

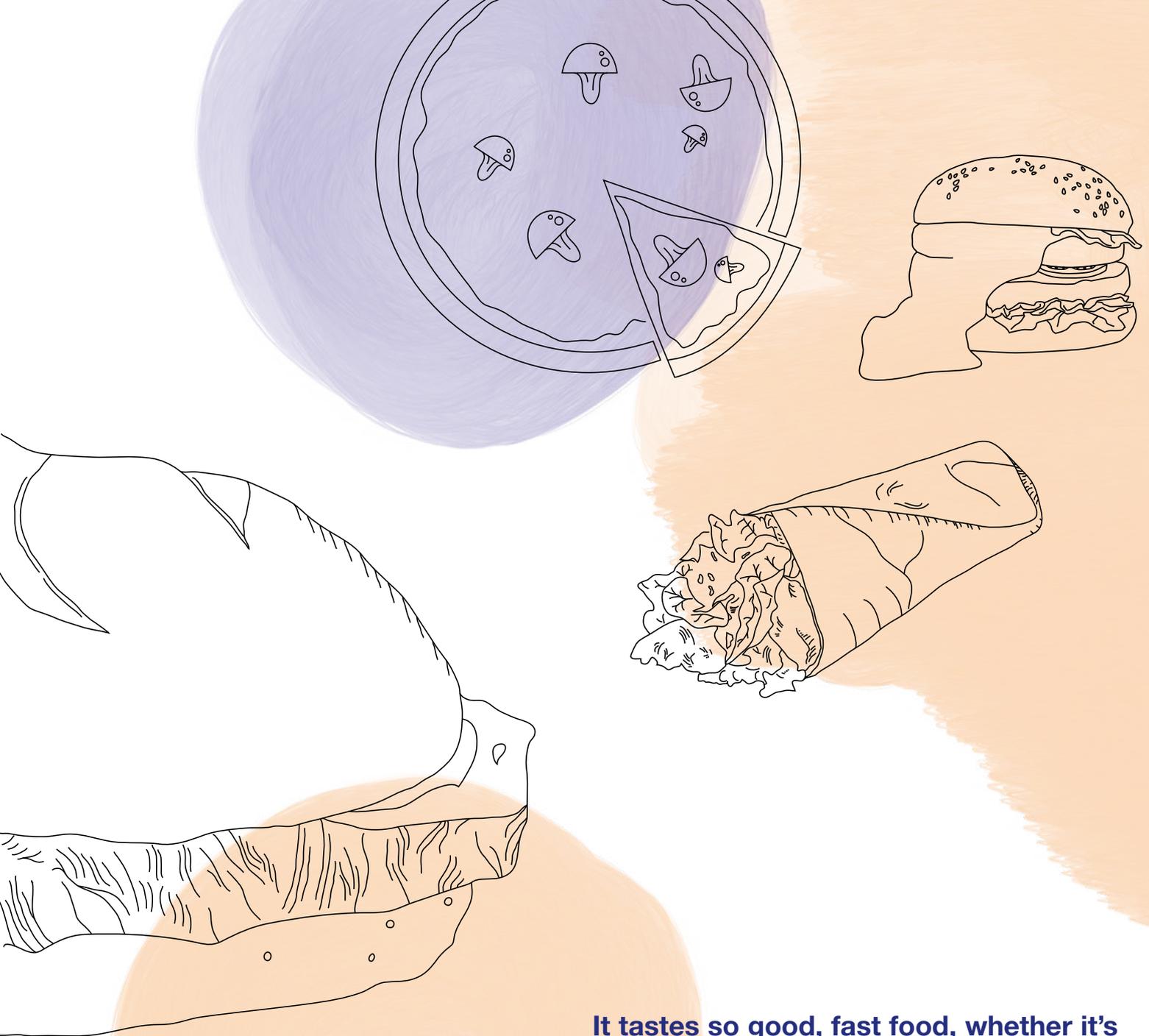
Link

www.enable-cluster.de/en/forschung



Meatloaf roll –

*but a healthy
one please!*

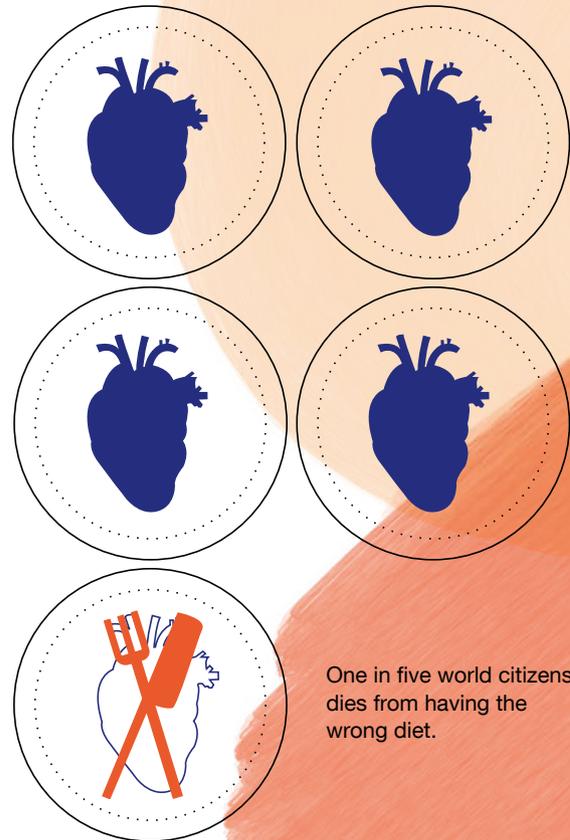


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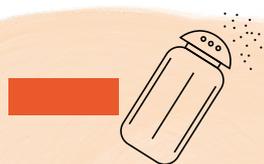
It tastes so good, fast food, whether it's a hamburger, doner kebab or a ready-made pizza. But too much of it will make us ill. The fact that convenience food, as experts like to refer to readymade food, can be made more healthy, however, is demonstrated by TUM's nutritionist Prof. Hans Hauner and his team using the example of Munich's local variation on the hamburger theme: the local Leberkäs-Semmel or meatloaf roll.

Bad food makes us ill and can even kill us: Every fifth person in the world dies from the consequences of a poor diet. Prof. Hans Hauner has spent more than 30 years advocating for people to change their diets – but so far not nearly enough has happened. Around 20 percent of deaths worldwide can still be attributed to an imbalanced diet, stated the authors of a piece of research when summing up their work in the medical journal “The Lancet” in 2019. Too much salt and too few whole grain products, fruit and vegetables can lead to cardiovascular diseases, diabetes and cancer, causing the deaths of eleven million people every year.

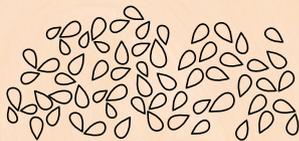
Hans Hauner, Director of the Else Kröner-Fresenius Center for Nutritional Medicine at TUM, has spent his whole career studying the consequences of diet on health, and treats and advises above all grossly obese patients and patients with diabetes (*registration for consultation on 089 28924921*). And he advocates in numerous media articles for people to eat more healthily, e.g. more fiber. Because fiber holds the key. It lowers blood sugar and cholesterol while promoting digestion and a sense of satiety. Fiber prevents arteries from clogging up, reduces the risk of bowel cancer and helps people who are grossly overweight, or obese. Our great grandparents consumed 60 to 100 grams of fiber a day. Today, it should be at least 30 grams according to recommendations issued by the German Nutrition Society, but we only manage around 20 grams on average.



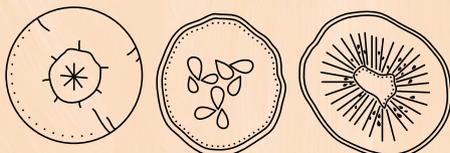
One in five world citizens dies from having the wrong diet.



less salt



more whole grain products



more fruits and vegetables

A lot of whole grain bread and pulses would be a good idea as they are particularly rich in fiber. But instead we prefer to eat hamburgers, frozen pizzas and – very popular in Bavaria – meatloaf rolls. Eaten hand-held at snack time, preferably heated up, and served in a white roll of course.

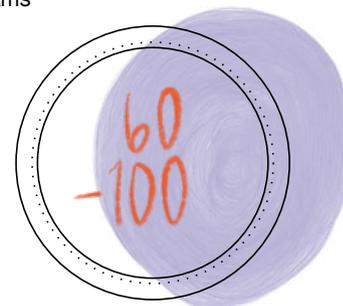
“But they don’t contain much fiber,” Hauner states. “The composition of corn seeds is in fact excellent. It’s not just starch but also some fatty acids, protein, a lot of micro nutrients and plenty of fiber. That’s what we need for a healthy diet.” But a lot gets lost in the milling process and further industrial processing, he notes, because we are only interested in the starch. “We make the quality of the raw ingredients worse and create products which are no longer really healthy.” And then you’ve got the meatloaf in the roll. “For that you tend to use what’s left over in the slaughterhouse, a lot of fat, salt and additives to make the whole thing edible.”

But it still tastes good to people, which is why they like to eat meatloaf rolls in spite of all the advice on nutrition. “People find it hard to break old habits,” Hauner says. “A few manage it but the vast majority are unsuccessful.” So Hauner’s idea is that the food that people enjoy eating and consume the most of in Germany must get healthier. Fast food and convenience food, in other words, food that has been industrially prepared and only needs to be heated up. Guided by this principle, Hauner formed the research cluster “enable” together with more than 20 partners; in September 2018, this group, for whom he is the spokesperson, entered the second funding round as one of four research clusters now dominating nutritional research in Germany. Together with epidemiologists, geriatricians, neuroscientists, food chemists, computer scientists and consumer researchers as well as industrial companies, Hauner is investigating the physiological effects of nutrition and particularly connections to diseases such as type 2 diabetes and obesity. And how we can make food better to prevent these diseases caused by poor nutrition.

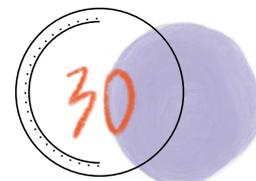
One of the projects is a healthier meatloaf roll. To this end, scientists added fiber to both the roll and the meatloaf, and the latter had its salt content reduced and lean meat added. This resulted in 20 grams of fiber and 30 percent fewer calories per portion. The meatloaf roll was still tasty, as blind tasting with 20 respondents proved. And an analysis of satiety parameters showed that it makes people feel just as full in spite of the fewer calories. ▶

Actual amounts of fiber in grams

two generations ago



recommended amount in 2019

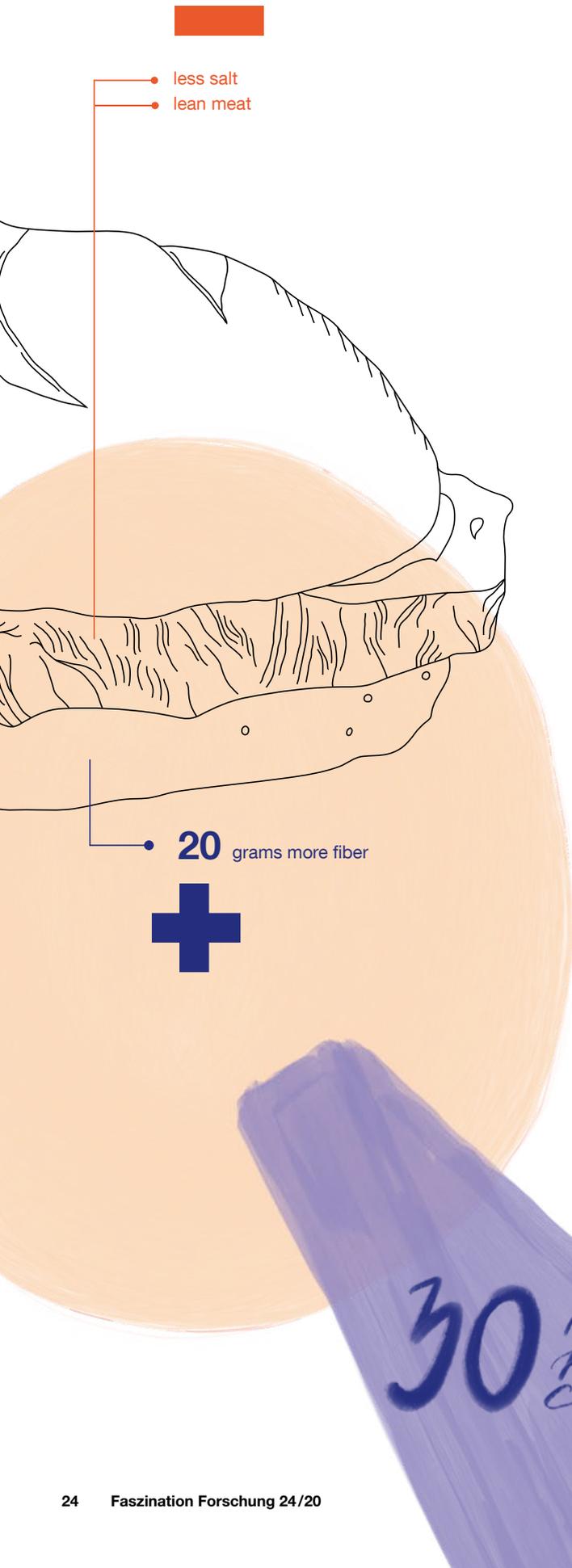


actual amount in 2019



What is fiber?

These are largely indigestible elements in food, mostly carbohydrates which mainly occur in vegetable foodstuffs. They are to be found predominantly in cereal, fruit, vegetables, pulses and also in low volumes in milk. Fiber is divided into soluble fiber (such as locust bean gum, guar, pectin and dextrin) and insoluble fiber (e.g. cellulose).



“For us, this shows that even popular convenience products can be made more healthy without compromising enjoyment,” Hauner notes with satisfaction. The next step is to find butchers willing to sell the healthier meatloaf roll. It remains to be seen whether the healthy fast food has any chance on the market in spite of the cost of the ingredients being 10 percent higher. Hauner’s test subjects at least stated they would like to buy the healthier meatloaf roll. In a further study with 120 test subjects, half of them were given a series of fiber-enhanced foods to choose from over a period of twelve weeks, including rolls, packet soups and sausages. The other half ate the same food without any fiber enhancement. “We are still evaluating the results,” Hauner reports, “but it looks as though we can already observe improvements in the blood sugar and blood lipid levels as a result of the fiber in spite of the relatively short period of the study, and the participants accept these products.”

The test subjects came from a sample of the population consisting of 500 persons who were recruited in the first phase and medically categorized: weight, body fat, abdominal girth, cardiovascular system, behavior after a glucose tolerance test, smell and taste testing, predilection for and aversion to certain types of food, etc.

Hauner and his partners now want to observe these 500 persons for several years and, for example, test new dietary concepts with them. In the process, the intention is to examine the effect of various fiber types on the glucose metabolism in order later to develop the best possible products to prevent type 2 diabetes, for example.



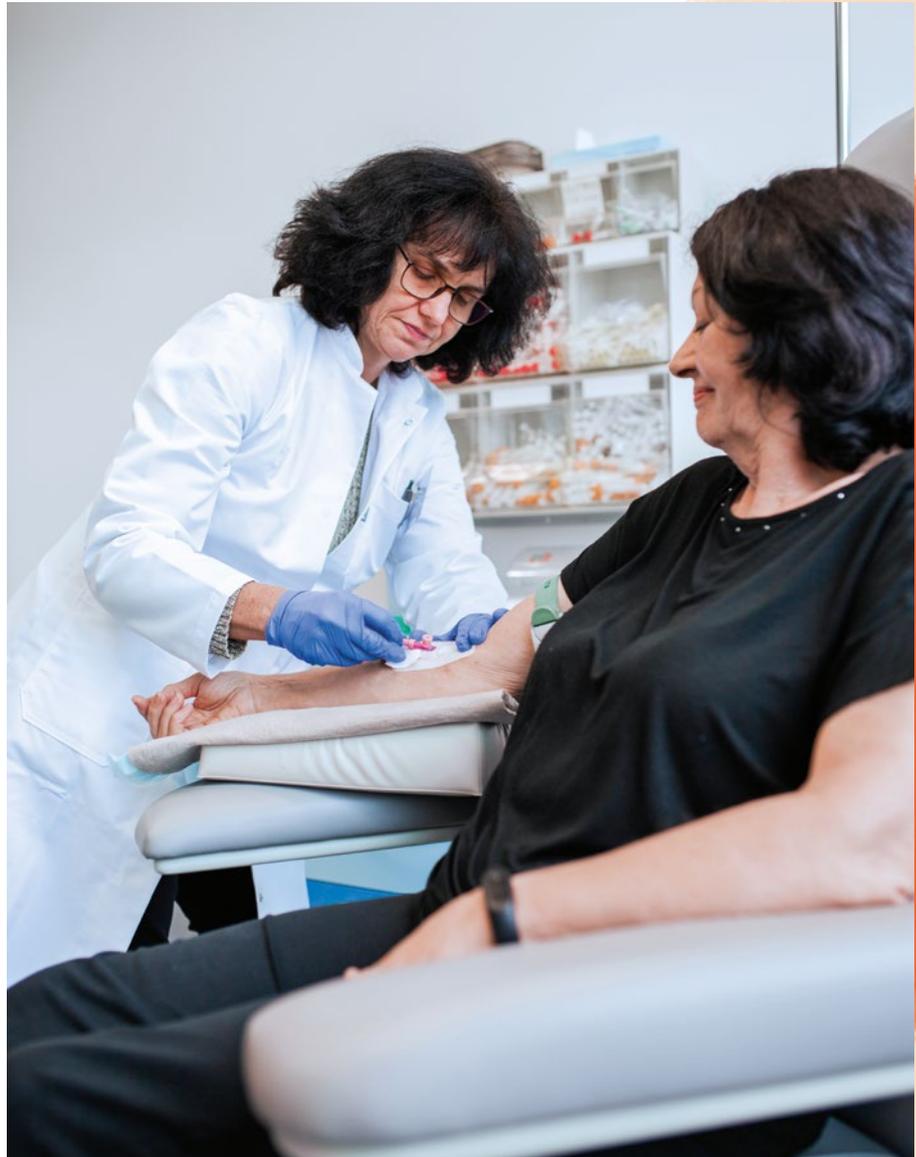
Hans Hauner and his team are conducting studies on the effect of eating habits. Here we see a member of his team, Christina Holzapfel, in a consultation with a participant in the LION study.

The researchers are particularly interested in sensory perceptions as people essentially choose their food by how it tastes and not in accordance with abstract health values. As Hauner explains: “If someone doesn’t like fish, I can’t force them to eat it. The question then is: What kind of healthy alternative can I offer them?” And studies in England show that you have to gradually accustom people to eating less sugar or salt. Hauner continues: “Dietary habits are created over many years. I can’t expect someone to change their diet for three weeks and then say: ‘That’s great, I’ll stick with this for the rest of my life’. I have to connect with people in their present situation, and I have to be able to offer them tasty products to improve their diet.” The scientists have therefore incorporated 14 partners from the nutrition industry in the enable cluster. For example, they provide free food for studies and in return they receive

the results of those studies – in the hope that this will give them a better understanding of the nutritionists’ demands. Because as companies, their first focus is on their sales figures and they fear proposals such as the food traffic lights system in which many of their products would not fare well. But Hauner also has sympathy for the companies: “On the one hand, they are criticized for selling so much poor quality food. And on the other, although consumers say they would like to eat healthily, they are not prepared to pay a bit more for it.” ▶

A further project directed particularly at the overweight is LION (www.enable-cluster.de/lion). This stands for “Lifestyle Intervention” and its aim is to use innovative approaches to successfully manage weight. The nutritionist Dr. Christina Holzapfel and her team are investigating how the metabolism of test subjects responds to different meals and what happens to it when they are losing and maintaining weight. The results of her study are helping to improve and personalize the therapy given to the overweight.

It's not so easy to say what kind of food puts one particular individual at risk (or is of benefit to them). Our diet consists of thousands of ingredients which interact and are received and metabolized differently from one person to another. Whether food makes us sick is also determined by our genes, which, for example, play a major role in type 2 diabetes. Although obesity is the main risk factor for diabetes, only one fat person in three actually becomes diabetic. The rest is down to the genes. Hauner is working with colleagues to find out how dietary components and gene mutations combine to influence the risk of diabetes.





In various studies, participants' vital signs – e. g. blood sugar – are used to test how their metabolism reacts to various meals and what happens to it when losing and maintaining weight.

The *enable* research cluster

The *enable* research cluster (“enable – healthy food choices in all stages of life”) is one of four research networks in Germany dedicated to nutrition and receives support from the Federal Ministry of Education and Research to the tune of 11.6 million euros. The cluster is developing new ways of giving the population a healthier diet in different phases of life, in pregnancy and early childhood, in their youth, as adults or as senior citizens.

www.enable-cluster.de

The interplay between a complex diet and hereditary disposition makes it hard work to gain insights in the field of dietary research, as Hauner explains. In addition, people in control groups also change their behavior sometimes, as they know that they are taking part in a study on nutrition and they live more healthily. This can blur the difference between the intervention group and the control group. A difficult research field in a scientific world that prefers clear-cut findings. But Hauner is convinced: “What we’re doing here is important for society. Our cluster and the three further research clusters are now leading the way in nutrition research in this country. And we hope that our work will induce policymakers to invest even more. Because, as we say, a poor diet is the most important risk factor for chronic diseases and the population’s sickness burden in Germany.”

■ *Markus Bernards*