Micro nutrients work

Little extras. Big benefits.

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Preface

Up until 2012 the food industry in the EU could use advertising messages more or less as they wanted. The only restrictions were that claims could not be misleading or relate to diseases. When the EU Health Claims Regulation (432/2012) came into force along with a published list of permitted health claims, the situation changed radically as many of the claims formerly made were no longer permitted. However, the European Food Safety Authority EFSA allows many health claims describing the general effects of vitamins and minerals plus "risk reduction claims."

In order to clarify the issue for our customers, we at SternVitamin decided to compile an easy to use list and publish it as a flyer. It names sixteen types of applications for which micronutrients are useful supplements, and has information on authorised health claims. Although the flyer condenses a great deal of information into a small space, we decided to take the idea a step further and have now published a companion book to answer the many questions we encounter from customers. In this book, all sixteen topics in the flyer dealing with body health, performance and lifestyle etc. are examined in greater depth. We enlisted the help of free-lance journalist Andrea Pütz, who is very knowledgeable on functional food and food supplements. She put the science into language that is accessible to people without medical training.

We want to do more than just sell our customers a micronutrient premix. We want to be of assistance from the early stages of product development and give you a manual for ongoing reference, from the initial idea to marketable product. It shows you how these "little extras" produce the desired "big benefits." After all, promising trend products are founded on sound science and innovation. The most important thing about micronutrients is that they are a valuable aid to consumers wishing keep fit, prevent disease and preserve their most valuable asset – good health.

The contents of this publication reflect scientific progress as known at the date of publication and to the best of the editors'/ authors' knowledge. The contents are designed for a professional readership and do not constitute therapy recommendations for consumers. This publication is not a replacement for advice or diagnosis from a nutritionist or medical practitioner. Where details of nutritional and health values of individual products are provided, these are for general information purposes only.

Hamburg, May 2018

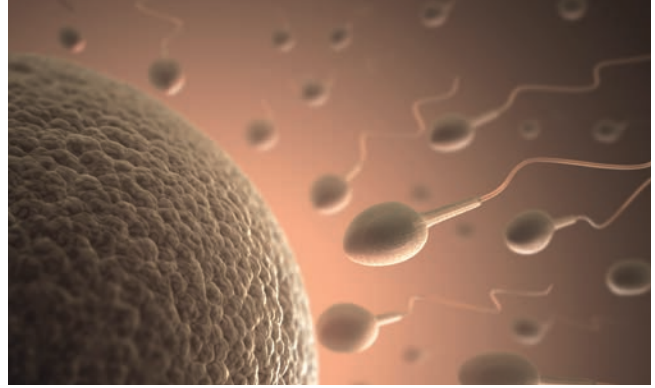
Dr Sabine Hildebrandt
Head of Research & Development

Fertility and Children

Trying for children? The micronutrient status of both partners is important

For couples hoping to start a family, the health and fertility of both the would-be mother and would-be father play a role. When planning a pregnancy, both partners can lay an important foundation for the healthy development of their future child by paying careful attention to what they eat. Special micronutrients are needed in order to produce mature sperm – a process known as spermatogenesis. Micronutrients affect sperm quality, i.e. the motility, speed and concentration needed to successfully fertilize an egg. Problems of sperm quality are among the most frequent causes of involuntary childlessness, especially in the industrial nations of the west.

It is equally important that women trying to conceive are well-supplied with micronutrients. These have a positive effect on fertility and starting a pregnancy in good health. Many women of childbearing age have deficiencies in micronutrients that are essential for the physical and mental development of the foetus. Nutrient deficiencies can also increase the risk of complications during pregnancy and of premature delivery.



Sperm surround the egg

Zinc

Optimizing sperm quality

Zinc has several benefits. This trace element helps maintain healthy serum testosterone levels. The sex hormone (or androgen) testosterone triggers the process whereby spermatids mature into spermatozoa. Zinc acts directly to improve male fertility. It is a required building block for sperm synthesis and in present in high concentration in semen. Zinc deficiency reduces the strength and motility of sperm. A sufficient store of zinc in the body improves the chances that sperm reach an egg cell rapidly in order to fertilize it.

Folic acid, Vitamin B6, B12, Choline, Selenium, L-Arginine, L-Carnitine, Coenzyme Q10, Omega-3 fatty acids

A chronically elevated level of homocysteine can damage blood vessels and impair circulation, including blood flow in the testes. This can disrupt the delicate process of sperm maturation in the testes and impair fertility. Folic acid in combination with vitamin B6, vitamin B12 and choline helps to maintain a normal level of homocysteine. Other micronutrients playing a role in the production of good quality sperm are selenium, L-arginine, L-carnitine, coenzyme Q10 and omega-3 fatty acids.

Copper, Selenium, Vitamin C, E, Carotenoids, Zinc

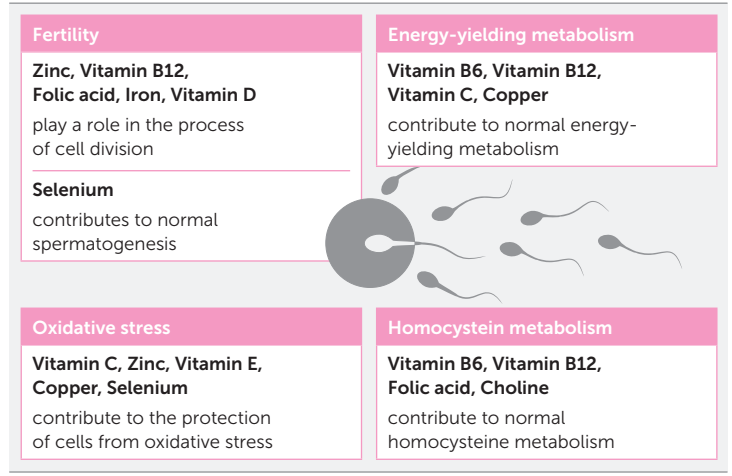
Antioxidants reduce damage to DNA

Oxidative stress can also damage DNA and lead to lower male fertility. Antioxidants can reduce levels of oxidative stress. Copper, selenium, vitamins C and E, carotenoids and zinc are all antioxidants or free radical scavengers whose job is to protect cells.

Ginseng

Ginseng, a natural aphrodisiac

In traditional Chinese medicine ginseng root (Korean and Asian red ginseng) has been known for its healing properties for over 2,000 years and is a symbol of strength, health and longevity.



These micronutrients play a role in producing mature sperm.

Ginseng is known as a restorative for stress-related conditions and exhaustion. The root is also frequently used to boost sexual performance. Especially in combination with other micronutrients that affect energy metabolism (e.g. B-vitamins, vitamin C, copper), it is a sensible complement to the "fortification" beneficial for fertility and fatherhood.

Prevention of birth defects

The prospective mother should, in addition to a well-balanced diet, pay attention to her micronutrient status. Many vitamins, minerals and trace elements play an important role in female fertility and cell division.

Female Fertility

Folic acid

Folic acid is probably the most important micronutrient during the phase prior to conception. Many women of child-bearing age have a poor folic acid status. One reason is that "the pill" often causes a folic acid deficiency, but alcohol, tobacco and a diet lacking in variety can also be contributing factors. Moreover, folates in food are very unstable and only about 50 % of the total is resorbed. Why is it so important for the level of folic acid to be high enough from the very beginning of pregnancy? Folic acid plays a special role in cell division. Around 100 billion new cells grow from a fertilized egg. A folic acid deficiency can result in severe birth defects. By the same token, taking folic acid before conception can lower the rate of neural tube defects (e.g. "spina bifida" and other defects of the brain and spinal cord) by 70 %.

The statutory fortification of staple foods (e.g. flour) in the US and Canada has roughly halved the rate of birth defects in those countries. In the US the FDA (Food and Drug Administration) mandated the fortification of bread, cereals, flour and other wheat products in 1996.

Zinc, Vitamin B12, D, Carotenoids, Magnesium

Zinc, vitamin B12, vitamin D, carotenoids and magnesium are other micronutrients that can aid cell division and thus reproduction.

Antioxidants to protect cells

Copper, Selenium, Vitamin C, E, Zinc

Copper, selenium, vitamins C and E and zinc are all antioxidants or free radical scavengers that help to protect cells. For example, it is important to ensure an adequate intake of vitamin C, because the follicular fluid has been shown to contain a high concentration of this effective antioxidant, which plays a role in the development of the egg cell.

Keeping female hormones in balance

Zinc

Vitamin D

In respect of fertility, the trace element zinc also scores in that it is necessary for the synthesis of oestrogen and progesterone. A zinc deficiency can upset the balance of hormones and may impair fertility. Vitamin D – which is a prohormone – elevates the levels of the female hormones oestrogen and progesterone. Moreover, women with a vitamin D-deficiency develop high testosterone levels, which have a negative effect on fertility. Research has shown that fertilization rates are slightly higher after months with prolonged periods of sunshine. This could be linked to a higher rate of vitamin D-synthesis in the body.

Best possible conditions for reproduction

Omega-3 fatty acids

L-Arginine

Omega-3 fatty acids are components found in all cell membranes, and therefore also in eggs and the uterus. They are building blocks for many locally produced hormones. In this function they play a very considerable role in the process of reproduction. The latest findings indicate that adequate supplies of omega-3 fatty acids can aid in conception and nidation (implantation of the embryo). L-arginine is responsible for a healthy blood flow to and within the reproductive organs and the uterus. One of this amino acid's functions is to improve the conditions that will allow the embryo to become implanted (e.g. formation of the protein-like mucous lining of the uterus).

>> PLEASE ALSO SEE "GINSENG, A NATURAL APHRODISIAC", PAGE 10

Staying healthy – from day one

"You're eating for two now!" Unfortunately this piece of advice from relatives and friends is wrong, because the expectant mother's energy requirements do not rise until the fourth month of pregnancy, and even then by only about 255 kcal a day. This extra amount is easily obtained in a little more healthy food. But it is perfectly acceptable to increase intake of micronutrients, because the body needs more of these vital ingredients during pregnancy and breastfeeding. The key here is that expectant mothers should pay more attention to the quality of the food they eat than to the quantity.

THE FIRST 1,000 DAYS IN A CHILD'S LIFE ...

...are the most important, because they set the pattern for his or her health and development. The first 1,000 days is the period between conception and the age of two years. During this period macro- and micronutrients in food have a formative impact by creating the basis for the infant's entire future. This early influence can protect a child from chronic diseases such as asthma, adipositas and diabetes in childhood and adulthood – but deficiencies can pave the way for them. Expectant mothers have the opportunity to ensure their unborn child has the best possible care from the very first day of pregnancy.