

Aging Process Muscles, Ligaments, Tendons, Cartilage & Bones Worksheet

Name: _____ Date: _____

Name of Trainer: _____

Name of Company Developing Material: Clinical Update (NZ) Ltd

Segment 1 – Muscles

List the 3 types of muscles

1. Heart
2. Smooth
3. Skeletal

There are 4 functions of muscles, what are they?

1. Excitability
2. Contractibility
3. Extensibility
4. Elasticity

What are the 4 roles of muscles

1. Movement
2. Posture
3. Stabilising Joints
4. Generating heat

What age does muscle mass start to reduce 30 years

From age 40 how much muscle mass can you expect to lose per year 0.5-2%

What happens to the muscle fibres? They diminish or reduce

Why does this happen? Routine replacement cannot keep up with destruction

Muscles are hard to build and easy to lose

Why do people slow down with age? Muscles don't respond as well

What makes this process worse? Sedentary Lifestyle or sitting around a lot

What can you do to help build up muscle mass? Exercise

Segment 2 Ligaments

Ligaments connect Bone to Bone

What are ligaments made up of? Connective tissue

What are the two things that ligaments do?

1. Strengthen the joint
2. Limit joint movement

List 2 things that happen to ligaments with age

1. Become less elastic
2. Become less flexible or flexibility reduced

How does this affect a person? Makes it harder to get up and down and move quickly

Segment 3 Tendons

Tendons connect **Muscle** to **Bone**

Tendons are **parallel bundles** of **collagen** that attach muscles to **bone**
Tendons are **inelastic** but **flexible** and work by concentrating the **pull** of **muscle** on a small section of bone.

What are the 2 things that happen to tendons with age

1. **Water content diminishes or reduces**
2. **Lose flexibility**

What are the results of the tendon changes and give two examples.

1. **Hand grip decreased**
2. **Fine motors skill more difficult**

What is a common tendon problem? **Tendon over use** or **Tendonitis** or **Tendonopathy**

List 3 things that happen with this condition?

1. **Pain on movement**
2. **Tenderness over the tendon**
3. **Swelling over the tendon**

List 2 things that help maintain strong tendons?

1. **Keep mobile**
2. **Gentle exercise**

Segment 4 – Cartilage

What are the 3 components of cartilage?

1. **Protein**
2. **Collagen**
3. **Sugar**

List the 3 types of cartilage and give an example of where you would find each type

1. **Hyaline**
2. **Elastic**
3. **Fibrocartilage**

What does cartilage do to joints? **Cushion joints**

What happens when cartilage breaks down? **Bone rubs on bone**

What is a common condition that this leads too? **Osteoarthritis**

List the 3 things required to keep cartilage healthy?

1. **Exercise**
2. **Water**
3. **Diet**

Segment 5 – Bones

As a person ages, bone lose **Mineral content** in particular **calcium**

This makes the bones more **fragile** and makes older people more at risk of **fractures**

From age 35 years on, what percentage of bone loss occurs **1-2%**

What percentage of bone loss occurs in women before and after menopause? **4-5%**

What causes women to have a greater percentage of bone loss over this period? **Loss of oestrogen**

What is the condition that occurs through bone loss more commonly in women? [Osteoporosis](#)

How much height does a person lose per decade? [1/2" or 1.5 cm](#)

What is lipping of the bone? [Overgrowth of bone](#)

Where does this occur? [On any joint](#)

List 3 things you can do to keep your bones strong and healthy?

1. [Resistance exercise – lifting gentle weights](#)
2. [Diet high in calcium](#)
3. [Avoid alcohol and smoking](#)