

Exercise and Parkinson's Disease

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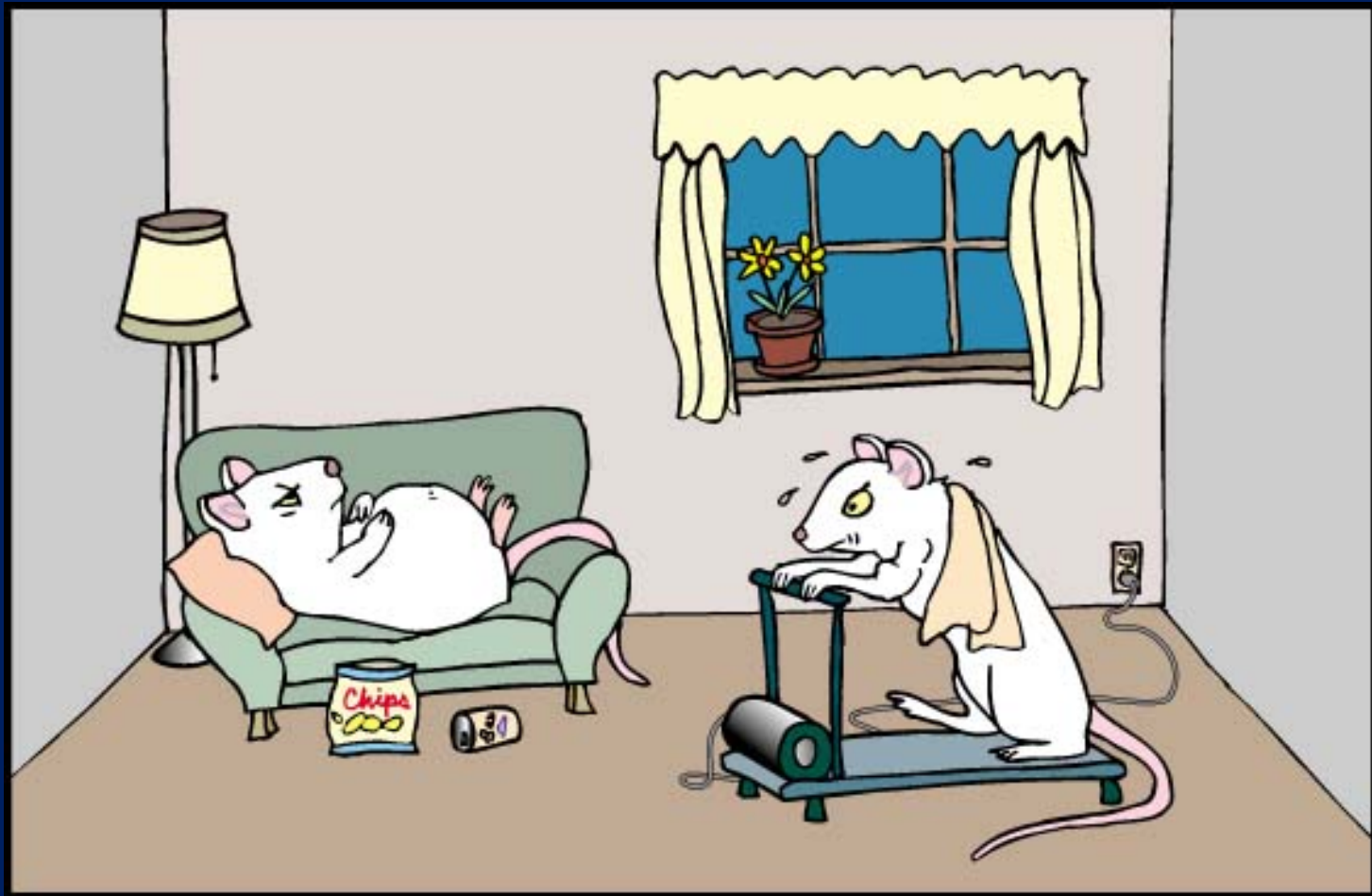
**“Exercise and
neuroplasticity in persons
living with Parkinson’s
disease”**

*European Journal of Physical
Rehabilitation Medicine 2009;45:
215 - 29*

Neuroplasticity

- Summarized current research on exercise in animal models
- Provide suggestions on how to implement the findings of this research into everyday life for people living with Parkinson's disease

Neuroplasticity



Neuroplasticity

Exercise

**(30 minutes each day, consecutive
5 days/week for 4 weeks)**



Neuroplasticity

Exercise induced brain repair and reorganization

Neuroplasticity

“...suggesting exercise may promote neuroplasticity in people with PD; and that this exercise induced neuroplasticity is accompanied by behavioural recovery.”

Neuroplasticity

“Altogether, those data suggest that exercise may delay or prevent PD in healthy individuals, and in early PD, slow disease progression and thereby, motor deterioration.”

Neuroplasticity

“Inactivity is not only a symptom of PD, but a catalyst in the degenerative process.”

“Periods of inactivity, may be prodegenerative contributing to further degradation of function and disease progression

Neuroplasticity

“ Regular exercise delays the appearance of Parkinsonian features in persons already diagnosed with PD.”

Neuroplasticity

Data suggests:

- Need to avoid inactivity
- Exercise interventions need to be intensive
- Exercise needs to be continuous (normal use)

Inactivity

Normal Aging/ Sedentary life



Normal Ageing/Sedentary lifestyle

Associated with:

- Cerebral vascular and heart disease
- Cognitive impairment
- Dementia
- Depression
- Osteoporosis
- Diabetes
- Obesity
- Peripheral vascular disease

Exercise has a positive effect on many of
these chronic conditions

Where do we start?

Canadian Society of Exercise Physiology



American College of Sports Medicine



American College of Sports Medicine (2000)

Exercise recommendations for adults based on scientific evidence that regular exercise may decrease vulnerability to chronic health conditions

Roughly 50% of Americans meet the recommendations

American College of Sports Medicine

Included incorporating regular exercise to maintain and increase in the following domains:

- Cardio vascular conditioning
- Muscle strength
- Flexibility
- Balance

CANADA'S

Physical Activity Guide

to Healthy Active Living

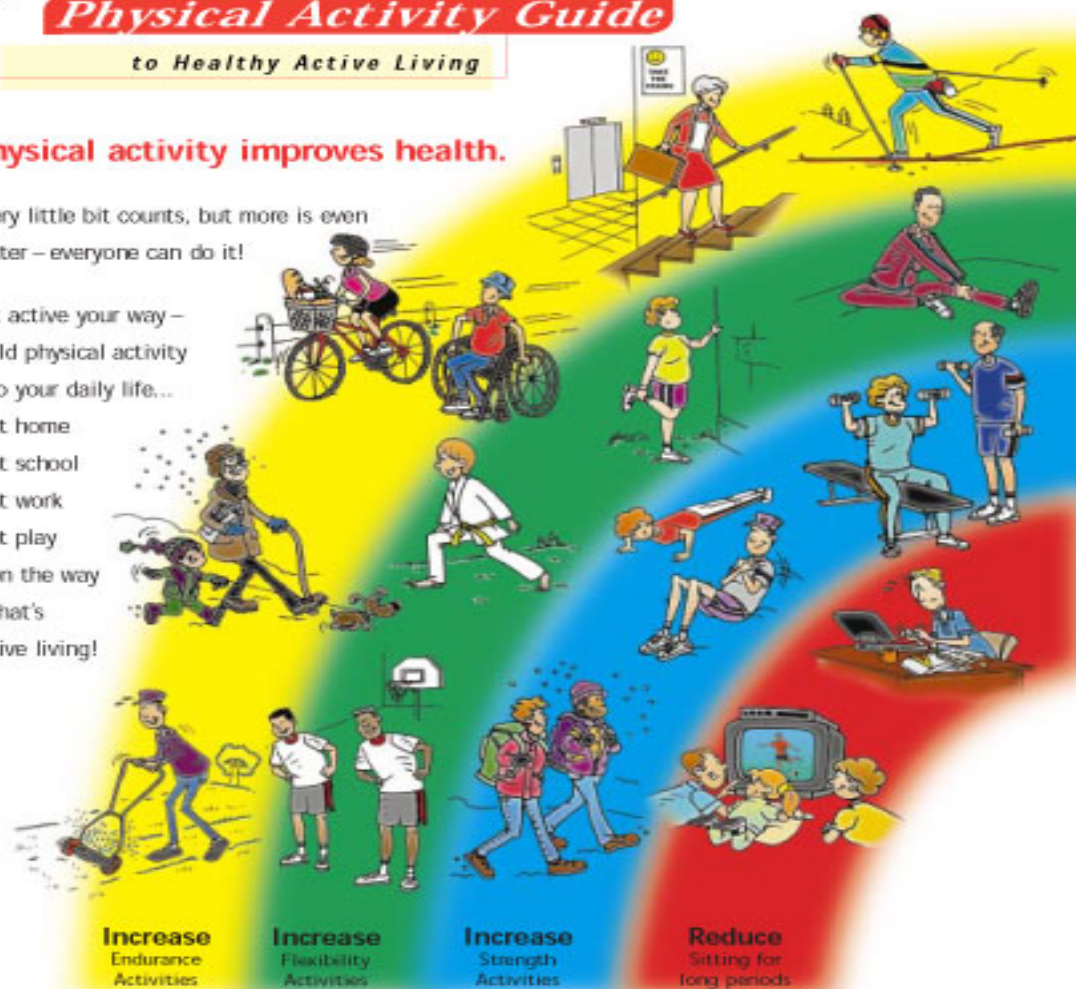
Physical activity improves health.

Every little bit counts, but more is even better – everyone can do it!

Get active your way –
build physical activity
into your daily life...

- at home
- at school
- at work
- at play
- on the way

...that's
active living!



Increase
Endurance
Activities

Increase
Flexibility
Activities

Increase
Strength
Activities

Reduce
Sitting for
long periods



Health
Canada

Santé
Canada



Canadian Society for
Exercise Physiology

Cardiovascular Conditioning

American College of Sports Medicine

Guidelines specify:

- Aerobic activity to be of vigorous or moderate intensity
- 30 minutes/day, 5 days/week

Cardiovascular Conditioning

- Minutes count – add it up 10 minutes at a time
- Start slowly and build up – listen to your body.
- If you are not very active and you start increasing your physical activity, you will start to see benefits in 4 – 12 weeks

Cardiovascular Conditioning



Cardiovascular Conditioning



Cardiovascular Conditioning



Cardiovascular Conditioning



Cardiovascular Conditioning



Cardiovascular Conditioning



Muscle Strengthening

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Guidelines specify:

- Muscle strengthening consists of 8 – 10 exercises involving the major muscle groups with at least 1 set of 10 – 15 repetitions per muscle group on at least 2 nonconsecutive days per week

Strengthening

Major muscle groups include:

- Legs
- Chest
- Back

Strengthening



Strengthening



Strengthening



Strengthening



Strengthening



Strengthening

- Squats
- Heel raises
- Sit to stand

Flexibility/Stretching

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Guidelines specify:

- Flexibility exercises consist of 8 – 10 exercises involving the major muscle groups
- 2 – 4 repetitions per exercise, holding for 20 – 30 seconds
- 2 – 3 days/week min.

Stretching

- Warm up first
- It should never hurt
- Should only feel a gentle pull or slight discomfort
- Do not bounce

Stretching



Stretching



Stretching



Balance

American College of Sports Medicine

Balance training exercises

Balance



- Yoga
- Tai Chi
- Pilates



Standing on one foot



One foot in front of the other



One foot in front of the other



Staggered stance



Posture

Posture





*Please Advise your
Physiotherapist if
you have a
Pacemaker*



Please Advise your therapist if you have a pacemaker

Summary

- Exercise is good
- Avoid inactivity
- Exercise should be vigorous
- Encourage “normal use”

Summary

5 Components:

- Endurance
- Strength
- Flexibility
- Balance
- Posture

“Lack of activity destroys the good condition of every human being, while movement and methodical physical exercise save it and preserve it.”

Plato

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Questions?

