

Prebiotic Guide

Make the connection between beneficial gut species and the prebiotics that nurture them.

PECTIN

ARABINOXYLAN

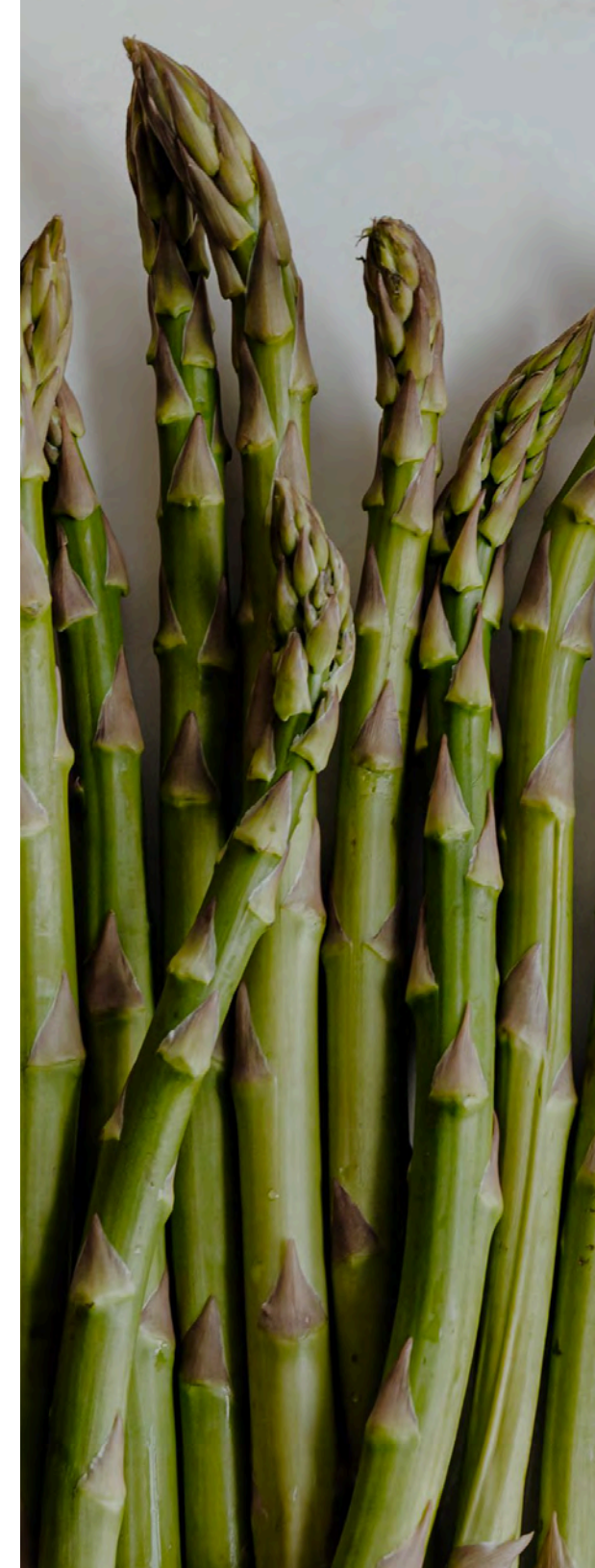
PROANTHOCYANIDIN

INULIN

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RESISTANT STARCH



Prebiotics

Prebiotics are substrates selectively utilised by gut microbes, offering health benefits to the host.¹ As clinicians, understanding the role of prebiotics in maintaining gut health is pivotal in managing various conditions and promoting overall well-being.

In clinical practice, dietary intake of prebiotic and plant-based fibres is essential for maintaining microbial balance and promoting the production of short-chain fatty acids (SCFAs), which have been shown to suppress both intestinal and systemic inflammation.

Although there are recommended targets for fibre intake, there isn't a universally agreed upon daily target recommendation for prebiotic intake.



Testing for valuable insights

Testing the gut microbiome can provide valuable insights into the potential for your patient's gut microbiome to impact their health. Equipped with this information, you can make informed clinical decisions and provide your patients with personalised prebiotic recommendations to better support and manage their health.

Prebiotics for gut microbiome modulation

Clinically, prebiotics play a crucial role in modulating the gut microbiome through various mechanisms:



Promotion of beneficial SCFAs

prebiotics facilitate the production of SCFAs, such as butyrate, acetate, and propionate, which play a pivotal role in maintaining gut health and reducing inflammation.²⁻³

Reduction of detrimental microbial markers

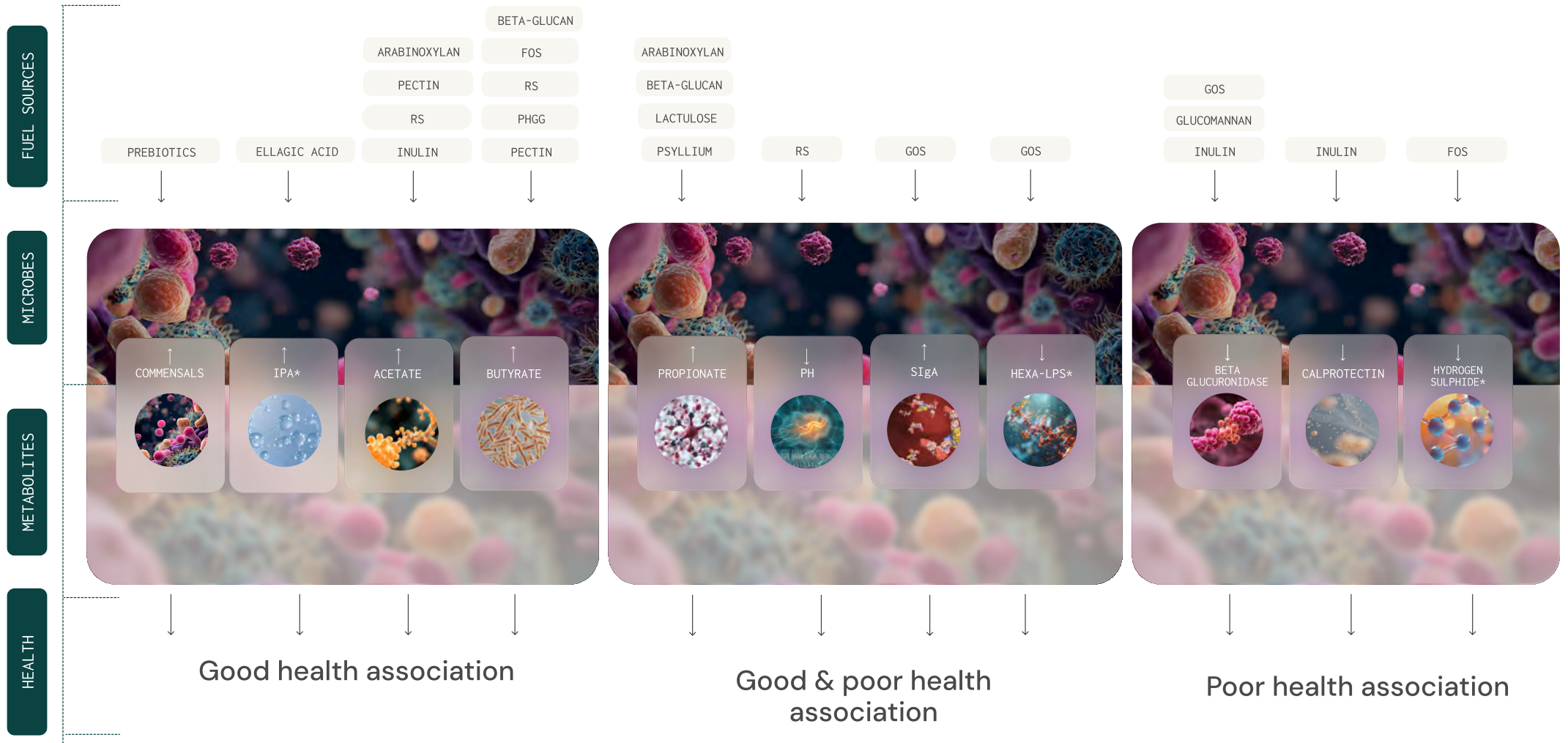
by supporting beneficial microbes, prebiotics can influence the microbiome, thereby mitigating the production of detrimental microbial markers.³

Shifting microbiome composition:

prebiotics may promote the growth of microbial species associated with good health while inhibiting the proliferation of species linked to poor health outcomes.²⁻³

Prebiotics offer clinicians a targeted approach to modulate the gut microbiome, improve gastrointestinal function and influence systemic health.

Food Sources of Prebiotics



FOS - fructooligosaccharides
GOS - galacto-oligosaccharides























PHGG - partially hydrolysed guar gum
RS - resistant starch

IPA - 3-indolepropionic acid
SIgA - secretory IgA

Hexa-LPS - hexa-acylated lipopolysaccharides

Food Sources of Prebiotics

Vegetables (raw)

		INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
	Artichoke (Globe) 1/2 Cup	Rich	Moderate		High				
	Artichoke (Jerusalem) 1/2 Cup	Rich	Rich						
	Asparagus 1/2 Cup	Rich	High						
	Avocado 1/2 Cup				High				
	Beetroot 1/2 Cup		Moderate		Moderate				
	Bok Choy 1/2 Cup				Moderate				
	Broccoli 1/2 Cup				High				
	Broccoli Stalks 1/2 Cup		Rich						
	Brussels Sprout 1/2 Cup		High		High				
	Cabbage 1/2 Cup				Moderate				
	Cabbage Red 1/2 Cup		High						
	Cabbage Savoy 1/2 Cup		Moderate						
	Carrot 1/2 Cup				High				
	Cauliflower 1/2 Cup				Moderate				
	Celery 1/2 Cup				Moderate				
	Chicory Root Powder 1 Tsp	High							
	Eggplant 1/2 Cup				Moderate				
	Endive 1/2 Cup				Rich				
	Fennel Bulb 1/2 Cup		High						
	Garlic, 1 Clove	Moderate							
	Green Beans 1/2 Cup				Moderate				
	Kale 1/2 Cup				Rich				
	Kohlrabi 1/2 Cup				Moderate				



Food Sources of Prebiotics

Vegetables (cont)

		INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
	Leek, 1/2 Cup	Rich	High						
	Mushrooms Button 1/2 Cup		High						High
	Mushrooms Cup/Flat/ Brown 1/2 Cup								High
	Mushrooms, Oyster/ Shimenji/Shiitake 1/2 Cup								Rich
	Okra 1/2 Cup		Moderate		Moderate				
	Olives 1/2 Cup				Moderate				
	Onion, Red 1/4 Cup	High	Rich						
	Onion, White, 1/4 Cup	High	High						
	Parsnip, 1/2 Cup				Rich				
	Peas Canned 1/2 Cup						Moderate		
	Peas Green 1/2 Cup	Moderate			Moderate		High		
	Potato Cooked, 1/2 Cup						Moderate		
	Potato Cooked Then Chilled 1/2 Cup						High		
	Potato Cooked Chilled Reheated 1/2 Cup						Rich		
	Sauerkraut 1/2 Cup				High				
	Scallion/Spring Onion 1 Stalk		Moderate						
	Shallot 1 Bulb		Moderate	Moderate					
	Snow Peas 1/2 Cup		High						
	Swede 1/2 Cup				High				
	Sweet Corn Cooked 1/2 Cup						Moderate		
	Sweet Potato 1/2 Cup	Moderate			Moderate				
	Swiss Chard 1/2 Cup				Moderate				







Food Sources of Prebiotics

Fruits

		INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
	Apple 1 Cup				High				
	Apricot 1 Cup				High				
	Banana Green Flour 1 Tbsp						Rich		
	Banana Ripe 1 Large	Moderate	High		High		High		
	Banana Semi-Ripe 1 Large						Rich		
	Blackberries, 1 Cup				Rich	Moderate			
	Blueberries 1 Cup				High				
	Cherries 1 Cup				Moderate				
	Dried Fruit Prunes/Figs/ Apricot/Dates 30g				High				
	Kakadu Plum Freeze Dried 1 Tsp					Rich			
	Kiwi 1 Cup				Moderate				
	Longan 1 Cup		Rich						
	Mandarins 1 Cup				Rich				
	Mango 1 Cup				High				
	Nectarine 1 Cup				Moderate				
	Orange 1 Cup				Rich				
	Papaya/Paw Paw 1 Cup				Rich				
	Peach 1 Cup				High				
	Pear 1 Cup				Rich				
	Plums Red 1 Cup		Moderate		High				
	Pomegranate Arils 1/3 Cup					Moderate			
	Pomegranate Juice (From Conc.) 1 Cup					Moderate			
	Raspberries 1 Cup				High	Rich			

Food Sources of Prebiotics

Fruits

	INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
 Red Currants 1 Cup		High						
 Red Dragon Fruit 1 Cup	Moderate							
 Rhubarb 1 Cup				Moderate				
 Rockmelon Or Honeydew 1 Cup				Moderate				
 Strawberries 1 Cup				High	Moderate			
 Watermelon 1 Cup		Rich						












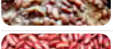





Legumes

	INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
 Soy Yoghurt Plain 140g			High					
 Soybean Chicken Strips 100g			Moderate					
 Soybeans Boiled 1/2 Cup			Rich					
 Split Peas Boiled 1/2 Cup			Rich					
 Textured Vegetable Protein (Soybean)			Rich					


























Food Sources of Prebiotics

Legumes

	INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
 Adzuki Beans Boiled / Canned 1/2 Cup			High					
 Baked Beans Canned 1/2 Cup				Moderate		Rich		
 Black Beans Boiled 1/2 Cup				Moderate				
 Black Eyed Peas Boiled 1/2 Cup				Moderate				
 Borlotti Beans Canned 1/2 Cup								
 Butter Beans Canned 1/2 Cup		Moderate	High			Rich		
 Chickpeas Boiled 1/2 Cup			Rich					
 Chickpeas Canned 1/2 Cup			Moderate			High		
 Chickpeas Sprouted 1/2 Cup			High					
 Fava Beans Canned 1/2 Cup						Rich		
 Great Northern Beans Boiled 1/2 Cup				High				
 Lentils Canned 1/2 Cup			Moderate					
 Lentils, Cooked, Chilled (+/- Reheating) 1/2 Cup						Rich		
 Lentils Green Boiled 1/2 Cup			Rich			Moderate		
 Lentils Red Boiled 1/2 Cup			High			Moderate		
 Lima Beans Boiled 1/2 Cup			Rich					
 Mixed Beans Canned 1/2 Cup			High			Moderate		
 Mung Beans Boiled 1/2 Cup			High					
 Navy Beans Boiled 1/2 Cup			Rich	Moderate		Moderate		
 Pinto Refried Beans Canned 1/2 Cup						Moderate		
 Red Kidney Beans Canned 1/2 Cup		High	Rich	Moderate		Rich		
 Red Kidney Beans Cooked 1/2 Cup						Moderate		
 Soy Flour Dehulled 1/3 Cup			Rich					















Food Sources of Prebiotics

Grains

	INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
 Amaranth Uncooked 1/4 Cup			Moderate					
 Barley Cooked 1/2 Cup						Rich		
 Barley Pearled /Wholegrain Uncooked 1/4 Cup							High	Rich
 Bread, BARLEYmax® Fortified 1 Slice								High
 Bread, Helga's Prebiotic Barley 1 Slice								Moderate
 Bread Pumpernickel 1 Slice							Rich	
 Bread Rye (Made With 100% Rye Flour) 1 Slice			Rich				High	
 Bread Rye (Made With Rye And Wheat Flour) 1 Slice			Moderate				Moderate	
 Bread Wheat Wholegrain Wholemeal /Multigrain 1 Slice			Moderate				High	Moderate
 Bulgur Wheat Uncooked 1/4 Cup						Moderate		
 Corn Cereal Flakes 1/2 Cup						Moderate		
 Corn Thins, 3 Slices							Moderate	
 Mountain Bread Barley 2 Slices								Rich
 Mountain Bread Rye 2 Slices							High	High
 Muesli 1/2 Cup		Moderate	Moderate			Moderate		
 Multigrain Cereal 1/2 Cup							High	
 Oat Bran 1 Tbsp							Moderate	Rich
 Oat Flakes Cereal Uncooked 1/2 Cup								Rich
 Oat Flour 1/2 Cup			Moderate					
 Oat Porridge Cooked 1/4 Cup								Rich
 Oat-Based Biscuit 1 Biscuit								Moderate
 Oat-Based Cereal Bar 1 Bar								High
 Oats, Quick Uncooked 1/2 Cup			Moderate					

Food Sources of Prebiotics

Grains cont

	INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
 Oats Rolled Uncooked 1/2 Cup							High	Rich
 Popcorn 2/3 Cup							Rich	
 Rice Brown Uncooked 1/4 Cup							High	
 Rice White Long-Grain Cooked, 1/2 Cup						Moderate		
 Rice White Long-Grain Cooked Then Chilled 1/2 Cup						High		
 Rice White Ready To Heat 1/2 Cup						Rich		
 Rye, Wholegrain Uncooked 1/4 Cup							Rich	
 Ryvita 2 Crispbreads		High					High	High
 Sorghum Cereal 2 Gluten-Free Weetbix							Moderate	High
 Sorghum Grain 1/4 Cup							Moderate	High
 Wheat Bran Cereal 1/2 Cup		Moderate	High				Rich	High
 Wheat Bran Raw 1 Tbsp		Moderate					Rich	Moderate
 Wheat Germ 1 Tbsp 2 Slices			High					
 Wholemeal Pasta Uncooked 1/4 Cup							High	



Food Sources of Prebiotics

Nuts/Seeds

	INULIN	FOS	GOS	PECTIN	ELLAGIC ACID	RESISTANT STARCH	ARABINOXYLAN	BETA-GLUCAN
 Almonds 30g				Moderate				
 Cashews Activated 30g			High					
 Chestnuts 30g					Moderate			
 Peanuts 30g				Moderate				
 Pecans 30g				Moderate	High			
 Pistachios 30g			Moderate					
 Pistachios Activated 30g			High					
 Sunflower Seeds 30g		High						
 Walnuts 30g					Rich			

Prebiotic supplements

Prebiotic supplements may shift the composition of the gut microbiome to support patient outcomes. When it comes to supplementation it is important to match the prebiotic form, dose and duration recommended for your desired patient outcome.

Commonly prescribed prebiotic supplements include:

PREBIOTIC	Daily Dosage Range*	Common Clinically Effective Dose	Flavour	Texture	Convenience	Ref
PHGG	5g – 20g	8g	Neutral	Soluble	Mixes in food/drink	4-5
OAT BETA-GLUCAN	3g – 6.6g	3.5g (lipids) 10g (stool form)	Slight oat	Viscous	Thickens, lumpy	6-7
RESISTANT STARCH TYPE 2	10g – 40g	15g	Slight banana	Viscous	Thickens, separates	8-16
GLUCOMANNAN	4.5g	4.5g	Neutral	Viscous	Thickens, jelly-like	17
GOS	3g – 11g	5.5g	Sweet	Soluble	Mixes in food/drink	5,18-25
INULIN	10g – 15g	10g	Sweet	Soluble	Mixes in food/drink	5,21,25-35
FOS	7.5g – 30g	10g	Sweet	Soluble	Mixes in food/drink	5,21,25-35
LACTULOSE	3g – 25g	10g	Sweet	Liquid	Must be poured	36-38



Framework for Personalised Prebiotic Prescription

Assess

Patient's presentation – signs, symptoms, bowel habits, diet and lifestyle



Test

Assess red flags and refer to a medical specialist, if necessary (faecal occult blood, calprotectin, lactoferrin, pancreatic elastase, pathogens)



Assess gut terrain (faecal pH, secretory IgA, zonulin, mucin degradation, oral species)



Prescribe

Prioritise Microbiome Explorer report insights based on the microbiome markers that need addressing the most (via results range or via health categories)



Select prebiotic food/supplement based on patient symptoms, bowel habits, health history, allergies, intolerances, tolerability, goals, motivations



Use a therapeutic dose guided by research and patient tolerability



Monitor

The patient's response to the prebiotic prescription (tolerability, convenience, new symptoms)



Patient symptom improvement



Amendments to the dose



Changes to the prebiotic prescription (add another prebiotic, change the prebiotic or remove the prebiotic)



Re-test

Re-test between 3–6 months to understand effectiveness of prebiotic intervention



Personalise prebiotic selection

By taking into account the clinical picture, goals and preferences, while being guided by the gut microbiome results,



Start low and build gradually

Tolerance and acceptability can be a stumbling block. When in doubt, start conservatively and proceed with caution.



Dose according to the evidence

Match the dose to the condition, guided by the research. Always begin with the lowest dose and build up gradually from there.



Test, don't guess

Use microbiome testing to inform a more personalised and evidence-based approach to care.



REFERENCES:

1. ISAPP - INTERNATIONAL SCIENTIFIC ASSOCIATION FOR PROBIOTICS AND PREBIOTICS [INTERNET]. 2018 [CITED 2024 JAN 24]. AVAILABLE FROM: [HTTPS://ISAPPSOURCE.ORG/](https://isappscience.org/). 2. SLAVIN J. FIBER AND PREBIOTICS: MECHANISMS AND HEALTH BENEFITS. *NUTRIENTS*. 2013; 5(4):1417-1435. DOI:10.3390/nu5041417. 3. GILL SK, ROSSI M, BAJKA B, ET AL. DIETARY FIBRE IN GASTROINTESTINAL HEALTH AND DISEASE. *NAT REV GASTROENTEROL HEPATOL*. 2021; 18, 101-116. DOI:10.1038/S41575-020-00375-4. 4. YASUKAWA Z, INOUE R, OZeki M, ET AL. EFFECT OF REPEATED CONSUMPTION OF PARTIALLY HYDROLYZED GUAR GUM ON FECAL CHARACTERISTICS AND GUT MICROBIOTA: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED, AND PARALLEL-GROUP CLINICAL TRIAL. *NUTRIENTS*. 2019;11(9):2170. DOI:10.3390/nu11092170. 5. WILSON B, ROSSI M, DIMIDI E, WHELAN K. PREBIOTICS IN IRRITABLE BOWEL SYNDROME AND OTHER FUNCTIONAL BOWEL DISORDERS IN ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. *AM J CLIN NUTR*. 2019;109(4):1098-1111. DOI: 10.1093/AJCN/NQY376. 6. YU J, XIA J, YANG C, ET AL. EFFECTS OF OAT BETA-GLUCAN INTAKE ON LIPID PROFILES IN HYPERCHOLESTEROLEMIC ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. *NUTRIENTS*. 2022;14(10):2043. DOI: 10.3390/nu14102043. 7. HO HVT, SIEVENPIPER JL, ZURBAU A, ET AL. THE EFFECT OF OAT BETA-GLUCAN ON LDL-CHOLESTEROL, NON-HDLCHOLESTEROL AND APOB FOR CVD RISK REDUCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED-CONTROLLED TRIALS. *BR J NUTR*. 2016;116(8):1369-82. DOI: 10.1017/S000711451600341X. 8. GRUBBEN MJ, VAN DEN BRAAK CC, ZENBERG M, ET AL. EFFECT OF RESISTANT STARCH ON POTENTIAL BIOMARKERS FOR COLONIC CANCER RISK IN PATIENTS WITH COLONIC ADENOMAS: A CONTROLLED TRIAL. *DIGESTIVE DISEASES AND SCIENCES*, 2001, 46(4), 750-756. DOI:10.1023/A:1010787931002. 9. ZHANG L, OUYANG Y, LI H, SHEN L, NI Y, FANG Q, ET AL. METABOLIC PHENOTYPES AND THE GUT MICROBIOTA IN RESPONSE TO DIETARY RESISTANT STARCH TYPE 2 IN NORMAL-WEIGHT SUBJECTS: A RANDOMIZED Crossover TRIAL. *SCI REP*. 2019;9(1). DOI: 10.1038/S41598-018-38216-9. 10. HALAJZADEH J, MILAJEROI A, REINER Z, ET AL. EFFECTS OF RESISTANT STARCH ON GLYCEMIC CONTROL, SERUM LIPOPROTEINS AND SYSTEMIC INFLAMMATION IN PATIENTS WITH METABOLIC SYNDROME AND RELATED DISORDERS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED CLINICAL TRIALS. *CRITICAL REVIEWS IN FOOD SCIENCE AND NUTRITION*. 2020;60(18):3172-84. DOI: 10.1080/10408398.2019.1680950. 11. HAGHGHATDOOST F, GHOLAMI A, HARIRI M. EFFECT OF RESISTANT STARCH TYPE 2 ON INFLAMMATORY MEDIATORS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. *COMPLEMENTARY THERAPIES IN MEDICINE*. 2021;56:102597. DOI: 10.1016/J.CTIM.2020.102597. 12. XIONG K, WANG J, KANG T, XU F, MA A. EFFECTS OF RESISTANT STARCH ON GLYCAEMIC CONTROL: A SYSTEMATIC REVIEW AND META-ANALYSIS. *BR J NUTR*. 2021;125(11):1260-9. DOI: 10.1017/S0007114520003700. 13. SNELSON M, JONG J, MANOLAS D, ET AL. METABOLIC EFFECTS OF RESISTANT STARCH TYPE 2: A SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. *NUTRIENTS*. 2019. 2019. 8;11(8):1833. DOI: 10.3390/nu11081833. 14. GAO C, RAO M, HUANG W, ET AL. RESISTANT STARCH AMELIORATED INSULIN RESISTANT IN PATIENTS OF TYPE 2 DIABETES WITH OBESITY: A SYSTEMATIC REVIEW AND META-ANALYSIS. *LIPIDS HEALTH DIS*. 2019;18(1):205. DOI: 10.1186/S12944-019-1127-Z. 15. HAMILTON K, CROWE T, TESTRO A. HIGH AMYLASE RESISTANT STARCH TO DECREASE STOOL OUTPUT IN PEOPLE WITH SHORT BOWEL SYNDROME: A PILOT TRIAL. *CLIN NUTR ESPEN*. 2019;29:242-4. DOI: 10.1016/J.CLNESP.2018.10.006. 16. SOBH M, MONTROY J, DAHAM Z, ET AL. TOLERABILITY AND SCFA PRODUCTION AFTER RESISTANT STARCH SUPPLEMENTATION: A SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED STUDIES. *AM J CLIN NUTR*. 2022;115(3):608-18. DOI: 10.1093/AJCN/NQAB402. 17. WU WT, CHENG HC, CHEN HL. AMELIORATIVE EFFECTS OF KONJAC GLUCOMANNAN ON HUMAN FAECAL B-GALACTURONIDASE ACTIVITY, SECONDARY BILE ACID LEVELS AND FAECAL WATER TOXICITY TOWARDS CACO-2 CELLS. *BR J NUTR*. 2011;105(4):593-600. DOI:10.1017/S0007114510004009. 18. JOHNSTONE N, MILESI C, BURN O, ET AL. ANXIOLYTIC EFFECTS OF A GALACTO-OLIGOSACCHARIDES PREBIOTIC IN HEALTHY FEMALES (18-25 YEARS) WITH CORRESPONDING CHANGES IN GUT BACTERIAL COMPOSITION. *SCI REP*. 2021;11(1):8302. DOI:10.1038/S41598-021-87865-W. 19. KRUMBECK JA, RASMUSSEN HE, HUTKINS RW, ET AL. PROBIOTIC BIFIDOBACTERIUM STRAINS AND GALACTOOLIGOSACCHARIDES IMPROVE INTESTINAL BARRIER FUNCTION IN OBESE ADULTS BUT SHOW NO SYNERGISM WHEN USED TOGETHER AS SYMBIOTICS. *MICROBIOME*. 2018;6(1):121. DOI:10.1186/S40168-018-0494-4. 20. DEY K, SHETH M, ANAND S, ET AL. DAILY CONSUMPTION OF GALACTOOLIGOSACCHARIDE GUMMIES AMELIORATES CONSTIPATION SYMPTOMS, GUT DYSBIOSIS, DEGREE OF DEPRESSION AND QUALITY OF LIFE AMONG SEDENTARY UNIVERSITY TEACHING STAFF: A DOUBLE-BLIND RANDOMIZED PLACEBO CONTROL CLINICAL TRIAL. *INDIAN J GASTROENTEROL*. 2023;42(6):839-48. DOI: 10.1007/S12664-023-01435-8. 21. VAN DOKKUM W, WEZENDONK B, SRISKUMAR TS, VAN DEN HEUVEL EG. EFFECT OF NONDIGESTIBLE OLIGOSACCHARIDES ON LARGE-BOWEL FUNCTIONS, BLOOD LIPID CONCENTRATIONS AND GLUCOSE ABSORPTION IN YOUNG HEALTHY MALE SUBJECTS. *EUR J CLIN NUTR*. 1999;53(1):1-7. DOI:10.1038/SJ.EJCN.1600668. 22. PARKER C, HUNTER KA, JOHNSON MA, ET AL. EFFECTS OF 24-WEEK PREBIOTIC INTERVENTION ON SELF-REPORTED UPPER RESPIRATORY SYMPTOMS, GASTROINTESTINAL SYMPTOMS, AND MARKERS OF IMMUNITY IN ELITE RUGBY UNION PLAYERS. *EUR J SPORT SCI*. 2023;23(11):2232-9. 23. VULEVIC J, JURIC A, TZORTZIS G, GIBSON GR. A MIXTURE OF TRANS-GALACTOOLIGOSACCHARIDES REDUCES MARKERS OF METABOLIC SYNDROME AND MODULATES THE FECAL MICROBIOTA AND IMMUNE FUNCTION OF OVERWEIGHT ADULTS. *THE JOURNAL OF NUTRITION*. 2013;143(3):324-31. DOI: 10.3945/JN.112.166132. 24. WILMS E, AN R, SMOLINSKA A, STEVENS Y, ET AL. GALACTO-OLIGOSACCHARIDES SUPPLEMENTATION IN PREFRATIL OLDER AND HEALTHY ADULTS INCREASED FAECAL BIFIDOBACTERIAL, BUT DID NOT IMPACT IMMUNE FUNCTION AND OXIDATIVE STRESS. *CLINICAL NUTRITION*. 2021;40(5):3019. DOI:10.1016/J.CLNUT.2020.12.034. 25. VAN DER SCOOT A, DRYSDALE C, WHELAN K, DIMIDI E. THE EFFECT OF FIBER SUPPLEMENTATION ON CHRONIC CONSTIPATION IN ADULTS: AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. *AM J CLIN NUTR*. 2022;116(4):953-69. DOI: 10.1093/AJCN/NQAC184. 26. LANCASTER SM, LEE-MCMULLEN B, ABBOTT CW, ET AL. GLOBAL, DISTINCTIVE, AND PERSONAL CHANGES IN MOLECULAR AND MICROBIAL PROFILES BY SPECIFIC FIBERS IN HUMANS. *CELL HOST MICROBE*. 2022;30(6):848-862.E7. DOI:10.1016/J.CHOM.2022.03.036. 27. AMADIEU C, COSTE V, NEYRINCK AM, ET AL. RESTORING AN ADEQUATE DIETARY FIBER INTAKE BY INULIN SUPPLEMENTATION: A PILOT STUDY SHOWING AN IMPACT ON GUT MICROBIOTA AND SOCIABILITY IN ALCOHOL USE DISORDER PATIENTS. *GUT MICROBES*. 2022;14(1):2007042. DOI:10.1080/19490976.2021.2007042. 28. LEYROLLE C, CSERJESI R, D G H MULDER M, ZAMARIOLA G, HIEL S, GIANFRANCESCO MA, ET AL. PREBIOTIC EFFECT ON MOOD IN OBESE PATIENTS IS DETERMINED BY THE INITIAL GUT MICROBIOTA COMPOSITION: A RANDOMIZED, CONTROLLED TRIAL. *BRAIN BEHAV IMMUN*. 2021;94:289-98. DOI:10.1016/J.BBI.2021.01.014. 29. SLAVIN J, FEIRTAG J. CHICORY INULIN DOES NOT INCREASE STOOL WEIGHT OR SPEED UP INTESTINAL TRANSIT TIME IN HEALTHY MALE SUBJECTS. *FOOD FUNCT*. 2011;2(1):72-77. DOI:10.1039/C0FO00101E. 30. FERNANDES R, DO ROSARIO VA, MOCCELLIN MC, ET AL. EFFECTS OF INULIN-TYPE FRUCTANS, GALACTO-OLIGOSACCHARIDES AND RELATED SYMBIOTICS ON INFLAMMATORY MARKERS IN ADULT PATIENTS WITH OVERWEIGHT OR OBESITY: A SYSTEMATIC REVIEW. *CLINICAL NUTRITION*. 2017;36(5):1197-206. DOI: 10.1016/J.CLNUT.2016.10.003. 31. VALCHEVA R, KOLEVA P, MARTINEZ I, ET AL. INULIN-TYPE FRUCTANS IMPROVE ACTIVE ULCERATIVE COLITIS ASSOCIATED WITH MICROBIOTA CHANGES AND INCREASED SHORT-CHAIN FATTY ACIDS LEVELS. *GUT MICROBES*. 2019;10(3):334-57. DOI: 10.1080/19490976.2018.1526583. 32. CASELLAS F, BORRUEL N, TORREJÓN A, ET AL. ORAL OLIGOFRUCTOSE-ENRICHED INULIN SUPPLEMENTATION IN ACUTE ULCERATIVE COLITIS IS WELL TOLERATED AND ASSOCIATED WITH LOWERED FAECAL CALPROTECTIN. *ALIMENTARY PHARMACOLOGY & THERAPEUTICS*. 2007;25(9):1061-7. DOI: 10.1111/J.1365-2036.2007.03288.X. 33. LIU F, PRABHAKAR M, JU J, ET AL. EFFECT OF INULIN-TYPE FRUCTANS ON BLOOD LIPID PROFILE AND GLUCOSE LEVEL: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. *EUR J CLIN NUTR*. 2017;71(1):9-20. DOI: 10.1038/EJCN.2016.156. 34. WANG L, YANG H, HUANG H, ET AL. INULIN-TYPE FRUCTANS SUPPLEMENTATION IMPROVES GLYCEMIC CONTROL FOR THE PREDIABETES AND TYPE 2 DIABETES POPULATIONS: RESULTS FROM A GRADE-ASSESSED SYSTEMATIC REVIEW AND DOSE-RESPONSE META-ANALYSIS OF 33 RANDOMIZED CONTROLLED TRIALS. *J TRANSL MED*. 2019;17(1):410. DOI: 10.1186/S12967-019-02159-0. 35. NEYRINCK AM, RODRIGUEZ J, ZHANG Z, ET AL. PREBIOTIC DIETARY FIBRE INTERVENTION IMPROVES FECAL MARKERS RELATED TO INFLAMMATION IN OBESE PATIENTS: RESULTS FROM THE FOOD4GUT RANDOMIZED PLACEBO-CONTROLLED TRIAL. *EUR J NUTR*. 2021;60(6):3159-70. DOI: 10.1007/S00394-021-02484-5. 36. TERADA, A, HARA, H, KATAOKA, M, MITSUOKA, T. EFFECT OF LACTULOSE ON THE COMPOSITION AND METABOLIC ACTIVITY OF THE HUMAN FAECAL FLORA. *MICROBIAL ECOLOGY IN HEALTH AND DISEASE*. 1992;5(1):43-50. DOI: 10.3109/08910609209141303. 37. FERNANDES J, MORALI G, WOLVERER TM, ET AL. EFFECT OF ACUTE LACTULOSE ADMINISTRATION ON SERUM ACETATE LEVELS IN CIRRHOSIS. *CLIN INVEST MED*. 1994;17(3):218-25. 38. VOGT JA, ISHII-SCHRADE KB, PENCHARZ PB, ET AL. L-RHAMNOSE AND LACTULOSE DECREASE SERUM TRIACYLGLYCEROLS AND THEIR RATES OF SYNTHESIS, BUT DO NOT AFFECT SERUM CHOLESTEROL CONCENTRATIONS IN MEN. *THE JOURNAL OF NUTRITION*. 2006;136(8):2160-6. DOI: 10.1093/JN/136.8.2160.

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