

Why is fish oil touted as brain food?

NUS team working to find out how exactly the brain uses fish oil to improve its function

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Fish oil supplements line the shelves at Unity Healthcare, NTUC, in Great World City. PHOTO; ST FILE

For years, scientists have been saying that fish oil is good for you, but how exactly does it work?

As it turns out, it all comes down to one enzyme in the brain. Switch it off, a team of local scientists has found, and your brain starts slowing down.

This enzyme, known as Alox15, processes a key component in fish oil, called docosahexaenoic acid or DHA. Without it, the body is unable to properly make use of DHA to keep your brain running.

To find out exactly how Alox15 helps different parts of the brain to send signals to one another, Professor Ong Wei Yi and his team at the National University of Singapore (NUS) worked with rats.

Some of the rats had injections to stop the Alox15 enzyme from working while the others were left alone. They were then put into a maze to see how easily they would find their way to the food at the end of it, with the team logging the number of errors the rats made.

While the regular rats had no problems navigating the maze, those whose Alox15 enzymes had been inhibited quickly got lost and became confused.

"We knocked down the enzyme in a specific location of the brain, known as the prefrontal cortex," said Prof Ong, who is from the department of anatomy and neurobiology and the ageing research programme at the NUS Yong Loo Lin School of Medicine.

"This part of the brain controls things like executive function and long-term planning."

In rats as well as in people, these functions allow someone to process information and then act on it.

Throwing a spanner in the works by stopping Alox15 from functioning, said Prof Ong, further interrupts processes downstream.

Next, he and his team will study these processes to get a clearer idea of how the brain uses DHA to improve its function.

Knowing how the entire process works is important, said Prof Ong, because if problems develop later on, this makes it easier to find ways to overcome them.

"We have to identify a pathway because along the way there may be some opportunity for drug targets."

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