Movement & Physical Activity In Parkinson’s Disease

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Outline

• 1. Benefits of Regular Physical Activity
• 2. Sedentary Behavior & Impact on Health
• 3. Current Research on Parkinson’s Disease & Physical Activity
• 4. Nuts & Bolts of Physical Activity
• 5. FITT Principle of Physical Activity
• 6. Physical Activity Demonstration
• 7. Community Resources
Benefits of Regular Physical Activity

- Higher activity levels are associated with lower death rates from:
  1. heart disease
  2. all cardiovascular disease
  3. colon & breast cancer
  4. type II diabetes.
Benefits of Regular Physical Activity

- More activity with less fatigue
- Less shortness of breath
- Heart & Lungs work better
- Improved circulation to hands & feet
- Decreased risk of osteoporosis
- Decreased anxiety & depression
- Improved feelings of self-worth
- Improved performance of work, recreational and life activities
- Improved Quality of LIFE !!!
Benefits of Regular Physical Activity

- Increase Weight Loss
- Long-Term Maintenance of Weight Loss
- Increase muscle strength—you need muscle to MOVE!
- Increase flexibility
- Reduces risk of falls and fractures
- Lower risk for developing vascular dementia.
- WOW! That’s a lot of benefits!
Sedentary Behavior & Impact on Health

ARE YOU SITTING TOO MUCH?
Risks Associated With A Sedentary Lifestyle

- A sedentary lifestyle is an INDEPENDENT RISK factor for cardiovascular disease.
- Abnormal glucose metabolism
- Weight gain leading to obesity
- Increased risk of cardiovascular death
- Premature death
- Women >30 years old, sedentary lifestyle has been demonstrated to be a stronger Risk Factor for Cardiovascular Disease than smoking.
The Bottom Line......

• The bad news----Individuals are engaged in TOO MUCH SEDENTARY ACTIVITY and it is contributing to poor health.

• The good news---even small breaks in activity behavior can reverse negative metabolic outcomes.

• The bad news---Physical activity does not guarantee protection if individuals are engaged in long periods of sedentary activity.
The Bottom Line.....

- Our bodies were designed for movement— inactivity causes physiological problems that become worse with time.

- A sedentary lifestyle is associated with decreased physical function & adverse health outcomes.

- An activity program can be started at any age, with any body type or presence of disease.
Research on Physical Activity & Parkinson’s Disease

• Reynolds et al. (2016). Review—aerobic & strength training demonstrated improvement in motor function, mood, cognition and sleep especially in early stages of disease with minimal side effects & adverse effects.

Research on Physical Activity & Parkinson’s Disease

• Allen et al. (2011). Meta-analysis found exercise (walking, treadmill, tai chi, dance) improved & motor training improved performance on balance related activities.

• Goodwin et al. (2008). Meta-analysis found exercise improved physical functioning, quality of life, leg strength, balance and walking distance & speed.
Can Physical Activity Be Beneficial In Parkinson’s Disease?

• YES IT CAN! Limited long term research but short term studies have demonstrated improvements in balance, gait, strength, physical function, cognitive function, and quality of life.

• The main goal of activity is to delay disability, prevent secondary complications, and improve quality of life.

• Four key health outcomes of an activity program include: gait (walking), transfers, balance, and joint mobility and muscle power (strength) to improve function.
Nuts & Bolts of Physical Activity

• Must be individualized based on movement symptoms, functional abilities, physical fitness, secondary diagnoses, and medications.

• One size does not fit all!
Nuts & Bolts of Physical Activity

- Individualized movement considerations:
- Is movement speed slowed?
- Difficulty starting movement?
- Episodes of “freezing” movement?
- Difficulty with balance or posture/falls?
- Wriggling/writhing movements?
- Tremor?
- Muscle stiffness/rigidity?
- Is Physical Therapy Needed Before Independent Physical Activity?
Nuts & Bolts of Physical Activity

• Individualized non-movement considerations:
  • Sleep difficulty
  • Fatigue
  • Depression, lack of motivation, anxiety
  • Difficulty with memory/concentration
  • GI difficulty
  • Urinary difficulty
  • Additional diagnoses
Nuts & Bolts of Physical Activity

- Develop an activity plan.
- PLAN FOR SUCCESS.
- Keep an activity journal—include type of activity, duration, time of day, perceived effort, adaptations, problems, pain that persists 2 hours after activity.
- Set Short & Long-term goals.
- Reward yourself for goal achievement.
Nuts & Bolts of Physical Activity

- START SLOWLY—especially if you have been inactive.
- Be creative—activity is all around you.
- Be flexible—aft...
FITT Principle of Physical Activity

- Frequency
- Intensity
- Time
- Type of Activity
- Guidelines developed by the American College of Sports Medicine.
FITT Principle—Aerobic Activity

- Frequency—3 to 5 days/week
- Intensity—fairly light to somewhat hard.
- Time—150 minutes/week; aim for 30 minutes per session BUT can break into smaller segments.
- Type—continuous, large muscle group activities such as walking, dancing, activities of daily living, swimming, water activities, yoga.
FITT Principle—Type of Aerobic Activity

• Aerobic (continuous) Activity: selection is dependent on PD clinical symptoms, functional ability/limitations, and any additional diagnoses.
• Traditional & Non Traditional Activities.
• BE CREATIVE!
FITT Principle—Resistance (Strength) Activity

- **Frequency**—2-3 days/week.
- **Intensity**—fairly light to somewhat hard.
- **Time**—1-2 sets repeating each exercise 8-12 times.
- **Type**—machines, hand weights, body weight, stability ball, therabands, weighted balls, functional activity.
FITT Principle—Type of Resistance (Strength) Activity

- Resistance (strength) Muscles of trunk & hip to prevent faulty posture; all major muscles of leg to maintain mobility; upper extremity to prevent frozen shoulder.
- Can be done in a chair or standing using body weight.
- Emphasize proper form, no breath holding, pain free range of motion and safety.
**FITT Principle—Flexibility (Range of Motion) Activity**

- **Frequency**—1-7 days/week.
- **Intensity**—full extension, flexion, rotation, or stretch to the point of slight discomfort.
- **Time**—major muscle groups holding stretch for 10-30 seconds.
- **Type**—Slow static stretch for all major muscle groups.
FITT Principle—Type of Flexibility (Range of Motion) Activity

- Flexibility Activity: Slow static stretch (no bouncing) for all major muscle groups for all severity stages of PD.
- Spinal mobility & neck flexibility should be emphasized as correlated with posture, gait, balance & activities of daily living.
FITT Principle—Balance Activity

- Frequency—3 days/week.
- Intensity—challenging but safe.
- Time—4-5 exercises (standing & moving).
- Type—stepping & reaching in all directions, stepping up & down, obstacles, standing & sitting, tai chi, dancing.
General Exercises to Improve Flexibility & Strength

- Knee Extension/Flexion
- Toe/Heel Raises/Circle
- Lower Leg Stretch—Stand
- Hamstring Stretch—Sitting
- March in Place—Sit/Stand
- Hip Out/Together—Sitting
- Hip Pendulum—Stand
- Draw In (10x10sec) & Butt Squeeze (10x10sec)

- Sit to Stand—Sitting
- Wall Squats—Standing
- Wall Push Up—Standing
- Chair Push Up—Sitting
- Seated Sit-ups—Sitting
- Curl Ups—floor/bed
- Front/Side Lunges—Standing
Exercise Pictures

- Butt Squeeze--strength
- Knee Extension/Flexion---strength
- Chair Push Up--strength
Exercise Pictures

- Lower Leg Stretch---flexibility
- Hamstring Stretches---flexibility
Exercise Pictures

Sit To Stand—strength & balance

Toe Raises, Wall Squats & Wall Push Ups—strength & balance
Exercise Pictures

Crunches (cross arms over chest)—core strength

Leg Raises—strength

Lunges—strength & balance

Step Ups—strength & balance
How Do I Become More Active?

1. What are you currently doing? Identify your starting point and your limitations.
2. Identify your barriers to activity.
3. Make activity a PRIORITY.
4. Make activity FUN—yes FUN 😊
5. Make activity interesting—what do you enjoy, what would you like to do?
6. Set goals that are specific, realistic & important to you.
7. Make activity part of your regular routine—yard work, household activity, taking the stairs, walking the dog, strength training or stretching during commercials. Be Creative!
Special Considerations

• Outcome of activity training varies significantly by individual due to symptoms and complexity of disease.

• Safety during activity is imperative. Select activities with safety in mind—look at the environment & equipment.

• Medications can further alter HR, BP and also can cause headaches, blurred vision, dry mouth.
Special Considerations

• If cognitive changes are present, help and support may be needed.
• Avoid multi-tasking when starting an activity program.
• Complete 1 activity before starting another activity.
Special Considerations

• If long-term use of Levodopa, is there evidence of “end of dose wearing off” or predictable/unpredictable “off time”.

• If so, be active around these times.
Community Resources

- If you find it difficult to be active on your own or you are looking for a specialized, individualized exercise program, the *Vitality* Fitness Program may be for you.
Vitality Fitness Program—Upstate Medical University

- Located at the Institute for Human Performance
- Land & Aquatic Programs
- Initial Assessment Completed
- Staffed by Exercise Physiologists
- Individualized program depending on limitations, medical history, functional ability, occupational and personal goals.
- Various class times from 8:15A-4:30P on Monday, Wednesday, and Friday.
- Call 464-9992 for additional information.
Community & Online Resources

- YMCA—multiple sites in Onondaga County—indoor track, pool, aerobic equipment, Active Older Adult Programming.
- Davis Phinney Foundation—Parkinson’s Exercise Essentials Download Video
  - http://www.davisphinneyfoundation.org/living-pd/dvd/
- Michael J Fox Foundation—Exercise Podcasts
- Syracuse Parks & Recreation—Senior Fitness Programming
  - http://www.syracuse.ny.us/parks/FitnessAndWellness.html
The Bottom Line

- **KEEP MOVING** - you will feel the physical, emotional and quality of life benefits of being active.
- **Parkinson’s Disease isn’t a reason to sit on the sidelines** - whatever your level of ability, you can be active.
- **YES YOU CAN!**
References

References

