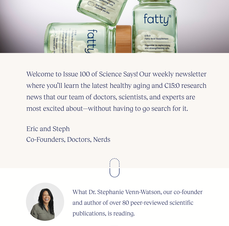
Clinical Trial: Fatty15 & Your Red Blood Cell Health

August 25, 2024



Welcome to Issue 100 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 over 80 peer-reviewed scientific publications, is reading.

HEALTHY AGING

Double Blinded & Placebo Controlled: Part III

Over the past couple of weeks, we have shared exciting results from a recent clinical trial published in *The Journal of Nutrition*, including how daily fatty15 supplementation can: 1) safely and effectively raise C15:0 levels, 2) treat nutritional C15:0 deficiency, and 3) support liver health. This week, we provide further evidence on how fatty15 promotes red blood cell health, which is an important and first step to reversing Cellular Fragility Syndrome (aka nutritional C15:0 deficiency).

What does red blood cell health have to do with Cellular Fragility Syndrome?

It ends up, a whole lot. Specifically,

- Red blood cells are responsible for carrying oxygen to our tissues, including our heart, muscles, brain, and... well, you get it.
- As shared in a recent article published in *Metabolites*, when C15:0 levels in our cell membranes are low (< 0.2% of total fatty acids or < 5 ug/ml), our cells, *including our red blood cells*, can become fragile.
- Test results that help detect fragile red blood cells include increasing red blood cell distribution width (RDW), increased red blood cell production, and decreasing hemoglobin.
- As described by Zhang et al., when hemoglobin declines, our bodies become more frail, and this frailty increases our risk of death.
- As shared last week, increasingly fragile red blood cells from Cellular Fragility Syndrome also result in suboptimal liver and iron health.

All of this means that having optimal red blood cell health is important to support our whole body health.

How was red blood cell health assessed in this clinical trial?

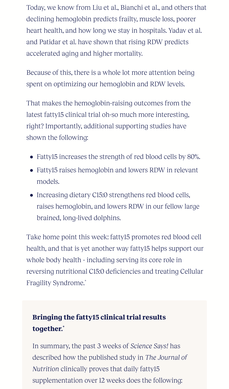
In the recent randomized, double blinded, and placebo controlled clinical trial with fatty15, researchers at the University of California, San Diego assessed not only C15:0 and liver enzyme blood levels, they also included hemoglobin. Specifically, hemoglobin was measured and compared among three groups who were followed for 12 weeks:

- **Placebo control group.** This group received a daily placebo capsule containing zero C15:0.
- **Sub-threshold group.** This group took fatty15, but for a variety of reasons (primarily from not adhering to the daily dosing protocol), did not achieve C15:0 blood levels above and over the definition of C15:0 deficiency.
- **Fatty15 threshold group.** This group routinely took daily fatty15 and achieved C15:0 blood levels > 5 µg/ml within 12 weeks of supplementation.

For each group, the UCSD team tested whether there were any statistically significant changes in hemoglobin levels between baseline and 12 weeks.

What did this clinical trial find with regard to red blood cell health?

Excitedly, this clinical trial found that the fatty15 threshold group had significantly higher hemoglobin after 12 weeks of routine supplementation. On average, people who took fatty15 and achieved C15:0 blood levels > 5 µg/ml (aka, were not nutritionally C15:0 deficient) increased their hemoglobin levels by an average of 0.6 g/dL. So long, frailty.



Mounting importance of red blood cell health.

For a long time, subtly declining hemoglobin and increasing red blood cell distribution width (RDW) over time were seen as signs of conditions, such as:

- Chronic inflammation
- Chronic disease
- Aging

As such, therapies focused less on direct ways to raise hemoglobin levels and more on fixing the underlying conditions. Further, it used to be accepted that declining hemoglobin with age was simply normal.

Today, we know from Liu et al., Bianchi et al., and others that declining hemoglobin predicts frailty, muscle loss, poorer heart health, and how long we stay in hospitals. Yadav et al. and Patidar et al. have shown that rising RDW predicts accelerated aging and higher mortality.

Because of this, there is a whole lot more attention being spent on optimizing our hemoglobin and RDW levels.

That makes the hemoglobin-raising outcomes from the latest fatty15 clinical trial oh-so much more interesting, right? Importantly, additional supporting studies have shown the following:

- Fatty15 increases the strength of red blood cells by 80%.
- Fatty15 raises hemoglobin and lowers RDW in relevant models.
- Increasing dietary C15:0 strengthens red blood cells, raises hemoglobin, and lowers RDW in our fellow large brained, long-lived dolphins.

Take home point this week: fatty15 promotes red blood cell health, and that is yet another way fatty15 helps support our whole body health - including serving its core role in reversing nutritional C15:0 deficiencies and treating Cellular Fragility Syndrome.*

Bringing the fatty15 clinical trial results together.*

In summary, the past 3 weeks of *Science Says!* has described how the published study in *The Journal of Nutrition* clinically proves that daily fatty15 supplementation over 12 weeks does the following:

- ✓ **Safely treats nutritional C15:0 deficiency.** On average, people who were supplemented with fatty15 safely raised their C15:0 blood levels from 4.2 ug/ml to 5.5 ug/ml (aka from C15:0 deficient to C15:0 sufficient).
- ✓ **Lowers liver enzyme levels and improves healthy liver function.** Study participants, especially those who reliably took fatty15 and achieved C15:0 blood levels > 5 µg/ml (nutritionally sufficient) significantly lowered their ALT liver enzyme levels (- 29 U/L) and AST liver enzyme levels (-6 U/L), demonstrating improvements in liver function.
- ✓ **Raises hemoglobin levels, indicative of improved cellular health.** The same fatty15 supplemented group that showed improved liver enzyme levels also showed a meaningful rise in hemoglobin (+0.6 g/dL). This supports that red blood cell health (a bellwether of health in Cellular Fragility Syndrome) significantly improved.

That's three big wins for our pure and science backed C15:0 essential nutrient. With that, happy 100th issue of *Science Says!* and have a great week, everyone!

Dive deeper into the science

READ THESE STUDIES

- Robinson et al. C15:0 supplementation in young adults with overweight and obesity: a randomized controlled trial.
- Venn-Watson S. The Cellular Stability Hypothesis: Evidence of hemoprasia and accelerated aging-associated diseases as newly identified nutritional pentadecanoic acid (C15:0) deficiency syndrome.
- Zhang et al. Mortality from all-cause and cause-specific in the elderly: joint implications of anemia and frailty.
- Liu et al. Hemoglobin level is negatively associated with sarcopenia and its components.
- Bianchi et al. The treatment of chronic anemia in heart failure: a global approach.
- Patidar et al. Study of relation between RDW with age, severity and duration of heart failure.
- Yadav et al. A systematic review of red blood cells biomarkers in human aging.
- Venn-Watson et al. Efficacy of dietary odd-chain saturated fatty acid pentadecanoic acid parallels broad associated health benefits in humans: could it be essential?
- Venn-Watson et al. Modified fish diet alleviated chronic anemia in dolphins.

- Nerd out on all the C15:0 science at DiscoverC15.com.