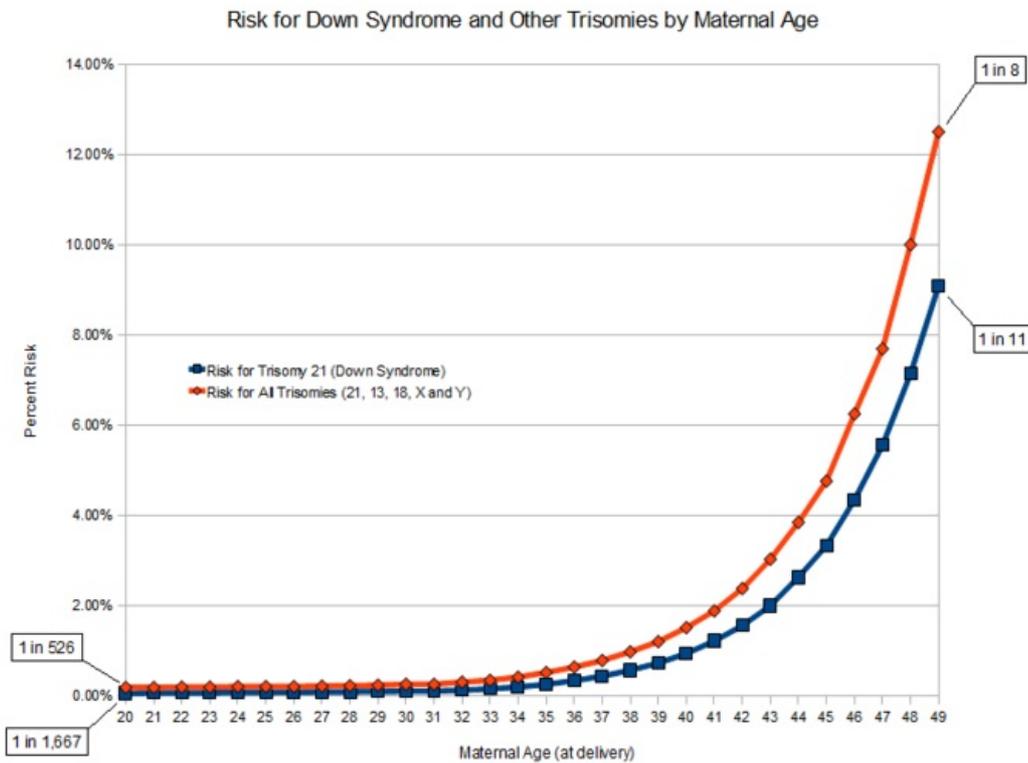


Risk of chromosomal aneuploidy in relation to maternal age

Risk of chromosomal aneuploidy

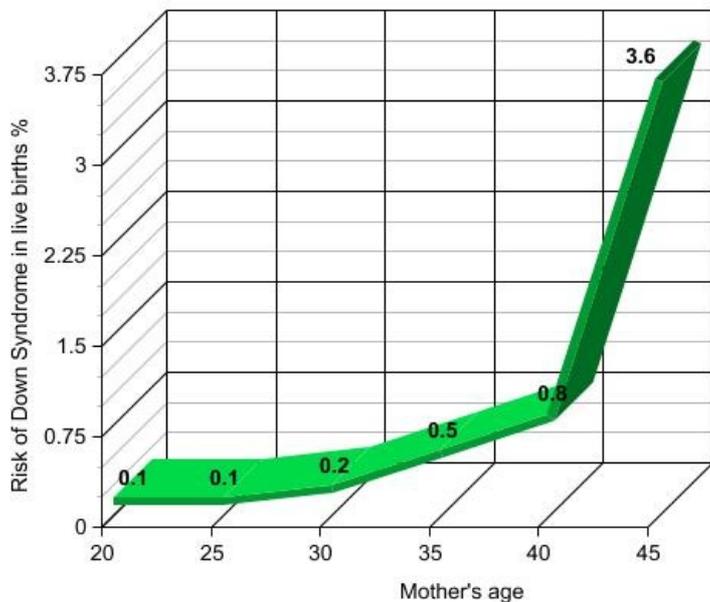
The risk of non-disjunction defects in the fetus increases with the age of the mother. This is documented in the following picture (Fig. 1) and also (Graph 1.) This dependence is most clearly demonstrated in trisomic forms of **Down syndrome**, but a similar tendency can be demonstrated in other autosomal aneuploidies.



SOURCES:
Hook EB, Cross PK, Schreinemachers DM. Chromosomal abnormality rates at amniocentesis and in live-born infants. JAMA 1983;249(15):2034-38.
Newberger, D., *Down Syndrome: Prenatal Risk Assessment and Diagnosis*. American Family Physician. 2001.
Down syndrome births in the United States from 1989 to 2001. Egan JF - Am J Obstet Gynecol - 01-SEP-2004; 191(3): 1044-8.

Figure 1: Risk of Down syndrome and other chromosomal aneuploidies in relation to maternal age

Maternal age as effect on Trisomy 21



American Family Physician: Aug 15, 2000

Graph 1: Risk of chromosomal aneuploidy (Down syndrome) in relation to maternal age

Causes

The cause of the rising risk, in relation to the age of the mother, is apparently a significant time delay from the beginning of the development of the egg to its maturation. As is known, all primary oocytes enter the first meiotic division before the birth of a girl and remain in the dictyotene phase until they enter the ovulatory cycle.

The older a woman is, the more likely it is that the meiotic apparatus or chromosomes in the egg will be damaged due to various external factors. Therefore, as a woman's age increases, the risk of meiotic nondisjunction increases with primary oocytes and thus also the risk of chromosomal aneuploidy in the fetus. For this reason, all pregnant women **aged 35** and above are informed about the possibility of prenatal chromosome examination of the fetus.

The age of the father does not have such a significant effect on the risk of nondisjunction defects.

Links

Related articles

- Down syndrome
- Syndrome due to aneuploidy of autosomes

Použitá literatura

- KOČÁREK, Eduard, Martin PÁNEK and Drahuše NOVOTNÁ. Clinical cytogenetics I: introduction to clinical cytogenetics: investigation methods in clinical cytogenetics. 1st edition. Prague: Karolinum, 2006. 120 pp. Textbooks of the Charles University in Prague; ISBN 80-246-1069-8.