TESTS OF INTESTINAL FUNCTION

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Subsequent chapters address diagnostic tests specific to the rectum (see Chapter 79) and anus (see Chapter 80). Here the focus is on tests that may be relevant to studying the motility of the small intestine and colon. A general proviso in reading this section is that our current ability to understand the physiology of the intestine in humans is limited by both access and under - standing. In general, we measure what can be measured and all tests have inherent limitations to interpretation. Summary box 73.2 provides an overview of all tests, denoting those that hav e general clinical application versus those that are the preserve of highly specialised units or research studies. - Summary box 73.2 makes clear that few tests are in general use. Small bowel contrast studies, e.g. barium follow- - through, although available, hav e poor sensitivity for detecting much other than visceral distension (superseded by axial imaging with computed tomography [CT] or MRI) or grossly retarded transit. Breath hydrogen testing assesses the presence Tests of small intestinal function /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF Tests of colonic function /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF of carbohydrate malabsorption and is an indirect measure of transit because stagnated content allows some degree of bacterial overgrowth and fermentation products (hydrogen, methane and carbon dioxide). Although frequently used in patients with unexplained chronic abdominal symptoms such as irritable bowel syndrome (IBS), its utility in reliably measuring transit or detecting bacterial overgrowth is limited by issues of reproducibility . The wireless motility capsule measures pH, temperature and pressure as it traverses the whole gastrointestinal tract; changes in these variables can be used to determine timings as it migrates from stomach to small bowel and large bowel. While it o ff ers a number of advantages over and above current techniques, especially with respect to patient tolerability , safety and standardisation, it is not widely available owing to cost. Prolonged measurement of small bowel contractile activ ity can be performed using multichannel pressure recordings called manometry that show phases of the MMC. Some find ings may be indicative of underlying small bowel neuromuscu lar diseases such as myopa thies and neuropathies (see Chronic impairment of intestinal motility with dilatation of the small intestine: intestinal pseudo-obstruction) but these findings have issues of specificity and the technology itself is only available in a small number of centres worldwide. Dynamic MRI (long sequences of image acquisition with computer analysis) is currently a research tool but may well represent the future. The radio-opaque marker study is the mainstay of evalua tion of colonic transit. Though variations in technique exist in terms of the number of markers, interval to radiograph and definition of slow transit, the basic premise is that a number of markers (small pieces of plastic tubing, prepackaged in gelatin capsules) are ingested and an abdominal radiograph (which includes the pelvis) taken at an interval. The patient abstains from laxatives for the duration of the study . In patients with sig - nificant numbers of retained markers (based on control data), slow-transit constipation is

diagnosed (Figure 73.2). Other studies of colonic transit, e.g. isotope scintigraphy and direct measurements of colonic contractile activity , are restricted to a very small n umber of specialist centres worldwide.

Transit a Small bowel barium contrast study Breath hydrogen small bowel transit tests (lactulose or lactose 13 a C-ureide) b Wireless motility capsule small bowel transit study Contractile activity Antroduodenal manometry (ideally prolonged [24 hours] ambulatory study) Dynamic magnetic resonance imaging (MRI) studies Transit a Radio-opaque marker studies Isotope scintigraphy b Wireless motility capsule whole-gut transit study Contractile activity Colonic manometry Dynamic MRI studies a Denotes general availability. b Adopted by some highly funded health systems. Figure 73.2 Radio-opaque marker transit study in a woman. All 50 markers are retained, indicating slow-transit constipation.

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