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Dental caries: Which fluoride dental products provide the best protection against tooth decay?



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Tooth decay (dental caries) is still a common health problem, particularly in children. It has been known for a long time that fluoride can help strengthen teeth. That is why it is common for toothpastes to contain a small amount of fluoride. Fluoride occurs naturally too, for example in drinking water, mineral water and black tea. In some countries, fluoride is added to the community's water supply. In Germany, you can get table salt which has been enriched with fluoride, as well as fluoride tablets.

Fluoride can also have disadvantages for children though. If they swallow too much, the fluoride inside their bodies can have a negative impact on the growth of their second set of teeth (permanent teeth). This happens most easily if they swallow products such as toothpaste or gels that are meant to be spat out. Typical signs include white, yellowish or brown patches on permanent teeth, as well as superficial damage. This condition is called fluorosis.

With this in mind, experts have considered how to achieve the best protection against tooth decay. There are different ways to protect your teeth. Teeth sealants are one option. You can read more about them here (URL: <http://www.gesundheitsinformation.de/teeth-sealants.268.56.en.html>) . Another common approach is the use of dental products with fluoride in them. These include many toothpastes, mouthwashes and gels that you can use yourself. There are also gels and varnishes that are applied by dentists. The idea behind this is that it is easier to make sure that the products are not accidentally swallowed if they are applied by a dentist.

How suitable are the different fluoride products for the prevention of tooth decay? To answer this question, researchers from the Cochrane Collaboration (an international network of researchers) analysed 15 trials that compared different fluoride products with each other. Fluoride products that are taken orally were not included in these studies. Most of the trials looked at children between the ages of 12 and 14. They usually compared the use of ordinary toothpaste with special fluoride products. So far it has not been possible to draw any reliable conclusions from the results of research in which two products, such as varnishes and gels, were directly compared with each other.

The researchers only looked at the effects of fluoride

products on the second set of teeth (permanent teeth). Their most important finding was that fluoride toothpastes appear to prevent tooth decay just as well as mouthwashes and gels. There is currently no strong evidence that fluoride varnishes applied by the dentist are better than toothpaste, mouthwashes or gels. The studies did not provide enough information about adverse effects such as fluorosis.

In another Cochrane review, researchers found that using a combination of different fluoride products did not have a big additional benefit.

Fluoride products should not be used as a substitute for brushing your teeth.

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Glossary

Cochrane Collaboration

The Cochrane Collaboration is an international network of thousands of researchers and others. They work together in teams called Cochrane Review Groups to answer questions about health care by doing systematic reviews of evidence. To achieve this, the members of the Collaboration have developed systems and methods for systematically finding and analysing the results of trials of health care interventions. The goal of the Cochrane Collaboration is to help patients, health care practitioners and others make more informed decisions about health care. You can read more about the Cochrane Collaboration at their website.

evidence

Evidence is what we call scientific proof from well-conducted, good-quality scientific trials that have been carefully designed to answer specific questions. Depending on the types of questions, different scientific research methods (types of study) are most appropriate to find reliable answers to these questions. Randomized controlled trials (RCTs), for example, are the best way to get reliable evidence on the effectiveness of medical treatments (interventions). This type of study, however, is not the best form of evidence for all possible questions, and does not provide the best answers to all kinds of questions, either. Epidemiological studies, for example, are very suitable for establishing well-founded proof for the spreading of a disease in the population.

fluoride

Fluoride is a naturally occurring substance. It is used in toothpaste and table salt as a preventive measure against tooth decay (caries or cavities). If children get too much fluoride, it can affect the development of the tooth enamel, causing white patches on the teeth. This is toothpastes made for children have less fluoride than toothpastes for adults.

Sources

Marinho VCC, Higgins JPT, Sheiham A, Logan S. One topical fluoride (toothpastes, or mouthrinses, or gels, or varnishes) versus another for preventing dental caries in children and adolescents. *Cochrane Database of Systematic Reviews* 2004, Issue 1. [Cochrane summary (URL: <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD002780/frame.html>)]

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The German Institute for Quality and Efficiency in Health Care (IQWiG)

The German Institute for Quality and Efficiency in Health Care (IQWiG) was established by legislation to provide evaluations of the effectiveness, quality and efficiency of healthcare services. This includes the assessment of medicines as well as the publication of health information for consumers and patients.

Evidence basis of our health information

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at [**www.informedhealthonline.org**](http://www.informedhealthonline.org)

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