



TWINS

There are two basic types of twins: monozygotic, commonly referred to as identical twins and dizygotic, referred to as fraternal twins. There are also other rare and unusual types of twins.

IDENTICAL TWINS

Identical or monozygotic, twins develop from one fertilized egg. This egg divides into two individuals who will share all their genes in common. No one knows what causes the egg to divide in half. These twins are genetically identical, with the same chromosomes and similar physical characteristics. They are the same sex and have the same blood type, hair, and eye color. Their handprints and footprints are similar, but the fingerprints are different.

The chance of having two sets of identical twins is extremely rare. The odds of having more than one set of identical twins are at least one in 70,000.

It is not really known how identical twinning occurs, but one theory is that it may be related to aging of the egg after ovulation: an "over-ripe" egg. Another theory states that since the rate of identical twins is higher in mothers who are either very young or very old, identical twins may be due to the hormonal imbalances seen at these ages.

FRATERNAL TWINS

Fraternal, also called dizygotic, twins develop from two eggs that are fertilized separately by two different sperm. This usually happens when the mother produces more than one egg at ovulation. The two fertilized eggs develop separately and have their own genes. They may or may not be the same sex. The probability of bearing fraternal twins may be inherited from either side of the family; race, maternal age, and number of children previously born also affect the probability of having fraternal twins.

The chance of having a second set of fraternal twins is three to four times that of the general population.

It is believed that fraternal twins are conceived due to higher levels of Follicle Stimulating Hormone (FSH) in the mother. This hormone stimulates the growth and ripening of eggs. Mothers of fraternal twins tend to have increased height and weight, earlier start of the menstrual cycle, and shorter menstrual cycles, all of which are probably hormone-related.

UNUSUAL TYPES OF TWINS

In addition to all the different combinations of identical and fraternal multiples, there are some other, rarer types of twins.

- **Mirror-Image Twins:** occur only in identical twins. This extremely rare form is believed to be the result of the embryo splitting later than in the case of most identical twins. Mirror-image twins often have internal organs in inverted positions, meaning their heart might be on the right side instead of the left, or their stomach on the right instead of the left. They're also opposite-handed.
- **Half-Identical Twins:** the birth of half-identical twins occurs when an ovum divides into two identical halves and is then fertilized by different sperms. Consequently, half-identical twins are less alike than identical twins, but more alike than fraternal twins.
- **Conjoined Twins:** occur in roughly one out of every 50,000 to 100,000 births. These twins come from one fertilized egg and are therefore always identical and the same sex. The fertilized embryo begins to split as in other twin pregnancies, but does not complete the process. This embryo continues to develop as a partially connected entity. This condition is more commonly known as "Siamese twins."
- **Vanishing Twins:** condition in which only one twin survives the pregnancy. Sonogram studies have shown that as many as 70 percent of the pregnancies that begin as twins will end up as just one fetus by the fifth month of pregnancy, often due to miscarriage.

CAUSES OF TWINS

There are two main factors contributing to multiple births:

- Delayed childbearing (older women are more likely to have multiples) accounts for one third of the number of multiple births.
- Fertility drugs account for the remaining two thirds.

Older women are having twins and other higher-order multiple births at an increasingly high rate. The Center for Disease Control reports between 1980 and 1997 the twin birth rate rose 63 percent for women between the ages of 40 and 44 and nearly 1,000 percent for women 45-49 years of age. There were more twins born to women ages 45-49 in 1997 than during the entire decade of the 1980's.

DETERMINING TWIN TYPE

Determining if twins are fraternal or identical is called zygosity determination. There are several methods that determine twin type, or zygosity. The methods include:

1. Similarity Method

Determined by appearance - if they look alike, they are identical; if they look different, they are fraternal.

2. Placenta Method

This method assumes that one placenta means that the twins are identical, and that two placentas means they are fraternal. This theory has proved to be untrue.

3. Blood Testing

Blood tests offer an inaccurate determination of twin type.

4. DNA Testing

The test can be performed from blood specimens or from scrapings of cells from the inner cheek. This method of twin typing is virtually 100 percent accurate.

TWIN BIRTH RISKS

Multiple birth risks include preterm labor resulting in premature births. Single pregnancies generally last about 40 weeks; a twin pregnancy usually lasts 37 weeks. The risk of premature delivery increases with higher-order multiples.

Multiple birth babies are also at risk of extreme jaundice, apnea, anemia, serious infections, gastroesophageal reflux, abnormal growth of blood vessels in the eyes, and respiratory distress due to underdeveloped lungs. In addition, developmental delays and cerebral palsy occur more commonly in twins than in single births.

Since twins have to share the nutrition they receive, one or both babies might grow at a slower rate than expected or have other growth problems. Intrauterine growth restriction (IUGR) is the term for slow growth of babies during pregnancy.

Twins are called discordant if one is much smaller than the other. This may be due to one twin getting more blood and having more amniotic fluid than the other, poor functioning of the placenta, or birth defects. The smaller baby is more likely to have problems during pregnancy and after birth. Ultrasound will be used to check each baby's growth and the amount of amniotic fluid. Early delivery may be needed if either baby shows signs of having problems before term.

One condition that can cause one twin to be smaller than the other is twin-twin transfusion syndrome (TTS). TTS can develop when twins share a placenta. It affects identical twins during pregnancy when blood passes disproportionately from one baby to the other through connecting blood vessels within their shared placenta. This can be dangerous for both twins. One baby, the recipient twin, gets too much blood overloading his or her cardiovascular system, and may die from heart failure. The other baby, the donor twin, does not get enough blood and may die from severe anemia.

An ultrasound is used to check the amount of amniotic fluid. Some of the extra fluid may need to be removed. If TTS is severe, the twins may have to be delivered early.

Ultrasounds are generally performed in the last few months of pregnancy in order to follow the growth of each baby.

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