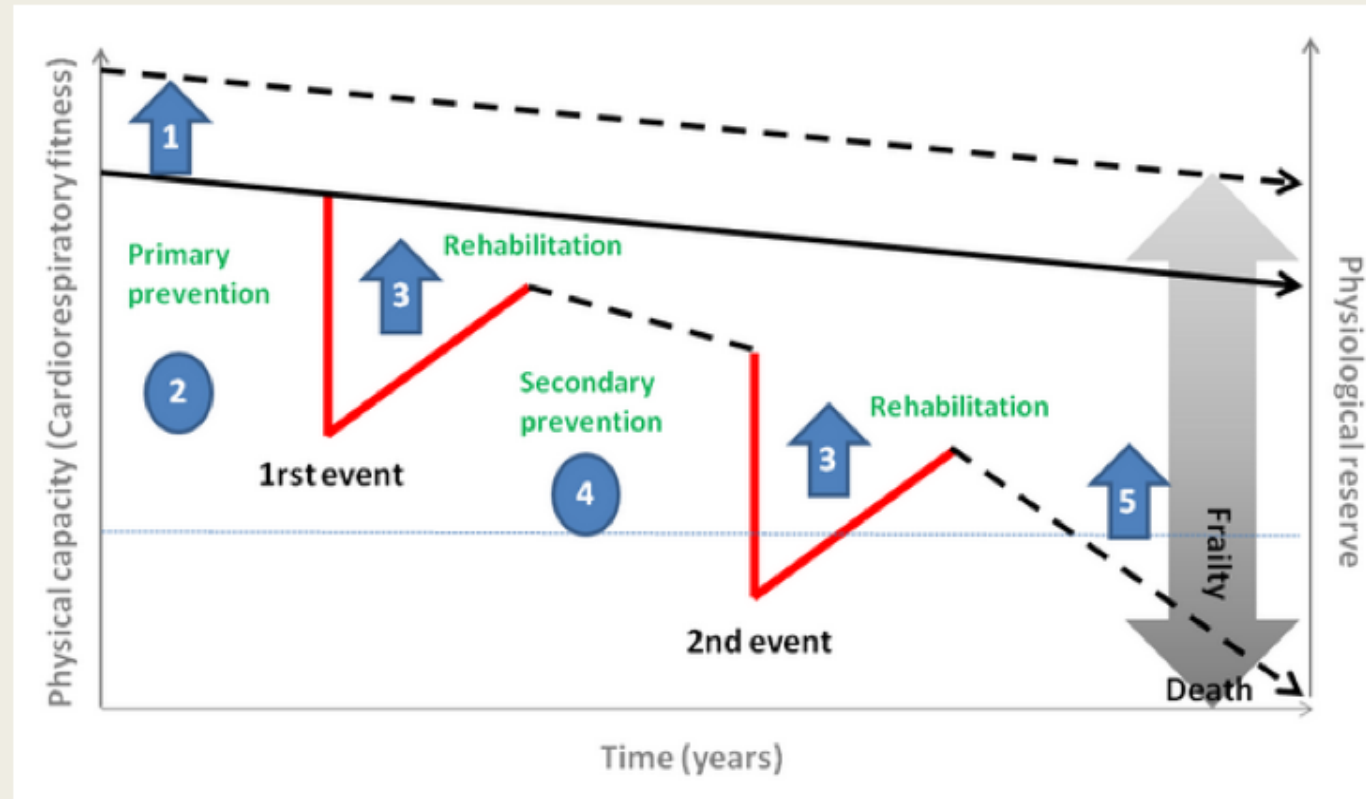


Law of Diminishing Reserve:

Aging, Prolonged Illness, ND Disease
REDUCES PHYSIOLOGIC RESERVE

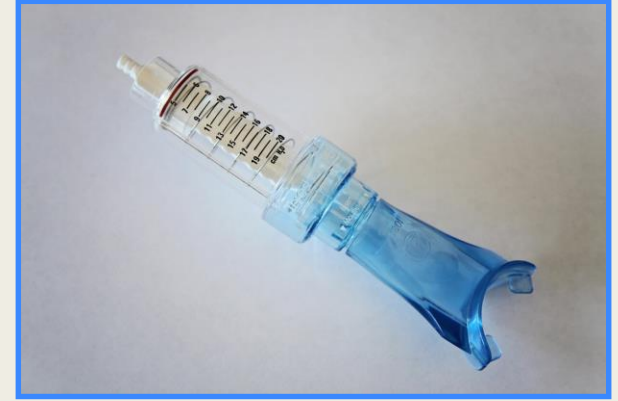


Training to Increase Physiologic Reserve:

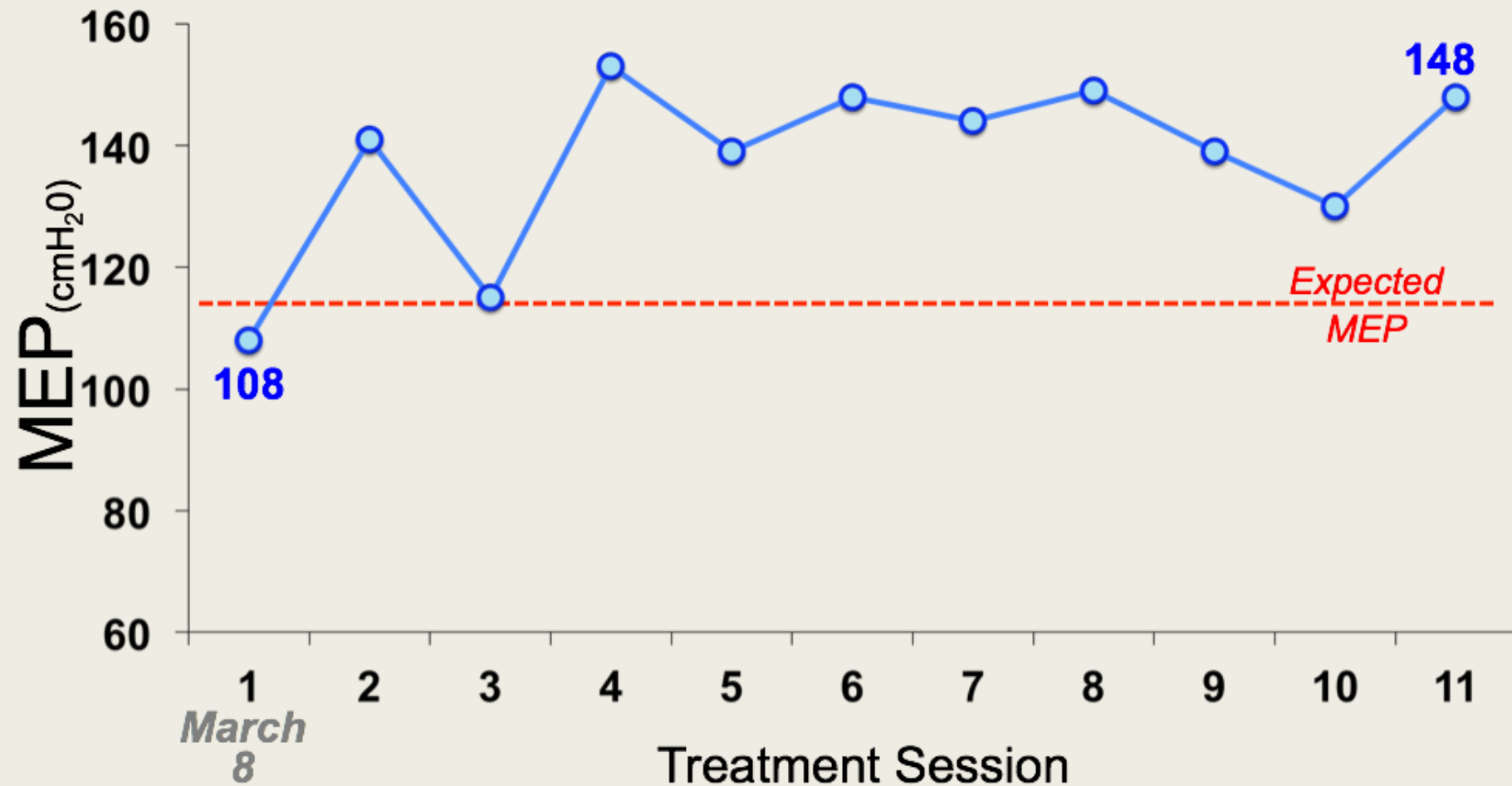


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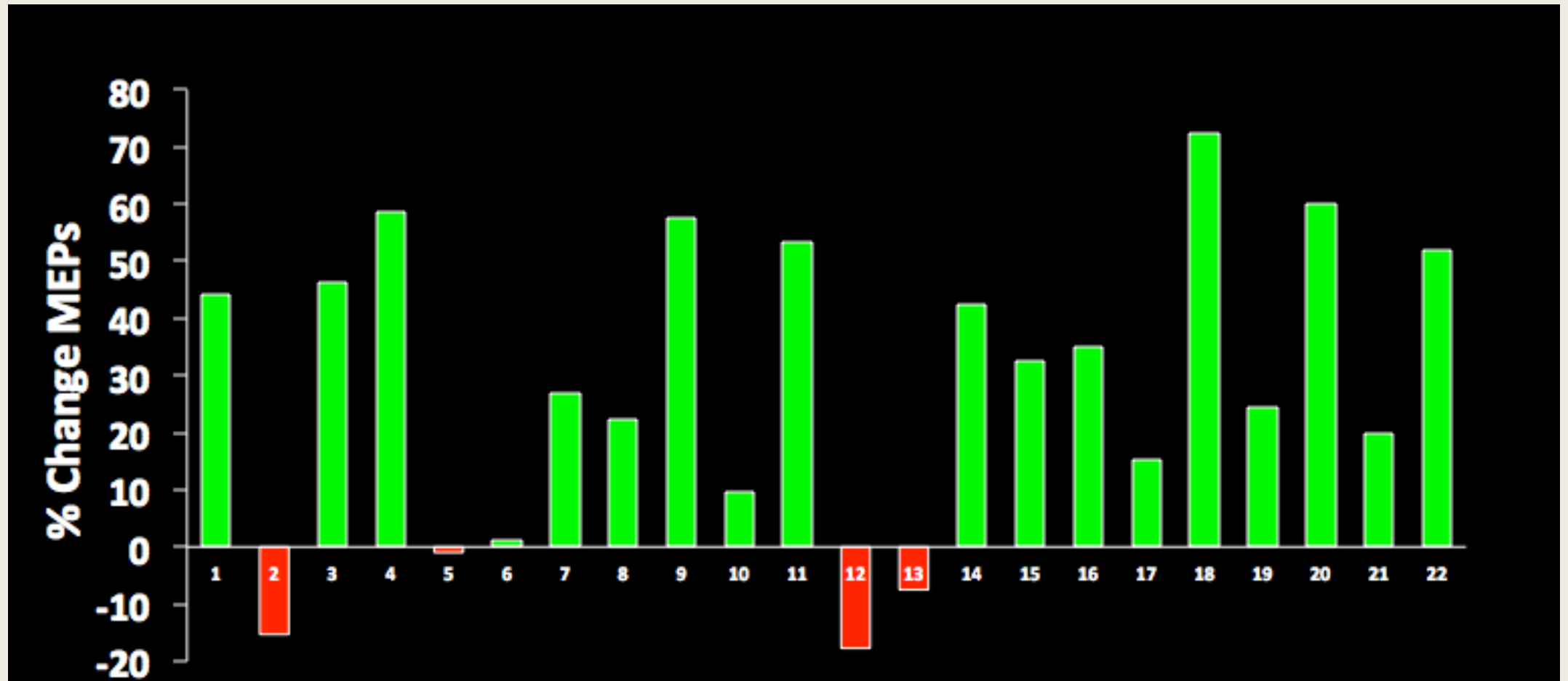
Expiratory Muscle Strength Training



Maximum Expiratory Pressure



Individual responses



Inclusion Body Myositis

- 59% increase in MEP
- 58% increase in MIP
- 28% increase in Peak Cough Flow
- 0.38L increase in FVC

SO WHAT CAN WE
DO??

Occupational Therapy for VCP

- *Goal is to enable people to live life to its fullest through adaptation and/or compensatory strategies*
- *Focus is on adapting the environment or the task*

Can I continue to do my daily tasks?

- *Training on seated activities when standing is too difficult*
 - Brushing teeth, shaving, showering, dressing, cooking, etc...



- Sitting to complete daily tasks, conserves your energy

Daily tasks

- Use of mobile arm supports to brush teeth, shave, put on make-up and to eat



Daily tasks with use of adaptive devices

- *Techniques and strategies for dressing and reaching when shoulder, trunk and hip muscles are weak*
 - Use of body mechanics and adaptive equipment



Adaptive equipment



Positioning for support and function



Home modification recommendations



alamy stock photo

J6YHD3
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PHYSICAL THERAPY FOR VCP

Why Physical Therapy for VCP?

- Myopathy affects 90% of patients with IBMPFD
 - Muscle atrophy is usually progressive, and most people will eventually need to use a wheelchair and other mechanical aids for mobility
 - Usually affects proximal muscles (**hips, shoulders, trunk**) prior to affecting distal muscles (**calves, ankles, feet, hands, wrist**)
 - Can affect **cardiac** and **respiratory** muscles

Can Physical Therapy Help?



- Maintaining mobility can help lessen, delay, or manage the symptoms from VCP

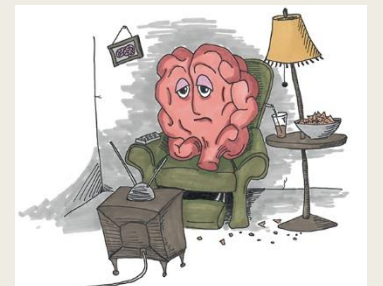
OR

- Coordinating care for appropriate equipment:
 - Rollator Walker
 - Cane
 - Manual Wheelchair
 - Powered Wheelchair



Can we exercise these patients safely?

- Early-stage patients show **skeletal muscle mass** similar to that of healthy individuals BUT a **reduced peak oxygen uptake**
 - *Most likely associated with **deconditioning and reduction in habitual activities***
- Lack of physical activity results in deconditioning and compounded weakness from disease
- Contractures and joint tightness caused by inactivity may result in pain and reduced capacity to carry out ADLs



What Kind of Exercise?

Resistance vs Aerobic vs Flexibility

Stretching: increase tendon flexibility to improve joint ROM and function to enhance muscular performance

Resistance Exercise: increase muscle strength and power; improve EFFECTIVE recruitment of motor units (improve specific brain to muscle activation)

Aerobic Exercise: increase in oxidative potential of skeletal muscle, can lead to increase in mitochondrial volume, improve exercise capacity, reduce psychological stress, reduce diseases including heart disease, diabetes and cancer

Stretching is **SAFE**

- The more flexible your muscles, the easier it will be to move them during functional activities, even when there is weakness

1 Stretching piriformis



1 Hamstrings stretch



1 Supine trunk/hips rotation



2 Stretching calf sitting



2 Knee to chest



Stretching is **SAFE**

1 Trunk rotation stretch



2 Posture stretch on roller



4 Posterior shoulder stretch



5 Supine shoulder flexion cane



3 Seated overhead reach



Resistance vs Endurance vs Stretching

In other Neuromuscular Disorders:

Exercises performed **3x/week**

- Resistance using cuff weights and machines (40-70% of 1RM for 2 sets of 8)
 - *Shoulder Flexion, Elbow Flexion, Elbow Extension, Grip, Hip Flexion, Knee Extension, Knee Flexion*
- Endurance using mini cycle for UE and LE (40-70% of Target HR or 13-15 or “somewhat hard to hard” on the Borg)
 - *10 minutes of UE and 10 minutes of LE*
- Stretching done passively with an ‘exercise buddy’ (4x30 seconds of each)
 - *Shoulder flexion, Triceps, Hand/Wrist, Hamstrings, Gastroc, Quadriceps*

Resistance vs Endurance vs Stretching

Outcome:

- All exercises well tolerated (>50% compliance) at 12 and 24 weeks and safe
 - *Endurance exercise was less tolerated than stretching and resistance*
- No worsening in fatigue, pain or cramps as well as no worsening in disease progression

Trend towards **fewer falls** in **endurance** and **resistance** exercise groups compared with Stretching group

Resistance Training

- resistance exercises 3 times a week along with daily stretching
- Vs. daily stretching alone
- The resistance group performed moderate-intensity upper and lower extremity resistance exercises that were individualized for each subject.

Resistance

- statistically significant improvements in **functional scores**, better **quality of life**, smaller **decline in leg strength**, and **no negative outcomes**

Aerobic Exercise

Only 6 patients: underwent BWSTT for 30 min, broken up in 5-min segments, 3 times per week for an 8-wk period.

Improvements noted in **function** and **fatigue** scores as well as **gait speed**, **distance**, and **stride length**.



Systematic Review of Exercise with Neuromuscular Disease

Chief Conclusion:

- **Resistance Training** showed: Improvements in functional scores but not in muscle strength or quality of life
- **Aerobic Exercise** showed: Moderate-Intensity physical exercise program had a short-lived positive effect on disability
 - Improved functional scoring and disease symptoms
- **Stretching:** An aggressive/daily program for stretching and ROM exercises is widely accepted as common prescription for disease management

An Idea to Consider with Physical Therapy Visits:

- Space Visits of Skilled Physical Therapy out over time to allow patient to have therapy the whole year to address **changing needs and adapt Home Program**
- Maintenance Visits with a Progressive Neurological Condition
Ex: **2 visits of Physical Therapy each Month for 12 months** instead of “burst therapy”

