

MICROBIOME CHANGES UNDER NUTRIENT DEPRIVATION ARE DYNAMIC AND DEPENDENT ON INTESTINAL LOCATION

B Brett Finlay

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Poster

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A mouse model of total parenteral nutrition shows that enteral deprivation causes location-specific gut microbiome disruption, with mild proximal small intestine changes but dramatic alterations in the distal small intestine and colon.

KEY POINTS

- Total parenteral nutrition in mice produced significant microbial community changes across the gastrointestinal tract compared with baseline and control groups fed normally
- Time-dependent microbiome shifts occurred in the ileum transitioning from baseline to TPN groups, while jejunal samples showed no change
- Alpha diversity decreased in feces of TPN mice compared with controls ($p < 0.01$) but showed no change or trending increase in ileal and jejunal samples
- Community de-stabilization began on day 2 and progressed through day 6, characterized by progressive loss of single taxa domination primarily in the small intestine
- This experimental model demonstrates that enteral deprivation disturbs gut microbial communities in a location-specific manner and may inform understanding of microbiome changes in hospitalized patients receiving parenteral nutrition

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