



Active Ageing

Lesson 2 Part 2
Common Medical Conditions associated with Ageing



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Metabolic Disorders

- Diabetes:
- Two Categories: TYPE I and TYPE II •
- TYPE I When the cells of the pancreas stop producing insulin – needs to be taken by injection
- Early onset usually under 30 years
- Requires insulin injection, diet therapy, regular exercise
- Self-testing of blood glucose levels



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Type 2 Diabetes

- Type 2- not enough insulin is produced
- Usually late onset
- Increase in younger people (childhood obesity)
- Associated with increase body fat (intra- abdominal fat)
- Reduced glucose tolerance
- Reduced insulin sensitivity



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Symptoms

Warning Signs of Hypoglycaemia

- Shaky/Dizzy/Lightheadedness
- Sweaty/Pallor
- Hunger
- Blurred Vision
- Headaches
- Heart Pounding
- Nervous/Excited/Anxious



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Symptoms

Warning signs of hyperglycemia(High blood sugar):

- Fruity-smelling breath.
- Nausea and vomiting.
- Shortness of breath.
- Dry mouth.
- Weakness.
- Confusion.
- Coma.
- Abdominal pain.



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Metabolic Disorders - Risk Factors

- Increased risk of CHD
- Rise in total body fat
- Increase in total cholesterol
- Decrease in immune and pulmonary function
- Increased risk of infection due to damage to small blood vessels and nerves
- Kidney damage, blindness and amputation



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Benefits of exercise

- Usually lowers your blood sugar.
- Improves insulin sensitivity, which means your body's insulin works better. ...
- Reduces body fat.
- Helps to build and tone muscles.
- Lowers LDL's

     

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Benefits of exercise

- Lowers your risk for heart disease.
- Improves circulation.
- Preserves bone mass.
- Reduces stress and enhances quality of life.

     

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Exercise Guidelines

According to the Harvard Medical School:

- Resistance training and aerobic exercise – helped to lower insulin resistance in previously sedentary older adults with abdominal obesity who were at risk for diabetes.
- People with diabetes who walked at least 2hrs per week were less likely to die of heart disease than their sedentary counterparts.
- Those who exercised 3-4 hrs per week cut their risk even more.

     

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Exercise Guidelines

- Best time to exercise- 3hrs after eating when blood sugar level is higher.
- Avoid :
 - Exercising when blood sugar is too high
- Check :
 - Blood sugar after an intense workout – risk of hypoglycaemia may be highest 6-12 hrs after exercising.








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Parkinson's Disease

- A degenerative disorder which affects part of the brainstem involved in the regulation of voluntary movement and posture








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Parkinson's Disease

- Symptoms:

| | |
|------------------------|--------------------------------|
| • Tremor | • Falling |
| • Rigidity | • Decline in fine motor skills |
| • Slowness of movement | • Social Withdrawal |
| • Postural changes | • Depression |
| • Balance impairment | |








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Risks

- Risk of falling
- Festination (short shuffling steps)
- Inactivity
- Tire sooner
- Decreased respiratory function
- Decreased cognitive function




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Exercise Guidelines

| | |
|---|--|
| <ul style="list-style-type: none"> • Exercises to promote good posture • Exercises to maintain mobility/flexibility • Use large expansive movements, e.g. stretching | <ul style="list-style-type: none"> • Exercises for trunk, especially spine • Exercises for facial muscles and speech • Exercises for breathing • Relaxation exercises • Keep It Simple (KISS) |
|---|--|




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Exercises to avoid (Neurological Disease)

- Complicated movements
- Exercising to point of fatigue
- Jerky or fast movements
- Strength work, especially isometrics
- Neck Exercises




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Other Neurological Disorders

- Sensory Impairments:
 - Visual Impairment
 - Hearing Impairment
 - Proprioceptors
 - Vertigo



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Physical Activity Guidelines for the Visually Impaired

- Give precise verbal instruction
- Use gentle touch (with permission)
- Do not cause discomfort by pulling and pushing into position
Stand close to participant – in front if possible
- Avoid complex moves and directional change



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Physical Activity Guidelines for Hearing Impairment

- Get participant's attention (placement very important)
- Clearly articulate words (lip reading)
- Avoid shouting
- Clear visual cues
- Check understanding
- Use instrumental music with definite beat



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Avoid

- Visually impaired ;
- Low nods of head lowering head below chest level
- Activities that cause straining
- Hearing impaired ;
- Using music with vocals which may compete with leaders voice.
- Using neck exercises where inner ear disorders are present



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Proprioceptors

- Proprioceptors are sensors situated in our muscles that provide information to our limbs, trunk, head and neck. For example, joint angle, muscle length, muscle tension



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Types of Proprioceptors

- 1) Muscle Spindle
 - A Proprioceptor provides information about changes in muscle length activated during muscle stretch
- 2) Golgi Tendon Organ
 - A Proprioceptor provides information about changes in muscle tension activated during muscle contraction



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Effects of Ageing on Proprioceptors

- Loss of sensory information from eyes, ears and position receptors
- Difficulty coordinating body motion, e.g. walking
- Difficulty coordinating fine motor skills, e.g. using a pen to write

     

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Vertigo

- Characterised by a feeling of spinning movement sometimes accompanied by nausea and vomiting

     

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Symptoms

- Loss of balance
- Loss of coordination
- Falling down
- Headaches/migraines
- Dizziness/lightheadedness

     

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Exercise Guidelines (Vertigo)

| | |
|---|---|
| <ul style="list-style-type: none">• DO:• Screen re: medication• Balance and Coordination exercise• Seated exercise• Stretching exercise | <ul style="list-style-type: none">• Avoid:• Rotational movement• Complicated choreography• Arms-overhead movement• Isometric exercise |
|---|---|

     

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Multiple Sclerosis

• A progressive degenerative neurological disorder affecting the central nervous system (CNS)

     

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Characteristics

- Muscle weakness (Atrophy)
- Spasticity
- Decreased coordination
- Tremors
- Decreased ROM
- Impaired Breathing (Chest wall)

     

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Exercise Implications

- Fatigue
- Slower reaction time
- Reduced mobility
- Postural misalignment
- Pain



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Exercise Guidelines

| | |
|--|--|
| <ul style="list-style-type: none">• Do:• Posture Exercises• Simple /slow movements• Work within pain-free range | <ul style="list-style-type: none">• Avoid:• Hyperextension cervical spine (neck)• Overtiring |
|--|--|



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General Guidelines (Re-Cap)

- Energy to Muscles for Older Adults
- Chemical energy stored in food is converted in the body for mechanical work, e.g. muscle contractions



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Muscle Energy

• Question

- What effect would reduced muscle mass have on an older person's ability to do physical activity and or exercise?



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Muscle Energy

• Answer:

- Less strength & endurance
- Slower responses from muscle fibres
- Restricted shallow breathing
- An inadequate up-take of oxygen which limits removal of lactic acid



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Muscle Energy

- Role of Muscle during Exercise
- Extraction of oxygen from capillary blood
- Utilisation of oxygen in mitochondria for production of ATP
- Utilisation of glycogen during anaerobic metabolism
- By-product leads to accumulation of lactic acid



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Muscle Energy



- Implications for Older Adult
- Inspiration/expiration (oxygen) needed to assist in removal of lactic acid is the basis of the talk test
- Shallow breathing or restricted breathing will limit the removal of lactic acid
- Exercising too hard or using anaerobic pathways results in excess lactic acid
- Cramp!








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Summary



- Immediate benefits of physical activity for older people
- Helps reduce blood glucose levels
- Adrenalin & Nor-adrenalin levels stimulated
- Improved sleep – enhanced sleep quality & quantity (WHO guidelines 2003)








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Conclusion



- Long-term effects of physical activity for older people:
- Sustained improvements in cardiovascular endurance
- Maintenance of independence through Resistive /Strength training exercises
- Flexibility Exercise repairs & restores ROM
- Balance & Coordination exercises reduces risk of falls
- Velocity of movement postpones age related decline in speed & agility (WHO guidelines 2003)








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 Quiz

Click the Quiz button to edit this object

Welcome to the quiz on common medical conditions and exercise implications

Click the "Start Quiz" button to proceed

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