

# [Nutrients needed by the body are known](https://assignbuster.com/nutrients-needed-by-the-body-are-known/)

Nutrients are the substances used bythe body for energy, growth, and other functions. The large amounts ofnutrients needed by the body are known as macronutrients. The three majormacronutrients are carbohydrates, protein, and fats. The food consumed containsa certain percentage of these macronutrients that is then used by the body forenergy. Energy is released when the body chemically metabolizes and breaks downthe carbon-hydrogen bonds of the consumed nutrients. Amongst the three main macronutrients, carbohydrates provide the body with the fastest acting source of energy. Thebody is able to breakdown the carbohydrate molecules easily and use as fuel. Evenwhen the carbohydrate molecule forms a long chain, during digestion it isbroken down to three simple molecules: glucose which is the principalcirculating sugar in the blood, fructose which is the fruit sugar, andgalactose which is a component of lactose and other polysaccharides.

The three simple carbohydrate structures arethen kept for energy transfer, glycogen storage, and circulating glucose withinthe bloodstream. The brain, muscles, heart and kidneys require carbohydrates tofunction and prefer glucose as a form of energy. The Dietary GuidelinesAdvisory Committee suggested a minimum intake of 130g of carbohydrates a day tomeet the body’s basic energy needs. However, the intake of carbohydrates isdependent on the body size, activity levels, and the specific goals of the individual. For highly active individuals, higher intake of carbohydrates would be morebeneficial to keep the energy levels high. However, to reduce body fat, it is recommendedto have a lower intake of carbohydrates. Though they help in feeling satiated, control blood sugar, and elevate energy, not all types of carbohydrates havethe same affect on the body.

Low-processed carbohydrates take longer to bedigested and are preferred over refined carbohydrates. Examples include oats, barley, brown rice, quinoa, potatoes, and corn. Fruits such as bananas andapples also contain carbohydrates along with soluble fiber which can bedissolved in water and slows down digestion. Leafy greens, green beans, seedsand nuts contain insoluble fibers. These help the body in speeding the colonictransit speed and helps with constipation and waste elimination.

Higher fibercontent helps in ridding the body of waste and therefore reduces the risk ofobesity and heart disease. Refined carbohydrates such as white bread, pastries, and white pasta are not recommended since they are consumed rapidly and spikeblood sugar. Refined carbohydrates are also low in fiber, can causeinflammation and insulin resistance. Nonetheless, the amount of carbohydratesconsumed is to be indirectly proportional to the amount of fat consumed. Toavoid excess energy being consumed, it is recommended that if the carbohydrate intakeis high, fat consumed has to be low and vice versa.

Fat is a form of macronutrient that hasbeen linked to elevated heart diseases. However, recent studies have shown thatdietary fat is essential for overall health and performance.  On a molecular level, the simplest unit of fatis known as the fatty acid. Fatty acids helps the body regulates hormones, transportvitamins throughout the body, forms cell membranes, forms the brain and nervoussystem, and also provides the body fatty acids that the body cannot produce byitself.

Fatty acid is essentially divided into two main types, saturated fattyacids and unsaturated fatty acids. Unsaturated fatty acids are then categorizedas monounsaturated and polyunsaturated fatty acids. Foods high in fat areusually composed of three types of fatty acids that are joined together. Forexample, the fat found in eggs is divided as follows: 39% saturated fat, 43%monounsaturated fat, and 18% polyunsaturated fat. Having a balanced combinationof fatty acids is the key to fat consumption.

Research of the relationshipbetween excess body fat and the consumption of saturated fat has yieldeddifferent results. It is not only the consumption of fat that results in theincrease cholesterol and heart disease. When combined with a bad diet thatcombines refined carbohydrates and saturated fats the risks of obesity, high cholesteroland heart disease are significantly higher. Therefore, when consuming fat, itis recommended to take a well-balanced approach. Foods such as avocados, salmon, chia seeds, flax seeds, and walnuts are all rich in healthy fats. Therole of dietary fat is important for overall health as it improves thecardiovascular, nervous, and immune system.

The third main macronutrient isprotein. Protein is what the body uses to produce new tissues, repair tissues, and maintain body functions. The smallest unit of a protein is the amino acid.

The amino acids can be used by the body for energy, muscle protein synthesis, neurotransmitters in the brain, and for creating tissue enzymes. Protein isessential to the diet as it defines an organism’s structure, hormones, enzymes, and chemicals.  There are both animal andplant sources of proteins that provide the essential amino acids for the body.

Examplesof animal protein sources are chicken, beef, fish, and milk, whereas plantprotein sources such as soy, lentils, black beans, and peanuts. The consumptionof protein is important for immune health, metabolism, suppressing hunger, andperformance. Therefore, it is recommended for a generally healthy individual toconsume 0. 8g of protein per kg of body mass. Variables such as body size andlevel of activity are to be considered since the protein intake has to beadjusted accordingly. For conditioned athletes undergoing high intensityworkouts, it is recommended that they consume 1.

6g to 2. 0g of protein per kg ofbody mass.