

Study Links Folate with Healthier Sperm

20/03/2008- A new study has identified a possible link between men's intake of folate and reduced chromosomal abnormalities in sperm - a finding that, if substantiated by more research, may indicate that men should up their intake before conception as well as women.

Although the link between a woman's intake of folate and healthy foetal development has long been known (folate greatly reduces the risk of neural tube defects like spina bifida), the study, published today in the journal *Human Reproduction*, is claimed to be the first indication that paternal diet may play a role after conception.

Aneuploidy is the general term given to changes in the number of chromosomes. It is estimated that between 1 and 4 per cent of a healthy man's sperm have some form of aneuploidy.

Aneuploidy has been implicated in failure to conceive and miscarriages, as well as children born with conditions such as Down's syndrome, Turner's syndrome and Klinefelter's syndrome.

The study involved 89 healthy, non-smoking men who gave sperm samples and were questioned about their total intake of the nutrients zinc, folate, vitamin C, vitamin E and beta-carotene - both from food sources (such as green leafy vegetables, fruit and pulses) and from dietary supplements (folic acid, the synthetic form of the vitamin).

The researchers found that there was a statistically significant association between high folate intake and lower sperm aneuploidy.

Men in the upper 25th percentile, who had the highest folate intake of between 772 and 1150 micrograms per day, were seen to 20 to 30 per cent less sperm aneuploidy than those with the lowest folate intake.

Despite this association, Professor Brenda Eskenazi, one of the researchers from the University of California, was somewhat cautious about how the study be interpreted.

"This study cannot prove that high folate intake caused the lower sperm aneuploidy levels, only that there is an association," she said. "This is the first study of its kind and the results indicate the need for further research, especially a randomised controlled trial, on this topic."

The researchers admitted that one of the difficulties of the study was being able to disentangle the effects of folate from other micronutrients. However, they said they were able to do this through statistical analyses of several different nutrients.

The results of these different analyses were different, which they said gave them confidence that they could look at the effect of the micronutrients separately.

Again, however, any doubt over this could be cleared up with a randomised controlled trial using supplements.

The mandatory addition to folic acid to certain foodstuffs, such as bread, has been a hot topic for debate for a number of years.

The US and Canada made the addition of the vitamin to bread mandatory in 1998 in order to reduce the number of pregnancies affected by neural tube defects. The UK, Ireland, and Australia have all met considering the same action for some time, but it has proved controversial for a number of reasons.

For example, consumer groups say it would severely restrict consumer choice, and believe it should be down to the consumer what they chose to consume. In elderly people with a certain form of anaemia, taking folic acid may mask other deficiencies, thus standing in the way of appropriate intervention.

In addition, emerging science has suggested that folate intake may be linked to an increased risk of colorectal and bowel cancer.

The UK is deferring a decision on mandatory fortification until 2009, pending review of the latest research.

Source

Human Reproduction (advance access)

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"The association of folate, zinc and antioxidant intake with sperm aneuploidy in healthy non-smoking men"

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