



ABOUT TEFF

Teff is an ancient grain with amazing nutritional qualities. Likely, it is recognized as a part of the nourishment which basically served human development for millions of years.

Evolution of mankind, to prevailing considerations, started in the northeast of the African continent. Our digestive and organ systems considerably have been established and shaped by the particular vegetation. It may descriptively explain why teff's nutritive profile is so well tailored to human needs. The proteins (and its amino acid constitution), carbohydrates and minerals in teff are found of a preferably good relation to our demands.

The key features at a glance:

Vitality and better life style: Teff keeps you healthy, fit und energetic - thanks to its outstanding composition of essential amino acids, vitamins, trace elements and special carbohydrates.

Teff to improve life quality and wholesomeness

- **Teff** is pristine and unaffected,
- **Teff** protects against diseases in a natural way,
- **Teff** contains nutrients which are essential to our nerve system, organs, bones and tissue,
- **Teff** contains dietary fibers, proofed to strengthen the immune system.

Nutritional information per 100 g

| Nutrients | range | typ. value | units | 100 g Teff/rdi ¹ |
|----------------------------|--------------------|-------------|-------|-----------------------------|
| calories | | 288 | kcal | |
| calories from fat | | 21 | kcal | |
| water | 10,0 - 13,8 | 12,0 | g | |
| protein | 10,0 - 13,1 | 11,7 | g | 16 % |
| carbohydrates ² | 55,3 - 58,8 | 55,3 | g | 18 % |
| fast energy starch | | 8,8 | g | |
| low energy starch | | 26,4 | g | |
| pre-biotic starch | | 20,1 | g | 56 % |
| dietary fiber | 15,2 - 27,3 | 26,2 | g | |
| soluble fiber | 12,5 - 22,8 | 20,1 | g | 56 % |

¹ RDI - recommended daily intake.

² The estimated glycemic load of Teff is 101. The energy of Teff is slowly released.



Teff boosts the taste and the nutritional qualities of industrial and hand-crafted wheat based bake products. Consumers all over the world start to understand that the ancient grains can help them to stay fit for life. They request tasty products with optimum nutritional qualities, improving wellness, vitality and wholesomeness.

Teff - Carbohydrates: Special Starches and Fibers

Grain is the most important source of energy³ to our body. Modern cereal products (e.g. extracted wheat flour) mainly deliver **one kind of energy**: fast energy⁴, strongly increasing blood sugars.

The body though needs three types of energy: a limited quantity of the fast energy, lots of slow energy and last but not least the pre-biotic type of energy.

Delivering all three kinds of energy to the body is one of teff's most appealing qualities. In modern nourishment, the pre-biotic starches are rarely available. But those starches are needed to have our body (the colon fungi) producing the energy for our organs, including the brain:

- **Fast energy** - released in the small bowel. Provides immediate power and optimum nutrition for the brain, nervous system and organ functions.
- **Longlasting sustainable energy** - progressively released in the small intestine. For stamina, fitness, endurance, and feeling of satiety for many hours.
- **Prebiotic energy** - released in the colon. Keeps you fit and active - improves the organ functions, supports fat burning and stimulates the fatty acids production.

80 per cent of the carbohydrates in teff are complex and act in a sophisticated manner: corresponding to its **low glycemic load**, it does not sharply raise the blood glucose level. Almost half of the complex carbs are pectins of crystalline structure, dissipated only in the large intestine. The colon bacteria release essential fatty acids and amino acids from teff - nutrients to restore and strengthen our organs.

Fast available energy delivered by modern cereals behave far too aggressive to the human organism. It's like fuelling your engine with the wrong kind of energy: it may break down. And that's exactly what scientists start proving and educated consumers now understand. That's why they are looking for better food that keeps us **fit for life**.

The Slim-Fast Cereal Teff contains 25% fibers!

Teff exactly supplies the nutrients in a quality we might expect from healthy grains. 150 g teff per day provide sufficient fibers to grant a sound intestinal flora (to establish an adequate amount of colon bacteria in a most effective environment). As a result, the chyme retention time is increased with suppressed appetite and reduced susceptibility for obesity.

³ The grain starches are degraded by the digestive system (enzymes in the mouth, gastric, intestines, colon flora).

⁴ Fast starch works similar as sugars. As a consequence, consumers start to understand that baked products from purely wheat may structurally endanger their health instead of keeping them fit for life.



Proteins in Teff

| Amino acids | range | typ. value | units | 100 g Teff/rdi |
|---------------|------------|------------|-------|----------------|
| isoleucine | 420 - 500 | 411 | mg | 59 % |
| leucine | 880 - 1050 | 940 | mg | 90 % |
| lysine | 310 - 340 | 331 | mg | 37 % |
| methionine | 377 - 460 | 377 | mg | 60 % |
| cystine | 208 - 220 | 208 | mg | |
| phenylalanine | 560 - 670 | 614 | mg | 97 % |
| tyrosine | 403 - 560 | 403 | mg | |
| threonine | 430 - 490 | 449 | mg | 85 % |
| tryptophan | 100 - 140 | 116 | mg | 44 % |
| valine | 560 - 680 | 604 | mg | 80 % |

The complex carbohydrates, as noted above, enable the intestinal flora to generate vital amino acids, which are of basic value for a well functioning immune system.

The major function of the protein in our nutrition is to grow and maintain tissues, bones, muscles and organs. If requested, our body can degrade protein to fuel but that is not the reason why we need proteins in our modern nutrition. Thus, we'd better consume the right kind of proteins.

Our body can reduce proteins to its amino acids as well. And the amino acids profile of teff proteins is unique. Beyond the plant proteins, it is commonly regarded superior and reckoned as favorable as egg protein.

Another topic is the **high lysine value**. The constitution of lysine and calcium makes teff vitally important for the development, growth and regenerating of muscles, tendons and bones.

The proteins in Teff are not allergenic^{5 6 7 8}.

Teff contains high-value proteins, comprising the full range of amino acids, including all essential amino acids. It recommends teff as a highly valuable ingredient for our conscious body handling.

Scientists at the Universities of Napoli (Italy) and Leiden found that teff shows amazingly many different proteins. Both universities found teff to be fully free from gluten protein.

⁵ Teff grain is in accordance with EEC food and USDA regulations.

⁶ I.U.I.S. Allergen nomenclature Sub-Committee of the International Union of Immunological Societies.

⁷ The Codex Committee on Food Labeling allergen list, June 1997.

⁸ Directive 2007/68/EC.



Vitamins, Minerals, Trace Elements

Teff is a very valuable source for vitamins, minerals and trace elements, amongst them many antioxidants. In combination with the minerals and trace elements, the antioxidants boost the natural correcting system which is established in the body to eliminate mutagenic or carcinogenic cells.

Important enough to athletes as well as to elderly. Genes degenerate as a consequence of competitive sports, or aging. The chance of cell mutations grows significantly then. Athletes who frequently stress their cell system appreciate teff for its capability to prevent tissue disorders caused by injuries.

Each day, our body needs to be fed with vitamins, minerals and trace elements. But today's modern cereals food normally supplies only very limited quantities of essential minerals⁹.

Yet the receptiveness for minerals derived from teff, which are crucially essential for healthy nourishment, is outstandingly high.

The minerals found in Teff are important for our body, and the **absorption of minerals** from Teff, like Calcium, Iron, and Magnesium, is considered high¹⁰.

1. You find the same minerals as part of the body, like iron for the blood regeneration and calcium in the bones¹¹;
2. The minerals stimulate all kind of processes like the energy transformation in cells, building of tissue, and many others (catalytic)¹²;
3. The minerals are part of the information transport system (nerves & brains);
4. The minerals cool down our body (sweating) and have to be continuously replenished;

The trace elements in teff, in synergy with its other nutrients, support the organism in fighting infections or correcting malfunctioning cells (which might cause cancer if not corrected).

| Antioxidantien | Wert (typ.) | Einh. |
|---------------------|-------------|-------|
| Beta-Carotin | 5 | mcg |
| Lutein + Zeaxanthin | 66 | mcg |
| Kupfer | 0,81 | mg |
| Mangan | 9 | mg |
| Alpha-Tocopherol | 4 | mcg |
| Zink | 4 | mg |

⁹ The absorption is blocked by phytic acid; if the dough rises for many hours most phytic acid is decomposed, but in today's bakery the dough preparation is too short for such degradation.

¹⁰ Teff contains only a low amount of phytic acid. In combination with the present vitamin C, teff provides optimum conditions of enhancing minerals absorption to the human system.

¹¹ The combination of Strontium (teff contains 0,8 mg Sr/100g) and Calcium is recognized vital for strong bone structures.

¹² As an example: Magnesium interacts with 350 different enzymes in our body.



Vitamins are considered to adjust correctly our body functions. Some of them, like the B-complex vitamins, we mainly gain from baked products. Wholemeal (integral) flours contain those vitamins. Teff flour or flakes are only processed from full grain and contain the essential vitamins.

| Nutrient | range | typ. value | units | 100 g Teff/rdi |
|-------------------------|-------------|------------|-------|----------------|
| vitamin A - IU | | 8,00 | IU | 1% |
| vitamin B1 - thiamin | 0,10 - 0,77 | 0,55 | mg | 55% |
| vitamin B2 - riboflavin | < 0,1 | < 0,1 | mg | 7% |
| vitamin B3 - niacin | 0,54 - 1,29 | 0,79 | mg | 6% |
| vitamin C | 0,11 - 0,40 | 0,25 | mg | < 1% |
| folate | < 0.02 | < 0.02 | mg | 5% |
| calcium | 140 - 180 | 171 | mg | 19% |
| iron | 4,9 - 6,6 | 6,7 | mg | 56% |
| magnesium | 150 - 210 | 171 | mg | 41% |
| phosphorus | 370 - 400 | 355 | mg | 44% |
| potassium | 430 - 480 | 420 | mg | 12% |
| sodium | < 10 | 12 | mg | 3% |
| zinc | 3,2 - 6,3 | 4,0 | mg | 27% |
| ashes | 2,1 - 2,3 | 2 | g | |
| phytic acid | 100 - 500 | 160 | mg | |

Merit to its high valuable constitution, teff supports the important body functions to enhance well-being, wholesomeness and vitality (mens sana...).

Sport & Endurance:

1. Teff to derive energy

- **Direct energy:** 10 to 25% of the carbs of teff are converted to rapidly available energy
- **Performance and endurance:** Approximately 80% of the carbs have a pectin-like (complex) structure, and about 50% of them are progressively converted into sugars in the small bowel – an energy depot for endurance sports.
- **Nourishment for the organs:** Roughly 30% of the carbs can be processed to fatty acids in the colon, supportive for the maintenance of the immune system (this is a characteristic, untypical to modern grains).



The complex carbohydrates fraction, which are degraded in the colon, are considered as soluble fibers of pectin-like (polymannuronic / polygalacturonic) structure. These are not converted into sugars but into valuable fatty acids - ideal for the condition of the bowel skins, but not less important for the most essential organs as kidneys, liver and brains.

2. Teff Protects from Injury Sequels

Teff has a high quality protein composition and is considered to be amongst the best vegetable protein sources for human consumption, similar to egg protein.

The proteins, together with the well-rated combination of calcium, lysine and iron, care for optimum tissue recovery and helps well to a fast healing of inner and extrinsic violations.

The interaction of fatty acids and trace elements works out as an excellent source for bio-active ingredients and antioxidants, supporting the convalescence of internal injuries (frequent degenerative syndromes).

3. Teff - Free from Stress Proteins (Gluten)

For allergy suffering persons, gluten is harmful. Yet, also the allergene tolerant organism is required to waste energy to break and remove the gluten proteins from the body. And around 27% of the population suffer of unspecific celiac disease when the immune system reacts to the blood gluten content, when the gluten molecules are inactivated by protein agglomeration. A procedure that leads to form lumps and thickens the blood, quite negatively affecting the athletic performance. Coevally, it pollutes the kidneys when these are requested to filtrate and discharge the inactivated proteins in addition to the refusals of sportive acting.

4. Oxygen

Athlets, who diet teff over a time, report significantly better (higher) hematocrite values - as an effect of the high oxygen output caused by the iron-rich teff.

Phytic acid strongly reduces the absorption of minerals. It means that we can not take value of the minerals even if these are excessively available in our foods, as the absorption is blocked by phytic acid. Compared to wheat, the phytate content of teff is as low as 20% (1:5). Teff provides a much better arterial oxygen saturation and an enhanced CO₂ output of the muscle tissues - effective to improved athletic performance.



Nutrition for Babies and Infants

Teff flakes are not only gluten-free but also have a very low microbiological plate count. As a result, teff flakes are designed for the use in nutrition for babies¹³, infants and children. The nutritional and physiological qualities of teff are appealing. If you start to find out the proper qualities a grain should have for this kind of nutrition you likely end up by the ancient grain teff.

Teffs unique combination of minerals, amino acid specification and trace elements are precisely what children need to grow up wholesome and healthy.

Seniors and Lifestyle

From fetus up to the age, our brain goes through many various stages, our cognition and its functions are differentially but continuously stimulated. A well-balanced diet could supply the required nutrients, but our hectic way of life today will never grant such demand.

Nerve cells die and are causal for strokes if these were insufficiently fed with oxygen and nutrients, counting 5,5 Million people per year. Those who survive, normally become a difficult nursing case. The number of strokes is scarcely increasing because of the aging population.

Teff provides the essential proteins, minerals and favorable carbohydrates (long-lasting consistent energy load) not only to the elderly. Teff contains the vital components to support brain and nerve system:

- rich in calcium, iron and other essential minerals
- indispensable, protects from osteoporosis
- bolsters up the immune system and organs
- enhances the cognitive skills
- protects brain and nerve system from harm
- fights against aging symptoms as amnesia and dementia
- improves concentration and learning ability
- comforts depressions and aggressiveness.

¹³ Babies up to 1 year should not eat any gluten, infants up to 3 years under careful consideration.



Ancient Grain Teff - Healthy Food for a Wholesome Future

Inevitably, we will experience an invasive change of thinking, acting, but also in our nourishment. Convenience food will become less important in favor of health, sustainability, lifestyle, vitality and wellness.

Teff is a natural unaffected cereal, almost tailored to our organism and its complicated flows. It contains protective components (antioxidants), unsaturated fatty acids, complex (prebiotic) carbs, soluble fibers, essential proteins, etc.

Teff for conscious dealing with our body, for a future worth living in a sustainable world:

- **Teff** provides essential ingredients in a biologically high valuable composition
- **Teff** is healthy and keeps fit, aktiv and vital
- **Teff** will not be the only and last cereal of our future
But it will become **the cereal of our future**.

Non-GMO Confirmation

Teff is 100% natural food and not genetically or chemically modified. The processed varieties have not been affected since Thousands of years.

Our teff grades are non-GMO and do not require to be declared according to the EC regulations 1829/2003 and 1830/2003.

Goods are processed from not genetically modified cultivation and are not directly or indirectly treated with genetically modified additives, nor is genetically modifying process or technology applied.

Product Range

- ✓ Teff is available as **seeds**, fine **flour** (corresponding to the baby food regulations) and as **flakes**. All products are supplied in gluten-free quality (max 20 mg/kg)
- ✓ Conventional and Organic (from ecological cultivation, according to the regulations EEC 834/2007 and 889/2007)
- ✓ Puffed teff and Crispies (extruded teff).