C15:0 & Blood Pressure Part II

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Welcome to Issue 143 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.

Eric and Steph
Co-Founders, Doctors, Nerds

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

HEALTHY AGING

The need to protect healthy blood pressure at the earliest stages

Over the past month, we covered two new studies on C15:0 and cardiovascular health in adults. Specifically, Arghavani et al.'s clinical trial showed that increased C15:0 levels significantly correlated with decreased arterial stiffness. Meanwhile, Chen et al. demonstrated that people with circulating C15:0 levels greater than 0.15% of total fatty acids have healthier blood pressure. This week, we talk about a recent study evaluating associations between cell membrane fatty acids and blood pressure in children. Let's dive in.

Healthy adult hearts start with healthy childhood blood pressure.

As covered by Urbina et al., the higher our blood pressure as children, the greater our risk of developing cardiovascular disease as adults. This is of increasing importance because over the past 40 years, blood pressure has been increasing among kids. And this rise in blood pressure has been independent of the rise in obesity. Thus, protecting healthy blood pressure in children will have a direct, positive effect on protecting our heart health as adults.

Got it. So, where does C15:0 come into the picture?

In their study, Huang et al. measured levels of the following fatty acid groups in the red blood cell membranes of 421 children:

- Odd-chain saturated fatty acids (aka OSFAs, C15:0 and C17:0)
- Monounsaturated fatty acids (aka MUFAs)
- Polyunsaturated fatty acids (aka PUFAs, further divided into omega-3 and omega-6 PUFAs)

They then assessed whether these fatty acid groups were associated with higher or lower blood pressure in children.

I'm in. What did they find?

Huang et al. had the following key findings related to OSFAs:

- **The average red blood cell membrane concentration of C15:0 in children was about 0.125% of all fatty acids.** As a reminder, our *Metabolites* paper summarizes the robust evidence of needing at least 0.2% C15:0 in cell membranes to avoid C15:0 deficiency and resulting negative impacts to our long-term health, including our heart health.
- **Children with the lowest OSFAs had the highest systolic and diastolic blood pressure.** See the figure below, where 'Q1' represents children with the lowest quartile of C15:0 levels. This finding is consistent with Chen et al., which showed that adults with C15:0 levels less than 0.15% also had higher blood pressure.

Source: Huang et al. 2025

- **Neither ESFAs nor dairy fat intake had a direct influence on blood pressure.** This finding was consistent with Arghavani et al., which showed that a primary driver of improved vascular health was specifically increased C15:0 levels vs. the whole dairy food matrix. In fact, increased even-chain saturated fatty acids (ESFAs) were associated with *increased* blood pressure in adults.

In summary, Huang et al.'s study further supports that low C15:0 levels are associated with higher blood pressure - alarmingly, even among children. The good news is that, as demonstrated by multiple clinical trials, our C15:0 levels can be raised by increasing our intake of C15:0. Further, Arghavani et al. showed in their clinical trial that increasing C15:0 levels can improve vascular function within 12 weeks.

A call to action: Restoring C15:0 levels at all ages

Last week, we shared Duan et al.'s study supporting that C15:0 supplementation in infant formulas promotes mitochondrial, gut, and developmental health. This latest study by Huang et al. suggests that children also need adequate C15:0 levels to support healthy blood pressure. Which ladders up to numerous studies showing that we, as aging adults, also need to optimize our C15:0 levels to protect our long-term heart, metabolic, immune, red blood cell, and liver health.

For these reasons, along with robust safety studies, Seraphina Therapeutics has successfully expanded both the dose and age range of pure C15:0 to support our long-term health and wellness, including confirmed Generally Recognized as Safe (GRAS) status for people one year of age and up.

Now, that's good news for all. Have a wonderful week, everyone!

Dive deeper into the science

READ THESE STUDIES

- Arghavani et al. Impact of dairy intake on circulating fatty acids and associations with blood pressure: a randomized crossover trial.
- Chen et al. Associations between serum pentadecanoic acid (C15:0) and blood pressure: a cross-sectional analysis of NHANES data.
- Urbina et al. Blood pressure in children in the 21st century: what do we know and where do we go from here?
- Huang et al. Associations of erythrocyte membrane fatty acids with blood pressure in children.
- Venn-Watson et al. The Cellular Stability Hypothesis: Evidence of Ferroptosis and Accelerated Aging-Associated Diseases as Newly Identified Nutritional Pentadecanoic Acid (C15:0) Deficiency Syndrome.
- Chooi et al. Effect of An Asian-Adapted Mediterranean Diet and Pentadecanoic Acid on Fatty Liver Disease: The TANGO Randomized Controlled Trial.
- Robinson et al. C15:0 Supplementation in Young Adults at Risk for Metabolic Syndrome: A Randomized Controlled Trial. Journal of Clinical Nutrition 154, 2763-2771 (2024).
- Duan et al. Odd-chain fatty acid-enriched fats improve growth and intestinal morphology and function in milk replacer-fed piglets.
- Nerd out on all the C15:0 science at DiscoverC15.com