



ARE EGGS A SUPERPOWER FOR THE BRAIN AND MEMORY?

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YOUNG REVIEWER:



ATIF
HUSSAIN
AGE: 12

When you and your friends get old, gray, and wrinkly, it is likely that some of you will end up having memory problems. The most common illness of the memory is called Alzheimer's disease. Alzheimer's causes difficulties with remembering the names of your friends, the jokes that were just told, or even the well-trodden way home. Sounds awful, right? As there is currently no cure for Alzheimer's disease, researchers are trying hard to find ways to prevent it. A healthy diet may be one approach. This article describes the potential link between eating eggs and the chance of having memory problems later in life. Maybe you are wondering how on Earth eggs and memory are connected. That is a good question! Please keep reading to find out whether eggs have superpowers for your brain and memory.

WILL YOU BE A MASTER OF THE MEMORY GAME WHEN YOU ARE OLDER?

We predict that you can easily beat your parents at a memory game! Kids are fast learners, and they remember things easily. When you get older, it may not be so easy anymore. By “older” we mean very old, when you have a wrinkly face and gray hair.

It is normal to slow down a bit when you age. Many people, however, get an illness that causes them to lose their memories little by little. This kind of illness is called a **memory disorder**. You may even know someone who suffers from a memory disorder such as **Alzheimer’s disease**. That person may have difficulty recognizing you, or he or she may forget what you just said or may behave in strange ways. Those are some of the symptoms of brain and memory disorders, and they make it hard for the older person to manage in everyday life.

Sadly, we do not yet have a cure for memory disorders like Alzheimer’s disease. We only have some medicines to slow down the speed of memory loss, but we do not have pills or treatments to bring back the lost memory. So, we are very keen to do everything we can to stop these disorders from happening in the first place. If you want to put up a reasonable fight against your grandkids at a memory game in the future, please keep reading!

THINGS THAT YOU EAT CAN IMPACT YOUR MEMORY

Even though a cure for Alzheimer’s disease and other memory disorders does not yet exist, you can help to prevent these disorders by your choices. For example, eating a healthy diet may help your brain [1]. So, keep eating your veggies, have regular mealtimes, and save the sweets for special occasions. If your parents make you healthy foods and you eat them, you may have a better chance of keeping your mind sharp in the future.

However, this is more complicated when we consider particular food items, such as milk, tomatoes, ham, or seeds. Which foods are healthy brain foods? This is a difficult question—we do not actually know which specific foods are the best ones to maintain good memory and brain health. We are not even sure if there are specific foods that might speed up memory loss! This is something that researchers, including us, are trying to find out.

EGGS—A TRICKY FOOD!

Eggs have long been a mystery when it comes to healthy eating. You may have heard someone say that eggs are unhealthy and that you should avoid eating them, but maybe you know other people who eat

MEMORY DISORDER

An illness of the brain that causes various symptoms, including memory loss.

ALZHEIMER’S DISEASE

The most common memory disorder.

Figure 1

Eggs are full of healthy substances and may have an impact on the brain.

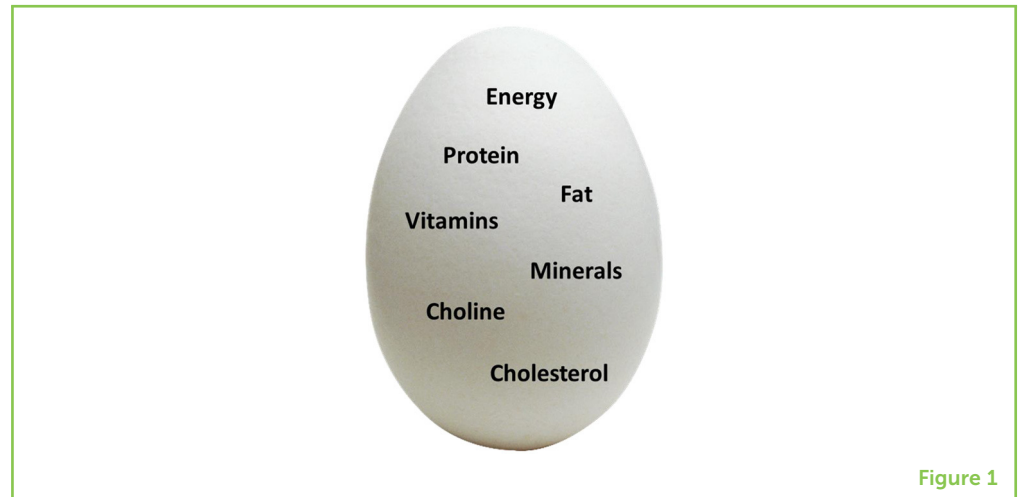


Figure 1

CHOLESTEROL

Cholesterol is a type of fat that your body makes. You may also get it from food, such as eggs or meat. Too much cholesterol in your body is not good for your heart or your brain.

APOE4

A gene that increases one's chance of getting a memory disorder. Too much cholesterol in the diet may not be good for people with this gene.

NUTRIENTS

Nutrients are substances that you need to get from food, such as carbohydrates, proteins, fats, vitamins, and minerals.

eggs every day and claim that eggs have health benefits. Well, are eggs bad for you or not? Who do we believe?

One thing that makes eggs tricky is that they have a lot of **cholesterol**. Cholesterol is a type of fat. Some people may develop diseases if they have too much cholesterol in their diets. This may happen if they inherited a gene called **APOE4** from their parents [2]. However, most people can eat some eggs without anything bad happening to their health [3–5]. Eggs are not just packages of cholesterol; they are also a very good source of many important nutrients. **Nutrients** in foods are substances that you need to grow and stay healthy. Eggs contain high-quality protein, good-quality fat, vitamins, and minerals. Eggs are also a very good source of a nutrient called choline, which may be important for brain health (Figure 1). Even though this sounds pretty good, no one has ever investigated what eggs do to our chances of getting memory disorders. So, when thinking of brain health, are eggs bad, good, or just an ordinary food?

COULD A 30-YEAR FINNISH STUDY GIVE US ANSWERS?

As far as we know, no one had ever studied whether eggs have a link with memory disorders. We were also interested in discovering whether eggs could help the brain to perform its tasks, like think and memorize. Would eating eggs help people to complete those tasks, or would eggs make it harder? And would people with the *APOE4* gene have more difficulties with the tasks if they ate more eggs? You may remember that eggs may not be good for people with that gene. Luckily, we had a lot of data available, waiting for us to dig in and find out!

Over 30 years ago, some Finnish researchers studied about 2500 middle-aged men from Finland [6]. The men were examined by doctors and study nurses. The men also gave blood samples and the

FOOD DIARY

A research method used to study nutrition. Every item of food and drink is written down, as is the amount and brand name.

lab workers checked whether they had the *APOE4* gene. Some of the men also did brain tasks, so researchers could see how well their brains and memories worked. Then, the men kept **food diaries** for 4 days, meaning they wrote down everything they ate and drank. Based on the food diaries, the researchers could count what the men had eaten. For example, they could count the number of eggs and the amount of cholesterol in the men's diets.

After 30 years, the men in that study had become very old. Some of them had developed diseases like heart disease or Alzheimer's disease, and some of them had died. We investigated whether there was a link between the number of eggs and the amount of cholesterol the men ate and memory disorders. We also investigated whether eggs and cholesterol were related to the men's performance in the brain tasks.

SO WHICH IS IT—ARE EGGS BAD OR GOOD FOR THE BRAIN?

After many computer calculations, we learned that eating one egg per day had no effect on the memory. Likewise, eating cholesterol was neither good nor bad for the memory, even for men with *APOE4*. So, in this study, it seems that eggs were neither bad nor good. When we say "in this study," we mean that the results may only be true in the Finnish study population. If we want to know whether the results hold true elsewhere, we need to do more studies in different study populations, such as women and people from other countries.

But hold on! Even though eggs seemed to be neither bad nor good for memory, they might be more than just an ordinary food. We saw that those men who ate more eggs were slightly better at completing some brain tasks compared to the men who ate fewer eggs. So, it may be that eating eggs benefits brain function, but we need to do more studies to know for sure. The take-home message of this study is that it is at least safe to eat eggs as part of a healthy diet.

KNOWN SUPERPOWERS FOR THE BRAIN AND MEMORY

So, if eggs do not turn out to be a superpower for the brain and the memory, what is? Lots of research is happening on this topic, but some things are already known to help keep the brain fresh and nimble.

- Use your brain! Be active at school, do your homework, and keep playing games.
- Exercise! It does not matter whether you go to a sports club or play football with your friends. Everything counts!

- Protect your brain! If you ride a bike or a horse, always wear a helmet.
- Eat healthily! A healthy diet contains a lot of vegetables, fruit and berries, whole-grain cereals, vegetable oils, and moderate amounts of animal products. Don't worry, a healthy diet can contain some sweets too, if most of the other recommendations are met.

Practice these tips and your brain will have many healthy years ahead!

ORIGINAL SOURCE ARTICLE

Ylilauri, M. P. T., Voutilainen, S., Lönnroos, E., Mursu, J., Virtanen, H. E., Koskinen, T. T. et al. 2017. Association of dietary cholesterol and egg intakes with the risk of incident dementia or Alzheimer disease: the Kuopio Ischaemic Heart Disease Risk Factor Study. *Am. J. Clin. Nutr.* 105:476–84. doi: 10.3945/ajcn.116.146753

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SUBMITTED: 20 April 2021; **ACCEPTED:** 28 April 2022;

PUBLISHED ONLINE: 23 May 2022.

EDITOR: Fiona C. Malcomson, Newcastle University, United Kingdom

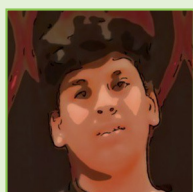
SCIENCE MENTOR: Heleena Moni Bottu

CITATION: Ylilauri MPT and Virtanen JK (2022) Are Eggs a Superpower for the Brain and Memory? *Front. Young Minds* 10:697754. doi: 10.3389/frym.2022.697754

CONFLICT OF INTEREST: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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YOUNG REVIEWER



ATIF HUSSAIN, AGE: 12

A caring, fun loving kid plays football and wishing to become astronaut; who brings smiles on everyone's face.

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I am a registered dietitian and an early-stage researcher at the University of Eastern Finland. I am finishing my doctoral studies on nutritional epidemiology. I have been studying the associations of dietary factors with risk of memory illnesses and with brain performance. When I am not working, I like doing various sports, such as cross-country skiing, weight training, jogging, and cycling. I also read both non-fiction and fiction. My husband and I have two brilliant young scientists of our own, an 9-year-old son and a 5-year-old daughter. *maiya.ylilauri@uef.fi



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Like Maija, I am a registered dietitian. I am working as an associate professor of nutrition and public health at the University of Eastern Finland. My main research interests revolve around major chronic diseases, such as cardiovascular diseases, type 2 diabetes, and memory disorders. I study how we can affect the risk of those diseases with a healthy diet. At home, I have a young Danish mastiff dog who keeps my wife and our 11-year-old daughter busy. When I have some free time, I like to go to the gym, mountain biking, cross-country skiing, or horseback riding.