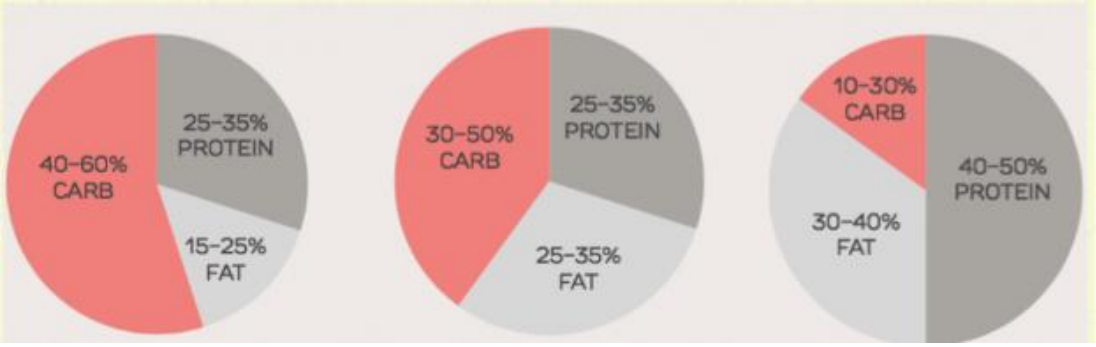
Determining Your Optimal Carbohydrate Intake

Most dietary guidelines for carbohydrate intake, published by international medical organisations, suggest that the average person should aim for 45–65% of their daily calories from carbohydrates. It's important to note that these recommendations are given as percentages, which is a key point — the same percentage can represent very different amounts of carbohydrates depending on total calorie intake.

For example, if we assume 55% of calories come from carbohydrates, and compare two diets — one of 1,600 kcal and another of 3,500 kcal — the results are very different:

- The 1,600 kcal diet would contain around 215 g of carbohydrates (roughly 270 g of rice or pasta in dry weight).
- The 3,500 kcal diet would contain around 470 g of carbohydrates (roughly 585 g of rice or pasta in dry weight).

Counting macronutrients as a percentage of total calories is not the same as counting them in grams per kilogram of body weight, so it's important to remember this to avoid confusion.

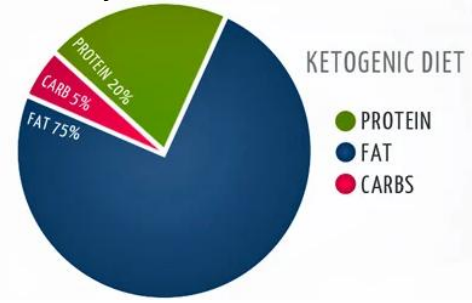


The Wide Range of Dietary Approaches

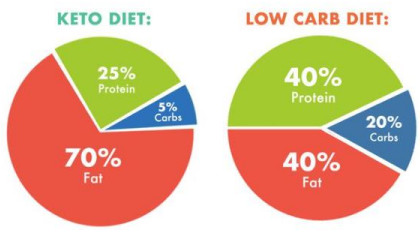
On the internet, you will find many alternative carbohydrate recommendations, including low-carbohydrate and even zero-carbohydrate diets. These approaches may serve specific purposes for certain individuals, but they cannot be universally recommended due to their narrow applicability.

For example:

- A **ketogenic diet** typically provides **0–5% of calories from carbohydrates**, effectively making it almost carbohydrate-free.



- An **LCHF (Low Carb High Fat)** approach usually provides **15–25% of calories from carbohydrates**.



- High-carbohydrate diets, by contrast, may recommend amounts that can appear alarming — especially to those who feel they already "overeat" carbohydrates.

Endurance athletes are often advised to consume:

- **6–8 g of carbohydrates per kg of body weight**,
- and during carbohydrate loading, even **10–16 g per kg**.

Considering that eating the equivalent of 1.3 kg of dry rice is physically challenging, many endurance athletes use liquid carbohydrate sources such as sports drinks, gels, or carbohydrate powders mixed with water. These allow high carbohydrate intake with minimal gastrointestinal stress.

Overall, as you've probably realised by now, the possibilities are endless. You can create countless different eating plans with almost any percentage of carbohydrates you like.

Whether you look at carbohydrate recommendations as a percentage of calories or in grams per kilogram of body weight, there is a huge difference between various sources. Some recommend eating a lot of carbohydrates, others suggest a moderate amount, and some advise reducing them to a minimum.

So, Who Is Right?

As is often the case in nutrition, no one is entirely right or wrong.

There is no single correct answer because carbohydrate needs depend on:

- Body weight
- Training volume and intensity
- Current body composition
- Health status
- Individual goals
- Food preferences
- Digestive tolerance
- And many other factors, many of which change over time

So there is no single correct answer. And there is certainly nothing that works for everyone. This is especially true when we remember that not everyone is healthy — many people live with medical conditions (for example, different types of diabetes) that require specific adjustments to carbohydrate intake. That is a separate topic, which we won't go into here. In order to better understand what amount of carbohydrates is optimal for you personally, it's important to first understand a few basic principles. Let's go through them.

Are Carbohydrates Essential?

Despite frequent claims to the contrary, despite the official recommendations mentioned earlier, carbohydrates are **not** essential nutrients.

They cannot be classified as indispensable.

An essential nutrient is something that:

A) Is absolutely required for survival;

B) Cannot be produced by the body.

Because our bodies have a remarkable mechanism called gluconeogenesis, we are able to produce glucose from other sources such as amino acids, lactate, and glycerol. Through this process, the body can generate enough glucose each day to supply the brain and certain other tissues that require it to function.

At the same time, it is important to understand that the body cannot produce enough glucose to fuel high-intensity activities such as sprinting or heavy strength training. For people who regularly perform this type of exercise, carbohydrates effectively become necessary. Gluconeogenesis alone cannot meet such high energy demands.

However, if we look purely from a survival perspective, the minimum amount of carbohydrates required by the body is **0 grams per day**. In theory, a person could live their entire life consuming only protein, fat, and indigestible fibre, without any dietary glucose at all.

That said, most of us are not interested only in survival. We care about performance, body composition, physical appearance, and other goals. For these reasons, we usually consider including some carbohydrates in the diet.

How much? That is a different question.

Carbohydrates and Muscle Preservation

Many early studies on prolonged fasting and low-carbohydrate diets showed that as little as 15 g of carbohydrates per day can reduce nitrogen loss in the body (nitrogen balance is an important indicator of protein metabolism).

Increasing daily carbohydrate intake to around 50 g significantly reduces the body's need to use amino acids for gluconeogenesis.

This happens for two main reasons:

- A higher carbohydrate intake helps maintain blood glucose levels, which reduces cortisol production. Cortisol is one of the main hormones that stimulates gluconeogenesis.
- Carbohydrates provide glucose directly to the brain, reducing the need to break down body proteins as a source for glucose production.

Of course, it would be possible to eat more protein and deliberately use the excess for gluconeogenesis. However, it is much simpler and more efficient to obtain glucose directly from carbohydrates.

Whichever approach you choose, one practical point is worth remembering:

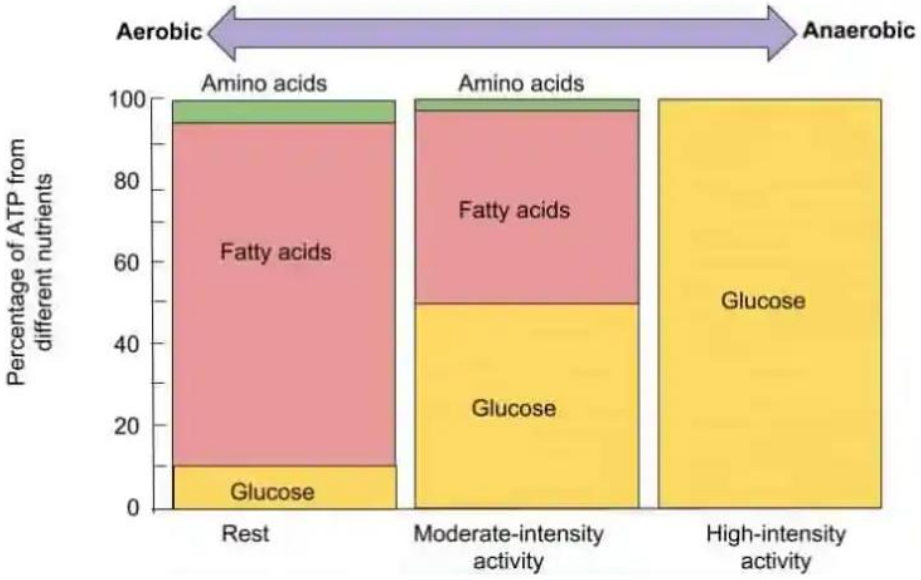
Around 50 g of carbohydrates per day is already enough to limit protein breakdown (including muscle protein) and reduce the body's need for higher protein intake compared to a diet that contains almost no carbohydrates.

The Impact of Physical Activity on Carbohydrate Needs

Physical activity can significantly affect your daily carbohydrate requirements. Until now, we have not taken it into account — but we should. It is important to understand that carbohydrate needs can vary greatly depending on the type, volume, and intensity of exercise.

During typical low-intensity aerobic activity (such as steady cardio), the body does not use large amounts of carbohydrates. Therefore, if someone only performs this type of activity — for example, walking a lot — there is no strict need to increase carbohydrate intake beyond the basic minimum we discussed earlier.

Of course, a person may choose to eat more carbohydrates for various reasons, but from a physiological point of view, it would not be absolutely necessary



Carbohydrate Needs for Strength Training

Carbohydrate requirements for strength training are not as high as many people think. Research conducted years ago found that for every two working sets (each lasting around 30–45 seconds), approximately 5 g of carbohydrates are needed to replenish the glycogen used.

For example, if during a workout you perform:

- 6 exercises
- 4 working sets each

That equals **24 sets** in total.
To restore the glycogen used, you would need approximately:

24 sets × 5 g ÷ 2 = **60 g of carbohydrates**

So, if your baseline intake is the minimum we discussed earlier (around **50 g per day**), and you complete 24 working sets in a session, your total carbohydrate requirement for that day would be roughly **110 g**.

If, however, you do not feel well on lower carbohydrate intake (for example, you experience weakness or reduced performance), and your personal minimum is **100–120 g per day**, then you may need to increase your intake to **160–180 g per day** on training days.

For a person weighing around 70 kg, this is approximately **2.5 g per kg of body weight**.

Could you eat more? Of course.

Do you need to? That depends on many other factors in the overall picture.

Carbohydrate Needs for Aerobic Training

With endurance athletes, things become a little more complex because the intensity and volume of training can vary greatly. A cyclist completing a hard six-hour ride will burn a huge number of calories, whereas someone going for a 30-minute jog may use relatively little energy.

In endurance sports, muscle glycogen stores can become significantly depleted. For this reason, such athletes often consume 300–400 g of carbohydrates per day, or even more. For a moderately sized endurance athlete, this may mean around 6 g per kg of body weight per day on a regular basis over long periods.

In less extreme situations, carbohydrate needs will not be as high. Although many modern guidelines suggest **7–10 g per kg** for endurance athletes, surveys and observational studies show that most athletes actually consume closer to **5 g per kg** in practice.

However, this applies to competitive athletes. For the average person who does aerobic training for enjoyment and general fitness, carbohydrate requirements will certainly be lower.

All of this assumes that the goal is to maintain roughly stable muscle glycogen levels. In some situations — for example, when the goal is fat loss rather than performance — it may be desirable to reduce glycogen stores or keep them relatively low.

This means that an athlete, or someone following a calorie-deficient diet, may intentionally consume fewer carbohydrates in order to gradually lower glycogen levels. In such cases, the higher values mentioned above would be excessive, since they are based on full glycogen replenishment after intense training.

Is There a Maximum Carbohydrate Intake?

It makes sense to assume that the upper limit of carbohydrate intake, in practice, would occur when carbohydrates provide **100% of a person's daily energy**. The average person requires roughly **30–35 kcal per kg of body weight per day**. Since one gram of carbohydrate provides 4.1 kcal, this equates to a maximum intake of about **8.8 g per kg**.

Of course, athletes who train intensively — and therefore burn far more than 30–35 kcal per kg — will have higher calorie and carbohydrate needs. For a typical person spending most of their time at rest, however, a realistic upper limit would be 8.8 g per kg. At this level, there would be no room for protein or fat without exceeding total calorie needs for basic survival, so this is not a practical recommendation.

There are situations, though, where an individual in a prolonged calorie deficit, or an athlete preparing for competition, may want to supercompensate muscle glycogen stores, far beyond normal levels. This is common in endurance athletes (for example, before a triathlon) to enhance performance, as well as in athletes following cyclical diets to maximise glycogen for muscle-building purposes. Bodybuilders may also use carbohydrate loading before competitions to improve the appearance of their muscles.

To achieve maximum glycogen storage, assuming muscle glycogen has been fully depleted through intense weight training and a low-carbohydrate diet, an extremely high carbohydrate intake is required.

Under these conditions, intake can rise to as much as 16 g per kg of body weight in 24 hours. This is likely the absolute maximum the human body can consume, and as you can imagine, it can only be achieved in very specific circumstances. Even then, physically consuming this amount is extremely challenging.

Determining Daily Carbohydrate Needs

Let's summarise, taking into account both the minimum and maximum carbohydrate intake under different circumstances. For clarity, the table below shows absolute carbohydrate amounts in grams, assuming an athlete weighing **72 kg** with a very low body fat percentage. These are **approximate values**, not precise figures, as everyone is different and individual factors and living conditions can shift these numbers in either direction. It's important to keep this in mind when evaluating any recommendations.

Purpose of use	A brief and simplified summary of carbohydrate needs in different situations	
	Average Person	**Athlete (72kg / 159lbs)**
Amount required for survival	0g / day	0g / day
Minimum required for muscle preservation	50g / day	50g / day
Additional amount for daily lifestyle activity	Not required	Not required
Additional amount for strength training	5g for every 2 sets	5g for every 2 sets
Average recommendations for bodybuilding	2–4.5g/kg per day	160–480g / day
Average recommendations for the general population (international guidelines)	4.5–6.5g/kg per day (isocaloric diet)	4.5–6.5g/kg per day (isocaloric diet)
Average amount actually consumed by endurance athletes	4g/kg per day	320g / day
Average recommendations for competitive endurance athletes	8.8g/kg per day	640g / day
Realistic upper limit for an average person without regular physical activity	8.8g/kg per day	640g / day
Maximum allowable within the framework of carb loading	16g/kg per day	1150g / day

Clearly, the carbohydrate range outlined above is very broad and depends heavily on specific circumstances. It also does not ignore personal food preferences or how an individual feels physically, including gastrointestinal responses to different amounts or types of carbohydrates.

For example, in the case of the athlete shown in the right-hand column, daily carbohydrate intake could range from **0 g per day** (the absolute minimum for survival) up to a staggering **1,150 g per day** during extreme carbohydrate loading. It's easy to see how confusing it can become when trying to translate theoretical knowledge into practical application. Especially since all of this must be applied to a specific person, starting from point X, living under conditions Y, and preferring dietary pattern Z.

In short, the seemingly simple question — **"How many carbohydrates should I eat each day?"** — has no single answer. A person's baseline characteristics, health status, type and amount of physical activity, individual factors (for example, gastrointestinal discomfort with large carbohydrate intakes or idiopathic reactive postprandial hypoglycaemia), personal goals, and even which foods they enjoy and can consistently eat all determine what amount of carbohydrates is optimal.

Context always matters, and it's important to remember that this context can change over time. This means that the amount of carbohydrates that is "ideal" for someone today may well need to be adjusted in the future.

If you'd like a personalised plan tailored to your health, lifestyle, and work environment, I would be honoured to support you on your wellness journey.

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