Managing Dystonia through Exercise and Physiotherapy

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1

No disclaimers or conflicts of interests to disclose

2

Pre-Questions

What are the types of Dystonia?

What patterns do you notice with your Dystonia?

How are exercise and Dystonia related? What activities would you like to be able to do?

What treatments has your doctor prescribed?

What other supportive therapies have you tried?

What are best practice guidelines for managing Dystonia long-term?

3

Describing dystonia

- Is it focal, segmental, multi-focal or generalized
- Is the movement sustained, rhythmic or task specific
- When did it start?
- Primary vs. Secondary Dystonia

- What other non-motor symptoms do you notice?

4

Recommended Goals of Physical Therapy

- Cardiovascular conditioning/exercise
- Maintain range of motion
- Assist with appropriate selection of muscles for chemodenervation
- Strengthen muscles under utilized because of the presence of dystonic movements
- Promote awareness and control of body posture and body movement
- How can you move safety?
- How can you move more efficiently?

5

"If exercise could be packed into a pill, it would be the single most widely prescribed and beneficial medicine in the nation."

Dr. Robert Butler (National Institute of Ageing)

6

How much?

150 minutes of exercise per week

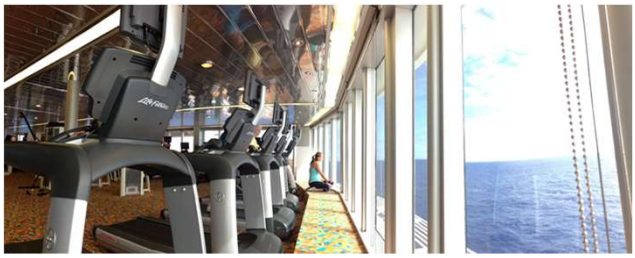
2x muscle and bone strengthening activities

7

Tips:

- Have you considered wearing a pedometer?

- Do you keep an exercise diary?
- Do you take the stairs?
- Do you have an exercise "buddy"?



8

Focal dystonia

Review of the literature in 2018 by Prudente indicating possibly effective adjunct treatments are under-studied and under-utilized.

Categories of Intervention approaches:

1. Movement Practice
2. Training with Constraint
3. Sensory Reorganization
4. Normalization of muscle activity with external techniques
5. Neuromodulation with training
6. Compensatory strategies

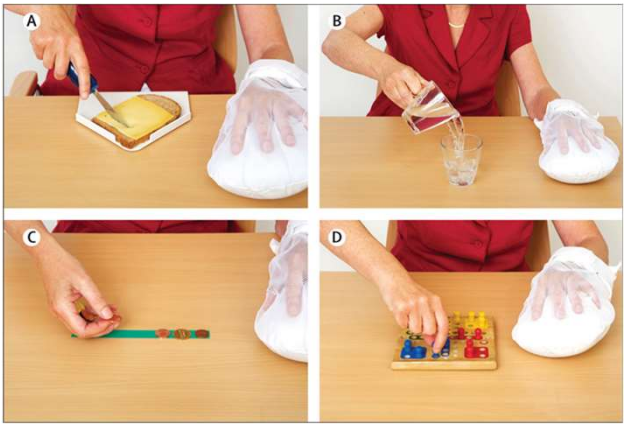
9

Movement Practice

- Intensive bout of exercise
- task-specific

Training with Constraint

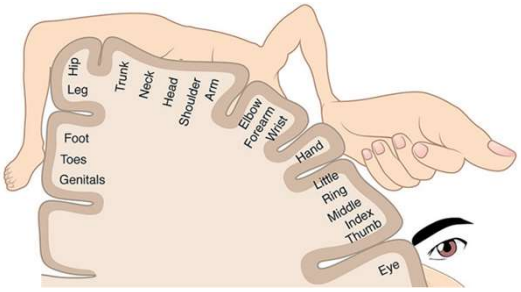
- Constrained to avoid compensatory movements



10

Sensory Reorganization

- May result in transient side effects from prolonged immobolization
- Positive learning environment



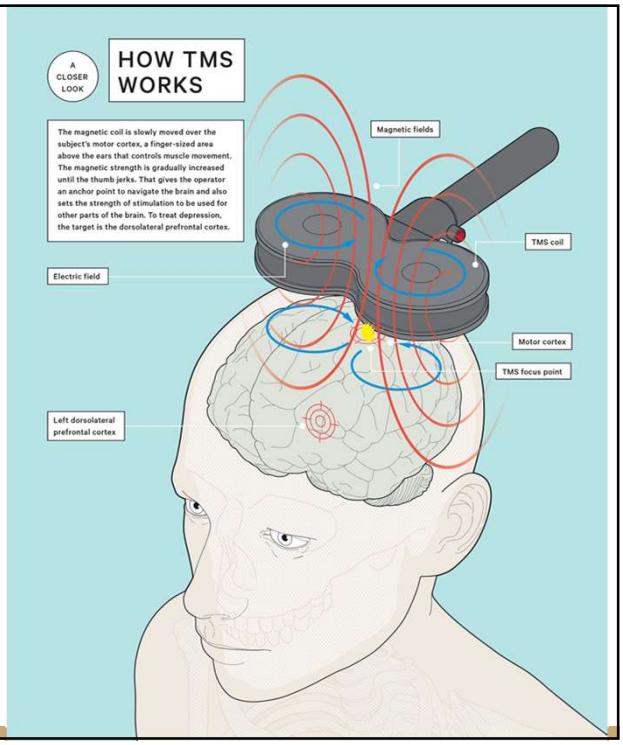
Normalization of muscle activity with external techniques

- Use of EMG
- Use of tape, muscle stimulation, Functional Electrical stimulation, extraporeal shock therapy

11

Neuromodulation with training

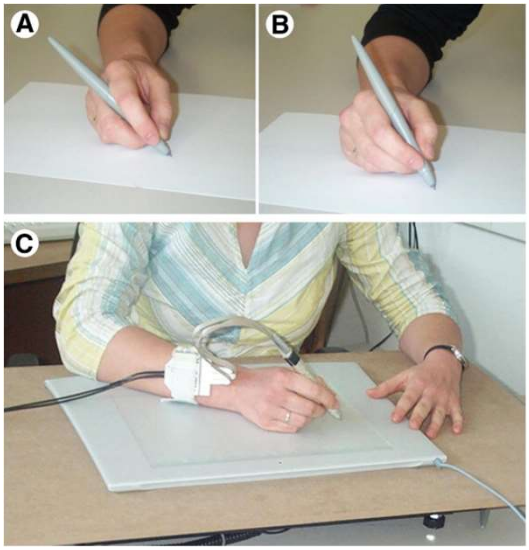
- Used transcranial magnetic stimulation with another modality



12

Compensatory strategies

- Case series
- Use of modified grip
- Different handwriting techniques
- Orthotic devices



Baur 2009

13

Cervical Dystonia

Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS)

- Used to evaluate treatment effectiveness
- Three different domains: severity, disability, and pain

14

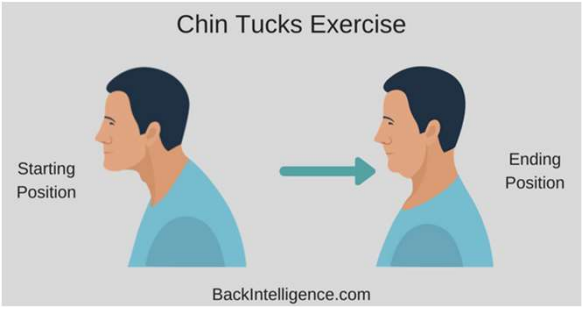
Use of Botulinum NeuroToxin (BoNT) and Physical Therapy

- Balance between controlling the spasm without interfering with function
- When comparing BoNT therapy alone vs. BoNT with PT - significant lower dose and longer effects (Tassorelli 2006)
- Physical therapy is a potential adjunct treatment to those that report suboptimal benefits with BoNT therapy (Hu 2019)

15

Postural Re-education

Neck and shoulder strengthening



16

Sensorimotor Perceptive Rehabilitation Integrated (SPRInt) program

- 18 exercise sessions
- Use of extensive visual and acoustic cues to augment feedback
- Aims to improve body perception, posture, and movement quality
- Seeks to improve proprioception and facilitate sensory integration by excluding visual or verbal information that can be misleading to the patient

- Concluded novel therapy is safe and tolerable for patients

17

18

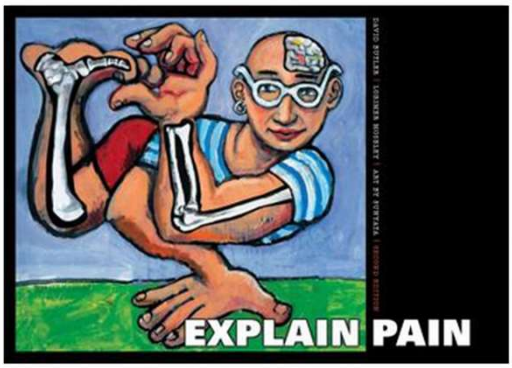
Falls

- 1 in 3 individuals fall over the age of 65
- The reason why we "fall" are multifactorial
  - Poor balance
  - Decreased strength
  - Medications
  - Fear of falling
  - Gait impairment
  - Movement disorder
  - Decrease vision
  - Incontinence
  - Cognitive deficits
  - Environmental hazards
  - ....

19

Pain

1. Understand Pain
2. Breathing
3. Body Awareness
4. Calm movement challenge
5. Pain care for life



Pain resources:

www.painbc.ca

www.tamethebeast.org (Lorimer and Mosley)

www.Lifeisnow.ca

Pearson 2018

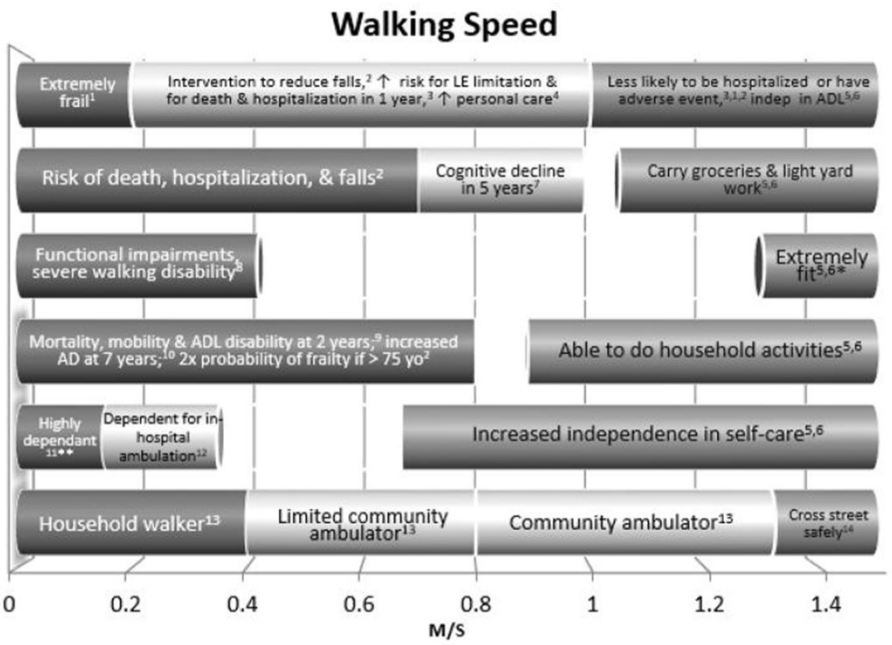
20

Walking

How fast?

How dynamic?

What do you notice?



21

Walking aids

Why might they be helpful?

Why aren't they helpful?

22

Other Physiotherapy tools

Orthotics
- May or may not be helpful

Neuromuscular electrical stimulation
- Provide artificial stimulation to the antagonist muscles
- Used in studies but not widely studied

Taping
- May change the sensory input

Aquatic therapy/Hydrotherapy

23

Medications and Therapy

- Consider what time of the day works best for me?

- Consider a warm up and cool down?

- Consider if your type of dystonia is treated with levodopa, then you may also benefit from BIG, LOUD, exercises

24

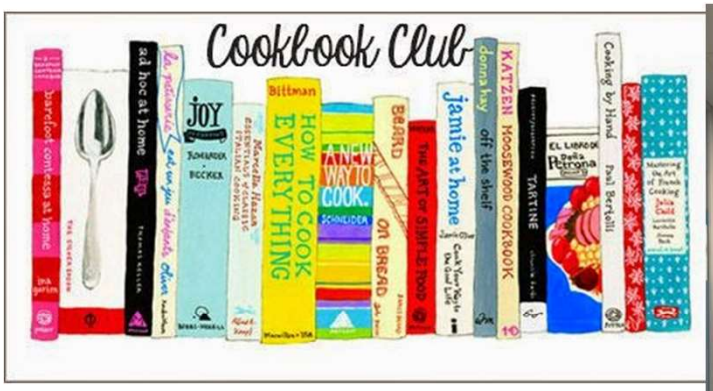
Living well with Dystonia

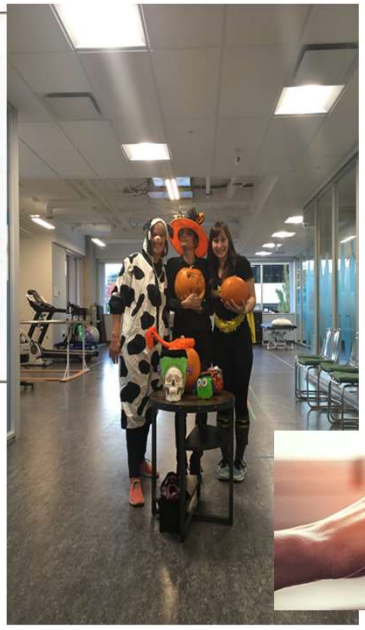
What does that mean to you?

How do you achieve this?

25

26





27

Take Home

Describing dystonia is helpful for directing treatment

Treatment may be augmented through exercise and Physical Therapy

Consider early intervention to offset long-term effects

28

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29

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30