

NUTRITIONAL VALUE AND ENERGY VALUE OF BAKERY PRODUCTS

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Abstract: Bakery products, with their high nutritional value, energy-giving properties and rich biochemical composition, occupy an incomparable place in human health. As one of the main types of food consumed daily, bread provides at least 30–35% of the total energy source in the diet of each person. This necessitates a thorough study of its nutritional and energy composition, and the selection of the right types.

Keywords: Biochemical, energetic, minerals such as iron, calcium, magnesium, kilocalories, vitaminized bread.

The composition of bread products usually consists of the following main components: complex carbohydrates (starch), vegetable proteins (gluten), dietary fiber, natural and added fats, vitamins (especially group B), minerals such as iron, calcium, magnesium, and bioactive components. The ratio of these substances varies depending on the type of bread, its composition, preparation method, and recipe.

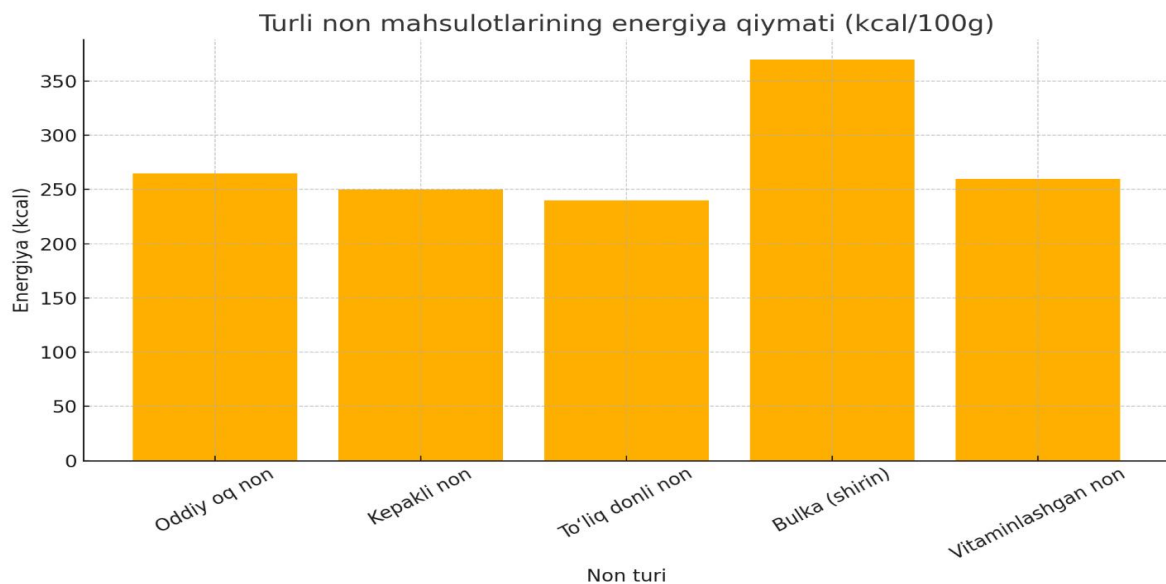
The table above shows the average nutritional values for the main types of bread products. For example:

- **Ordinary white bread** provides an average of 265 kilocalories of energy per 100 grams, contains 49 grams of carbohydrates, 8.5 grams of protein, and 1.5 grams of fat. Its dietary fiber is about 2.5 grams, and its effect on intestinal function is limited.
- **Wholemeal bread** has an energy content of 250 kcal and a higher nutritional value: up to 6 grams of fiber, more than 9 grams of protein, and more minerals. This type of bread is considered beneficial for diet and cardiovascular diseases.
- **Whole grain bread** contains 240 kcal, 41 g of carbohydrates, 9.5 g of protein and up to 7 g of fiber. It provides a long-lasting feeling of satiety and is used in the prevention of diabetes and obesity.
- **Bread products, especially sweet bread,** provide around 370 kcal of energy, which can negatively affect overweight or glucose balance. It has a significant fat content (9 g), and less protein (7.2 g).
- **Vitaminized breads,** on the other hand, are beneficial in terms of their average energy content of 260 kcal, as well as protein (10.2 g) and fiber (4 g). They are recommended for children, pregnant women and those with anemia.

According to statistics, the population of the Republic of Uzbekistan consumes an average of 135–160 kg of bread per capita per year. This means that each person consumes approximately 370–420 grams of bread per day. If an average of 100 grams of bread provides 250–270 kcal of energy, this means that 30–40 percent of a person's daily energy needs are covered only through bread.

Biochemically, carbohydrates in bread products are mainly in the form of starch, which is broken down into glucose in the body and serves as the main source of energy for all cells, especially the brain. The protein component – gluten – is necessary for the renewal of tissues and cells. However, this component can be undesirable for some people (patients with celiac disease). Therefore, gluten-free bread products are also widely distributed today.

Scheme 1.



Energy value of bread products

On the other hand, dietary fiber (fiber) plays an important role in improving intestinal peristalsis, removing toxins and reducing blood cholesterol levels. It is whole grain and bran breads that are rich in such beneficial substances, and their regular consumption has a positive effect on health.

The energy value of bakery products depends on the additional components they contain. Ingredients such as butter, sugar, eggs, milk, cheese increase calories. Therefore, bakery products - especially sweet, glazed, jam and creamy ones - are high in energy, but if consumed in large quantities, they can pose a health risk.

Also, vitaminized bakery products are being developed based on a modern technological approach. Their dietary and therapeutic value is increased by adding A, D, E, B12, folic acid, iron and selenium to them. These products help prevent conditions such as anemia, vitamin deficiency, growth problems in children, and bone weakness.

The nutritional and energy value of bread products is one of the most important indicators that determine their quality, medical value, inclusion in the diet and their impact on health. Each consumer should consciously choose the type of bread based on their needs, health status and age. In this regard, manufacturers should also produce products that meet the needs of users, paying attention to energy balance, nutritional content, technological purity and quality aspects.

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