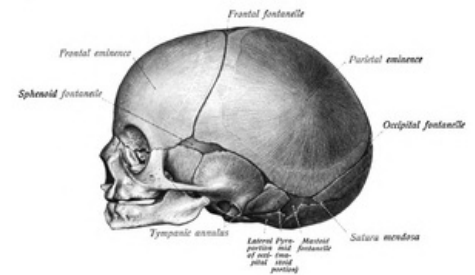


# Newborn skull

The skull of a newborn, in contrast to the skull of an adult, shows various differences. These are primarily **size** and **shape**, which disappear as development progresses. Immediately after the birth of the child, it is **very fragile**, for this reason it must be handled very carefully.

## Proportions

The skull of a newborn baby measures **11.1 cm** from front to back, to which approximately 4 mm must be added, which are made up of soft tissues. The greatest width between the parietal bones is **9 cm**. The head circumference of a newborn is **34 cm**.<sup>[1]</sup>



Skull of a newborn baby from the side

## Characteristic features

The skull of a newborn differs from an adult, fully developed skull in many growth and shape features. A newborn's skull is stretched **anteroposteriorly** and, viewed from above, has the shape of a **pentagon** (due to the predominance of ossification centers = the thickest places of the bones). These ossification centers are the *tubera frontalia* and *tubera parietalia*. The main differences include the disproportionately **large neurocranium** compared to the splanchnocranium, which is small and low - this is due to the shape of the maxilla, nasal cavity and septum. Secondary nasal cavities are not developed, they are only hinted at as recesses.

Another feature for the newborn skull is the **paired os frontale**, which is divided by a seam in the middle part. In rare cases, it may persist into adulthood as a *metopic suture*. Differences are also visible on the hard palate, where the sutures between the incisor axis (praemaxilla) and the upper jaws are present. Both the mandible and the ramus mandibulae are **low**. In the middle of the chin there is a **fibrous symphysis** (*symphysis menti*), which connects the left and right halves of the mandible. This fibrous connection disappears at the end of the 1st year of life.

## Fontanels

Between the bones of the cranial vault are **fibrous bands**. For this reason, the bones of the cranial vault are **slightly mobile** and during childbirth their edges slide under each other (the so-called configuration of the head for easier passage through the birth canal). In some places, these fibrous bands turn into more extensive **fibrous membranes**, which we call **fonticuli** (*fontanelles*) = flakes.

### **Fonticulus anterior (major)**

At the junction of the frontal, coronal and sagittal sutures. It has a **four-pointed** rhombic (diamond) shape, the longer point of which is directed towards the frontal seam. It will disappear by the end of the 2nd year.

### **Fonticulus posterior (minor)**

A **three-pronged suture** occurring posteriorly, at the junction of the sagittal and lambda sutures. It usually disappears within three months after birth. In some newborns, it is no longer visible.

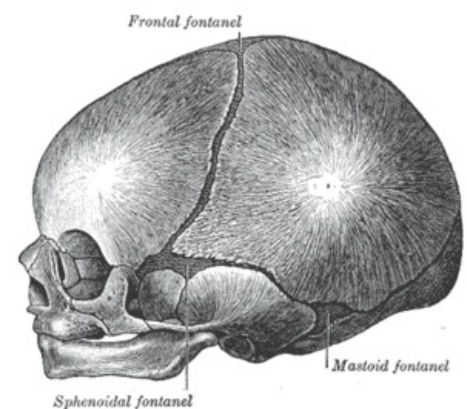
The *fonticulus anterior* and *fonticulus posterior* are **palpable** and allow the obstetrician to use them to orientate the position of the head during childbirth.

### **Fonticulus sphenoidalis**

At the point of convergence of the large wings, the sphenoid bone with the frontal, parietal and **temporal** bones. The shape is **irregularly square**.

### **Fonticulus mastoideus**

Further back, between the *mastoid process*, the occipital bone and the posterior lower lobe of the parietal bone.



Newborn skull

*Fonticulus sphenoidalis* and *fonticulus mastoideus* are **impalpable** because they are covered by soft tissues.

## Non-constant formations

Fontanelles other than those mentioned above may occasionally exist.

- **Fonticulus metopicus** – in the frontal suture;
- **fonticulus parietalis** – in the sagittal suture.

Separate ossification centers can also appear inside the flakes, from which separate bones are formed.

- **Os bregmaticum** – in fonticulus anterior;
- **os epiptericum** – in fonticulus sphenoidalis, above the large wing of the os sphenoidale.

## Sources

### Related articles

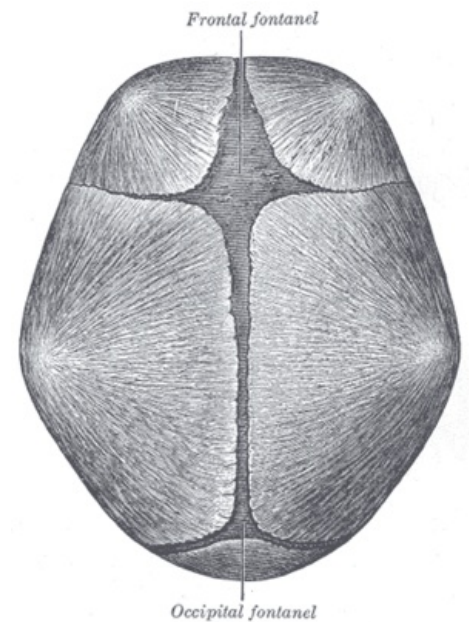
- Skull bones
- Newborn
- Principle of skull development
- Joints on the skull

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- ČIHÁK, Radomír. *Anatomie 1*. 3. edition. Grada Publishing, a.s., 2011. vol. 1. ISBN 978-8-247-3817-8.

### References

1. ČIHÁK, Radomír. *Anatomie 1*. 3. edition. Grada, 2011. ISBN 978-80-247-3817-8.



Fontanels