

# Why Do We Feel Tired? It Could Be Low ATP in Our Mitochondria!

By Robert Ferguson

Have you ever felt tired, even though you got plenty of sleep? This could be because your body isn't making enough ATP. But what is ATP, and why does it matter?

## What is ATP?

ATP stands for **adenosine triphosphate**. It's like the energy "money" that your cells need to do their jobs. Every single cell in your body uses ATP to help you move, think, and stay active. When you don't have enough ATP, it's like trying to run a car without gas – your body just doesn't have the power to keep going.

## Where Does ATP Come From?

ATP is made in small parts of the cell called **mitochondria**. Mitochondria are often called the "powerhouses" of the cell because they turn the food you eat into ATP. Think of mitochondria like tiny factories that take in food and oxygen and "burn" them to create energy. The more ATP your cells have, the more energy you have for all the things you do!

## Why Would Mitochondria Make Less ATP?

Sometimes, mitochondria don't work as well as they should, which can lead to low ATP and tiredness. Here are some reasons why this might happen:

1. **Trouble Getting Nutrients into Cells:** Mitochondria need nutrients like glucose (sugar) and fatty acids to make ATP, but sometimes it's hard for these nutrients to get inside the cells. This can happen when the body has **insulin resistance**, where cells don't respond well to insulin, which is supposed to help glucose enter. Without enough glucose in the cells, mitochondria can't make as much ATP, leading to low energy [1].
2. **Weak Cell Membranes:** Cells have an outer layer called the membrane, which lets nutrients pass in and out. Omega-3 fatty acids are very important for keeping cell membranes healthy and flexible, or "fluid." When you eat more omega-3s (like from fish or flaxseed), your cell membranes become more fluid. This helps nutrients get into cells more easily and waste leave more easily, which keeps your mitochondria in good shape to make plenty of ATP [2].
3. **Low Oxygen Levels:** Mitochondria also need oxygen to create ATP. If oxygen isn't getting to the cells as it should, mitochondria can't make energy as efficiently, and you may feel more tired [3].

## How Can You Help Your Mitochondria?

You can boost your mitochondria by eating foods rich in nutrients like vitamins, healthy fats (especially omega-3s), and proteins. Exercise can also help, as it makes mitochondria stronger. And remember, your cells need oxygen to make ATP, so try deep breathing or going outside for fresh air.

## Call to Action: Check Your Omega-3 Levels

If you want to give your cells and mitochondria the best chance to produce plenty of ATP, consider getting a **BalanceTEST**. This test can show you your omega-6 to omega-3 fatty acid ratios and the percentage of omega-3 in your cell membranes. The goal is to have your omega-3 level between **8-12%**. Most people living in the United States and Canada have less than 4% omega-3, which is linked to a rigid cell membrane. A healthy level of omega-3 will make your cell membranes more fluid, helping nutrients get in and waste get out—leading to healthier ATP production and more energy!

So, if you're feeling extra tired, think of your mitochondria and give them the care they need! They'll thank you with more energy to do the things you love.

## References

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2. Stillwell, W. (2016). *An Introduction to Biological Membranes: From Bilayers to Rafts* (2nd ed.). Elsevier. This book covers the importance of omega-3s in cell membrane fluidity.
3. Nicholls, D.G., & Ferguson, S.J. (2013). *Bioenergetics* (4th ed.). Academic Press. This source explains oxygen's role in mitochondrial ATP production.

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