

Polyphenol-Microbiome Evidence Ladder

A one-page reference for separating promising mechanism from stronger clinical certainty.

Use this when a headline, supplement page, or social post makes a big claim about polyphenols and the gut microbiome.

Evidence Ladder

Evidence layer	What it can show well	Main limitation	Best way to use it
In vitro and fermentation models	Enzyme activity, microbial metabolism, direct interactions	No full human host context	Good for mechanism, not outcome promises
Animal studies	Ecological shifts, metabolite patterns, organism examples	Does not translate cleanly to humans every time	Good for plausibility, not certainty
Human intervention studies	Real-world relevance, tolerability, some microbiome shifts	Often small, mixed, and context-dependent	Good for careful, specific claims
Consensus definitions and position statements	Terminology standards and evidence boundaries	Do not prove every mechanism claim	Good for controlling language and certainty

Questions to Ask Before Trusting a Big Claim

1. Is this based on cells, animals, or people?
 2. Is the result a mechanism clue or a clinical outcome?
 3. Is the claim about a food pattern or a branded product?
 4. Does the language sound more certain than the evidence actually is?
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Bottom Line

- Polyphenol-microbiome science is real.
 - The mechanism story is stronger than the universal outcome story.
 - Food pattern thinking is usually safer than extract hype.
 - Proposed concepts such as "duplibiotic" are useful, but they are not the same thing as settled consensus language.
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This reference is for informational purposes only and does not constitute medical advice.

Source: yourfitnature.com/blog/polyphenols-gut-microbiome-science