A Queen-Bee Secret That May Help Us Live Longer

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Welcome to Issue 22 of Science Says! Our weekly newsletter where you'll learn the latest healthy aging and C15:0 research news that our team of doctors, scientists, and experts are most excited about—without having to go search for it.

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What Dr. Stephanie Venn-Watson, our co-founder and author of over 80 peer-reviewed scientific publications, is reading.

HEALTHY AGING

Cell membranes are the bee's knees.

In A.J. Hulbert's membrane pacemaker theory of aging, different types of fatty acids in our cell membranes dictate how long we live. This week, let's talk about how various fatty acids behave in our cell membranes, how they may influence our lifespan, and an important clue around longevity and cell membranes coming from an unlikely source: bees.

What is the "membrane pacemaker theory of aging"?

Our cells are protected by two layers of lipids (aka fatty acids), called our cell membrane. You know the saying, "You are what you eat"? Well, this is especially true of what types of fatty acids you have in your cell's armor. The more polyunsaturated or saturated fatty acids you eat, the more you have in your cell membranes.

Through a series of extensive studies, Hulbert demonstrated that long lived species (like elephants and humans) have higher saturated and lower polyunsaturated fatty acids in their cell membranes compared to short-lived mammals, like mice.

Knowing that polyunsaturated fatty acids are more susceptible to aging-driving oxidation, Hulbert also demonstrated that longer-lived species had lower levels of oxidation compared to shorter-lived species. Importantly, these lower systemic levels of oxidation in long-lived species were directly correlated to higher saturated fatty acids in cell membranes.

Thus, was borne the theory that the higher the fatty acid saturation in our cell membranes, the lower the oxidation levels, the slower we age - and the longer we live.

The fascinating case of queen bees.

Did you know that queen bees live 3 times longer than worker bees? In support of his membrane pacemaker theory of aging, Hulbert found that queen bees' cells contained higher saturated fatty acids compared to shorter-lived worker bees.

Interestingly, all bees have the same long-lived cell membrane recipe when they are born. It is only when worker bees start eating pollen that their polyunsaturated fatty acid levels increase in their cell membranes and lead to their earlier demise. Meanwhile, the queen bee never eats pollen and maintains her strong and life-prolonging cells.

The lesson? If you're a worker bee, eat what the queen eats. If you're a human, understanding how your diet influences the fatty acid content in your cell membranes may just help you live longer.

C15:0 for healthier humans (and bees).*

C15:0 is a sturdy and beneficial odd-chain saturated fatty acid that, just as Hulbert suggested, helps to make cell membranes stronger and protects our cells against aging-related breakdown. C15:0 is not susceptible to oxidation, and this may be a big reason why numerous studies have shown that people with higher circulating C15:0 levels not only have better heart, metabolic, immune and liver health - but they can even live longer.

But what about those bees? Just last year, a smart team in Ukraine showed that giving honey bees diets that increased their C15:0 levels by 10-fold helped worker bees be more productive and queen bees be more re-productive.

While you can get your C15:0 from fatty15, the bees will have to wait until we have even tinier capsules.

Have a wonderful week, everyone!

Dive deeper into the science

READ THESE STUDIES

- Metabolism and longevity: Is there a role for membrane fatty acids?
- C15:0 improves red blood cell stability
- C15:0 benefits to cell membranes, mitochondria, and cell receptors
- C15:0 and better heart, metabolic, immune and liver health
- C15:0 and higher longevity - 1
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