Gastrointestinal tract

The gastrointestinal tract, is the tract from the mouth to the anus which includes all the organs of the digestive system in humans and other animals. Food taken in through the mouth is digested to extract nutrients and absorb energy, and the waste expelled as feces.

The gastrointestinal tract contains thousands of different bacteria in their gut microbiota.

The human gastrointestinal tract consists of the esophagus, stomach, and intestines, and is divided into the upper and lower gastrointestinal tracts.

The GI tract includes all structures between the mouth and the anus, forming a continuous passageway that includes the main organs of digestion, namely, the stomach, small intestine, and large intestine. In contrast, the human digestive system comprises the gastrointestinal tract plus the accessory organs of digestion (the tongue, salivary glands, pancreas, liver, and gallbladder).

The tract may also be divided into foregut, midgut, and hindgut, reflecting the embryological origin of each segment.

The whole human GI tract is about nine metres (30 feet) long at autopsy. It is considerably shorter in the living body because the intestines, which are tubes of smooth muscle tissue, maintain constant muscle tone, somewhat like a slinky that maintains itself in a halfway-tense state but can relax in spots to allow for local distention, peristalsis, and so on.

The GI tract releases hormones from enzymes to help regulate the digestive process. These hormones, including gastrin, secretin, cholecystokinin, and ghrelin, are mediated through either intracrine or autocrine mechanisms, indicating that the cells releasing these hormones are conserved structures throughout evolution.

GI complications after cardiac surgery increased inpatient mortality 3-fold and more than doubled length of stay. Improved recognition and understanding of the predisposing risk factors and complications elucidated in this study could serve to increase the necessity for timely diagnosis and treatment of patients at high risk for GI complications after cardiac surgery ¹⁾.

Increasing evidence connects the gut microbiota and the onset and/or phenotype of Parkinson's disease (PD). Differences in the abundances of specific bacterial taxa have been reported in PD patients. It is, however, unknown whether these differences can be observed in individuals at high risk, for example, with idiopathic rapid eye movement sleep behavior disorder, a prodromal condition of α -synuclein aggregation disorders including PD.

To compare microbiota in carefully preserved nasal wash and stool samples of subjects with idiopathic rapid eye movement sleep behavior disorder, manifest PD, and healthy individuals.

Microbiota of flash-frozen stool and nasal wash samples from 76 PD patients, 21 idiopathic rapid eye movement sleep behavior disorder patients, and 78 healthy controls were assessed by 16S and 18S ribosomal RNA amplicon sequencing. Seventy variables, related to demographics, clinical parameters including nonmotor symptoms, and sample processing, were analyzed in relation to microbiome variability and controlled differential analyses were performed.

Differentially abundant gut microbes, such as Akkermansia, were observed in PD, but no strong differences in nasal microbiota. Eighty percent of the differential gut microbes in PD versus healthy controls showed similar trends in idiopathic rapid eye movement sleep behavior disorder, for example, Anaerotruncus and several Bacteroides spp., and correlated with nonmotor symptoms. Metagenomic sequencing of select samples enabled the reconstruction of genomes of so far uncharacterized differentially abundant organisms.

This study reveals differential abundances of gut microbial taxa in PD and its prodrome idiopathic rapid eye movement sleep behavior disorder in comparison to the healthy controls, and highlights the potential of metagenomics to identify and characterize microbial taxa, which are enriched or depleted in PD and/or idiopathic rapid eye movement sleep behavior disorder ².

Gastrointestinal cancer metastases

Gastrointestinal cancer metastases

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