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## *If insulin resistance is detected, start earlier with early cancer detection and real prevention*

Insulin resistance is the precursor to metabolic syndrome.

In people with metabolic syndrome, not only the heart and circulation are at risk. The commonly called "deadly quartet" also increases the likelihood of malignant tumors.

Particularly worrying younger people are increasingly affected. They can be told to **start cancer screenings earlier**.

The metabolic syndrome – i.e. the combination of disturbed blood sugar metabolism, high blood pressure, impaired blood lipid levels and often obesity – increases the likelihood of various cancers:

The mortality of those affected is more than doubled; the more components of the syndrome are present, the higher the probability of breast and prostate cancer, and rises also uterine cancer.

Especially stomach, liver and colon cancer, but also thyroid cancer and osteoporosis occur more frequently.

In recent decades, obesity and prediabetes have increased sharply in all age groups, writes Professor Dr. Hans Scherübl from Vivantes Klinikum Am Urban in Berlin (1). There is therefore also a worrying increase in cancer in young adults with metabolic syndrome.



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Certain mechanisms participate in the development of cancer:

1. chronic inflammatory reactions
2. disturbed blood lipids
3. increased sugar levels
4. increased insulin levels due to insulin resistance

Insulin is of particular importance in carcinogenesis, as Prof. Scherübl explains. This is because the peptide hormone can increase a growth factor (insulin-like growth factor IGF-1) and thus activate the growth-promoting signaling pathways in the malignant cells.

A healthy diet, lifestyle changes, weight reduction (or improvement of body composition - bioimpedance analysis)

and for example **Metformin** (a drug for diabetics) can significantly reduce the risk of cancer.

- **Therefore, if there is such evidence, request a bioimpedance analysis to determine your body composition and an insulin test.**
- **If insulin resistance is already known, sensitize your body cells to insulin, reduce weight or improve your body composition with our support.**

(1) Scherübl H. Metabolisches Syndrom und Krebsrisiko. Dtsch Med Wochenschr 2022; 147: 1068–1076; doi:10.1055/a-1482-9236.



## Insulin resistance leads to increased insulin levels in the blood

The task of insulin is to transport sugar into the cells. There, sugar is needed as an energy supplier. In insulin resistance, there is a disturbance in the transfer of sugar into the cell and too little sugar is absorbed into the cell for energy supply. Compensatory, the production of insulin in the pancreas is now increased to maintain sugar utilization. This results in increased insulin levels in the blood (hyperinsulinemia).

High insulin levels increase the blood level of male hormones by the effects of insulin on the ovaries, the pituitary gland and on liver metabolism.

## With insulin resistance, diet errors are pre-programmed

Often insulin resistance is associated with obesity. Craving attacks with high insulin and low blood sugar is the result, which does not make it easier to adhere to diets.

## Insulin resistance leads to disturbances in the menstruation cycle

Polycystic ovarian syndrome (PCOS, ovaries = ovaries, cystic = consisting of a lot of cysts) is one of the most common hormonal diseases in sexually mature women.

PCOS is characterized by cyclic disorders and an increase in male hormones in the blood; in about 70% of cases, the classic polycystic ovaries are also found. The typical changes in appearance (increased body hair, acne, hair loss, obesity) have significant effects on the psychosocial level with massive limitations in the quality of life, life satisfaction and sexuality.

Insulin resistance promotes the development of metabolic syndrome (high blood pressure, blood lipid increase, diabetes mellitus, etc.).

## Therapy of insulin resistance

It is not always the case that insulin resistance is caused by overweight. In most cases the muscle content is too low (measurable with the bioimpedance analysis). As with weight loss, physical activity with building muscle tissue is the key to overcoming increased insulin levels.

Disorders of menstrual bleeding and cosmetic problems can be treated well with ovulation inhibitors (anti-baby pills). One of the latest ways in the treatment of PCO is the use of insulin-lowering drugs (metformin).

## ... and if you want to have a baby?

In many women, stimulation treatment is performed due to the unfulfilled desire to have children. In the event of pregnancy, an increased rate of miscarriage and gestational diabetes must be expected. Insulin-lowering drugs can also be used as a treatment when wishing to have children.



## Sugar (glucose) in insulin resistance and diabetes

Sugar (glucose) is the brain's only source of energy and is necessary for metabolism. Other organs such as the liver, muscles or fat tissue can also use amino acids or fatty acids in addition to glucose – but also suffer damage if the supply of sugar is not guaranteed. Diabetes is the most common cause of amputations, blindness and dementia.

The brain is not able to use amino acids or fatty acids. It needs about 150g of glucose per day. However the total amount of blood contains only 5g. As a result, the brain is dependent on the ongoing supply. Thus, a limited supply of glucose to the brain inevitably leads to functional limitations.

Glucose uptake is also in the brain mediated via the insulin receptor, and Alzheimer's disease is called insulin resistance type III.

1. The solution to the problem of insulin resistance and diabetes cannot be achieved by abstaining from sugar. Even sweeteners (Assugrin, xylitol) do not solve the problem. Sweeteners are more likely to exacerbate the problems because they stimulate appetite and lead to weight gain. An exception can be extract of the stevia plant.
2. Sugar in the form of fructose increases insulin and uric acid levels and also promotes diabetes and weight gain.
3. The solution to the problem with insulin resistance and diabetes is exercise and weight loss with support for the absorption of sugar into the body and nerve cells with "insulin sensitizers", i.e. door openers to overcome insulin resistance: metformin, berberol, myo-inositol (clavella, fol-ino), L-arginine, isoflavones, resveratrol and cinnamon.

Sugar in the form of galactose enters the body and in particular in the nerve cells without an insulin receptor and provide an opportunity to prevent dementia.



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## *Galactose in insulin resistance for the prevention of Alzheimer's dementia*

**Sugar, i.e. glucose, is the only source of energy for the brain.**

**The insulin receptors play an essential role here, because only with their help can sugar get into the nerve cells.**

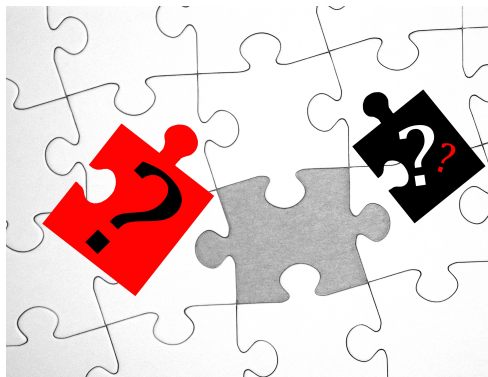
**Thus, restricting the supply of sugar to the brain has an impact on brain functions.**

**Galactose, also sugar, is absorbed independently of the insulin receptors of nerve cells.**

**Galactose is a way of ensuring the energy requirements of the brain, to increasing its performance and, for example, of preventing Alzheimer's dementia.**

The insulin receptors are crucial for the regulation of glucose concentration in the blood. In insulin resistance and type II diabetes, this regulation is dysfunctional. In the long term, this leads to the well-known organ damages (blindness, amputations).

Research has shown that insulin resistance plays a central role not only in dia-



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betes, but also in Alzheimer's disease.

That is why Alzheimer's disease is now also referred to as diabetes mellitus type III. The resulting state of hunger of the brain for sugar gradually leads to the cessation of its functions, which is particularly noticeable in the restriction of memory.

**Bypass disruption of the insulin receptor by galactose.**

If the energy supply of the brain by **glucose** can no longer take place, then the energy metabolism can still be maintained by the intake of **galactose**. The reason for this is the hitherto little-noticed property of galactose that it can be absorbed by cells independently of insulin and the insulin receptor.

However, in order to be absorbed in effective amounts, galactose must be present in the blood in higher concentrations than is released by the digestion of lactose-containing foods.

Therefore, the consumption of pure galactose in sufficient quantities is necessary. Experience has shown that well-being and sleep quality are then significantly improved.

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