

It is Multiple Births Canada's belief that every parent and every multiple has the right to know their zygoty. Through many home based testing options, parents and multiples now can have the answers to their questions, "Are they fraternal or identical?"

Facts and Information on Multiples & Zygoty Testing

Multiple Births Canada encourages the use of correct terminology regarding zygoty.

Monozygoty twins—commonly called identical twins—are genetically alike but never completely identical in appearance or personality. Therefore the term "identical" should be discouraged. These twins come from one fertilized egg, which has split—once for twins, twice to produce monozygoty triplets, etc.

Dizygoty twins—commonly called fraternal twins—are born from two separate fertilized eggs. Fraternal means brotherly—dizygoty twins can be made up of a set of boys or a set of girls or one of each sex. Therefore the term "fraternal" should be discouraged.

Trizygoty multiples are a set of triplets born from three separate fertilized eggs and can be any combination of both sexes. Quadrazygoty - four separate fertilized eggs; quinrazygoty - five separate eggs, etc. Triplets and other higher-order multiples may also be a combination of both monozygoty & dizygoty children.

One-third of monozygoty twins and all dizygoty twins have two placentas, separate or fused. Two-thirds of monozygoty twins share one placenta (chorion). Almost all twins have two sacs (amnions) - with the exception of extremely rare twins who have one chorion and one amnion.

Parents can ask questions about zygoty determination when the woman is pregnant. Ultrasound can demonstrate two key criteria in helping parents determine zygoty: determining through visual checks whether the fetuses are female or male, and determining the thickness of the septum - the thicker the septum the more likely the twins are dizygoty.

How is zygoty testing done?

Zygoty is determined by examination of deoxyribonucleic acid, better known as DNA. DNA is the chromosomal material responsible for transmitting hereditary traits. For zygoty testing, the most convenient sample is a cheek swab sample collected from each twin/multiple by gently wiping the inside of the mouth with a soft brush supplied by the laboratory. These testing kits can be mailed directly to your home and then shipped back to the lab. This can be done by parents or by older children themselves and is quite painless. Blood samples can also be used but require a blood poke and are less convenient to send to the laboratory.

How does DNA zygoty testing work?

First, DNA has to be isolated from the cheek swab or blood samples. Up to 13 small fragments of DNA (short tandem repeats or STRs) that are very different between different individuals are examined by a technique called PCR (Polymerase Chain Reaction). Each person has a unique pattern of fragments unless they are monozygoty multiples. Dizygoty twin pairs have different patterns.

Why should we have our multiples DNA tested?

DNA testing is 99.99% accurate. If the zygoty is in question this is the most accurate method to determine whether the multiple sets are monozygoty or dizygoty. Parents report that conclusive answers have helped them with social issues, educational issues and even medical issues concerning multiple-birth children.

Who would be eligible for Zygoty testing?

The test is available to any set of multiples whose zygoty is in question. Even today, many mothers are told their multiples are dizygoty based solely on the fact that two placentas were present at birth. This, simply, is not true. Many parents report they believe their multiples are monozygoty despite what the doctor told them. The most common scenario for DNA testing is the family who has been told their multiples are dizygoty (based on the presence of two placentas) and yet, the multiples are similar looking and many family members and friends have difficulty telling the multiples apart. Many people still believe that monozygoty multiples must look exactly alike. This is also not true. Many factors influence the growth of babies. Another common story is when the zygoty is called "inconclusive".

My doctor says it isn't necessary, and is far too expensive.

Multiple Births Canada believes every multiple-birth parent and multiple has the right to know his or her zygoty. Zygoty testing is now easy to do at home. It is not covered by provincial healthcare programs however, and currently costs about \$200. This expense can be claimed as medical on your taxes as well.

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