Your DNA.
Your Diet.

Gene Diet
MetaCheck®

Information broschure

CoGAP
Personalised Health


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Why does everyone process their food differently?

In the course of evolution, humans have adapted to different life styles and food conditions, and genetically adjusted their metabolism to it.

On the genetic level, there are small variants in the DNA, so-called polymorphisms, which differ between humans and which can affect the metabolism in its efficiency in the processing of macro-nutrients (carbohydrates, proteins, and fats) as well as your calorie consumption during various sporting activities.

In this context, the term nutritional genetics (nutrigenetic) is also used. CoGAP® has defined four genetic metabolism-types (Meta-types). These genetic variations ensure, among other things, that each person processes the consumed food differently. A conclusion you can relate to in your personal experience every time you encounter lean or stronger family members or friends.

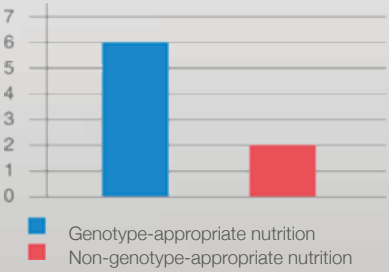
What is the concept behind CoGAP MetaCheck®?

The CoGAP® metabolic analysis starts with these genetic variations. The goal is not a run-of-the-mill generic diet, but a diet which also considers your personal Meta-type as defined by CoGAP® and offers support through professional nutrition and exercise recommendations.

The CoGAP MetaCheck® is a genetic metabolic analysis that determines the Meta-type and its effects in those seeking advice. As a MetaCheck consultant, determination of the Meta-types enables you to offer innovative nutrition and training advice.

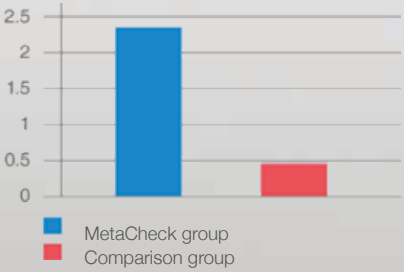
Retrospective studies have already been conducted in the USA[1] and at the Centre for Health at the German Sport University of Cologne[2]. However, the connection between genetic predisposition and weight change has not yet been sufficiently established in clinical studies. However, CoGAP is confident that a diet that corresponds to the genetic characteristics of the person seeking advice can achieve better results than a diet that ignores these physiological characteristics.

Weight reduction (kg) in 12 months



Modified according to: see [1]

BMI reduction in 6 – 9 months



Modified according to: see [2]

[1] Graph modified according to:
Nelson D. et al., (2010) Genetic Phenotypes Predict Weight Loss Success: The Right Diet Does Matter; NPAM March 2-4, 2010 I EPI March 3-5, 2010 I Hilton San Francisco Union Square I San Francisco, CA

[2] Graph modified according to:
Kurscheid T. und Loewe L., (2013);
Vergleichsstudie:
Effektivität der nutrigenetischen Analyse „CoGAP MetaCheck®“ zur Gewichtsreduktion;
AdipositasSpektrum, Ausgabe 2/2013; S.10-16.

The different CoGAP® Meta-Types

CoGAP® distinguishes four Meta-types: **Alpha (α), Beta (ß), Gamma (γ)** and **Delta (δ)**. In principle, each one of these Meta-types processes the macronutrients in food differently.

In addition, CoGAP® assigns each Meta-type one of the two exercise variants, namely **E for "Endurance"** or **S for "Speed"**. According to CoGAP®, these exercise variants can result in different calorie consumption rates depending on the type of activity.

Procedure

Consultation and taking of a sample (cheek swab)

Sending the sample to the lab

Analysis and delivery of the results

Follow-up consultation

CoGAP MetaCheck®
analysis result

- Simple and clear presentation for those seeking advice
- Individual nutrition and training recommendations considering personal goals and characteristics (gender, age, height, and weight)
- Nutrition list
- Access to the CoGAP® nutrition portal
- Access to web-based MetaCheck® app

Population genetic study

Distribution of CoGAP Meta-Types in Europe

There is no general „one-size-fits-all“ weight loss formula.

The Fresenius University of Applied Sciences and the Center of Genetic Analysis and Prognosis investigated the distribution of the CoGAP Meta-Types in the European population as part of a large scientific study.[3] In this study a possible correlation of the different Meta-Types and Sports-Types with demographic data, such as age, gender and BMI, has been analyzed.

To achieve the highest significance for the study, the anonymized data of 16,641 randomly selected MetaCheck results from different European regions were used. The results show that the four different Meta-Types Alpha, Beta, Gamma and Delta, are relatively evenly distributed in the population (Fig. a). On the other side there are significant differences in the Sport-Types E and S (Fig. b). The Sport-Type E is almost twice as common.

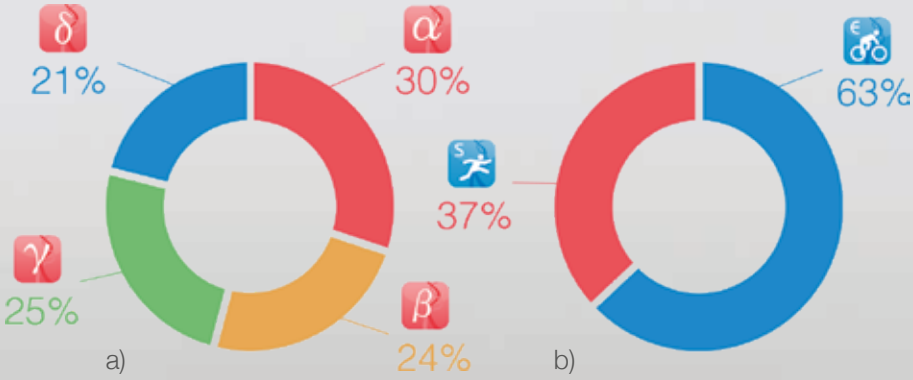


Fig. a) Distribution of the different Meta-Types in the European population.
Fig. b) Distribution of the two different Sports-Types E and S in the European population.

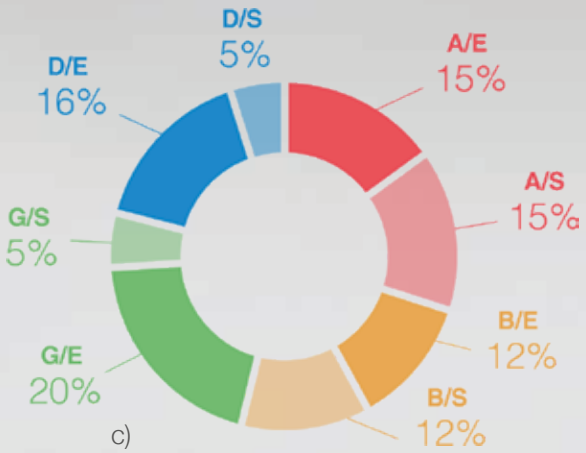


Fig. c) Distribution of the different Meta- and Sports-type combinations in the European population.

Currently, worldwide the most recommended method of losing weight is the reduction of carbohydrates or a “low-carb diet” in combination with endurance sports. This advice would be equivalent to the Meta-Type Beta and Sport-Type Endurance, which only applies to 12 % of the European population (Figure c.). If 100 people follow a low-carb diet and endurance sports program, only 12 of them will actually lose weight with long-term success.

The results of the study also showed that there is no correlation between the different Meta-Types or Sports-Types and the factors age, gender or BMI of the participants. This shows that the individual Meta-Types and Sports-Types cannot be related to a higher risk of developing overweight.
In addition, the Meta-Types and Sports-Types are completely gender-, size- and age-independent.

The study results illustrate that general recommendations, such as “low-carb” are not useful for everyone to lose weight. In fact, there is a great need for individualized weight-loss therapies based on the patient’s personal traits and especially based on their Meta-Types. Therefore, it is necessary to focus on the genetics of each individual, when creating a weight loss program.

[3] Geibel, R. C., et al., (2017) Analysis of the distribution of metabolic types (Meta-types) in the European population and their association with demographic data. Int. J. Curr. Res. 9, 60257–60262.

Advantages of the

CoGAP MetaCheck® concept

For you as a physician

- Image gain (modern, innovative)
- Patient commitment
- Innovative service
- Easy test management
- High acceptance (45%)[4] for a personalised nutrition plan

For those seeking advice

- Individually adapted nutrition and exercise recommendations
- Long-term diet changes
- Weight-loss concept based on a single genetic test
- Easy cheek swab sample is enough
- Free access to the CoGAP® nutrition portal

[4] Roosen J. et al., (2008); Consumer Demand for Personalized Nutrition and Functional Food; Int. J. Vitam. Nutr. Res., 78(6); S. 269-274.

The CoGAP®
nutrition portal

For those seeking advice, the CoGAP® nutrition portal provides Meta-type- appropriate recipes that are adjusted to the calorific requirements, as well as diet and nutrition plans. In addition to Meta-types, other personal characteristics, such as gender, age, height, weight, and physical activity, are also taken into account.

Personalised
recipe suggestions

Personalised
nutrition plans

BMI-calculator, calorie requirement, tips on exercise and nutrition

MetaShake®

The revolutionized meal replacement

The MetaShake® is a unique meal replacement for each Meta-Type that fits your individual genetic predisposition. It makes losing weight in the turbulent and time-consuming everyday life easier! Especially in stressful situations it is an excellent alternative to your Meta-Type meals.

What are the benefits of the MetaShake®?

The MetaShake® with real vanilla does not contain any additives and is lactose-free, gluten-free and suitable for vegetarians. The shake is high in fiber, which increases the feeling of satiety and leads to a natural digestion. Additionally, it contains all the necessary vitamins, minerals and nutrients that your body needs for a balanced diet that fits your Meta-Type.

How to use the MetaShake®?

To reduce your weight, you can replace two complete meals, for example breakfast and dinner, with your personalized MetaShake® during the day. If you have reached your weight goal and want to keep it stable, you can replace one meal a day.

The preparation of the shake is very simple. Add a sachet with 60 g MetaShake powder in 200 ml water and shake it well in a shaker cup. Your shake is now ready to drink and enjoy!

Breakfast

Lunch

Dinner


LACTOSE FREE
GLUTEN FREE
VEGETARIAN
MetaShake®
Mahlzeitenersatz
Meta-Typ Alpha
Zur Zubereitung einer Mahlzeit für eine gewichtskontrollierende Ernährung
Typ Beta
Gamma
Delta

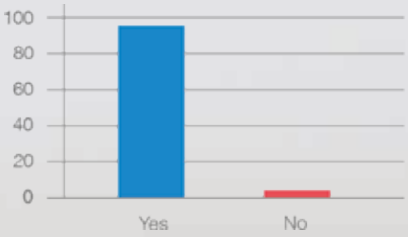
CoGAP MetaCheck®

has proven itself!

In 2016, an empirical study evaluated the sustainability of weight reduction with MetaCheck. Quantitative surveys were evaluated to determine how sustainable the success of weight loss with the MetaCheck is. Moreover, the study investigated if the MetaCheck consultants regard the aspect of genetics as an useful addition to their consultation.

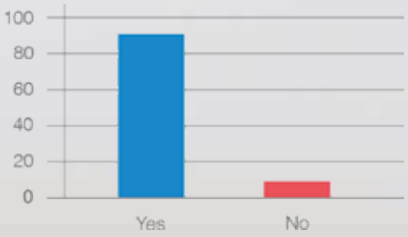
Almost 96% of all MetaCheck consultants stated that the MetaCheck analysis is a useful addition to their competent nutritional consultation. Furthermore, 87% of their customers felt more comfortable after a change in their diet according to their Meta-Type. 91% of the customers stated that they were able to maintain their new weight [5].

The MetaCheck as a useful addition to nutritional counselling (%)



Modified according to: see [5]

Receipt of the newly achieved weight (%)



Modified according to: see [5]

[5] Diagram modified according to:
Oezueak O. et al., (2016) Überprüfung der Effektivität und Nachhaltigkeit einer Gewichtsreduktion auf Basis der genetischen Stoffwechselanalyse MetaCheck, medical fitness and healthcare, 16(2); 62 - 69.

Scientific basis

of the CoGAP MetaCheck®

Within the framework of the CoGAP MetaCheck®, a complex calculation of genetic interactions is carried out, taking into account only those genes, whose effect is proven in line with the high criteria applied by our scientists. Our labs analyses only those metabolic gene variants which, according to our research, cover different areas such as carbohydrate or fat metabolism and can be assigned to the individual Meta-types.

Selection of the analyzed metabolic genes

These include in particular metabolic genes of which we are convinced, that they

- are involved in the weight control system,
- that their effect on the body can be positively influenced by a change in nutrition or behaviour and
- differ significantly from person to person.

In addition to the genetic analysis, a comparison is made with scientific studies [6] that must meet the following quality criteria:

- Replicability of study results
- Sufficient number of study participants
- Significance (significance level)
- Validated study methods

Based on these criteria, the following genes were identified after careful valuation of the relevant studies and included in the CoGAP MetaCheck® analysis.

[6] www.cogap.de/references.pdf

Genes relevant to CoGAP MetaCheck®

The **ApoA2 gene** encodes apolipoprotein II (apo-II), which is the second most common protein of HDL particles in the body. Changes in the gene lead to an above-average weight gain through absorption of fats.

The **FABP2** gene affects the resorption and oxidation of fats and can lead to insulin resistance. Changes in the gene cause firmer bonds to fatty acids, which greatly affect the absorption of fatty acids in the body. This causes increased absorption of fatty acids in the small intestine, so that extra weight gain is more likely when fatty foods are consumed.

The **FTO gene** is largely expressed in the hypothalamus and in the Langerhans islets of the pancreas. Overexpression of the gene leads to a regulation of energy intake, without being associated with a sense of satiety. Changes in the gene also have an effect on fat burning during repetitive movements. In the presence of such variants of the gene, higher calorie consumption can therefore be achieved through endurance sports.

The **ADRB2 gene** encodes a receptor that plays an important role in the conversion of fat molecules into energy. Therefore, the ability to break down fat from fat cells depends heavily on this gene. Furthermore, in certain variants of this gene, endurance sports can be used to reduce weight more quickly and efficiently.

The **ADRB3 gene** is mainly expressed in fatty tissue and is involved in the regulation of lipolysis and thermogenesis. Changes in the gene can cause deterioration of lipolysis and reduced fat burning during endurance sports.

The **PPARG gene** plays a central role in the processing of fat molecules. It also has a major effect on glucose insulin metabolism. Certain changes in this gene therefore promote weight gain when carbohydrates and fats are consumed.

The **IL-6 gene** encodes a type of cytokine that performs various functions during inflammation and maturation of B-lymphocytes. Carriers of certain variants of the IL-6 gene are more likely to gain extra weight as a result of an inflammatory signal transduction during absorption of carbohydrates.

The evaluation of the data is carried out using a specialized bio-information evaluation software. For each person seeking advice, their respective Meta-type and an appropriate exercise variant is determined for weight loss. The results of the analysis do not allow any conclusions to be drawn about family relationships.*

* Only your metabolism genes are analysed. These do not allow any conclusions to be drawn about family relationships. No statements are made about disease risks.

CoGAP® as partner of *medicine and science*

The Centre of Genetic Analysis and Prognosis – or CoGAP® – is a company based in the heart of Cologne.

The work of CoGAP® is dedicated to the development of genetic analyses in the health care sector in collaboration with the **University of Cologne** as well as the **Fresenius University of applied sciences**. The aim is to contribute to improving the general level of health in the population and to enable people to live a healthy lifestyle into old age.

Thus, as a MetaCheck consultant, CoGAP® offers you the opportunity to carry out state-of-the-art genetic analyses for personal health. The aim of the cooperation is to make scientific findings in human genetics available to healthy people in everyday life in the form of genetic analyses. Such personalized health should allow everyone to tailor their health and well-being according to their individual genetic predisposition.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Personalised Health

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Better
life quality
by
nutritioncare

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