



Best Supplied by Nutrition

Vitamins-- They are organic compounds required in small quantities for normal physiological function. A healthy, balanced diet typically provides adequate amounts of these micronutrients, though there are notable exceptions.

TEXT: JANE FUNKE AND HANNELORE GIESSEN

Despite their *ubiquity*, considerable confusion remains regarding vitamins. *Hence*, a clear understanding of the basics is crucial for providing *sound* health advice. Vitamins are generally categorized into two groups:

Fat-soluble vitamins (A, D, E, and K): These are stored in fatty tissues and the liver. Because they accumulate in the body, excessive intake can lead to toxicity.

Water-soluble vitamins (B-complex and C): These are not stored to any significant extent and are usually excreted in urine when consumed in excess.

Deficiencies may cause classic syndromes, e.g. *Scurvy* (vitamin C) or *Rickets* (vitamin D). In industrialized nations, *overt* deficiency is rare, but subclinical deficiencies, particularly in older adults, those with restricted diets, or malabsorption, are more common.

Good Nutrition Not Always Enough

In most cases, a varied diet rich in whole foods covers vitamin needs. Fruit, vegetables, *whole grains*, legumes, *dairy prod-*

ucts, eggs, nuts, and *lean* meats provide a broad spectrum of micronutrients. There are, however, critical exceptions:

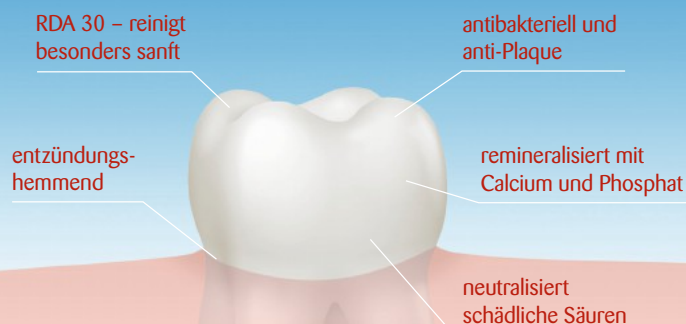
- Vitamin D synthesis via sunlight can be insufficient in northern latitudes, during winter months, or among older individuals with reduced *cutaneous* production. While certain foods, such as oily fish (e.g. salmon, herring, mackerel), eggs, and mushrooms (particularly button mushrooms and chanterelles), can contribute to vitamin D intake, they rarely provide sufficient quantities on their own.
- Vitamin B12 is found exclusively in animal-derived foods. Therefore, vegans require supplementation, and some vegetarians may also be at risk depending on their dietary habits.
- Requirements for folate, riboflavin (B2), and pyridoxine (B6) increase during *pregnancy* and might not be met by restrictive diets. In any case folate is essential.

Drug-Induced Micronutrient Shortage

Even individuals with balanced diets can develop vitamin deficiencies due to long-term use of medication, which may inter-

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* Klinische Anwendungsstudie unter dermatologischer und dentalmedizinischer Kontrolle, durchgeführt von dermatest 11/21

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ferre with absorption, *metabolism*, or storage of micronutrients. Key examples include:

Oral contraceptives may lower serum levels of vitamins B2, B6, B12, and folate. Low folate status is particularly critical if pregnancy occurs shortly after discontinuation, as neural tube closure occurs within the first 30 days, often before pregnancy is confirmed.

Loop diuretics (e.g. furosemide) increase urinary excretion of vitamin B1.

Antiepileptic drugs can reduce levels of the vitamins B6 and D. Proton pump inhibitors and antacids reduce gastric acidity, *impairing* the absorption of vitamin B12 and other B vitamins. Metformin is associated with a threefold increase in risk of vitamin B12 deficiency, especially at doses above 2 g/day. Annual monitoring and supplementation are recommended.

Chronic illnesses, such as liver or kidney disease, may impair vitamin storage or absorption, e.g. in gastrointestinal disorders. Diabetes increases the risk of B1 and B6 deficiencies, *aggravating* neuropathy. B-complex supplements with B12 are often recommended.

Older adults are particularly vulnerable due to reduced digestive efficiency, lower sun exposure (affecting vitamin D synthesis), and frequent polypharmacy. Both absorption and activation pathways of vitamins often decline with age.

Patients on long-term medication, such as diuretics, antidiabetics, or anticoagulants, should consult their physician before initiating vitamin supplementation. *

Jane Funke ist geborene Britin und erstellt als Native Speaker gemeinsam mit Apothekerin Hannelore Gießen seit vielen Jahren die Serie „English for PTA“, die sich mit klassischen OTC-Themen befasst.

Dialogue

Customer: Good afternoon, I'd like to ask a few questions if I may?

PTA: Yes, of course. Go ahead.

Customer: I've been vegan for a couple of years and my partner and I are now planning a family. People keep telling me that a vegan pregnancy is a big risk to take. Is that true?

PTA: Not if you plan carefully. Good nutrition prior to **conception** and during pregnancy is extremely important as two lives or more depend on it. Deficiencies can lead to serious health problems.

Customer: So, what do I need to do?

PTA: Are you on the pill?

Customer: I've just finished my last pack.

PTA: Then it is vital to start taking folate immediately. It's essential for the healthy development of the foetus and reduces the risk of a neural tube defect.

Customer: What's that?

PTA: It concerns genes involved in the folate metabolic pathway and a shortage can trigger conditions such as spina bifida, which is when the baby's spine and **spinal cord** don't form properly. The neural tube develops in the first 20-30 days, when the pregnancy has often not yet been recognized.

Customer: Oh, so folate is important. How do I take it?

PTA: A folate supplement containing 400 micrograms of folic acid – that's what the synthetically produced form is called – is recommended from one month before pregnancy and for the first 12 weeks. Those who get pregnant earlier than four weeks before starting to take folate, should start with a dose of 800 micrograms

Customer: Ok, what else?

PTA: Vitamin B12 is essential for the baby's brain and nervous system and you'll need more than when you're not pregnant. 4,5 micrograms a day are advisable.

Customer: Right.

PTA: I suggest you get a blood test done to confirm your iron status. Should it need boosting, you should discuss it with your **gyn**. It's easier before becoming pregnant as you only have your own needs to consider. Iron is important for healthy blood cells and brain development. It's absorbed more easily with the help of vitamin C found in oranges, tomatoes and berries.

Customer: I eat a lot of whole grain, nuts and seeds for iron and zinc as well as plenty vitamin C.

PTA: Good. 150 micrograms of iodine should be included in one of your pre-

natal supplements as a deficiency increases the risk of delays in an infant's development. How do you manage omega 3 fatty acids?

Customer: I take vegan Omega 3 capsules every day. Is that ok?

PTA: That's fine. Do you get enough vitamin D?

Customer: Oh yes, I know that it helps the body absorb calcium for the bones. I take a supplement in the winter.

PTA: Then it's essential that you take it during pregnancy, too. You should be more aware of your calcium and protein intake as this is more difficult for vegans to fulfil. I'll give you a more detailed recommendation later on.

Customer: Is it true that eating soya should be avoided? That it's harmful?

PTA: There is some speculation that it causes a decrease in testosterone levels but so far there is no scientific evidence.

Customer: Is there anything else I need to know?

PTA: Do you have any health conditions or take any medication regularly?

Customer: No. I consider myself very healthy.

PTA: Then I wish you good luck with your family planning. Feel free to come back should any questions arise.

Customer: Thank you very much, I'll do that.

Vocabulary

English	Deutsch
ubiquity	Häufigkeit
hence	hier: folglich
sound	vernünftig, fundiert
deficiency	Mangel, Defizit
scurvy	Skorbut
rickets	Rachitis
overt	offenkundig
whole grain	Vollkorn
dairy product	Milchprodukt
lean	mager
cutaneous	die Haut betreffend
pregnancy	Schwangerschaft
metabolism	Stoffwechsel
loop diuretic	Schleifendiuretikum
to impair	beeinträchtigen
to aggravate	verschlimmern
conception	Empfängnis
spinal cord	Wirbelsäule
gyn	Gyn(äkologe)
evidence	Beweis

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