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# The gut takes nearly all: threonine kinetics in infants<sup>1,2,3</sup>

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Background: Threonine is an essential amino acid that is abundantly present in intestinally produced glycoproteins. Animal studies show that intestinal first-pass threonine metabolism is high, particularly during a restricted enteral protein intake.

Objective: The objective of the study was to quantify intestinal first-pass threenine metabolism in preterm infants during full enteral feeding and during restricted enteral intake.

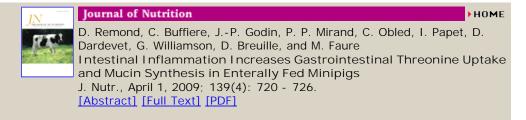
Design: Eight preterm infants ( $\bar{x} \pm$  SD birth weight: 1.1  $\pm$  0.1 kg; gestational age: 29  $\pm$  2 wk) were studied during 2 periods. During period A, 40% of total intake was administered enterally and 60% was administered parenterally. Total threonine intake was 58  $\pm$  6  $\mu$ mol  $\cdot$  kg<sup>-1</sup>  $\cdot$  h<sup>-1</sup>. During period B, the infants received full enteral feeding, and the total threenine intake was 63  $\pm$  6  $\mu$ mol  $\cdot$  kg<sup>-1</sup>  $\cdot$  h<sup>-1</sup>. Dual stableisotope tracer techniques were used to assess splanchnic and whole-body threonine kinetics.

Results: The fractional first-pass threonine uptake by the intestine was remarkably high in both periods: 82 ± 6% during partial enteral feeding and 70  $\pm$  6% during full enteral feeding. Net threonine retention was not affected by the route of feeding.

Conclusion: In preterm infants, the splanchnic tissues extract a very large amount of the dietary threonine intake, which indicates a high obligatory visceral need for threonine, presumably for the purposes of synthesis.

Key Words: Threonine • preterm infants • intestine • stable isotopes • nutrition • splanchnic metabolism

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