

BETTER BONES

Proposals for educational goals

The students will

- become familiar with the bones in their bodies and the bone structure
- become familiar with the function of bones in their bodies
- know how to build up and protect their bones

Introductory material

The building up of bones

At birth, our bones are cartilaginous, however, with time and as they gain more calcium they harden and strengthen. The bones grow with our bodies and then they condense until we reach our mid-thirties. **Bones continue to renew themselves throughout life, however, this slows as we grow older.** It must be emphasised that in spite of their hardness, bones are a living tissue.

The role of the bones in the body

Bones form the supporting system of the body along with muscles and ligaments. The bones keep the body firm, but the ligaments connect the bones to the muscles and tendons are fastened to the bones, this is why we can move. The bones are one of the calcium storages for our bodies. However, the body can not utilise calcium unless it is supported by vitamin D. If we do not get enough calcium from the food we eat, the body takes calcium from the bones, thus weakening them. The bones in our body protect important organs. The spinal cord lies inside the spinal column, the heart and lungs are protected inside the thorax by the ribs and breastbone and the brain is inside the skull. Blood cells are formed in the bone marrow, as well as in other parts of the body.

Slide: This is what our bones look like

The outer part of the bone is made of bone tissue (dense bone) and farther within, the bone tissue is more porous (spongy bone). The cavities in the bones are filled with bone marrow which consists of fat. Blood cells are produced in the marrow. A bone membrane, containing veins and nerves covers the bones. To enable the bones to move freely, cartilage covers the end of each bone. Care must be taken that the students become familiar with the following terms:

Bone membrane is a membrane which covers the bones and contains veins and nerves.

Bone marrow is inside the bone tissue, where white and red blood cells are formed along with blood platelets.

Bone density shows the concentration of calcium in the bones as well as their strength.

Supporting system: muscles, tendons, ligaments and bones form

the supporting system which enables our bodies to move.

Calcium is an essential mineral for our bodies.

Slide: Let's take care of our bones

A graph showing bone condensation and age, i.e. how bones condense until we reach the mid-thirties and then deteriorate.

The main difference between male and female bones is that bones in women are more subject to osteoporosis, most frequently discovered in women 45-55 years old (during menopause), due to the change in body hormones. The process is similar in men and women after reaching their eighties.

Think of our bones as a bank account. While the body is growing and developing, we contribute to our bones by choosing wholesome food, rich with calcium and vitamin D, and by exercising, as the muscles which move the bones strengthen the bones. Soft drinks, snacks, sweets and laziness are damaging to our bones. Likewise, skipping regular meals is bad for our bones. Let us contribute to our bone bank and save for later use when we grow older. A positive balance now can protect us from illness in the future.

Assignments

- There are three assignments: to label the primary bones, solve word puzzles and a group assignment.
- On a picture of a skeleton in the assignment folder, mark the names of the primary bones (This is what you are!).
- Word puzzle (Can you find the words?). Here, the words must be found, whether reading from the right, left, up, down or diagonally.
- A poster of promotion for the protection of our bones or how we build up bones using the information we have on bones, also what is good for our bones and what is not. The posters will then be pinned on walls in the school corridors or in the classroom.

Process

- Students participate in a review of the solutions for the bones' names and the word puzzles using a slide.
- Discuss and emphasise the idea of depositing into the bone bank to conduce to better health later on in life.

Useful websites

- www.beinvernd.is
- www.ms.is (hollusta)
- www.skyr.is
- www.manneldi.is
- www.tannheilsa.is

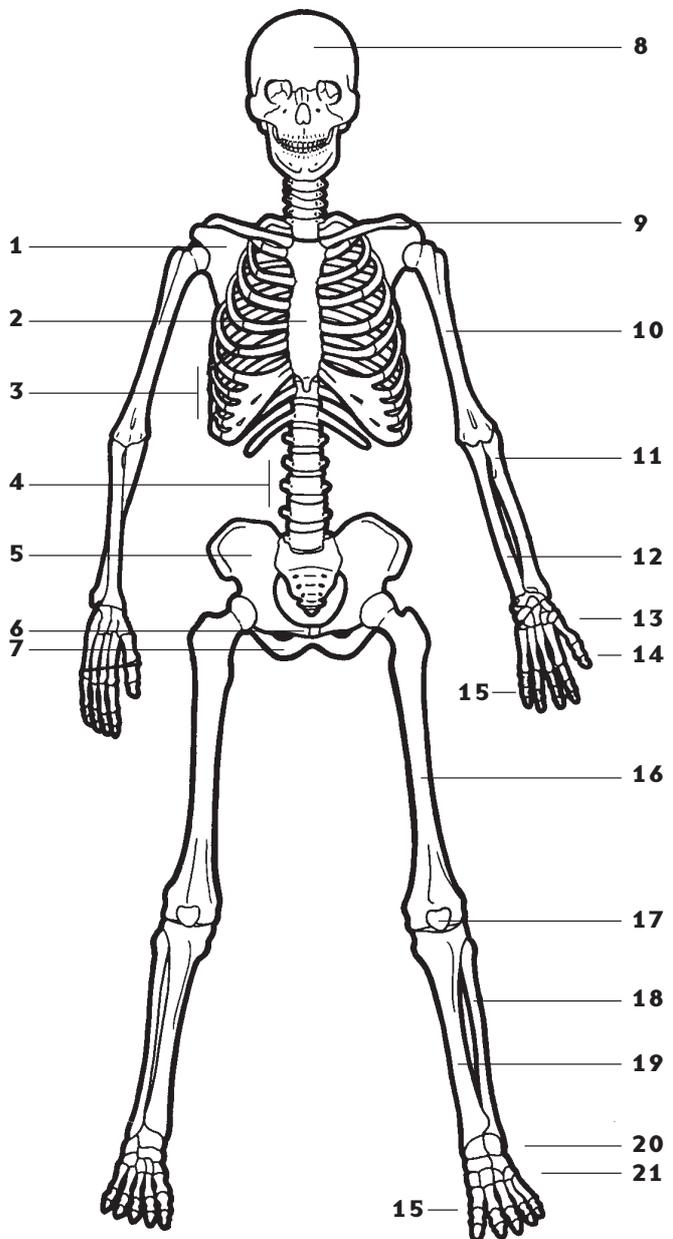


THIS IS WHAT YOU ARE!



- | | |
|---------------------------|------------------------|
| vertebrae | ischium |
| ribs | tibia |
| knuckle bones | clavicle (collar bone) |
| scapula (shoulder blades) | tarsal bone |
| radius | humerus (upper arm) |
| patella (kneecap) | metatarsals |
| femur (upper leg) | ulna |
| fibula | pelvis |
| sternum (breast bone) | wrist bone |
| skull | metacarpal |
| | pubic bone |

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GETUR ÞÚ FUNDIÐ ORÐIN?



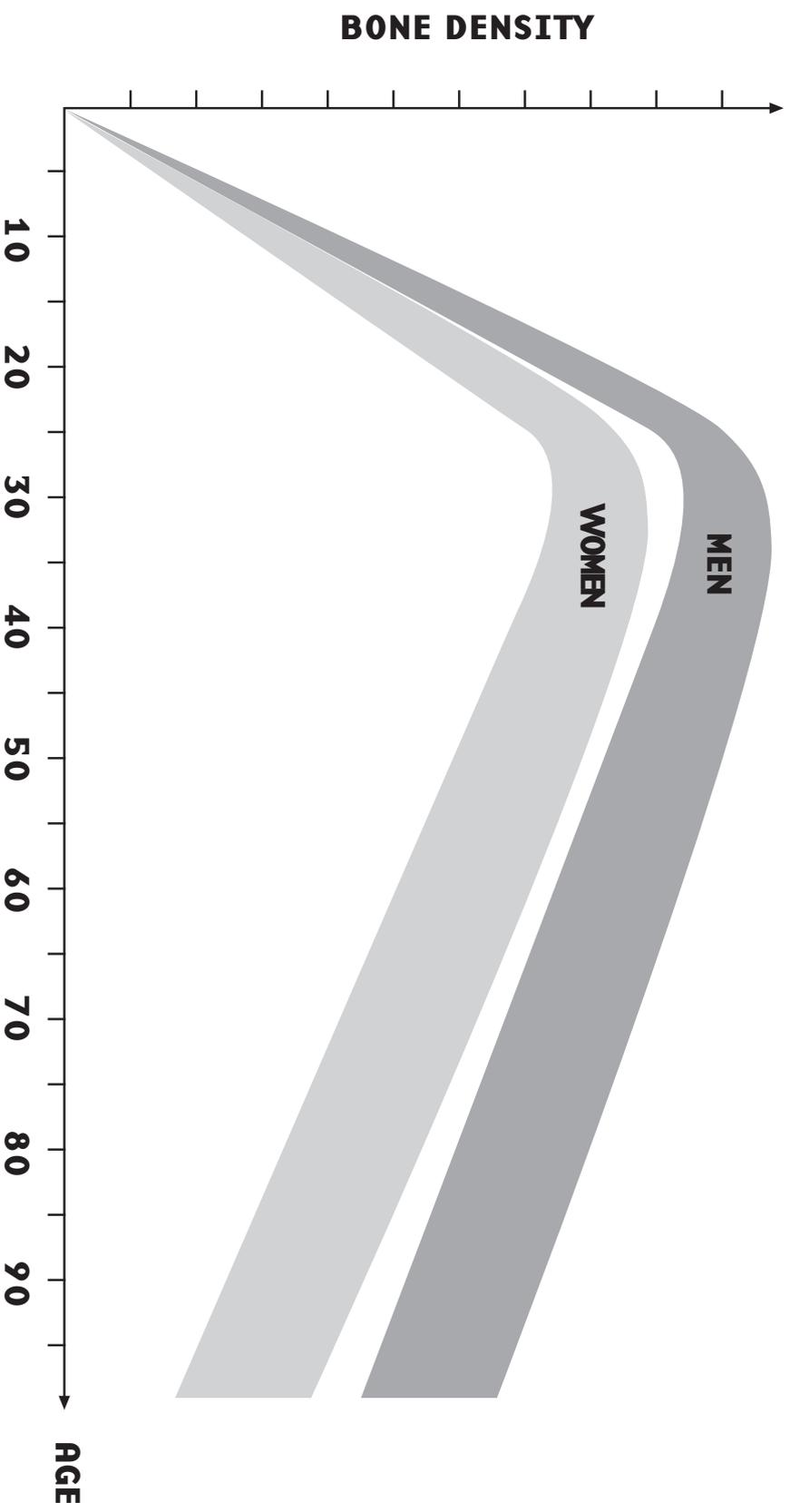
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mergur
sund
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LET'S TAKE CARE OF OUR BONES



THIS IS WHAT OUR BONES LOOK LIKE

