



Small intestinal overgrowth (SIBO, SIFO, IMO, ISO)

The small intestine is responsible for nutrient absorption. The smallest components of our food are transported through the mucous membrane from the inside of the intestine into the blood and lymph within a very short time. Then, around four hours after a meal, the small intestine enters the fasting or clean-up phase: It removes all undigested residues, harmful substances, unwanted pathogens and bacteria and transports them to the large intestine.

If the small intestine slows down its work, changes due to operations or deteriorates due to various influences (see p. 4-5), the entire gastrointestinal tract is out of balance. Many complaints arise (see p. 2-3) and, over time, diseases. Conversely, existing or new diseases cannot be cured as long as the small intestine is not properly colonized.

The proliferating bacteria/fungi consume various types of sugar and vitamins. Fatigue, constant hunger, pronounced food cravings, weight loss or growth disorders follow.

The deficiencies and the activity of the bacteria or fungi irritate or damage the mucous membrane of the small intestine. This means that nutrients cannot be completely broken down and absorbed. Instead, they serve as an additional food source for the bacteria/fungi, allowing them to multiply further. In addition, harmful substances, histamine that is increasingly released or not broken down from mast cells and foreign pathogens enter the bloodstream. Psychological and metabolic disorders, skin problems or headaches, joint and muscle pain develop.

More bacteria in the small intestine usually means more gas in the intestine. Flatulence, abdominal cramps, bowel sounds, but also diarrhea, changing stool consistency or constipation can be the result.



General SIBO-Symptoms:

- Bloating abdomen ("like pregnant") with or without flatulence
- Abdominal pressure, pain or cramps in the upper or whole abdomen
- Changing stools (sometimes diarrhea, sometimes constipation)
- Acidic/painful stools or fatty stools (shiny, foul-smelling stools floating on the surface of the water)
- Intense tiredness
- Unclear weight fluctuations
- Bowel sounds
- Fluctuating intolerances (sometimes complaints, sometimes none)
- I have no idea what I can and can't tolerate.
- I feel best when I don't eat anything.
- I can't tolerate fat well.

Hydrogen SIBO (H₂-SIBO)

- Diarrhea (mushy to watery)
- Feeling hungry despite regular meals
- I feel best in the morning.
- My symptoms get worse during the day, especially in the evening/at night.
- Symptoms occur within 2 hours after eating.
- Bread, pasta, dough or legumes cause discomfort.

Intestinal methanogen overgrowth (IMO)

- Constipation
- Incomplete emptying
- Loss of appetite
- Quick feeling of fullness
- Nausea or vomiting
- Air regurgitation, acid regurgitation or reflux
- Feeling that food stays in your stomach for many hours.
- Symptoms are present from morning to evening.

Intestinal hydrogen sulfide overproduction (ISO)

- Diarrhea
- Metal taste in the mouth or bad breath
- Anxiety, mood swings, depression
- Tingling, itching or numbness in the legs, hands, fingers
- Body aches, feeling ill or as if poisoned
- Flatulence that smells of sulphur (like rotten eggs)
- Protein-rich foods, meat, eggs, garlic, onions cause discomfort
- Worsening of intolerances such as sulphur, histamine and salicylate intolerance ("aspirin allergy", chronic nasal congestion)
- Unfavorable reactions to Epsom salt bath; glucosamine, glucosamine sulfate or MSM



Small intestine fungal, mold or yeast overgrowth (SIFO)

- White coating on the tongue
- Unintentional weight loss
- Taking immunosuppressants/steroids or antibiotics
- Chemotherapy
- Tinnitus
- Digestive enzymes are poorly tolerated or do not work
- Increased craving for sweets
- Leads to symptoms: Sweets, beer, prosecco, kombucha, yogurt, pickles, sauerkraut or **lactose-free** cow's milk.

Permeable bowel (*leaky gut* or intestinal mucosal dysfunction), Lactobacillus resistance and histamine problems

- Drowsiness, "brain fog", forgetfulness, concentration problems
- Headache, migraine
- Nausea
- Dizziness
- Tense neck
- Muscle and/or joint pain
- Dry skin, skin rashes, acne
- Hair loss
- Menstrual cramps
- Cardiac arrhythmia
- Low blood pressure
- Increased pulse
- Breathing difficulties
- Blocked/runny nose
- Sweating at night or in the morning
- Sleep disorders
- I react to alcohol.
- I react to reheated meals and or eating out.
- I am very sensitive to food ingredients, E-numbers, food supplements and medication.
- I cannot tolerate many foods



Cause and risk factors I: Slow small intestine activity

- Chronic constipation
- Chronic stress
- Parasites
- Food poisoning or post-infectious irritable bowel syndrome
- Infections: General infections, intestinal infections, acute/infectious gastrointestinal inflammation, COVID, Lyme disease, mononucleosis (EBV), varicella zoster
- Drugs and addictive substances:
 - Antibiotic therapies
 - Painkillers (NSAIDs), opioids
 - Antidepressants
 - Remedies for acne
 - Oral antidiabetics (GLP-1 analogs)
 - Antiadiposita (e.g. Semaglutin: Wegovy, Ozempic, Liraglutin: Saxenda)
 - Narcotics such as heroin
- Chronic diseases:
 - *Metabolism*: Diabetes mellitus, hypothyroidism, Hashimoto's disease
 - *Musculoskeletal system/rheumatology*: Scleroderma, hypermobility spectrum disorder or Ehlers-Danlos syndrome, Behçet's disease
 - *Gastrointestinal tract*: Liver cirrhosis, hepatic encephalopathy or non-alcoholic fatty liver disease NASH
 - *Neurological diseases*: Parkinson's disease, multiple sclerosis, postural tachycardia syndrome (POTS), Arnold-Chiari malformation
- Age: Older than 75 years
- Accidents: traumatic brain, head, pelvic floor or spinal column injury, whiplash, skiing or riding accident - head injury not necessary
- Operations: in the brain, spine, uterus or gastrointestinal tract

Cause and risk factors II: Altered intestinal anatomy

- Dysfunction of the ileocecal valve or reduction in ileocecal pressure (ICJP) in celiac disease, Lyme disease or inflammation in the ileum
- Removal of the ileocecal valve
- Adhesions after operations
- Blind loop syndrome in case of hernia, small bowel diverticulum or Crohn's disease
- Narrowing (stenosis) in Crohn's disease or tumor
- Pressure formation (compression) in endometriosis, tumor or the small bowel vascular disease "superior mesenteric artery syndrome"
- Twisting of the small intestine (twist/volvulus)
- Unwanted connection between two organs (fistula) such as the large and small intestine or in Crohn's disease



Causes and risk factors III: Others

- Reduced stomach acid: Long-term therapy with gastric acid protectors, gastritis with or without *Helicobacter pylori*, reduction/removal of the stomach, hormonal inhibition due to a pancreatic tumor (VIPoma)
- Less digestive juices: acute pancreatitis, chronic pancreatic insufficiency, removal of the gallbladder, less pancreatic and bile juices due to reduced stomach acidity
- Weakened immunity: Immunosuppressants (e.g., Imurek, Humira, Remicade, Stelara, Xolair), HIV, IgA deficiency, restless legs syndrome, mannose-binding lectin, etc.
- Lifestyle/nutrition:
 - Overweight/obesity (risk of SIBO increased by two to three times)
 - intravenous (parenteral) nutrition
 - Regular consumption of alcohol (one glass of wine or one beer a day)
 - Poor sanitary conditions
- Female gender
- In children or if symptoms in adults have persisted since childhood: Birth by cesarean section, not breastfed, growth retardatio

Complete list of sources at www.ernaehrung-heierle.ch