



Conclusions: Pre-exercise L-citrulline intake preserves splanchnic perfusion and attenuates intestinal injury during exercise in athletes compared with placebo, probably by enhancing arginine availability. These results suggest that oral L-citrulline supplementation is a promising intervention to combat splanchnic hypoperfusion-induced intestinal compromise.

This conclusion is from a 2014 human study showing that a single pre-exercise dose of oral L-citrulline improved gut blood flow (splanchnic perfusion) and reduced markers of intestinal injury in athletes versus placebo, likely by raising arginine availability and NO production. In other words, taking L-citrulline before intense exercise may help protect the gut from hypoperfusion-induced “leaky gut”-type damage.^[1]

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any other studies that corroborate this

Yes, but evidence is still thin and mostly indirect.

Direct “leaky gut + exercise” data

- The 2014 Maastricht RCT you’re looking at (10 g L-citrulline pre-exercise, n=10) is the primary human trial directly showing preserved splanchnic perfusion and reduced enterocyte injury markers during 60 min of cycling at 70% Wmax, with no significant effect on sugar-probe permeability in that protocol.^{[2] [3]}
- That trial sits on top of prior and parallel work showing that acute strenuous exercise reliably induces gut damage and permeability, so the protective effect is biologically plausible in that context.^[4]

Related or follow-up work

- The “Effects of Citrulline on Gut Functioning During Exercise” clinical trial (NCT01239303) is the registered version of this Maastricht study; there are no large published follow-ups specifically on gut integrity yet, suggesting this remains the main dataset rather than one of many.^{[5] [6]}

- Broader citrulline literature shows improved vascular function and exercise performance (e.g., better blood pressure control, oxygen utilization, time to exhaustion) in various aerobic exercise settings, consistent with enhanced NO-mediated perfusion, but these studies typically do not measure gut perfusion or permeability endpoints.^{[7] [8] [9]}

Practical inference

So for “does citrulline acutely protect the gut from exercise-induced splanchnic hypoperfusion?” we essentially have one well-done crossover RCT plus a lot of converging vascular data, but not multiple independent gut-specific replications yet.^{[3] [9] [2]}

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1. <https://www.rapamycin.news/t/the-arginine-paradox-solved-why-citrulline-is-the-superior-vascular-anti-aging-agent/22462/36>
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5. <https://app.trialscreen.org/trials/effects-citrulline-on-gut-functioning-during-exercise-trial-nct01239303>
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9. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9460004/>
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12. <https://www.youtube.com/watch?v=EEgy3jQZQ5A>
13. <https://www.rapamycin.news/t/the-arginine-paradox-solved-why-citrulline-is-the-superior-vascular-anti-aging-agent/22462/36>