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Summary

Imaging is the only technique to study small bowel motility

Jaap Stoker

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Paediatrics | Small Intestine & Nutrition | Neurogastroenterology & Motility

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MRI offers a non-invasive, radiation-free method to assess whole small bowel motility with validated quantification tools, showing clinical utility in Crohn's disease and potential for AI-enhanced analysis.

KEY POINTS

- The speaker presented MRI as a non-invasive technique that assesses the entire small bowel at once using brief breath-hold sequences totaling approximately one minute of acquisition time over a 10–15 minute examination.
- A validated commercially available motility quantification method developed in Crohn's disease correlates with histopathology and endoscopic severity, and the speaker reported that anti-TNF responders showed clear motility increases while non-responders did not.
- In Crohn's disease, the speaker stated that decreased motility is an early marker of disease activity and normalizes with treatment response, potentially eliminating the need for intravenous contrast.
- The speaker described research using AI-based methods to create linear representations of the small bowel, measure bowel content velocity and direction, and reported that healthy individuals had higher velocity than Crohn's patients.
- In a study of 30 strictures, the speaker reported that high motility in the pre-stricture dilatation was linked to chronic strictures, suggesting motility may help diagnose histopathology, though this requires further validation.
- MRI applications extend beyond Crohn's disease; the speaker cited cystic fibrosis studies showing lower fasted motility scores and longer transit times that responded to treatment, and demonstrated that MRI can identify adhesions by visualizing motility patterns.

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