

# Twin amniotic sacs

Considerable diversity is observed **in the arrangement of the amniotic sacs of twins**. The specific arrangement depends not only on the **type of twins**, but in the case of identical twins, also on the **time of their separation**.<sup>[1]</sup>

## Dizygotic twins

**Dizygotic or fraternal twins** can be observed in approximately two-thirds of the total number of twins born. Their incidence is around 7-11 per 1000 births. Multiple pregnancies are often encountered in assisted reproduction.

Dizygotic twins are created after the ovulation of two oocytes, which are fertilized by two different sperms. The resulting zygotes are therefore completely genetically different, and the similarity between twins can be compared to the similarity of siblings. Later, each zygote is implanted separately in the uterus, and the developing embryos have their own placenta, amnion and chorion.

If their placentas are close together, they may fuse. If the fusion of the placentas is extensive, there is an exchange of erythrocytes, and thus each twin has erythrocytes of both types. We call this condition erythrocyte mosaicism.

In the same way, chorionic sacs can also fuse together when they are closely apposed.<sup>[2]</sup>

## Monozygotic twins

The amniotic sacs of **monozygotic twins** form depending on when the division occurs during development.

### Separation in the two-cell stage

This is the most common way of separation, when two identical blastocysts are formed. Separation can thus occur at any time between the two-cell stage and the morula. Since the blastocysts are implanted separately, the embryo itself develops its own amniotic sac and chorionic sac (BiBi = bichorionic and biamniotic). The placentas may be separated or confluent secondarily.

Due to the arrangement of the amniotic sacs, these twins can be mistaken for dizygotic twins. Therefore, when determining monozygotic twins, it is based on the matching of hereditary characteristics (gender, blood group, fingerprints, physical similarity).

### Development from a single blastocyst

In this case, twins are formed by the division of an early blastocyst. Separate groups of cells are stored in the common cavity of the blastocyst.

Embryos always have their own amnion, but a common chorion and placenta (MonoBi = monochorionic and biamniotic). The blood supply of both embryos is mostly balanced despite the existence of a common placenta, but sometimes anastomoses can occur between the vessels of the placentas and one twin can thus receive a larger share of nutrition.

### Separation in the stage of a two-layer target

Rarely, the division still occurs at the stage of the two-layer target, before the formation of the primitive strip. Twins created in this way share both the chorion and the placenta, as well as the amnion (MonoMono = monochorionic and monoamniotic).

## Links

### Related articles

- Fetal envelopes and placenta
- The twin method

### References

1. SADLER T. *Langmanova lékařská embryologie*. 1. české vyd. Praha: Grada, 2011, xviii, 414 s.
2. MOORE KEITH L a PERSAUD T. *Zrození člověka: embryologie s klinickým zaměřením*. 1. vyd. Praha: ISV nakladatelství, 2002, xiv, 564 s.

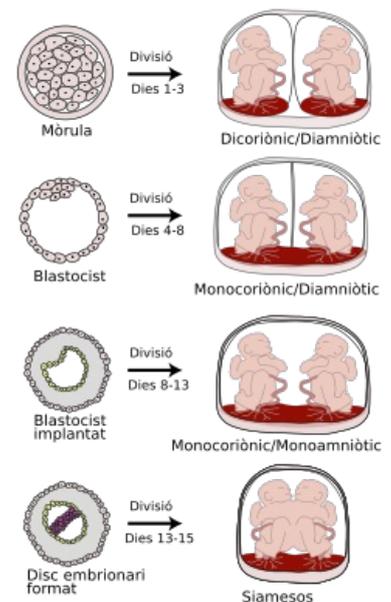


Diagram of fetal envelopes of twins according to gestational age

