



Birth defects prevention is a major public health problems in industrialized countries. Different risk factors either genetic or environmental have been recognized. It is known that an increased periconceptional intake of vitamin B9 (folic acid that is presented mainly in vegetables and fruits) is essential to reduce a risk of neural tube defects and several other malformations.

How to increase the periconceptional vitamin B9 intake?

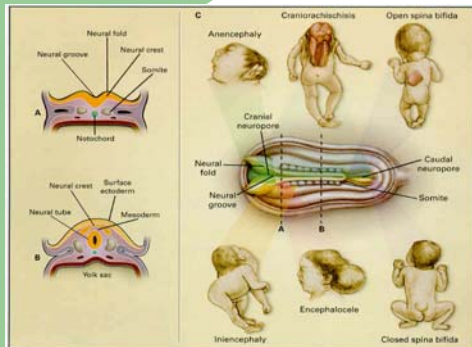
1) A healthy and varied diet including fresh fruit and vegetables



1) Food fortified with folic acid



2) Periconceptional supplementation with folic acid



Neural tube formation and types of neural tube defects

Panel A: a cross section of the rostral embryo end at approximately three weeks after conception, showing the neural groove in the process of closing, overlying the notochord.

Panel B: a cross section of the middle portion of the embryo after the neural tube has closed.

Panel C: the developmental and clinical features of the main types of neural defects.

REGIONAL DISTRIBUTION OF THE NETWORK PARTICIPANTS



The Italian Network for Folic Acid Promotion

- Started in April 2004, in order to integrate and optimise activities at local or regional level;
- The Network involves participants from research institutes, the Health Ministry, Regions, local health services, Universities, as well as physicians, journalists and representatives of patients associations.

Coordination is ensured by the National Centre of Rare Diseases (Istituto Superiore di Sanità, Rome, Italy) together with coordinators of the following working groups, which have been established within the network:

- Advocacy
- Diet and food fortification
- Pharmaceuticals and diet integrators
- Education of health operators
- Information of the public
- Research needs
- Surveillance and outcome evaluation

The Network has already elaborated and diffused a National recommendation to promote an increased intake of folic acid among fertile age women.

Further short term priority issues include the initiatives in the areas of advocacy, the general public information and organization of the regional courses for health operators.

RECOMMENDATIONS FOR THE REDUCTION OF THE RISK OF CONGENITAL DEFECTS

Women who are planning pregnancy or don't exclude this possibility should take 0,4 mg of folic acid daily. In order to be effective in preventing neural tube birth defects the assumption of folic acid must be started at least one month before the conception and should be continued during the first three months of pregnancy.

Why?

Several studies show that the folic acid supplementation started before conception reduces the risk of the neural tube defects by 50-70% (note 1). This supplementation could also reduce by 10-20% the risk of other congenital defects such as congenital heart disease and oral facial clefts.

When? For how long?

The risk of congenital defects formation is increased during the period from the conception and until the 8th and the 12th week of pregnancy. Folic acid supplementation is recommended for all women starting one month prior to conception and during the first three months of pregnancy to reduce the risk of neural tube defects (NTDs). (note 4)

How much?

In order to get benefits, a healthy and balanced diet including fruits (oranges, mandarins, fresh orange juices) and vegetables (spinaches, artichokes, endive, beet, broccolis, cabbages) (note 2), should be integrated with 0,4 mg/day folic acid supplementation that should be started at least one month before conception (note 3). Women with the high risk for neural tube defects (NTD) and other malformations who have, for example, previous NTD pregnancy, positive family malformations history, insulin-dependent diabetes, epilepsy, should assume 4-5 mg of folic acid each day.

References

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Notes

- Italian incidence of neural tube defects is in average the 30-40%;
- In Italy there are not recommendations for food fortification with folic acid;
- Folic acid daily dose should be 0,4 mg/day; assumption of up to 5 mg/day could improve the benefits and reduce the risk of neural tube defects. Choice of the dose that have to be used depends on national availability of folic acid.
- Folic acid supplementation, when is correctly used:
 - Reduces risk of hypovitaminosis
 - Doesn't present collateral effects
 - Could be useful in prevention of miscarriage, placenta pathologies, thrombosis of deep veins, ictus, heart and stroke disease, colon cancer.