

## JOINTS OF THE TRUNK BONES

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**Abstract.** *This article is about the bones and about the joints of the bones and the joints of the trunk bones.*

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There is no organ or tissue in our body stronger than bones. Don't you mean the joints that bind them together and determine our movement? With their help, we can bend and straighten the arms and legs, turn them in two directions. Each person has exactly 187 joints. You find joints where bones come together. They are divided into three.

The first ones ensure the smooth movement of bones. For example, the elbow, knee, finger joints, shoulder and hip joints are in constant motion.

The joints of the second group are partially in motion. They include the joints of the spine.

The third group of joints does not move at all. They are the joints of the skull that surround the brain.

Did you know that our joints move because they rub against each other?

If this situation lasted for 5-10 minutes, there would be no bones left. Fortunately, our joints are moistened with a special fluid and protected from decay. Although the amount of this fluid is only 0.1-4 milliliters, it is enough for us to move freely, do housework, and if necessary, regularly do sports. Scientists call it synovial fluid. It is in the joint capsule and keeps the joints moist during movement. The capsule fuses with the bones. If there were no joints, our life would not be what it is today. We would only be lying down because we could not move our heads, legs, arms or even a single finger. We naturally move through our joints. Joints are the movable joints of bones that allow them to move relative to each other. It is they that allow the bones to move smoothly with very little friction.

A joint is a place where bones meet. The joint of the bones is covered with a cartilage that reduces friction between the bones. In addition, the joint secretes a fluid that looks like egg white. It's called synovial fluid, and its job is to reduce friction, like oil in a car. When the joint is at rest and not moving, the synovial fluid is produced in small amounts, so when it begins to move, it makes a creaking sound.

The mobility and flexibility of all bone joints is a necessary condition for light and agile movement in adulthood and old age. You must have thought "easy to say, but hard to do", yes you are right. Even a slight crunch can be a sign of aging and thinning of the joint cartilage. Therefore, we can say the wise phrase of our people in a slightly different way,

i.e. "Protect your bone joints from youth", because taking preventive measures and treatment at the initial stage of changes in bone joints can significantly reduce the process of bone decay. slows down.

There are two main types of bone joints: continuous and discontinuous, or joints. Continuous ligaments occur in all lower vertebrates and in higher embryonic stages of development. When the latter forms bookmarks of bones, their original material (connective tissue, cartilage) remains between them. With the help of this material, the bones are united, i.e. continuous communication is established. Continuous connections develop in terrestrial vertebrates at later stages of ontogeny and are more developed because they allow greater mobility of skeletal parts. They develop due to the appearance of a gap in the original material preserved between the bones. In the second case, cartilage remains cover the articulation surfaces of the bones. There is also a third, intermediate type of connection - semi-joint.

There are 4 major types of joints in humans. One of them is a ball joint. This is very important for us, the shoulder joint belongs to this type. We move our arm using the shoulder joint. The hip joint is the largest ball-and-socket joint. But because this joint is very tight, the range of motion is limited.

The second type of joint is an elliptical joint. In such a joint, an ovoid convex fits an elliptical concave. For example, the wrist joint belongs to this type. It allows you to perform oval movements better than circular ones. Another type of joint is the saddle joint, where the bones can only move in two directions—back and forth and side to side.

The third type of joint is the roller joint. The bones of this joint can move in one direction - back and forth. It looks like a door or folding knife. The joints between the bones of our fingers are coiled. The last type of joint is cylindrical. Cylindrical joints allow bones to rotate laterally. These joints at the base of our skull allow us to turn our head. With the help of this type of joints in the elbows, for example, we can turn the key inside the lock.

Bone is a living tissue that constantly replaces itself. The hardness of the bone is very suitable for the task of providing the function of mechanical support and the elasticity of the cartilage, the ability to move the joints. Both cartilage and bone are composed of specialized cells that produce and organize a matrix of material outside the cells. The matrix is rich in collagens, proteoglycans, and noncollagenous proteins. Bone matrix also contains minerals.

The outer part of the bone is called the cortex and is compact bone. The more spongy interior (trabecular bone) is filled with blood-forming (hematopoietic) bone marrow. The inner and outer parts of bone have different metabolic turnover rates, which has important implications for late-life osteoporosis. Trabecular bone renews itself faster than compact bone, so osteoporosis is first observed in vertebral bodies with large trabecular parts of the spine.

Bone in the skull and other selected areas is formed by direct bone formation (intramembranous ossification) without passing through the intermediate phase of cartilage. The long bones of the legs become cartilage through a process called endochondral ossification. This process results in the normal growth of long bones, the repair of fractures, and the unique formation of new bone in a joint that becomes osteoarthritic in late adult life.

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