Improving Outcomes with Rehabilitation Therapy

Jillian Jones, DPT, CBIS

Des Moines University

Objectives

1. *Understand what clinical practice guidelines (CPG) are, and how therapists use them in rehabilitation.*

2. *Review the CPG for Parkinson's Disease.*

3. *Apply the CPG to various stages of Parkinson's Disease.*

Clinical Practice Guidelines

- Provide graded recommendations on best practice for a specific condition
- Based on the systematic review and evaluation of the quality of the scientific literature
- Comprised of both evidence-based and expert-based information to guide clinical practice and decision making

Table 1. Summary of Recommendations[a]

Intervention	Quality of Evidence	Strength of Recommendation	Recommendation
Aerobic exercise	High	♦♦♦♦	Physical therapists should implement moderate- to high-intensity aerobic exercise to improve VO_2, reduce motor disease severity and improve functional outcomes in individuals with Parkinson disease
Resistance training	High	♦♦♦♦	Physical therapists should implement resistance training to reduce motor disease severity and improve strength, power, nonmotor symptoms, functional outcomes, and quality of life in individuals with Parkinson disease
Balance training	High	♦♦♦♦	Physical therapists should implement balance training intervention programs to reduce postural control impairments and improve balance and gait outcomes, mobility, balance confidence, and quality of life in individuals with Parkinson disease
Flexibility exercises	Low	♦♦◊◊	Physical therapists may implement flexibility exercises to improve ROM in individuals with Parkinson disease
External cueing	High	♦♦♦♦	Physical therapists should implement external cueing to reduce motor disease severity and freezing of gait and to improve gait outcomes in individuals with Parkinson disease
Community-based exercise	High	♦♦♦♦	Physical therapists should recommend community-based exercise to reduce motor disease severity and improve nonmotor symptoms, functional outcomes, and quality of life in individuals with Parkinson disease
Gait training	High	♦♦♦♦	Physical therapists should implement gait training to reduce motor disease severity and improve stride length, gait speed, mobility, and balance in individuals with Parkinson disease
Task-specific training	High	♦♦♦♦	Physical therapists should implement task-specific training to improve task-specific impairment levels and functional outcomes for individuals with Parkinson disease
Behavior-change approach	High	♦♦♦◊	Physical therapists should implement behavior-change approaches to improve physical activity and quality of life in individuals with Parkinson disease
Integrated care	High	♦♦♦♦	Physical therapist services should be delivered within an integrated care approach to reduce motor disease severity and improve quality of life in individuals with Parkinson disease
Telerehabilitation	Moderate	♦♦◊◊	Physical therapist services may be delivered via telerehabilitation to improve balance in individuals with Parkinson disease

[a]ROM = range of motion; VO_2 = oxygen consumption.

Aerobic Training Recommendations

Aerobic exercise	High	♦♦♦♦

Should implement:

Moderate to High Intensity Exercise

60-80% of your Heart Rate Maximum

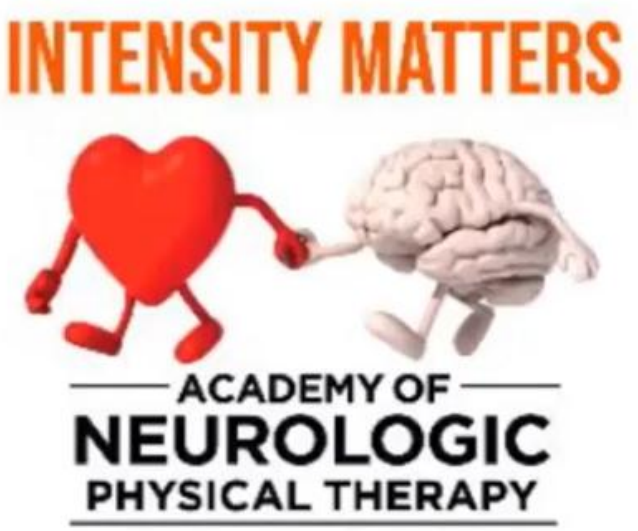
3 times a week for 30 minutes

Your maximum heart rate is about 220 minus your age

Age	Target HR Zone 50-85%	Age-predicted Maximum Heart Rate
20 years	100-170 beats per minute (bpm)	200 bpm
30 years	95-162 bpm	190 bpm
35 years	93-157 bpm	185 bpm
40 years	90-153 bpm	180 bpm
45 years	88-149 bpm	175 bpm
50 years	85-145 bpm	170 bpm
55 years	83-140 bpm	165 bpm
60 years	80-136 bpm	160 bpm
65 years	78-132 bpm	155 bpm
70 years	75-128 bpm	150 bpm

https://www.heart.org/en/healthy-living/fitness/fitness-basics/target-heart-rates

The most effective form of aerobic exercise is one you can maintain and enjoy.



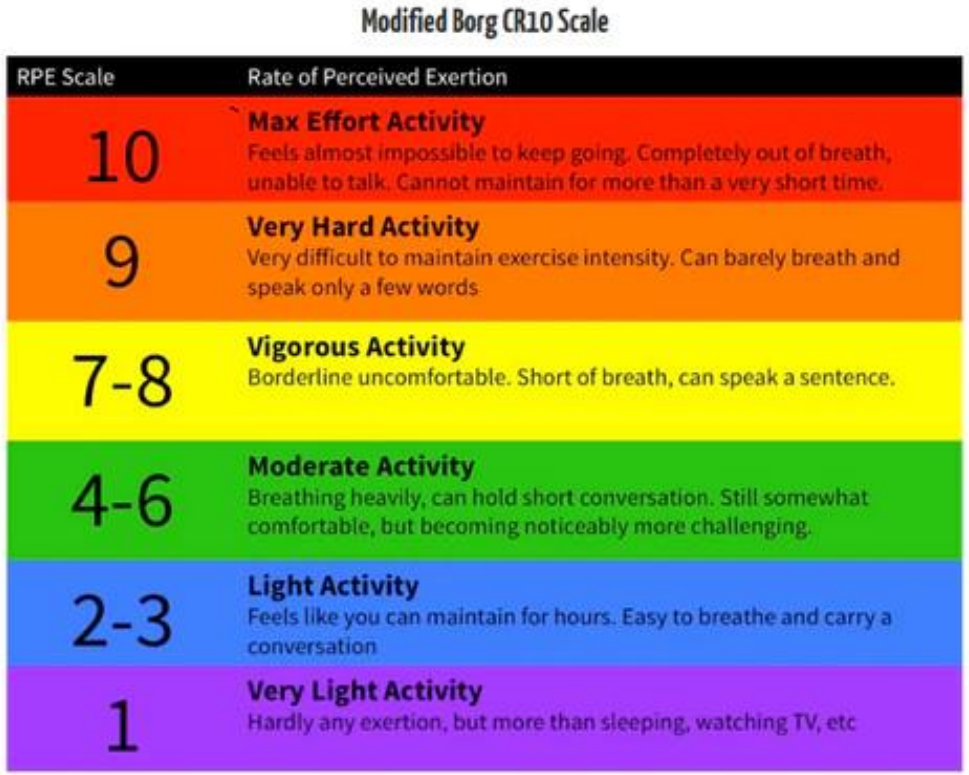
Aerobic

What is best for you?

- Individual or group setting?
- Rotating for variety or sticking with a favorite?
- Something a caregiver can join in with?
- Going to a gym or performing at home?
- Safety considerations..

Safety Considerations

- Blunted HR and BP response to acute exercise in PD
  - Orthostatic hypotension (compounded by polypharmacy)
  - May need to consider alternate methods of monitoring intensity
- Concurrent medical diagnosis
- Risk for injury
- Risk of falls



Therapeutic Intervention for Aerobic Training

When is therapeutic intervention appropriate to address aerobic exercise?

- Prior to initiating an aerobic exercise program.
  - Make recommendations
  - Screen for safety
  - Assist with modification of the activity if needed
  - Assist with identifying resources
- During the initial weeks of a new exercise program
  - Monitor response to exercise
  - Support initial progress before continuing independently
- To re-evaluate an existing program if challenges arise

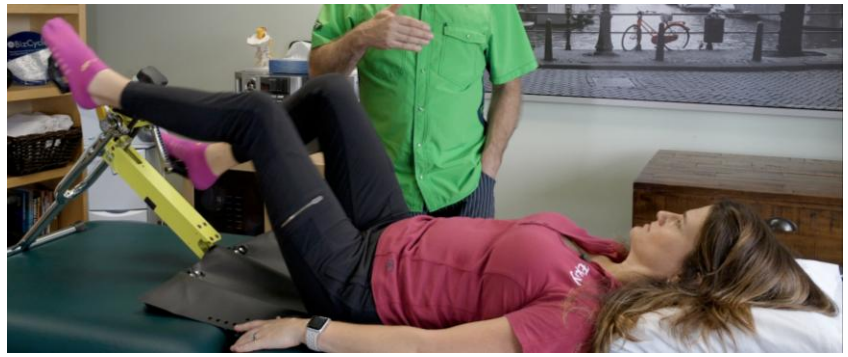
Walking

Nordic Walking/Urban Poling

Overground

Treadmill

Cycling



Boxing

Dancing

Aquatic Exercise

Gym Based Machines

Community-Based Exercise

Community-based exercise	High	♦♦♦♦

https://www.apdaparkinson.org/community/iowa/resources-support-ia/exercise-new/exercise-2/

Beyond Parkinson's Disease

A few Case Reports (Single subject) and a small research trial looked at implementing aerobic exercise using a stationary bike. They report that individuals with Dementia with Lewy bodies are able to tolerate moderate intensity exercise.

Aerobic training on the TM in one study showed individuals with Dementia tolerated TM training but were not able to increase speed and experienced difficulty with motor control.

Resistance Training Recommendations

Resistance training	High	♦♦♦♦

Should implement:

Two nonconsecutive days a week for 30-60 minutes

Train all muscle groups

***Special focus on the extensor muscle groups**

- Extensor muscles are responsible for extending, or straightening, a joint or body part.

Therapeutic Intervention for Resistance Training

Many of us do not engage in a formal strength training program regularly.

Proper form and weight are essential to prevent injury and enhance benefits of the program

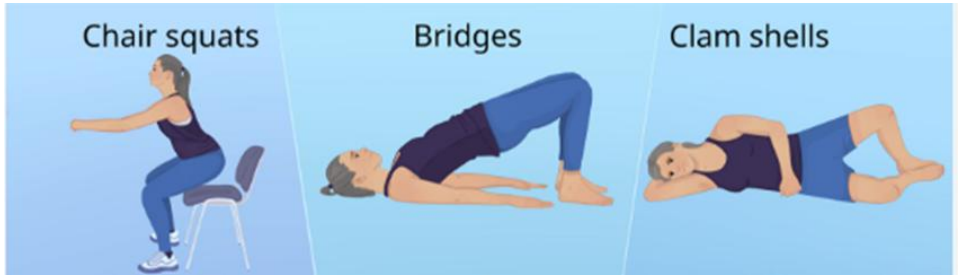
The CPG provides specific recommendations for which muscle groups to prioritize.

Certain forms of resistance exercise can exacerbate blood pressure regulation issues and this should be monitored and modified for.

If you have not engaged in a resistance program recently, therapeutic intervention is recommended.

Therapeutic Intervention for Resistance Training Continued

- Therapy Professionals can complete a pre-program health screen, prescribe an appropriate program, monitor your progress and assist with community integration and resources.
- Group classes offer another option for guided strength training depending on the program
  - Inherently, there is less one-on-one attention in a group setting



Balance Training

Balance training	High	♦♦♦♦

Should Implement

Supervised is better than less supervised

***Balance paired with treadmill or resistance training was better than balance training alone**

Variability in dosing depending on the type of balance

Generally, 2-3 times per week

Therapeutic Intervention for Balance Training

Balance training is **highly individualized**

Different types of balance should be considered

- Steady state
- Anticipatory
- Reactive

**Supervised balance training was superior to less supervised forms

Balance Training

Community Options

- Tai-Chi
- Yoga
- Aquatic exercise

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Flexibility

Flexibility exercises	Low	♦♦◊◊

May implement

This guideline suggests that flexibility exercise may be used to prevent loss of range of motion throughout all stages of the disease but only as an adjunct to other interventions (i.e. warm-up or cool-down)

Recommended daily (as an adjunct to other activities in the day)

Therapeutic Intervention for Flexibility

Therapists should not provide whole sessions focused on flexibility exercises.

However, it can be beneficial for pain management.

Can be incorporated into different programs

- Yoga
- Tai-Chi
- Pilates
- LSVT BIG

LSVT Global

External Cueing

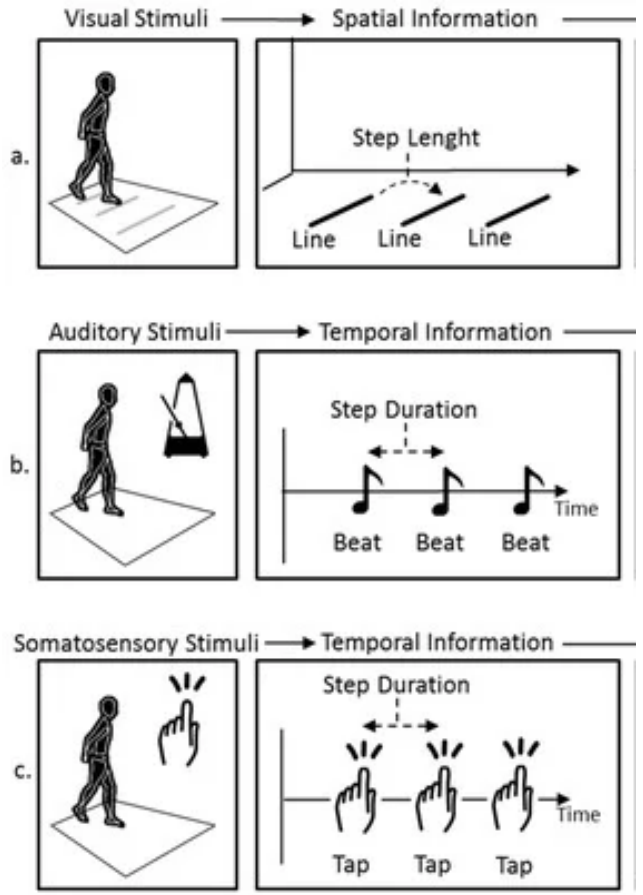
External cues are prompts that direct a person's focus and attention to things outside of their own body.

Examples:

Visual (lines, targets)

Auditory (a rhythmic beat or music)

Tactile (tapping/touch)



External Cueing Recommendations

Should implement	External cueing	High	♦♦♦♦

No one type of cueing was found to be superior to another.

However, it *was* found to be superior to no cueing at all.

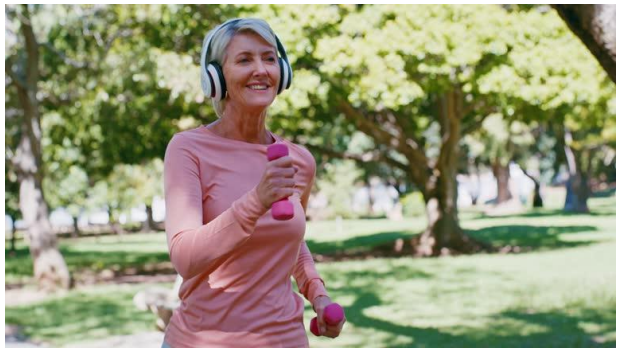
20-60 minutes, 2-5 times per week for 3-8 weeks

Therapeutic Intervention for External Cueing

Therapy professionals should find the most salient form of cueing for the individual.

This can be done collaboratively between disciplines

-Physical therapy, occupational therapy, music therapy, speech therapy etc.



Community Group Options:

-Dancing!

ANPT “Thawing” Strategies

Mobility and Function Recommendations

There is strong evidence to show that therapeutic interventions targeting gait (walking) and task-specific training improve outcomes and quality of life.

This is specific to the individual and their needs and goals. The methods each therapist will use will vary.

Telerehabilitation

Telerehabilitation	Moderate	⊕⊕◯◯	Physical therapist services may be delivered via telerehabilitation to improve balance in individuals with Parkinson disease

- An option for those who live in more rural areas or for whom travel is difficult
- While the evidence is weak, the benefits may include improved balance and participation
- The evidence is just not there yet (amount and quality of studies)
- In-person therapy is preferred, and as of right now, it is linked to better outcomes
- Coverage will depend on the clinic

Additional Considerations for Therapy Intervention

PD may not be the only thing going on. What is the big picture of your wellness?

It is common to have concurrent issues, such as pain, dizziness, incontinence etc.

Therapy can be beneficial to not only address and prioritize the exercise program, but to address confounding issues.

Dental model: “Check-ups” every 6-12 months?

Thank you!