



益生元 - 益生菌成長的元素



什麼是益生元?

益生元被譽為係一種人體消化唔到，但又可幫助益生菌成長的元素。益生元可以幫助體內的益生菌得以平衡。

好多人會聯想到益生元係同膳食纖維有關係，但實際上只有些膳食纖維含有益生元的元素。

以下是符合益生元的說明:

- i) 不能被人體酵素分解，亦不可以被腸道吸收。
- ii) 可被腸道內的益生菌當作食物，而不是其他微生物的成長元素。
- iii) 被益生菌吸收後，從而改善人體健康。

來源

益生元存在於多種豐富膳食纖維的食物中，例如：全穀物食物，蔬菜，水果，黃豆及其他豆類。

我們亦可以透過添加益生元的食品及補充品去攝取它們。最常見科學研究的益生元包括可溶性纖維菊粉 (soluble fibers inulin)、寡果糖(FOS)、低聚糖(GOS), 母乳寡糖 (HMOs)以及抗性澱粉質。

含豐富益生元食物包括亞麻籽、大蒜、秋葵、洋蔥、蒜頭、黑豆、小麥、黑麥、大麥和香蕉。

對於健康的益處

當益生菌利用益生元時，部份益生菌會產生對腸臟非常健康的物質叫短鏈脂肪酸(SCFAs)。短鏈脂肪酸可滋潤長度細胞內壁，以及促進腸道蠕動，有助舒緩便秘和腹瀉等情況，從而降低大腸癌的風險，亦可增強鈣質吸收。

短鏈脂肪酸也會進入血液，有助大腦作出訊號調節我們身體的免疫系統及減低炎症。亦有研究發現益生元可結合一些病原微生物並排出體內。

益生元其他的好處包括透過增加排便頻率以維持腸臟健康、增加飽肚感從而降低食慾、有助減少攝取過多熱量及胰島素抗性，可預防某些敏感狀況。





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建議攝取量

目前益生元對一般健康人士還沒有攝取量建議。由於許多高纖維的食物都含有益生元，建議大家應多吃各種水果、蔬菜、全麥食物、黃豆製食品以及豆類，去攝取足夠的益生元。如需增加益生元的攝取量，建議逐少增加，避免過份攝取導致腹脹及腹瀉。



含豐富益生元的建議餐單

早餐
黑麥麵包配花生醬
香蕉
添加亞麻籽的豆漿

午餐
蒜蓉炒雜菜
豉汁蒸麥豆腐餅
全麥意大利麵

晚餐
洋蔥扁豆湯
烤甜椒、蕃茄、南瓜及秋葵
咖喱雜錦豆配糙米



References:

- H.D. Holscher et al. (2021). Evidence-based use of probiotics, prebiotics and fermented foods for digestive health: <https://www.todaysdietitian.com/marketing/issues/2021/supplement/isapp/Course.pdf>
- G.R. Gibson et al. (2017) Expert consensus document: the International Scientific Association for Probiotics and Prebiotics (ISAPP) consensus statement on the definition and scope of prebiotics. Nature Reviews Gastroenterology Hepatology. 2017;14(8): 491-502.
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PREBIOTICS FOOD FOR THE PROBIOTICS (GOOD MICROBES)



WHAT IS PREBIOTICS?

Prebiotics are described as non-digestible food ingredients that promotes the growth of beneficial microorganisms in the intestine. Prebiotics are used to improve the balance of these beneficial microorganisms.

Prebiotics are often linked with fiber but only some dietary fiber also qualify as prebiotics.

To classify as prebiotics, these substrate:

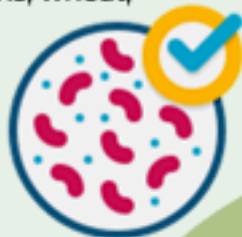
- i) cannot be hydrolyzed by human enzymes and should not be absorbed in the gastrointestinal tract
- ii) can be fermented by the beneficial microbes in the intestine not just any microbes
- iii) is utilized by the beneficial microbes which improve human health

SOURCE

Prebiotics can be found in wide range of fiber rich foods such as whole grains, vegetables, fruits, soybeans, and legumes.

They may also available from synthesized forms in foods or supplements. The most commonly studied prebiotics are the soluble fibers inulin, fructooligosaccharides (FOS), galactooligosaccharides (GOS), human milk oligosaccharides (HMOs) and resistant starch.

Example of food rich in prebiotics are flaxseeds, leeks, okra, onion, garlic, black beans, wheat, rye, barley, and banana.



HEALTH BENEFITS

When the beneficial microbes metabolize the prebiotics, some produces short chain fatty acids (SCFAs) that is crucial for gut health. These SCFAs nourishes the cell lining of the gut, associated with reducing risk of colorectal cancer, enhance calcium absorption and stimulate bowel movement to relieve constipation and diarrhea.

The SCFAs also enter the bloodstream and act as signals to the brain and regulate the immune system and inflammation. Some research also shown that prebiotics can bind certain pathogenic microorganisms and eliminate them from the body.

Other health benefits of prebiotics include maintenance of normal defecation by increasing stool frequency, increase satiety and reduce appetite, reduce energy intake and markers of insulin resistance, also prevent specific allergies.





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EXAMPLE OF A PREBIOTICS RICH MENU

Breakfast

Rye bread with peanut butter

Banana

Soy milk with added flaxseeds

Lunch

Stir-fried garlic with mixed vegetables

Tofu quinoa patty with black bean sauce

Whole wheat spaghetti

Dinner

Onion lentil soup

Grill bell pepper, tomatoes, pumpkin, and okra

Curry with assorted beans, served with brown rice

References:

- H.D. Holscher et al. (2021). Evidence-based use of probiotics, prebiotics and fermented foods for digestive health: <https://www.todaysdietitian.com/marketing/issues/2021/supplement/isapp/Course.pdf>
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RECOMMENDED INTAKE

Currently no dietary recommendations for adequate intake for prebiotics in healthy individuals. Since many high fiber foods also serve as prebiotics, a diet that includes variety of fruits and vegetables, wholegrains, soy products, and legumes should be able to obtain sufficient amounts of prebiotics. Too much prebiotics may cause gas, bloating, or diarrhea. Thus, individuals may want to increase their prebiotics intake gradually.

