

DO YOU MEASURE YOUR HEALTH ?

Many people are using **fitness trackers**, such as step counters, these days. A fitness tracker is a (small) device or an app on your smartphone that allows you to measure all kinds of health values, such as how much you move, what your heart rate is, or how many calories you burn.

How does a fitness tracker measure all these things and what are the **advantages** and **disadvantages** of tracking everything you do? In this brAlnfood we will dive deeper into the how and what of fitness trackers.

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Do you want to buy a fitness tracker or ask Santa one? Mozilla made [a list of safe, secure connected products](#) such as fitness trackers. Discover which trackers are more or less respectful of your privacy.

BENEFITS & CAVEATS

A fitness tracker can offer several **benefits**, such as:

- **motivating** you to lead a healthier life, e.g. by giving you an overview of your eating habits or by suggesting exercises;
- **warning** you of medical risks (e.g. high stress levels, cardiac arrhythmia, ...);
- **monitoring** your physical (behavioural) changes (e.g. exercise, weight loss, ...) without having to go to the doctor;
- lowering the threshold for **participating** in scientific research because you are able to use your own device, and it does not require extra time and effort from you.

There are also some **caveats**, such as:

- apps with gamification elements (e.g. earning points if you complete a challenge, which can be compared to others) can be **addictive**;
- the development of a **false sense of danger or safety**, because the data are not correct or specific enough to make a thorough medical analysis. Also, not all aspects of your health (e.g. mental well-being) can be properly captured in data.
- **overloading** you with a lot of (medical) data that you may not (always) know how to interpret correctly;
- **confronting** you and even **demotivating** you with your performance, inactivity and goals that seem unattainable;
- the need for the **financial means** and **digital knowledge** to use trackers and other digital medical aids;
- what about your **privacy**? With whom do you want to share your (medical) data? Only with your doctor or also with other companies (e.g. insurance companies) in exchange for a discount?

HARDWARE & SOFTWARE

With fitness trackers, you can make a distinction between hardware and software. The hardware measures the activity, the software brings the data together and visualises it for the user.

Hardware refers to a small device that is connected to an internal IT system, such as a smartwatch or other wearables, for example those from Fitbit, Apple, Polar or Garmin.

It collects data on your health, physical activity and movements using:

- **sensors** (e.g. accelerometer, heart rate monitor, ...) that measure the acceleration, frequency, duration, intensity and patterns of your movements;
- **gps system** to (more) accurately map your distances.

Software to process these data comes standard on these devices. It is also possible to install additional **apps** (e.g. Strava or Peloton).

Apps present the raw data in a user-friendly format after it has been **analysed, refined** and **presented graphically** by various algorithms. Apps also allow you to record all your activities in one place. A bike ride measured with your smartphone, a swim with your wearable or a run with your smartwatch are all analysed and mapped on such a software platform.

When you start using a new fitness tracker, you are asked to enter **personal information** such as height, weight and questions about your lifestyle. For some functions, this information is combined with the information collected by the sensors to produce more accurate results using algorithms.

Two different fitness trackers may give different results for the same athletic performance. The sensors in each device do not perfectly measure what you do, they all use different algorithms to convert the collected raw data into interpretable statistics.

