

AGING INDUCES HISTOLOGICAL CHANGES IN THE INTESTINAL MUCOSA THAT MAY REDUCE THE RESPONSE TO NUTRITIONAL SUPPORT

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UEG Week Berlin 2025

Presentation

Gut Microbiota

Small Intestine & Nutrition

October 7, 2025

Aging is associated with significantly reduced duodenal villi length (0.35 mm vs 0.65 mm, $p < 0.01$) and ultrastructural enterocyte changes suggesting compromised absorptive capacity in adults ≥ 70 years compared to younger adults.

KEY POINTS

- In 84 patients (33 aged 18-45 years, 50 aged ≥ 70 years) undergoing upper endoscopy, median duodenal villi length was significantly lower in older adults (0.35 mm, range 0.23-0.43) compared to younger adults (0.65 mm, range 0.37-0.79), $p < 0.01$.
- Electron microscopy revealed enterocyte changes in older adults including microvilli irregularities, autophagic vacuoles, and vesiculation of smooth endoplasmic reticulum, suggesting compromise of cell physiology and absorptive surface area; these changes were absent in younger adults.
- Older adults had significantly lower hemoglobin, iron, folic acid, and vitamin B12 levels, though B12 and folate remained within normal range.
- Standard histology showed no major differences between groups: 98% of older adults and 100% of younger adults had normal duodenal histology; only one older adult (2%) showed mucosal atrophy (Marsh 3A).
- The study was observational with no direct functional assessment of absorption; villus height to crypt depth ratio remained normal in both groups.

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