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What is alpha-fetoprotein screening?

Alpha-fetoprotein screening is a blood test for pregnant women. It can be used to look for a problem in the baby's spine or certain other conditions, such as some chromosome problems.

The test measures the level of a protein called alpha-fetoprotein (AFP) in your blood. It is a way to check for some types of birth defects.

AFP is produced by your unborn baby's liver. Some AFP passes from the baby into your bloodstream. If a baby has certain problems, the level of AFP may be abnormally high or low. Sometimes, however, the AFP level is abnormal when the baby has no problems. Because the test is not completely accurate, your healthcare provider will usually order other tests if the AFP levels are high or low.

What problems does the test find?

A **high** level of AFP may indicate a problem with the spinal cord, brain, or digestive system. Examples of problems that can cause a high AFP are:

- spina bifida (the spine has not closed normally)
- kidney problems
- severe skin problems
- severe chromosome problems (other than Down syndrome)
- anencephaly (all or part of the brain is missing)
- a failure of your baby's abdomen to close, so that the intestines are enclosed in a sac outside the abdomen
- a defect in the esophagus (food pipe)
- fetal death
- intrauterine growth retardation (IUGR) and low birth weight
- oligohydramnios (too little amniotic fluid)
- preeclampsia (seriously high blood pressure and swelling)
- the placenta pulling away from the uterus.

A **low** level of the protein may indicate Down syndrome.

Other possible causes for abnormal levels are:

- an incorrect due date
- the presence of more than 1 baby
- miscarriage
- a baby who is smaller than normal
- an overweight mother, especially if the mother is African American
- diabetic mother.



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How is the test done?

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

It is important to have the test at the right time in your pregnancy. If the AFP level is higher or lower than normal, enough time must remain in your pregnancy for further steps. These steps might include more tests and counseling. Also, for the test to be interpreted properly, you and your healthcare provider need to be sure of your due date. Alpha-fetoprotein levels are highest between the 15th and 18th weeks of pregnancy. After this time they slowly decrease.

How will I get the test results?

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

How accurate is the test?

The test is not completely accurate. A baby may have a defect even though AFP levels are normal. Or a baby may be quite normal even though AFP levels are abnormal. Usually, if the first blood test shows normal levels, no further tests are done. If the first test shows abnormal levels of AFP, it may be repeated before other tests are done.

For every 1000 pregnant women tested, about 50 have abnormal test results. Of these 50, just 1 or 2 with high AFP levels have babies with problems. The test finds 90% of babies with anencephaly and 75% with spina bifida.

A test called a triple or quad screen has been developed to provide more accurate screening for birth defects. In addition to AFP, your blood is tested for 2 or 3 other substances produced by the placenta. These substances are human chorionic gonadotropin (hCG), unconjugated estradiol (uE), and dimeric inhibin-A (DIA).

What if the results are not normal?

Abnormal results indicate the need for further tests, such as:

- ultrasound scans (a scan of your uterus and the baby with sound waves)
- amniocentesis (a test of the fluid around the baby) to look at the baby's chromosomes.
- cordocentesis, or percutaneous umbilical blood sampling, which is a way to get cells from the baby's blood that can be tested for chromosome problems.

In some cases these tests find no reason for abnormal AFP results.

Talk to your healthcare provider about your results and ask questions. Ask if and when you need more tests. If the results of the AFP test and follow-up tests show that your baby does have a serious problem, your provider will talk to you about your choices of treatment.

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What are the risks of AFP testing?

There is virtually no risk to you or your baby from this test.

What are the benefits?

Most often, the test reassures you that your baby probably does not have a serious defect.

Abnormal results can help you and your healthcare provider manage your pregnancy better. 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 healthcare provider can discuss your options. Your provider may 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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