Exercise for Health Among the Older People

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Discussion Points

- Physical activity recommendations for older people
- Exercise vs. Physical Activity
- How older people can benefit from exercise and physical activity
- Barriers to adopting an active lifestyle among the elderly and their possible solutions

Physical Activity Recommendations

The experts recommend that you achieve the physical activity amount and intensity according to your age:

**CHILDREN** (under 17)
- Exercise: 60 minutes Moderate or Vigorous
- 3 or more days need to include muscle and bone strengthening
- Types: Walking, gymnastics, jump rope, soccer, free play

**ADULTS** (18-64 years old):
- Weekly: 150 minutes of Moderate intensity or 75 minutes of Vigorous
- 2 or more days of strength training 8–12 exercises of 8–12 repetitions
- Types: Walking, running, hula hoop, lifting, basketball, and more

**OLDER ADULTS** (65 years old & older):
- Weekly: 75 minutes of Moderate intensity or 37.5 minutes of Vigorous
- 2 or more days of strength training 8–10 exercises of 8–12 repetitions
- Types: Walking, gardening, water aerobics, group exercise classes and more

When overweight or obese:
- Prevent weight gain > 3%/mo. PA of 150 to 250 min/wk (1200 to 2000 kcal/wk)
- Weight loss ~ 150 min/wk promotes minimal weight loss,
- ~ 150 min/wk results in modest weight loss of 2–3 kg,
- ~ 225–420 min/wk results in 5- to 7.5-kg weight loss, and a dose–response exists.
- Weight maintenance after weight loss. 200- to 300-min/wk PA during weight maintenance to reduce weight regain

The ability to respond to physiological stress diminishes with advancing age (Skinner, 1993)
Physical Activity Recommendations for +65 yr (WHO)

- 150 min moderate aerobic activity weekly
- 75 min vigorous aerobic activity weekly
- Equivalent combination
- Bouts should be at least 10 min duration

Physical Activity Recommendations for +65 yr – Additional Benefits (WHO)

- Increase moderate aerobic activity to 300 min weekly
- 150 min vigorous aerobic activity
- Enhance balance to prevent falls 3 x weekly
- Muscle strengthening on 2 or more days of the week
- BE AS ACTIVE AS THEIR ABILITIES AND CONDITIONS ALLOW

Categories of Physical Activities

- Active Daily Tasks
- Programmed Physical Activities
- High-Impact Play (Unstructured Spontaneous Play)
- Muscle Strengthening and Flexibility Activities
- Activities in the Workplace
- Balance and Coordination
### Exercise and Daily Physical Activity

#### Daily Physical Activity
- Daily
- Low intensity
- Unstructured/incidental
- Unspecified duration/completion of tasks
- Constant/task dependent

Examples:
- Active transport, household chores, work-related

#### Exercise
- Most days of the week
- Light/moderate/vigorous intensity
- Structured/intentional
- 10 – 60 minutes
- Progressive/Maintenance

Examples:
- Continuous, Intermittent, Resistance, Stretching, Balancing

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### What’s the difference?

- **Physical Activity**
  - any bodily movement produced by skeletal muscles that results in energy expenditure.

- **Exercise**
  - planned, structured and repetitive bodily movement undertaken to improve or maintain one or more components of physical fitness. 
  
  *Bouchard 1990*

### What counts as moderate physical activity

Any physical activity is better than none. It is never too late to get more active to improve health. Activities could include:

- **walking**
- **gardening**
- **hiking**
- **dancing**
- **cycling**
- **active recreation**
- **swimming**
Physical activity is disappearing from everyday life

- Labour-saving devices
- Transport patterns
- Concerns over safety in public spaces
- Sport as entertainment
- The impact of information technology

Leading to an increase in sedentary and physically less demanding lifestyles

A Vicious cycle of Inactivity

Increasing age

Social / psychological ageing
- Feeling ‘old’
- ‘Acting’ one’s age
- Increased stress
- Anxiety, depression
- Low self-esteem
- Fear of falling

Less exercise

Further decrease in physical activity

Physical deterioration
- Heart disease
- High blood pressure
- Aches and pains
- Osteoporosis

Decreased physical abilities
- Increased body fat
- Sagging muscles
- Decreased energy
Some exercises are derived from ordinary movements that we normally encounter daily but end up not doing because of labor-saving alternatives.

Benefits of Exercise Among the Older Adults

Ample Physical Activity

- Delays premature mortality
- Reduces risk for chronic diseases and health conditions
- Reduce the risk of NCDs, depression and cognitive decline
- Increases functional capacity
- Reduces risk of moderate and severe functional and role limitations

An in-office exercise routine
### Interface of the Four Empowerment Cornerstones with Intervention Components

<table>
<thead>
<tr>
<th>Empowerment Cornerstones</th>
<th>Theoretical Definition</th>
<th>Application to the Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge acquisition</td>
<td>Providing information that could help patients make more informed choices and more appropriate use of resources</td>
<td>Provided healthy lifestyle education to help participants make more informed choices (e.g., how to decrease sitting and increase physical activity)</td>
</tr>
<tr>
<td>Active participation</td>
<td>Encouraging patients' active involvement in the process of actions and decision making needed to achieve their health and personal goals</td>
<td>(a) Encouraged participants to ask questions and set individual health goals, and (b) provided stickers when participants actively joined the discussion and offered small gifts to participants who collected the most stickers</td>
</tr>
<tr>
<td>Social support</td>
<td>Providing nurses with support to facilitate patients' empowerment</td>
<td>(a) Maintained supportive relationships between participants and the researchers, and (b) encouraged participants to share their own experiences through group discussions</td>
</tr>
<tr>
<td>Skills improvement</td>
<td>Obtaining and practicing the skills needed to attain patients' desired outcomes</td>
<td>Provided exercise training to reduce time spent in sedentary behaviors</td>
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**Case Study #3: Moderate Aerobic Exercise Improves Cognition and Brain Health in Older Healthy Adults**

**Background:**
- Physical exercise, particularly aerobic exercise, is documented to slow cognitive declines including memory, executive function, visuospatial skills, and processing speed in normally aging adults.
- Aging studies have focused largely on the effects of extended (>6 months) exercise programs.
- Little is known about the cognitive and brain plasticity gains possible in healthy but sedentary seniors from shorter term aerobic exercise training.

**Methods:**
- 37 cognitively normal adults (mean age of 64.0 [57–75 years of age]) were randomized into two different groups: physical training or no training control.
- The training regimen consisted of three 60 min sessions of moderate aerobic exercise training per week for 12 weeks.
- Participants’ cognitive, cardiovascular fitness and resting cerebral blood flow were assessed at baseline, mid and post-training time points.

**Results/Conclusions:**
- The exercise group showed cognitive gains in immediate and delayed memory performance over the course of the 12 week training program, which was associated with a significant increase in hippocampal blood flow compared to the control group.
- This study suggests that even shorter term aerobic exercise can facilitate neuroplasticity to reduce negative cognitive consequences of aging and promote brain health in older sedentary adults.


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**Barriers to Adopting a Physically Active Lifestyle**
### Why older people do not participate in leisure time physical activity (Crombie, et al, 2004)

<table>
<thead>
<tr>
<th>Deterrent</th>
<th>Alleviation</th>
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<tbody>
<tr>
<td>Physical symptoms — painful joints, shortness of breath</td>
<td>Investigate symptom; reassure meaning of symptoms</td>
</tr>
<tr>
<td>Fear of falling</td>
<td>Positive support and encouragement</td>
</tr>
<tr>
<td>Feeling unfit</td>
<td>Tailor-fit PA to physical capabilities</td>
</tr>
<tr>
<td>Lack of energy</td>
<td>Short but challenging activities within physical capabilities</td>
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<tr>
<td>Lack of access to transportation</td>
<td>Scheduling and location</td>
</tr>
<tr>
<td>Lack of interest in PA</td>
<td>Examine whether due to depression; highlight non-health benefits of physical activity</td>
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</tbody>
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### Overcoming barriers to exercise...

**Use some... S.I.M.P.L.E. T.I.P.S**

- **Simplify**
  - Limit no of exercises/equipment; match to their ability/problems/preferences
- **Impart knowledge**
  - Avoid jargon/nocebo; explain risks/benefits; use infographics/videos etc
- **Modify beliefs**
  - Establish readiness to exercise; avoid talk/action that reinforces pain behaviours
- **Promote alliance**
  - Establish rapport; create atmosphere that’s challenging/empowering
- **Leave biases**
  - Avoid stereotyping; acknowledge cultural diversity
- **Evaluate**
  - Get patients to self-monitor; ask simple/direct questions about adherence
- **Technology**
  - Text reminders; phone/skype follow ups; web based videos/apps
- **Identify barriers**
  - Use fun/time efficient exercises; plan for distractions; help remember to exercise
- **Plan follow up**
  - Booster sessions; community based programs
- **Set goals**
  - Use SMART patient specific goal setting and measures

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### Determinants of Adherence

- **Environmental factors**
  - Social environment
  - Spousal support especially critical
  - Physical environment
  - Convenience, built environment
- **Physical activity characteristics**
  - Exercise intensity and duration
    - Moderate is best
  - Group vs. individual programs
    - Groups generally better for adherence, but individual diff.
  - Leader qualities

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### The Self-Efficacy Theory (Bandura, 1977)

<table>
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<tr>
<th>Sources of Self Efficacy to Promote PA</th>
<th>Operationalized through:</th>
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<tbody>
<tr>
<td>Behavior — performance accomplishment</td>
<td>Participant engagement in supervised exercise and goal</td>
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<tr>
<td>Verbal persuasion</td>
<td>Positive verbal reinforcement</td>
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<tr>
<td>Vicarious experience</td>
<td>Middle-aged lay instructors and older adult participants as role-models</td>
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<tr>
<td>Physiologic arousal</td>
<td>Education and coaching regarding physiologic responses to exercise</td>
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“Lack of activity destroys the good condition of every human being, while movement and methodical physical exercise save it and preserve it.”
- Plato

“Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity.”
- John F Kennedy

“…from nothing else but the brain come joys, delights, laughter and sports, grief, despondency, and lamentation.”
- Hippocrates

“A vigorous five-mile walk will do more good for an unhappy but otherwise healthy adult than all the medicine and psychology in the world.”
Paul Dudley White
“The Father of American Cardiology”

“The reason I exercise is for the quality of life I enjoy.”
Kenneth H. Cooper
“the Father of Aerobics”

“Walking is the best possible exercise. Habituate yourself to walk very fast.”
“A strong body makes a strong mind.”
- Thomas Jefferson

Success consists of doing ordinary things extraordinarily well.