

Introduction to Pediatric Gastroenterology

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Key concepts, common conditions, diagnostic tools, and management principles for children's digestive health.

1. Scope of Pediatric Gastroenterology

Aspect	Description
Definition	Medical specialty focused on the gastrointestinal (GI), hepatobiliary, and pancreatic systems in patients from birth to 18 years.
Goals	• Diagnose and treat acute & chronic GI diseases. • Support growth, nutrition, and development. • Prevent complications that can affect long-term health. • Developmental anatomy and physiology.
Differences from Adult GI	• Age-specific disease prevalence (e.g., infantile colic, cow milk protein allergy). • Dosing and formulation of medications. • Greater emphasis on nutrition and growth monitoring.

2. Basic Gastrointestinal Physiology in Children

System	Pediatric Particularities
Esophagus	Lower esophageal sphincter tone is lower in infants → higher risk of gastroesophageal reflux.
Stomach	Faster gastric emptying in neonates; acid production rises sharply after the first month.
Small Intestine	Surface area expands dramatically (~10 m² by age 2); absorptive capacity matures rapidly.
Colon	Motility patterns evolve from “infantile” to adult-type peristalsis by 3 years.
Liver	Bile acid synthesis reaches adult levels by 6 months; hepatic enzyme activity (e.g., CYP450) matures over the first 2 years.
Pancreas	Exocrine enzyme output reaches adult levels by 1 year; endocrine function (insulin secretion) matures within the first 6 months.

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3. Common Pediatric GI Disorders

Category	Typical Age	Core Features	First-Line Management
Functional GI	0-5y	Infantile colic, functional abdominal pain, functional dyspepsia, constipation	Reassurance, diet modification, behavioral strategies, osmotic laxatives (e.g., polyethylene glycol)
Reflux Disease	<2y	Regurgitation, irritability, failure to thrive	Positioning, thickened feeds, proton pump inhibitor (PPI) for severe cases
Cow-Milk Protein Allergy (CMPA)	0-12m	Vomiting, diarrhea, eczema, blood in stool	Elimination of cow-milk protein; hypoallergenic formula if breastfed
Celiac Disease	6mo-2y	Chronic diarrhea, abdominal distention, growth failure, dermatitis herpetiformis	Strict gluten-free diet; monitor serology and growth
Inflammatory Bowel Disease (IBD)	10-15y	Persistent abdominal pain, bloody diarrhea, weight loss, extra-intestinal manifestations	Induction (corticosteroids, biologics), maintenance (immunomodulators, biologics)
Hepatobiliary	0-18y	Jaundice, hepatomegaly, cholestasis, pruritus	Treat underlying cause (e.g., biliary atresia ? Kasai portoenterostomy)
Pancreatic Disorders	0-5y	Recurrent pancreatitis, steatorrhea, failure to thrive	Enzyme replacement, pain control,