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METABOLISM - Definition

Metabolism is the set of life-sustaining chemical transformations within the cells of living organisms.

METABOLISM - Purposes

The three main **purposes** of metabolism are:

- The conversion of food/fuel to energy to run cellular processes,
- The conversion of food/fuel to building blocks for proteins, lipids, nucleic acids, and some carbohydrates, and
- The elimination of nitrogenous wastes.

Why Metabolism Varies

- Every time we eat or drink, our metabolism converts all the calories from the food into energy.
- Our size, gender, and age play a large factor into determining our **metabolic rate**.
 - For most people, metabolism seems to slow down after age 40.
 - Men tend to have a higher metabolic rate than women.
 - In addition to these factors, there are some things that we can do to independently control our rate of metabolism.

Hypo- & Hyperthyroidism

- The faster our metabolism, the more **calories** we burn off.
- People with *hypothyroidism* have an underactive thyroid gland and have a metabolic rate that is slower.
- People who have *hyperthyroidism* have an overactive thyroid gland and have a metabolic rate that is faster.

Boosting Metabolism



Ways to Boost Metabolism and burn calories!

- 1. Plenty of water
- 2. Plenty of sleep
- 3. Green tea
- 4. Small meals often
- 5. Spices in diet
- 6. Protein and vegetables
- 7. Muscle-building exercises
- 8. High-Intensity intervals in workouts
- 9. High-fiber foods
- 10. Keep moving and changing positions
- 11. Change temperature
- 12. Cardiovascular/aerobic exercise
- 13. Laugh often
- 14. Sufficient iron
- 15. Stretching exercises

Boosting Metabolism – Drinking plenty of water

- In one study, adults who drank eight or more glasses of water a day burned more calories than those who drank four.
- To stay hydrated, drink a full glass of water before every meal and snack.

Boosting Metabolism – Get plenty of sleep

- Researchers have found a connection between lack of sleep and a lower metabolic rate.
- Those who get more sleep have a higher metabolic rate.

Boosting Metabolism – Drink green tea

- Green tea contains caffeine and catechin polyphenols, which increase thermogenesis.
 - Thermogenesis is the process your body uses to **burn energy**.
 - Green tea is high in antioxidants, calorie-free, and a compound in green tea (ECGC) has been shown to elevate metabolism.
 - The metabolism increase lasts for about two hours.
 - Research suggests that drinking two to four cups of either tea may allow the body to burn 17% more calories.
 - Green tea is safe for most people, but some may not be able to add caffeine to their diet due to its effect on the heart.
 - Caffeine can also cause insomnia.
 - It is recommended that people consult a trusted health care professional, regarding the use of green tea.

Boosting Metabolism – Eat small frequent meals

- Studies show that people who eat small, healthy snacks (such as fruit, nuts, etc.) every 3 or 4 hours, tend to burn more calories than those who eat three large meals a day.
- Do not eat 3 large meals a day.
- Snacks between meals are very important.

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Boosting Metabolism – Add spices to the diet

- Spices such as red peppers, jalapenos, chili peppers and Cayenne pepper contain capsaicin, and studies show it increases metabolism.
- In a small study on Japanese women published in the *British Journal* of Nutrition, researchers found red pepper caused the body to heat up and increase the metabolism after a meal.
- Another study in *Medicine & Science in Sports & Exercise,* reported that male athletes who added **red pepper** to high-carbohydrate meals raised both their resting and active metabolic rates 30 minutes after the meal.
- However, there are no "fat-burning" foods, and there is no conclusive evidence regarding an increased metabolic rate significant enough to result in weight loss.

Boost Your Metabolism The Farmacy Apples Broccoli Almonds and Pears Spinach Green Tea Garlic Grapefruit **Hot Peppers** Curry Cinnamon Purified Ginger Water

Boosting Metabolism – Perform muscle-building exercises

- Every kilo of muscle uses 6 calories per day.
- The more muscle, the higher the metabolic rate.
- Lift weights.
- Pump iron.
- Muscle burns 73 more calories per kilogram per day than fat.
- Every muscle cell that you gain constantly burns calories for you, even while you are resting or sleeping.

Boosting Metabolism – Perform muscle-building exercises

Exercise Needed to Burn Off a Serving of French Fries



Boosting Metabolism – Use short high-intensity intervals during work-outs

- Maximize the calories you burn by adding high-intensity intervals into your workout.
 - If you work out for 20 minutes, try exercising moderately for about three minutes (running or riding a bike, for example) and then alternate three minutes with 30 seconds of an all-out effort.
 - If you are walking steadily, add short bursts of jogging, for example.

Boosting Metabolism – Increase intake of high-fibre foods

- Increasing intake of high-fibre foods like vegetables is one of the best ways to increase your metabolism.
- Vegetables are low in calories, yet high in nutrients.

Boosting Metabolism – Keep moving

- If you work at a desk, schedule breaks to allow yourself to walk, stand and move frequently.
- Most people over the age of 40 spend too much time sitting.



HOW MUCH ENERGY DOES IT TAKE TO RUN A KILOMETRE?

The number of calories you burn to cover a given distance is roughly constant over a wide range of running speeds – but not all speeds. Slow to a walk and you'll burn fewer calories; accelerate enough to exceed your lactate threshold and you'll trigger additional calorie-burning processes.



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Boosting Metabolism – Change the temperature

- Studies show that people eat less when they are too cold or too hot.
- The body also stops generating heat and burning energy when it is comfortable or neutral.
- Allow your body to create its own heat and burn calories by keeping that heater turned down and not making things so cozy.
- Drinking ice water might burn more calories than room temperature water, because the body must work to heat up the water.

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