

Teaching-learning materials compiled by the PARSEL consortium
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Cooperating Institutions and Universities within the PARSEL-Project:



For Students

Chitosan – Fat Magnet!?

A grade 12-13 chemistry/ biology module on
Poly-saccharides and nutrition

Abstract:

There is much advertising on chitosan as a fat magnet. What is chitosan? Does it really work? Should I use it to avoid gaining weight? Please have a look for answers to these questions by researching the internet, and other sources, and doing own experiments. You will learn how to produce chitosan, about its properties and several kinds of its applications. The newly gained knowledge and competences form the base for your final discussion and decision making.

Please start with research on the internet to find relevant information.

One of the most popular applications of chitosan is slimming enhancing. Chitosan: Best friend of the bodybuilder! Chitosan – gives fat a ticket out of your body! These are slogans used by producers in advertisements. But are they right? Do they tell the truth? And how should this work? Here you find two examples to start with:

Chitosan: The Fat Magnet

Are you trying to get your body in shape? Try chitosan!

Chitosan is the shellfish fiber extract that helps increase the transit time of fat from the stomach to the time of elimination, thereby reducing the amount of fat absorbed by the body and producing weight loss.

Eating less of most fats is good for you, but hard to do because fatty foods taste so good. So the first thing to do is use a dietary aid that keeps the fat you eat from turning into unwanted pounds. Chitosan is a fiber that acts like a magnet to bind to 4-5 times its weight in fat in your stomach.

Developer: Wolfgang Gräber

Institution: IPN – Leibniz Institut für die Pädagogik der Naturwissenschaften an der Universität Kiel

Country: GER

Chitosan has been known as the "Fat Magnet," "Fat Sponge," and the "Fat Trapper." All of these descriptions are correct because chitosan attracts fat, soaks up fat, and traps fat in the digestive system.

Chitosan is a natural, indigestible fiber source harvested from crustaceans' shells. Shown to interfere with and prevent dietary fat digestion, it may benefit weight management and promote healthy cholesterol, and can be taken with food for faster results. As chitosan is an indigestible dietary fiber, food takes longer to pass through the digestive system and out of the body. As a result, fewer fats are absorbed, including sterols, cholesterol, and fatty acids.

Chitosan Review

Chitosan or D-Glucosamine is a compound derived from the skeletons of shrimp, crabs and lobster. It has been promoted for weight loss because it can bind fatty acids. It is the main ingredient in the brand names Slim Down Solution, Lipoban, Chitosol, Puralin and many others:

The following review excerpt appears at quackwatch.com:

Is chitosan a "Fat Magnet"? by Stephen Barrett, M.D.

Question

Ads for chitosan claim it can lower cholesterol and produce rapid weight loss by blocking the absorption of fat. Is this true?

Answer

chitosan (d-glucosamine) is derived from chitin, a polysaccharide found in the exoskeleton of shellfish such as shrimp, lobster, and or crabs. Many sellers claim that chitosan causes weight loss by binding fats in the stomach and preventing them from being digested and absorbed. Some refer to it as a "fat magnet." Although chitosan can decrease fat absorption, the amount contained in the capsules is too small to have much of an effect on cholesterol levels. Moreover, with better, more predictable cholesterol-lowering products available, it doesn't make much sense to use chitosan for that purpose. There is no evidence that chitosan is effective for weight control.

Task:

Would you use chitosan yourself or recommend it to friends for weight control? Find more information, answer this question and give detailed reasons for your decision.