



*...going one step further*



**A15/3**

(1000037)

# Physiological Skeleton

English

This unique skeleton was developed in order to illustrate the supporting function of the mobile skeletal system. Opposed to other skeletons, which are primarily designed as visual models for the study of anatomy, with this skeleton you can simulate the development of physiological movements.

You can both visually illustrate motions, showing the interplay of the individual bones and joints, and their behavior under pressure (pulling, pushing, stretching). While doing so, one can „feel“ with the hands how the overall skeletal system reacts to each of the movements and locate the best possible points for the transfer of forces as determined by the bony structures.

You can work with the skeleton while it is in either an upright (hanging) or horizontal (lying) position.

## Assembly

It is easiest to assemble the skeleton by placing all the parts in front of you on the floor.

- Connect the 5 arms of the base to the center section.
- Connect the two halves of the tripod rod to one another and screw the tripod rod in the center section of the base.
- Affix the skull by leading the rod emerging from the spinal column through the hole in the roof of the skull. If the rod appears to be too short for assembly, you can bend the spinal column slightly. First place the metal disc and then the spring over this rod and affix both of them with the knurled nut (= disc shaped nut). Then screw the hanging device to the rod.
- Lay the skeleton (upper body with arms and skull) in front of you on the floor. The legs are attached using the connecting pins and screws between the ala of the ilium and the sacrum. The symphysis is affixed with another connecting pin and screw. We recommend that you do not tighten the screws until all of the connecting pins are positioned.
- Now, with the hanging device, hang the skeleton onto the hook of the tripod - finished.

Great value was put in the most realistic illustration of movements possible during assembly of the skeleton. In the following we would like to briefly point out the most important features:

## The Skull

The skull of the model is made up of three parts. The skull roof can be removed to view the inner skull structure. The lower jaw is movable. A spiral spring in the hanging device above the roof of the skull facilitates good mobility in the area of the cervical spine when the head is bent forward while the skeleton is in a horizontal position.

## The Spinal Column

The spinal column is flexibly assembled and shown with its natural curvature. Physiological exercises can be carried out very well in the horizontal position.

## The Thorax

The sternum and the rib ends are made of an elastic material and stabilized by a spring so that movements in the thoracic area can be illustrated.

## The Shoulder Joint

The upper arm and shoulder blade are realistically connected to one another. When the arm is raised above the horizontal, the movement is transferred realistically to the shoulder blade.

In order to ensure stability in the shoulder girdle (cf. during transport of the model), the shoulder blade is attached to the thorax with a screw. This screw can be loosened in order to ease the transfer of movement.

## The Forearm

The connection in the elbow joint makes realistic flexion and extension possible as well as good transfer of force between the upper and lower arm. The rotating movement of the forearm between the ulna and radial (pronation and supination) are also possible.

## The Hands

Since the assembly of the hand is relatively fixed in order to achieve stability, movement of the carpalia (wrist bone) is limited. Flexion of the fingers and thumb opposition can be easily simulated.

## The Hip Joint

The condyle of the femur and the socket of the hip bone are connected realistically making movement of the thigh possible in all physiological directions including rotation around the vertical axis. The transfer of force and movement from the leg to the hip and spinal column is also easily recognizable.

## The Knee

The lower leg can be flexed and extended. Outward and inward rotations are easily possible within their natural limits.

## The Foot

Both the tarsal bones and the bones of the individual phalanges are connected to one another elastically and facilitate good mobility in all of the joints.

## Repair kit

In case a screw is lost, a rubber band breaks from excessive pressure or a spring gives way, spare parts are contained in the enclosed repair kit.