

## Constipation

### Overview

- Constipation is a common functional gastrointestinal disorder, with prevalence in the general population of approximately 20%. It is more prevalent in females and the elderly<sup>1</sup>.
- Constipation is both a symptom and, when chronic, a multisymptomatic disorder, and it can overlap with other gastrointestinal tract disorders such as dyspepsia and gastroesophageal reflux disease<sup>2</sup>.
- Constipation most commonly refers to infrequent bowel movements. It is defined as having a bowel movement less than 3 times per week<sup>3</sup>.
- Chronic constipation is difficult and/or rare passage of stools that lasts for several months that can interfere people's ability to go about their daily activities. It may also cause people to strain excessively to have bowel movement<sup>4</sup>.

### Symptoms and signs



Stool inconsistency<sup>5</sup>



Hard and lumpy stools<sup>5</sup>



Straining<sup>5</sup>



Urge for defaecation<sup>5</sup>



Bloating<sup>5</sup>



Abdominal discomforts<sup>5</sup>



Feelings of incomplete emptying after a bowel movement<sup>5</sup>

### Causes and risk factors

#### Extrinsic factors<sup>6</sup>

- Low fibre intake
- Insufficient hydration
- Reduced mobility
- Medications

#### Intrinsic factors<sup>6</sup>

- Pelvic floor dysfunction
- Slow colon transit time

## Supplement recommendations

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### Probiotics

#### Mechanism of action

The mechanisms of action of probiotics include direct interaction with intestinal microbiota to modify its composition, improving gut barrier function and mucosal immunity, reducing mucosal permeability and competitive exclusion which reduces the colonisation of pathogenic bacteria<sup>7,8,9</sup>.

#### Benefits

##### Constipation

Probiotics produce short-chain fatty acids through the fermentation process which promotes osmotic stimulation. It increases the secretion of water and electrolytes thereby softening the stools. Softer stools and improved intestinal peristalsis will likely relieve the symptoms of constipation. Clinical research showed that daily intake of 30 billion CFUs multi-strain probiotic containing *L. acidophilus*, *L. casei*, *L. lactis*, *Bifidobacterium bifidum*, *Bifidobacterium longum* and *Bifidobacterium infantis* twice for 7 days helps to improve bowel movement among adults with chronic constipation compared to placebo<sup>10</sup>.

##### Gastrointestinal health

Probiotics play an important role in maintaining intestinal microbiota homeostasis and inducing systemic protective responses. It blocks the adherence of pathogens and toxins to the intestinal epithelium by secreting bactericidal substances<sup>11</sup>. On top of that, probiotics also facilitate shortchain fatty acids production in the gastrointestinal tract which helps to regulate pH and inhibit the activation of NFκB macrophages that can cause inflammatory bowel diseases<sup>12</sup>. A meta-analysis showed probiotics reduce irritable bowel syndrome and abdominal pain after 8 to 10 weeks of consumption<sup>13</sup>.

#### Recommended dosage

There is currently no established effective probiotic dosage because it can be affected by species, dose and duration of therapy depending on the clinical indication. The concentration of single strain bacteria is recommended to be >1 billion CFU to ensure effectiveness unless with clinical support<sup>14</sup>.



## Supplement recommendations

### Magnesium

#### Mechanism of action

Magnesium salts increase the osmotic pressure of the intestinal lumen fluid, thereby promoting the transfer of water to the intestinal lumen and increasing the water content and volume of the stool. In addition, the swollen stool stimulates the intestinal wall and intestinal propulsive motor activity<sup>15</sup>.

#### Benefits

##### Constipation

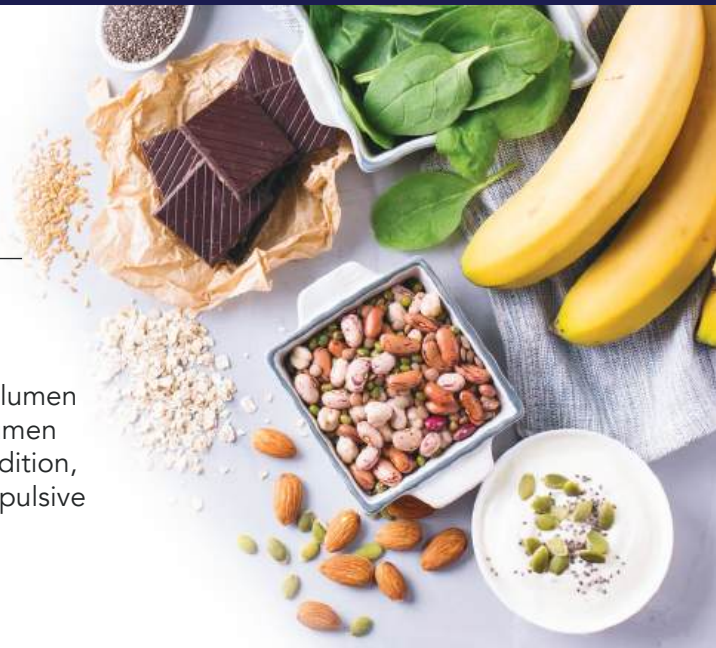
Magnesium is known to cause relaxation of the muscles lining the colon walls, which allows for smoother wall contractions. These smoother wall contractions allow for effective pushing of stool. Magnesium also attracts water into the colon making stool softer and easier to pass. In a cross-sectional study of 3835 female Japanese students aged 18 to 20 years, constipation was not associated with low fiber or low water intake from foods but was associated with a low intake of magnesium<sup>16</sup>.

#### Recommended dosage

Recommended dietary allowances (RDAs) for magnesium<sup>17</sup>

Age	Male	Female	Pregnant	Lactation
0-6 months*	30mg*	30mg*		
7-12 months*	75mg*	75mg*		
1-3 years	80mg	80mg		
4-8 years	130mg	130mg		
9-13 years	240mg	240mg		
14-18 years	410mg	360mg	400mg	360mg
19-30 years	400mg	310mg	350mg	310mg
31-50 years	420mg	320mg	360mg	320mg
51+ years	420mg	320mg		

\*Adequate Intake (AI)



## Supplement recommendations

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### Konjac

#### Mechanism of action

Like other forms of dietary fiber, konjac glucomannan is considered a “bulk-forming laxative.” Glucomannan promotes a larger, bulkier stool that passes through the colon more easily, requiring less pressure and subsequently less straining to expel<sup>18</sup>.

#### Benefits

##### Constipation

Studies shown that glucomannan may provide relief in constipation through the improvement of probiotic bacteria counts in faeces (colonic ecology) after daily supplementation of 1.5g of konjac glucomannan for 21 days. Bowel movement function was increased by 30%<sup>19</sup>. The mean defecation frequency and dry faecal mass increased due to the presence of plant and soluble materials from supplementation of konjac glucomannan<sup>20</sup>.

##### Inflammatory bowel disease (IBD)

Daily consumption of konjac glucomannan hydrolysates was shown to enhance capacity to bind pathogens and prevent this from binding the gut’s lining, stimulating topical healing, regulating immunity and ability to form systemic immune responses among healthy people with IBD and associated gut conditions. It is function as soluble dietary fibre as well as prebiotic<sup>21</sup>.

##### Recommended dosage<sup>22</sup>

Konjac is normally added to foods as a thickening agent and dietary fiber source. Typical doses used as treatment by adults is ranging from 3g to 4g daily for up to 3 months.



## Diet & lifestyle recommendations

- Higher dietary fibre intake (fruits, legumes, and vegetables)<sup>23</sup>
- Drink plenty of fluid<sup>23</sup>
- Exercise<sup>24</sup>
- Do not ignore the urge to pass stool<sup>24</sup>
- Create a regular schedule for bowel movements, especially after a meal<sup>24</sup>

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