

## Syndesmosis and Gomphosis of Fibrous Joint

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### ABOUT THE STUDY

Joints that are joined together by fibrous tissue, primarily collagen, are known as fibrous joints in anatomy. They are fixed joints where a coating of varied thicknesses of white fibrous tissue connects the bones. Sutures are the names for the connections connecting the bones of the skull. Synarthroses are another name for such fixed joints.

#### Sutures

Only the skull contains a particular sort of fibrous joint known as a suture (cranial suture). Sharpey's fibres hold the bones together. Sutures allow for a very little amount of movement, which adds to the skull's compliance and suppleness. Those joints are synarthroses. Several of the skull's bones being unfused at birth are typical. Craniosynostosis is the prenatal fusing of the skull's bones. The ensuing "soft areas" are referred to as "fontanelles". Although less quickly, the relative locations of the bones change throughout the adult's life and can be instructive in forensics and archaeology. Cranial sutures may entirely ossify (convert to bone) as people age. The only non-sutured joints in the skull are the gomphoses, which connect the teeth and jaws, and the temporomandibular joint, which connects the mandible to the skull.

#### Syndesmosis

A small-movement joint linked by connective tissue is called a syndesmosis. It connects bones like the tibia and fibula. The distal tibiofibular joint is one illustration. A "high ankle sprain" is the term used to describe injuries to the ankle syndesmosis. Although the syndesmosis is a joint, the term "syndesmotic injury" is used in the literature to refer to damage to the syndesmotic ligaments. The words syn (which means "with") and desmos are Greek in origin (meaning "a band"). Recent years have seen an increase in awareness of syndesmosis sprains due to a greater understanding of the mechanism, symptoms, and indicators of injury.

#### Diagnosis of a syndesmotic injury

Syndesmosis injuries are typically easy to diagnose through physical

examination. The external rotation test and the squeezing test are two physical examination findings that are frequently positive. High-grade syndesmosis injuries frequently prevent patients from performing a single-leg heel rise. Variable levels of pain are experienced by patients over the anterior and frequently posterior distal fibular joint.

#### Syndesmotic tear

According to numerous authors, acute syndesmosis injury severity ranges from grade I to grade III. A partial tear of the anteroinferior tibiofibular ligament is classified as a grade I injury, meaning that neither the exorotation nor squeeze tests were positive. Squeeze test and exorotation are positive in a grade II injury, which is characterized by a complete anteroinferior tibiofibular ligament and inferior interosseous ligament tear. As a result, the damage can be immobilized to stabilize it but not surgically. Anteroinferior tibiofibular ligament tears, interosseous ligament tears, and deltoid ligament avulsions are all classified as grade III injuries, which result in instability of the joint and a positive exorotation and squeeze test.

The operation must be stabilized for this grade. In cases when a bone fracture has caused the syndesmosis to tear, surgeons may use a tightrope fixation technique or a syndesmotic screw to temporarily replace the syndesmosis. This procedure is referred to as the Syndesmosis Operation. The screw prevents the bones from moving normally, which affects the associated joint (s). The screw might be taken out once the normal articulation has recovered. On the other hand, a tightrope fixation that uses an elastic fiber wire suture permits natural ankle motion and may be permanent.

#### Gomphosis

A joint that connects the teeth to skeletal teeth sockets in the maxillary bone and mandible is called a gomphosis, also known as a dentoalveolar syndesmosis. A periodontal ligament is the fibrous band that connects a tooth to its socket. The cementum of the tooth is connected specifically to the maxilla or mandible.

A gomphosis moves very little, but over time, it can shift quite a bit, which is why braces are used to correct teeth. The joint can

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qualify as synarthrosis.

Because those teeth are not technically bones, the gomphosis is the only joint type in which a bone does not join another bone.

The gomphosis is categorized as a fibrous joint in more recent, more anatomical classification systems since the tissue that connects the two structures is ligamentous. It has been proposed

that the evolution of the mammalian (synapsid) tusk required the persistent soft-tissue attachment. A conical process or peg of one bone fits into a hole or socket of another bone in a gomphosis, a specialized fibrous joint. Bolt is the meaning of the Greek word gomphos. Fibrous tissue, in little amounts, binds the bones together. Such peg-and-socket joints are incapable of movement.