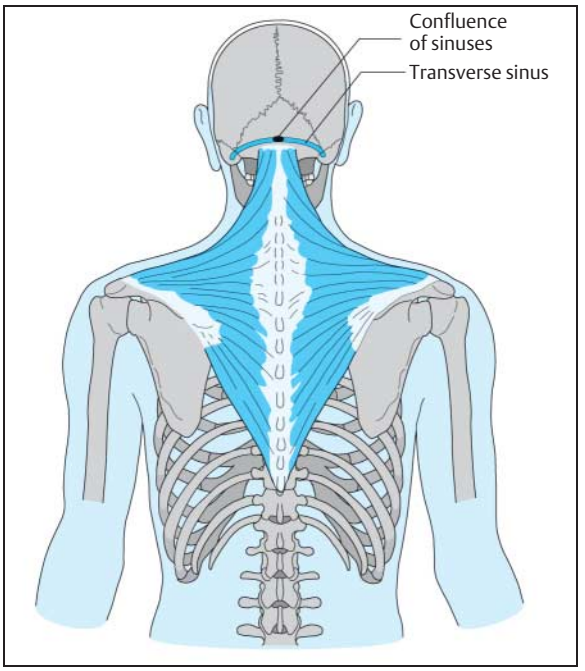

Fig. 4.4 Fascia of the trapezius as extension of the tentorium.

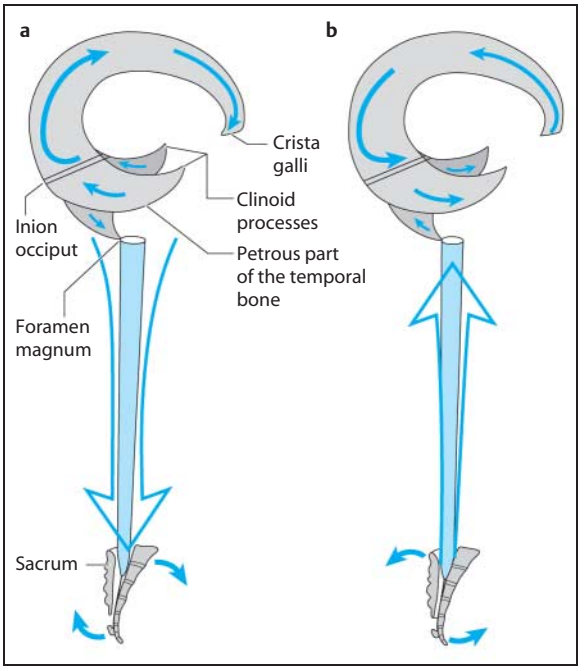

Fig. 4.5a, b "Reciprocal tension membranes" with attachments.

The subarachnoidal space is connected to the ventricles in which the liquor is produced (choroid plexus). Some 95% of the reabsorption of the liquor takes place in the arachnoid villi of the venous sinus. The remaining 5% is reabsorbed via the lymphatic system.

The dural system is a very resistant membrane that attaches at certain places and forms a hose-like structure filled with CSF and nerves. This means that pressure or tension at one place spreads to the entire system. We can compare this to an air-filled balloon that is compromised in one spot. This pressure can be felt everywhere on the balloon. The entire dural system has five points of attachment whose common anchor is the Sutherland fulcrum:

- In front, the crista galli and clinoid processes
- Laterally, the two temporal bones
- In back, the occipital bone
- Below, the sacrum

The fact that pulling on one of these points affects all others via the Sutherland fulcrum is of clinical significance. In other words: a sacral malposition affects the occipitoatlantoaxial (OAA) complex just as much as a malposition in the temporal bone or sphenoidal bone. The consequences are even greater in the spinal column because the sensitive muscle spindles there have an exponential effect.

While the cranial sutures do not permit movement per se, as we know it from the extremities of the spinal column, they do allow for malleability. Movements related to craniosacral impulses do not cause a volume change in the cranium, but only a deformation of the entire hydraulic system including the spinal column and pelvis. Since these movements proceed harmoniously, restrictions in one point of the system manifest everywhere.

If the disturbance is significant enough, the whole system adapts in order to function. This leads to adjustments in the structures, which ultimately causes structural or postural changes. This is the meaning of the term "**reciprocal tension membranes**" (**Fig. 4.5**)

Note: Opinions differ on the trigger of craniosacral movements. In general, it is assumed that fluctuations in the liquor cause tensions in the dural system that in turn affect the bones. The special anatomy of the cranial sutures and the attachments of the dura are responsible for specific movement patterns.

4.3 The Movements and Dysfunctions of the Craniosacral Mechanism

For a detailed description, we once again refer the reader to the relevant literature. We will only describe here what is necessary for understanding the following content.

Flexion and Extension

When Sutherland defined the two stages of the craniosacral rhythm, he called them flexion and extension because he considered the SBS to be the center of movement. In conforming to the nomenclature, flexion of the SBS corresponds to a reduction in the angle between the basilar part of the occiput and of the sphenoid body. Extension corresponds to an increase in this angle.

Flexion

The occipital bone makes a backward rotation, and the sphenoidal bone makes a forward rotation, in which the SBS rises. Globally, both bones make a forward movement. This is important for the relationship between occiput and atlas. **In cranial flexion, the occipital bone slides forward over the atlas** (**Fig. 4.6a**). This corresponds to a mechanical extension of the occiput. The ethmoidal bone, lying in front of the sphenoidal bone, makes the same rotation as the occipital bone. The paired or peripheral bones make an external rotation during flexion.

The forward movement of the occipital bone and upward movement of the basilar part shift the foramen magnum forward. This results in a cranial pull on the spinal dura mater. Consequently, the base of the sa-

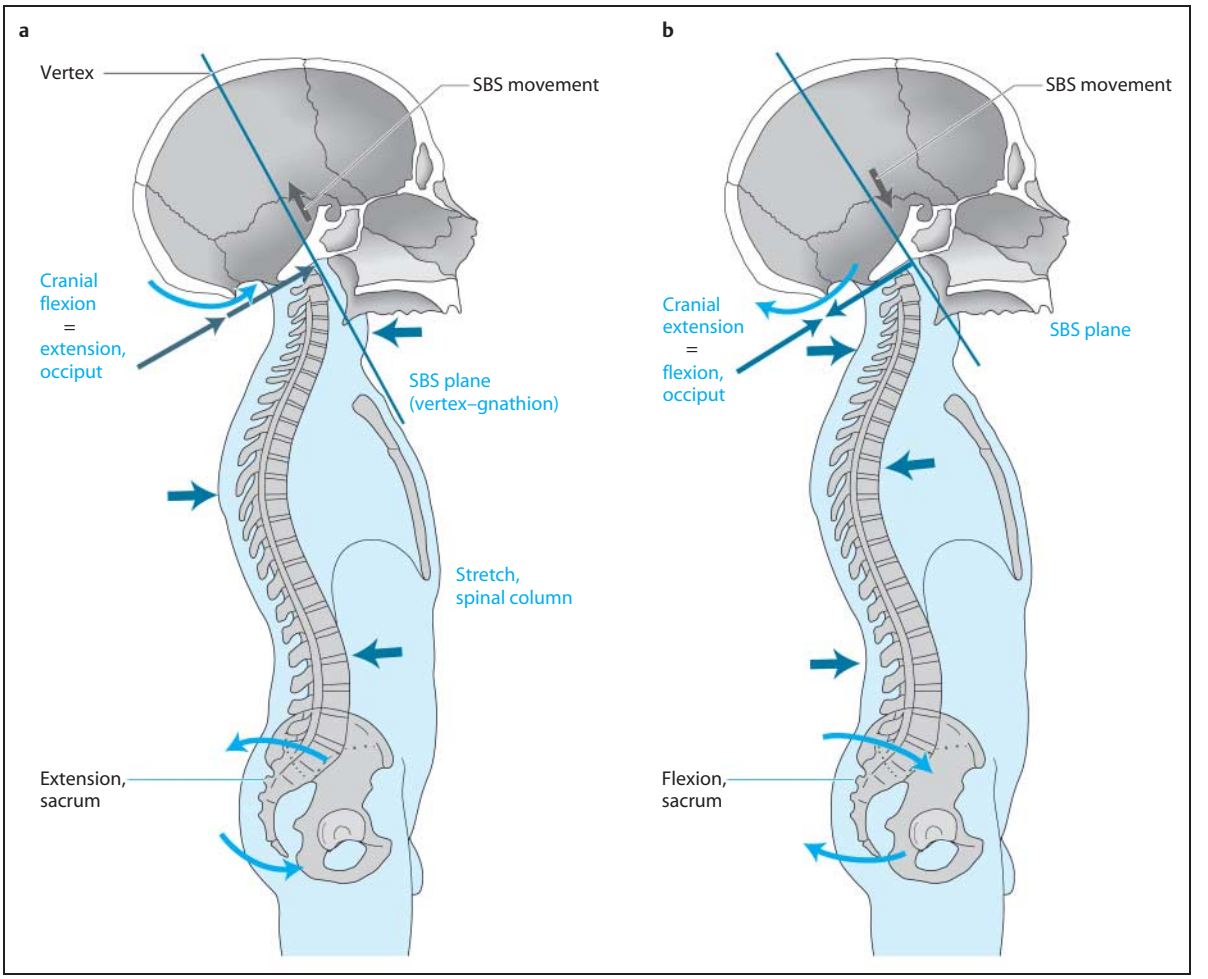

Fig. 4.6a, b **a** Biomechanics of cranial flexion: movement of the occiput over the atlas. **b** Biomechanics of cranial extension: movement of the occiput over the atlas.