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What is the triple or quad test?

The maternal blood triple and quad tests, also called the triple and quad screens, are a way to check for the risk of birth defects during pregnancy before a baby is born. The triple test measures the levels of 3 proteins and hormones during pregnancy from a sample of the mother's blood. The quad test measures 4 proteins and hormones.

Substances that may be measured in these tests are:

- alpha-fetoprotein (AFP), a protein produced by the baby's liver
- human chorionic gonadotropin (hCG), a hormone produced by the placenta
- estriol (uE3), a hormone produced in the placenta and the liver of the baby
- dimeric inhibin-A (DIA), a protein made by the placenta.



Why are these tests done?

Some of the birth defects that these tests may detect are:

- Down syndrome or other chromosome problems
- brain or spinal cord defects (also called neural tube defects), such as spina bifida (the spine has not closed normally) and anencephaly (all or part of the brain is missing)
- a failure of your baby's abdomen to close, so that the intestines are held in a sac outside the abdomen
- a defect in the esophagus (food pipe)
- kidney problems
- severe skin problems.

These blood screening tests detect:

- 95% of cases of anencephaly
- 80% of serious cases of spina bifida
- 60% or more of the cases of Down syndrome
- 100% of anencephaly and spina bifida when acetylcholinesterase is found in the amniotic fluid.

How are the tests done?

The test is done between the 15th and 18th weeks of pregnancy. A small amount of blood is taken from your arm with a needle. The blood is collected in tubes and sent to a lab.

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How will I get the test results?

Ask your healthcare provider when and how you will get the results of your test.

What do the test results mean?

The tests cannot tell for certain that there is a birth defect, but they can give an idea of the risk of certain birth defects. The lab figures the risk based on the levels of the 3 or 4 tested substances. Factors such as the age of your unborn baby; your age, weight, and race; and whether you take insulin to treat diabetes are also used. These factors affect the results. The tests are not 100% accurate. A baby could have a birth defect that is not found by the blood tests. However, if all the tests are normal, your chance of having a baby with a birth defect is very low.

What if my test results are not normal?

Up to 1 of every 10 women who have these blood screening tests have results that are not normal. An abnormal test result does not mean that a baby has a birth defect. In fact, most women with abnormal results have healthy babies. If the due date is not correct, the test can be abnormal because it uses the age of the baby as a measurement. Using the wrong age changes the risk. Another common cause for abnormal results is a pregnancy with more than 1 baby, such as twins.

If the test results are not normal, your healthcare provider may repeat the screening tests. You may have other follow-up tests, such as:

- Ultrasound exam, which helps determine the baby's age and can show if you are carrying more than 1 baby. It can also find some of the more obvious birth defects.
- Amniocentesis, which is a way to get cells from the baby that are in the amniotic fluid surrounding the baby. The cells can be studied to look for chromosome problems, such as Down syndrome. The level of AFP in the fluid may also be tested.
- Cordocentesis, or umbilical blood sampling, which is a way to get cells from the baby's blood that can be tested for chromosome problems.

Talk to your provider about your results and ask questions. Ask if and when you need more tests. If the results of these and follow-up tests show that your baby does have a serious problem, your provider will talk to you about your choices of treatment. Some problems can be treated with surgery while the baby is still in the uterus. If a brain or spinal defect is diagnosed, you and your provider can discuss your options. For example, you may be able to plan your delivery in a center equipped to deal with these defects, which may improve the outlook for your baby.

Your provider can offer you counseling to help you prepare for the baby's problems. There are also many support groups for families who have children with birth defects. You may find it helpful to get in touch with these groups before or after your baby is born.

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Published by [RelayHealth](#).

Last modified: 2007-03-19

Last reviewed: 2007-01-30

This content is reviewed periodically and is subject to change as new health information becomes available. The information is intended to inform and educate and is not a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional.

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