



## DRF:S FORTBILDNINGSDAGAR FÖR BARNDIETISTER

### FODMAP OCH IBS - EN KRITISK GRANSKNING



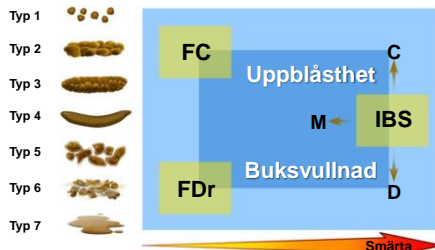
STINE STÖRSRUD

LEG DIETIST, MED DR, AVDELNINGEN FÖR GASTROENTEROLOGI OCH KLINISK NUTRITION, SAHLGRENSKA Sjukhuset, GÖTEBORG



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## Funktionella tarmsjukdomar: Rom IV



FC: Funktionell förstoppning ("constipation")

FDr: Funktionell diarré

IBS-C: IBS med förstoppning

IBS-D: IBS med diarré

IBS-M: IBS med växlande ("mixed") tarmlvanor (D och C)

Lacy et al Gastroenterology 2016



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## IBS - Diagnoskriterier (ROME IV)



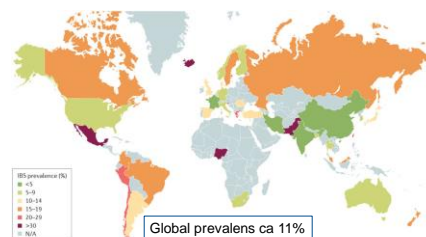
- Symtomdebut minst 6 månader innan diagnos
- Återkommande besvär av **smärta** i buken minst 1 dag per vecka de senaste 3 månaderna och med minst två av följande tre karaktäristika:
  - Relaterad till **tarmtömning** och/eller
  - Associerad med en **förändring** i avföringens **frekvens** och/eller
  - Associerad med en **förändring** i avföringens **form/konsistens**

Lacy et al. Gastroenterology 2016



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## Förekomst av IBS



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## Mat- och måltidsrelaterade tarmsymtom

Över 60% av IBS-patienter uppger försämring av mat

- 62% - "adverse reactions to one or more foods" (Dainse et al. Am J Gastroenterol 1999)
- 64% - "symptoms aggravated by food" (Svedlund et al. Scand J Gastroenterol 1985)
- 63% - "meal related symptom" (Simrén et al. Digestion 2001)
- 84% - "food items are important triggers of GI symptoms" (Böhn et al. Am J Gastroenterol 2013)



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## Mat- och måltidsrelaterade tarmsymtom hos IBS-patienter

- Grupper av IBS-patienter som reagerar starkare, oftare och/eller på flera livsmedel
  - Kvinnor
  - IBS-patienter med ångest
  - IBS-patienter med svårare mag-tarmsymtom
  - IBS-patienter med svårare symtom utanför mag-tarmkanalen

Simrén et al Digestion 2001, Böhn et al Gastroenterology 2013



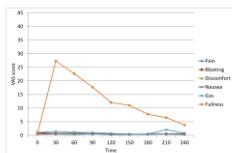


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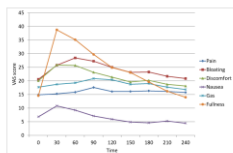
### Mat- och måltidsrelaterade mag-tarmsymtom



Posserud et al UEG Journal 2013



Friska kontroller (n=19)

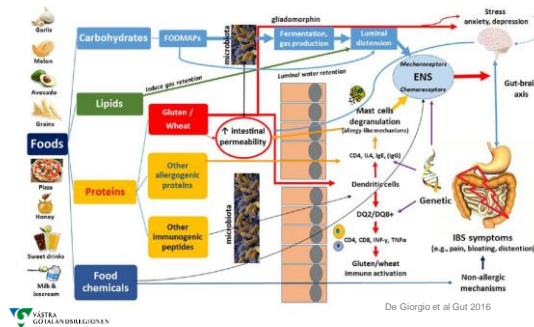


IBS-patienter (n=67)



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### Kostfaktorer och symptom vid IBS



De Giorgio et al Gut 2016



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### The golden standard: Randomiserad, kontrollerad, dubbelblind studie



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### Allmänna kostråd vid IBS

- Ät små frekventa måltider, ät i lugn och ro
- Drink tillräckligt, gärna vatten
- Minska mängden fiber - lösliga fiber tolereras bäst, t.ex. havre, linfrö
- Minska mängden resistent stärkelse
- Minska mängden fett
- Minska mängden kolsyrat dryck och alkohol
- Drink max 3 koppar kaffe/te per dag
- Ät max 3 färska frukter per dag
- Undvik sorbitol vid diarré
- Prova probiotika under minst 4 veckor



McKenzie et al Hum Nutr Diet 2016



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### Kostrelaterade tarmsymtom vid IBS

Livsmedel	Andel patienter som rapporterar mag-tarmsymtom (n=197)
Fet/stekt mat	52%
Mjölkin produkter	49%
Böner/linser	36%
Äpple	27%
Mjöl (vete)	24%
Plommon	23%
Ärter	19%
Choklad	16%
Päron	16%
Banän	13%
Torkat frukt	13%
Potatis	10%

Böhn & Stånrud et al. Am J Gastroenterol 2013

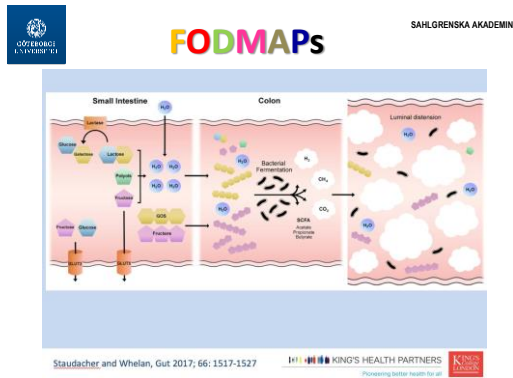


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### FODMAPs



MASTRÅ GÖTTALANDSREKULLEN



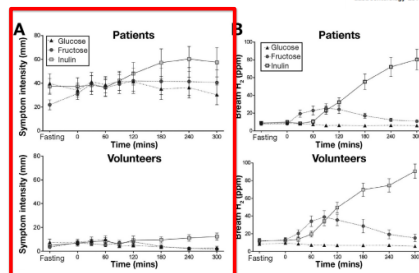
ÅSTRÅ GÖTTALANDSREGLERLEN

SAHLGRENKA AKADEMIN

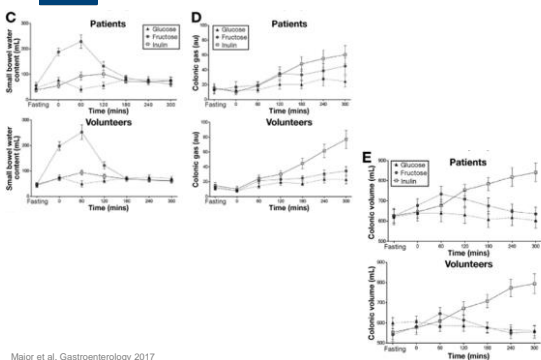
**Colon Hypersensitivity to Distension, Rather Than Excessive Gas Production, Produces Carbohydrate-Related Symptoms in Individuals With Irritable Bowel Syndrome**

Giles Major,<sup>1</sup> Sue Pritchard,<sup>2</sup> Kathryn Murray,<sup>2</sup> Jan Paul Alappadan,<sup>2</sup> Caroline L. Hoad,<sup>2</sup> Luca Marciari,<sup>1</sup> Penny Rowland,<sup>1</sup> and Robin Spiller<sup>1</sup>

Gastroenterology 2017;152:124-133



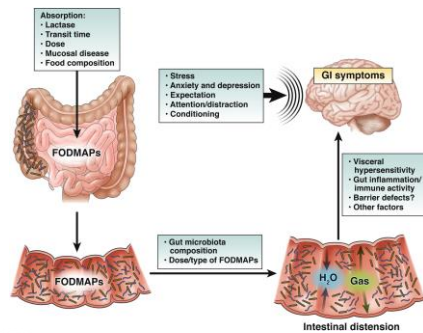
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Major et al. Gastroenterology 2017

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**FODMAPs**



ÅSTRÅ GÖTTALANDSREGLERLEN

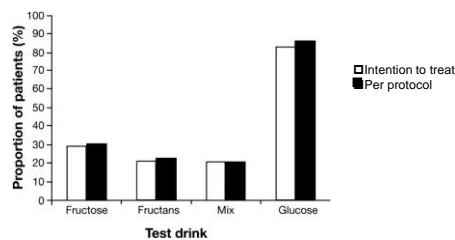
Sirrén Gastroenterology 2014

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**FODMAP challenge**

Were your symptoms adequately controlled in this phase?

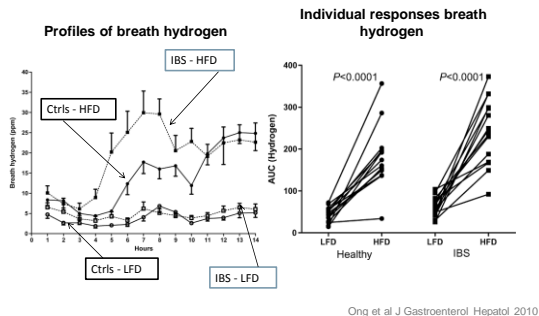


Shepherd et al CGH 2008



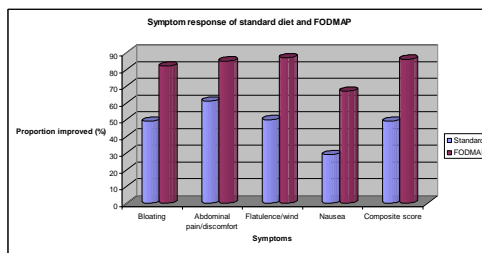
### FODMAP gas production

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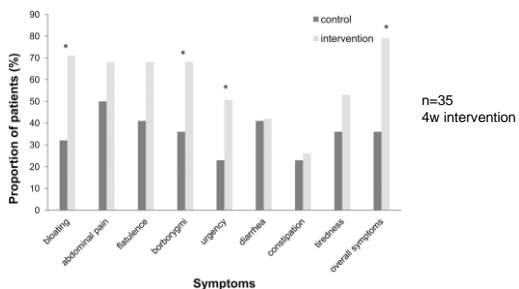
### Patients on a low FODMAP diet are more satisfied with their GI symptoms vs standard dietary advice

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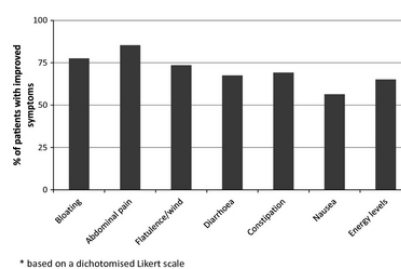
### Low FODMAP diet reduces GI symptoms more than habitual diet

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### The low FODMAP diet improves GI symptoms

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Staudacher et al. J Nutr 2012

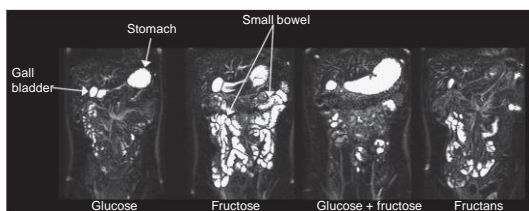
Roest et al. Clin Pract 2013



### Differential Effects of FODMAPs (Fermentable Oligo-, Di-, Mono-Saccharides and Polyols) on Small and Large Intestinal Contents in Healthy Subjects Shown by MRI

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Murray, Wilkinson-Smith, Hoad, Costigan, Cox, Lam, Marciari, Gowland and Spiller



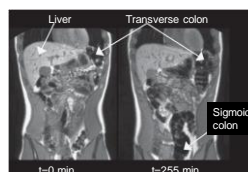
Am J Gastroenterol 2014



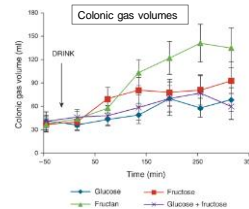
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Murray, Wilkinson-Smith, Hoad, Costigan, Cox, Lam, Marciari, Gowland and Spiller

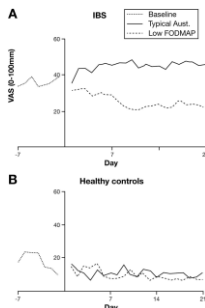


Visibility of gas in the colon



Am J Gastroenterol 2014

### Low FODMAP diet reduces symptoms vs traditional Australian diet



n=30 IBS, 8 healthy subjects  
3w intervention, cross over

**Conclusions**  
In a controlled, cross-over study of patients with IBS, a diet low in FODMAPs effectively reduced functional gastrointestinal symptoms.

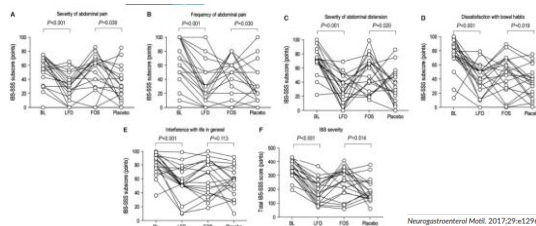
Halmos et al. Gastroenterology 2014

ORIGINAL ARTICLE

WILEY

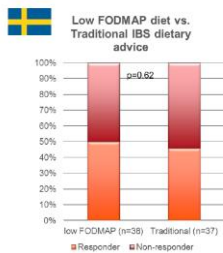
### Effects of varying dietary content of fermentable short-chain carbohydrates on symptoms, fecal microenvironment, and cytokine profiles in patients with irritable bowel syndrome

T. N. Hustoft<sup>1</sup> | T. Hausken<sup>1,2,3</sup> | S. O. Ystad<sup>3,5</sup> | J. Valeur<sup>4</sup> | K. Brokstad<sup>5</sup> | J. G. Hatlebakk<sup>1,2,3</sup> | G. A. Lied<sup>1,2,3</sup>

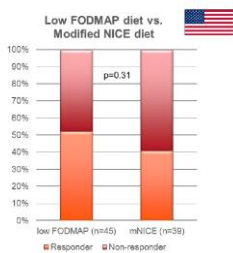


Neurogastroenterol Motil. 2017;29:e12969.

### Är låg FODMAP bättre än traditionella kostråd?



Bohn et al Gastroenterology 2015



Eswaran et al Am J Gastroenterol 2016

### Diet Low in FODMAPs Reduces Symptoms of Irritable Bowel Syndrome as Well as Traditional Dietary Advice: A Randomized Controlled Trial

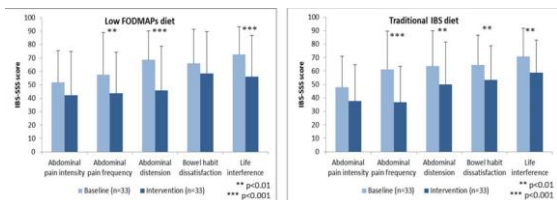
Lena Böhn,<sup>1,2</sup> Stine Störsrud,<sup>1,2</sup> Therese Liljebo,<sup>3</sup> Lena Collin,<sup>4</sup> Per Johan Lindfors,<sup>4,5</sup> Hans Törnblom,<sup>1,2</sup> and Magnus Simrén<sup>1,2</sup>

Gastroenterology 2015 Nov;149(6):1399-1407.

Editorial comment "Covering the cover"  
Letter to the editor:  
**DIET THERAPY FOR IBS: IS A DIET LOW IN FODMAPS REALLY SIMILAR IN EFFICACY TO TRADITIONAL DIETARY ADVICE?**  
Peter R. Gibson, Jane E. Varney, Jane G. Muir  
Department of Gastroenterology, Monash University and Alfred Hospital,  
Melbourne, Victoria 3004 Australia



### Förbättring i mag-tarmsymtom



Bohn et al Gastroenterology 2015

### Low FODMAP diet reduces GI symptoms in children with IBS

Alimentary Pharmacology and Therapeutics

Double-blind, crossover trial: low FODMAP or typical American childhood diet for 48 h, with abdominal pain frequency being the primary outcome, n=33.

**Conclusion**  
In childhood IBS, a low FODMAP diet decreases abdominal pain frequency.

Chumpitazi et al. Aliment Pharmacol Ther 2015



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Örebro University

Ear J Nutr (2016) 55:897–896  
DOI 10.1007/s00394-015-0822-1

ORIGINAL CONTRIBUTION

Does a diet low in FODMAPs reduce symptoms associated with functional gastrointestinal disorders? A comprehensive systematic review and meta-analysis

Ahlgall Marsh<sup>1</sup> · Enid M. Eslick<sup>1</sup> · Gay D. Eslick<sup>1</sup>

European Journal of NUTRITION

Study name	Statistics for each study				Odds ratio and 95% CI
	Odds ratio	Lower limit	Upper limit	p-Value	
Pedersen 2014	0.56	0.26	1.20	0.14	
Pedersen 2014a	0.61	0.26	1.43	0.26	
Harvie 2014	0.16	0.05	0.46	0.00	
Staudacher 2012	-1.08	0.36	9.2%	0.13	
Staudacher 2016	-0.55	0.2	13.7%	0.00	
Bohn, et al. 2014	0.50	0.21	1.23	0.13	
	0.44	0.25	0.76	0.00	

ÖSTRA GÖTTALANDSREGIONEN

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Örebro University

Contents lists available at ScienceDirect

Nutrition

Journal homepage: www.elsevier.com/locate/nut

Review

Low fermentable, oligo-, di-, mono-saccharides and polyol diet in the treatment of irritable bowel syndrome: A systematic review and meta-analysis

Dania Schumann M.Sc.<sup>a, \*</sup>, Petra Klöse Ph.D.<sup>a</sup>, Romy Lauche Ph.D.<sup>a, b, \*</sup>, Gustav Dobos M.D.<sup>a</sup>, Jost Langhorst M.D.<sup>a</sup>, Holger Cramer Ph.D.<sup>a, b, \*</sup>

Study or Subgroup	Std. Mean Difference	SE	Weight	Std. Mean Difference	
				IV, Random, 95% CI	IV, Random, 95% CI
Bohn 2015	0.09	0.23	12.8%	0.09	[-0.36, 0.54]
Chumprad 2015	-0.23	0.11	16.2%	-0.23	[-0.45, -0.01]
Halmos 2014	-1.06	0.17	14.6%	-1.06	[-1.39, -0.73]
Harvie 2015	-0.97	0.3	10.8%	-0.97	[-1.56, -0.38]
Makroob 2016	-0.88	0.33	10.0%	-0.88	[-1.53, -0.23]
Pedersen 2014	-0.56	0.24	12.5%	-0.56	[-1.03, -0.09]
Staudacher 2012	-1.08	0.36	9.2%	-1.08	[-1.79, -0.37]
Staudacher 2016	-0.55	0.2	13.7%	-0.55	[-0.94, -0.16]
<b>Total (95% CI)</b>			<b>100.0%</b>	<b>-0.62</b>	<b>[-0.93, -0.31]</b>

Heterogeneity: Tau<sup>2</sup> = 0.14; Chi<sup>2</sup> = 29.95, df = 7 (P < 0.0001); I<sup>2</sup> = 77%

Test for overall effect: Z = 3.90 (P < 0.0001)

Test for subgroup differences: Chi<sup>2</sup> = 6.26, df = 3 (P = 0.10); I<sup>2</sup> = 52.1%

ÖSTRA GÖTTALANDSREGIONEN

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Örebro University

AJG The American Journal of GASTROENTEROLOGY

Review Article | Published: 26 July 2018

A Systematic Review and Meta-Analysis Evaluating the Efficacy of a Gluten-Free Diet and a Low FODMAPs Diet in Treating Symptoms of Irritable Bowel Syndrome

Joanna Dionne MD, MSc, FRCP, PhD, Alexander C. Ford MB, ChB, FRCP, Yuhong Yuan MD, William D. Chey MD, FACS, Brian E. Lacy MD, PhD, FACS, Yuri A. Saito MD, MPH, Eamonn M. M. Quigley MD, FRCP, FACP, MACG, FRCP & Paul Moayyedi MB, ChB, PhD, FACS

Study or subgroup	Low FODMAP		Control		Weight	Risk ratio		M-H, random, 95% CI
	Events	Total	Events	Total		M-H, random, 95% CI	Risk ratio	
<b>1.1.1 Low FODMAP versus alternative diet</b>								
Burns 2015	20	36	37	26	4.3%	0.53	(0.30, 0.93)	
Eswaran 2016	27	50	26	42	26.7%	0.87	(0.62, 1.24)	
Staudacher 2017	22	51	33	53	24.3%	0.69	(0.47, 1.01)	
Subtotal (95% CI)	139	237	96	121	71.4%	0.69	(0.46, 1.02)	
Total events	68	79	79	100				
<b>1.1.2 Low FODMAP versus high FODMAP</b>								
Makroob 2016	7	26	16	20	11.7%	0.44	(0.23, 0.83)	
Subtotal (95% CI)	7	26	16	20	11.7%	0.44	(0.23, 0.83)	
<b>1.1.3 Low FODMAP versus usual diet</b>								
Halmos 2014	3	13	6	17	3.9%	0.66	(0.30, 1.13)	
Staudacher 2012	6	19	17	22	10.0%	0.41	(0.20, 0.82)	
Subtotal (95% CI)	9	32	23	39	13.9%	0.46	(0.25, 0.84)	
<b>1.1.4 FODMAP exclusion from FODMAP versus placebo</b>								
Huston 2017	2	8	4	7	3.0%	0.44	(0.11, 1.71)	
Subtotal (95% CI)	2	8	4	7	3.0%	0.44	(0.11, 1.71)	
<b>Total (95% CI)</b>								
Total events	199	366	198	300	100.0%	0.69	(0.54, 0.88)	
Total events	86	122	122	152				
Heterogeneity: Tau <sup>2</sup> = 0.03; Chi <sup>2</sup> = 8.02, df = 6 (P = 0.24); I <sup>2</sup> = 25%								
Test for overall effect: Z = 2.98 (P = 0.003)								
Test for subgroup differences: Chi <sup>2</sup> = 6.26, df = 3 (P = 0.10); I <sup>2</sup> = 52.1%								

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Happiness is just a matter of perspective. It's your choice how to look at the world.

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## Guidelines FODMAPs

International Foundation for Functional Gastrointestinal Disorders IFFGD

- The low FODMAP diet requires the expert guidance of a dietician trained in the area.
- Restricting problematic FODMAPs for 6–8 weeks, or until good symptomatic control is achieved.
  - substituting high FODMAP foods with lower options, or
  - reducing the total FODMAP load consumed at each meal or across the day.
- Then, small amounts of FODMAP-containing foods are re-introduced through challenges as advised by the dietician, to gradually increase to levels well-tolerated by the individual and widening the diet as much as possible.

IFFGD 2016



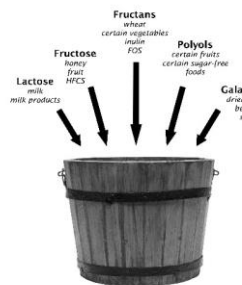
## Återintroduktion FODMAPs

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Foodstuff	Week 1 (n=41)	Week 2 (n=39)	Week 3 (n=37)	Week 4 (n=33)
Apelsinjuice	1 dl	1,5 dl	2 dl	
Honung	1 tsk	1,5 tsk	2 tsk	
Apple				Sorbitol
Vattenmelon				FOS, Mannitol
Lakase	1/2 kapsel dag 1	1/2 kapsel dag 2	1/2 kapsel dag 3	ingen över 1 grupp
Pojöte	0,5 dl	1 dl	2 dl	
Fä, yoghurt	0,5 dl	1 dl	2 dl	
Glass				
Gräddor				
Mjölkchoklad				
Probiotika (9 spp)	1 kapsel dag 1	1 kapsel dag 2	1 kapsel dag 3	ingen över 1 grupp
Brod, vitt	1 skiva	1,5 skiva	2 skivor	
Pasta, varm	1 dl kokt	1,5 dl kokt	2 dl kokt	
Nektarin				Sorbitol
Kikärter, koka				GOS
Persika				Mannitol, sorbitol
Vattenmelon				Fructans, Mannitol
Broccoli				GOS, Sorbitol



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### All dietary FODMAPs go into the same "bucket."

The bucket represents your unique, personal capacity to tolerate FODMAP carbohydrates from all sources. If your FODMAP intake exceeds your capacity for digestion and absorption in the small intestine, overflow into the large intestine occurs. This may result in IBS symptoms, in sensitive individuals.

Shepherd & Gibson



## Guidelines FODMAPs

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### Final Thoughts

- The dietician will also ensure that the diet is nutritionally adequate. **Many people can return to their usual diet with just a few high FODMAP foods that need to be avoided.**

IFFGD 2016



## Diet Low in FODMAPs Reduces Symptoms of Irritable Bowel Syndrome as Well as Traditional Dietary Advice: A Randomized Controlled Trial

Lena Böhn,<sup>1,2</sup> Stine Störsrud,<sup>1,2</sup> Therese Liljebo,<sup>3</sup> Lena Collin,<sup>4</sup> Per Johan Lindfors,<sup>4,5</sup> Hans Törnblom,<sup>1,2</sup> and Magnus Simren<sup>1,2</sup>



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Gastroenterology Vol. 149, No. 6

Table 3. Dietary Intake in Patients on Low-FODMAP Diet and Patients on Traditional Irritable Bowel Syndrome Diet

	Low-FODMAP diet			Traditional IBS diet			P value between intervention groups <sup>d</sup>
	Baseline (n = 38), mean ± SD	Intervention (n = 33), mean ± SD	P value within group <sup>a</sup>	Screen (n = 37), mean ± SD	Intervention (n = 34), mean ± SD	P value within group <sup>b</sup>	
Energy, kcal	2100 ± 435	1658 ± 365	<.001	2085 ± 446	1889 ± 482	.009	.03
Protein, g	80.9 ± 36.9	75.2 ± 16.7	.001	80.9 ± 16.9	77.2 ± 21.9	.03	.87
Fat, g	89.1 ± 27.4	68.3 ± 25.5	<.001	92.4 ± 24.8	78.4 ± 24.7	.009	.11
Carbohydrates, g	206.0 ± 53.8	159.1 ± 40.6	<.001	200.2 ± 62.7	193.1 ± 57.8	.42	.007



## A Randomized Controlled Trial Comparing the Low FODMAP Diet vs. Modified NICE Guidelines in US Adults with IBS-D

Shirley L. Easeran, MD,<sup>1</sup> William D. Chey, MD,<sup>1</sup> Theresa Han-Markey, MS, RD,<sup>1</sup> Sarah Bell, MPH, RD<sup>1</sup> and Kenja Jackson, BS<sup>1</sup>



Variable	Low FODMAP			mNICE			P value between groups: baseline	P value between groups: week 4
	Baseline (n=43)	Week 4 (n=41)	P value within group	Baseline (n=39)	Week 4 (n=37)	P value within group		
Filicesolines	2020±661	1691±600.7	P=0.0023	2006±502.5	1835±714.1	P=0.0416	P=0.9166	P=0.3370
Average number of dairy meals	5.43±1.7	4.92±1.5	P=0.0119	5.52±1.7	4.80±1.4	P=0.0040	P=0.8070	P=0.7259
Protein (g)	76.53±28.6	72.7±36.7	P=0.3059	74.14±21.9	77.27±36.1	P=0.4959	P=0.6743	P=0.5790
Fat (g)	79.26±32.9	75.05±37.9	P=0.3580	80.97±25.6	69.90±36.3	P=0.0116	P=0.7954	P=0.5425
Alcohol (g)	8.60±16.4	5.91±12.4	P=0.3580	5.74±9.3	7.14±13.5	P=0.6179	P=0.3311	P=0.6754
Carbohydrates (g)	244.59±87.7	180.31±55.5	P=0.0001	244.07±70.6	219.39±84.3	P=0.0450	P=0.9767	P=0.0220

Am J Gastroenterol 2016;

IFFGD 2016



## Guidelines FODMAPs



### Final Thoughts

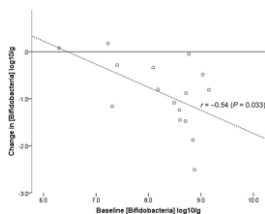
- The dietician will also ensure that the diet is nutritionally adequate. **Many people can return to their usual diet with just a few high FODMAP foods that need to be avoided.**
- Health benefits attributed to some FODMAPs. Fructans, inulin, and GOS are well known **prebiotics**, stimulating the growth of beneficial bacteria in the gut.
- The "Low FODMAP diet" is **not** a "No FODMAP diet" and it is **not** a "lifetime diet."



SAHLGRENKA AKADEMIEN

### Fermentable Carbohydrate Restriction Reduces Luminal Bifidobacteria and Gastrointestinal Symptoms in Patients with Irritable Bowel Syndrome

Heidi M. Staudacher, Miranda C. E. Lomer, Jacqueline L. Anderson, Jacqueline S. Barrett, Jane G. Muir, Peter M. Irving, and Kevin Whelan



There were lower concentrations and proportions of bifidobacteria in the intervention group at follow-up compared with the control group. In the intervention group, the change in concentrations of bifidobacteria was negatively correlated with baseline concentrations.



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### Diets that differ in their FODMAP content alter the colonic luminal environment

Measure	Bacteria	Adaptation diet	Low FODMAP diet	p Value	Habitual diet
Absolute abundance (Log <sub>10</sub> copies of 16S rRNA gene/g)	<b>Total bacteria</b>	<b>9.83 (9.72–9.93)</b>	<b>9.63* (9.53–9.73)</b>	<b>&lt;0.001</b>	9.85 (9.73–9.96)
	Clostridium cluster IV	8.33 (8.13–8.52)	8.05* (7.88–8.23)	<0.001	8.39 (8.23–8.54)
	Ferrobacterium	7.72 (7.49–7.95)	7.45* (7.25–7.65)	<0.001	7.84 (7.67–8.01)
	Clostridium cluster XIVa	9.05* (8.89–9.14)	8.83 (7.91–8.15)	<0.001	8.22 (8.09–8.36)
	Bifidobacteria	7.73 (7.59–7.85)	7.49 (7.36–7.63)	<0.001	7.62 (7.45–7.78)
	<b>Lactobacilli</b>	<b>6.35 (6.20–6.50)</b>	<b>6.08 (5.91–6.24)</b>	<b>0.003</b>	6.21 (6.05–6.42)
	<b>Bifidobacteria</b>	<b>7.71 (7.53–7.88)</b>	<b>7.30* (7.11–7.50)</b>	<b>&lt;0.001</b>	7.70 (7.48–7.91)
	Alkermesia mucroniphila*	5.48* (4.88–6.04)	4.29 (3.58–4.99)	<0.001	4.29 (3.67–4.92)
	Ruminococcus gnavus	7.26 (7.14–7.37)	7.10 (6.96–7.25)	0.002	7.16 (7.04–7.28)
	Ruminococcus torques	6.08 (5.85–6.31)	6.23 (6.07–6.39)	0.140	6.20 (5.97–6.44)
Relative abundance (percentage of total bacteria)	Clostridium cluster IV	4.01 (3.21–4.71)	3.32 (2.70–3.94)	0.108	3.99 (3.29–4.69)
	F. prausnitzii	1.11 (0.92–1.40)	0.95 (0.69–1.22)	0.108	1.29 (0.93–1.66)
	Clostridium cluster XIVa	18.1* (15.4–20.8)	2.72 (2.33–3.12)	<0.001	2.63 (2.28–3.01)
	Roseburia	0.85 (0.385–1.11)	0.82 (0.68–0.96)	0.151	0.79 (0.58–1.00)
	Lactobacilli	0.65 (0.63–0.68)	0.64 (0.63–0.65)	0.634	0.66 (0.61–0.71)
	Bifidobacteria	1.33 (0.74–1.92)	0.87 (0.47–1.27)	0.028	1.48 (0.79–2.18)
	A. mucroniphila*	0.10* (0.03–0.18)	0.02 (0.01–0.03)	<0.001	0.01 (0–0.02)
	R. gnavus	0.17 (0.23–0.29)	0.41 (0.27–0.55)	0.480	0.27 (0.19–0.36)
	R. torques	0.04 (0.02–0.06)	0.06 (0.04–0.08)	0.001	0.05 (0.01–0.09)
	Diversity (Shannon index)	1.47 (1.39–1.55)	1.79* (1.70–1.89)	<0.001	1.60 (1.51–1.69)



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ORIGINAL ARTICLE

### Multivariate modelling of faecal bacterial profiles of patients with IBS predicts responsiveness to a diet low in FODMAPs

Sean M P Bennet, Lena Böhn, Stine Störsrud, Therese Liljebo, Lena Collin, Per Johan Lindfors, Hans Törnblom, Lena Ohman, Magnus Simrén



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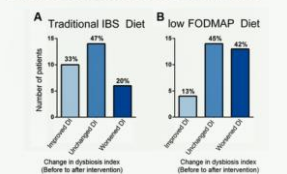
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### Dysbiosis improved after a traditional diet but worsened after a Low FODMAP diet



Bennet et al. Gut 2017

Table 3 Bacterial targets significantly altered during dietary intervention irrespective of patient responsiveness

	Bacterial target of labelling probe	Before (P50)	After (P50)	p Value*	q value†
Traditional IBS diet (n=30)	None	nil	nil	nil	nil
Low FODMAP diet (n=31)	Mycoplasma hominis	66 (26–110.4)	40 (22.7–96.8)	0.02	0.3
	Bifidobacterium	152 (45.7–270)	32.8 (23.4–122.4)	0.0005	0.02
	Actinobacteria	120 (57.5–197.4)	59.6 (47.9–102.4)	0.001	0.02

Bennet et al. Gut 2017



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### Faecal Fermentation in Irritable Bowel Syndrome: Influence of Dietary Restriction of Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols

Jørgen Valeur, Arne Gustav Roseth, Torunn Knudsen, Gunn Helen Malmström, Jennifer T. Fiennes, Tore Midtved, Arnold Berstad

Conclusion: Dietary FODMAP restriction markedly modulated fecal fermentation in patients with IBS. Saccharolytic fermentation decreased, while proteolytic fermentation increased, apparently independent of symptoms.

Table 1. SCA concentrations in fecal samples collected before and after a 4-week FODMAP restricted diet in IBS patients (n = 83)

Parameter	Before diet	After diet	p value
<b>Total SCA</b>			
Baseline	87.1±32.6	73.7±27.3	0.005**
After 24 h	145.5±41.8	132.6±45.1	0.013*
<b>Acetic acid</b>			
Baseline	52.7±20.9	43.2±16.5	0.003**
After 24 h	98.5±34.3	83.4±33.1	0.001**
<b>Propionic acid</b>			
Baseline	14.0±6.2	12.5±5.9	NS
After 24 h	16.4±6.1	16.5±5.8	NS
<b>n-butyric acid</b>			
Baseline	14.4±8.6	11.6±6.0	0.009**
After 24 h	23.8±12.3	23.7±12.3	NS
<b>i-butyric acid</b>			
Baseline	1.6±0.8	1.7±0.8	NS
After 24 h	1.9±1.0	2.6±1.6	0.003**
<b>n-valeric acid</b>			
Baseline	1.7±0.7	1.7±0.8	NS
After 24 h	1.7±0.6	1.8±0.8	NS
<b>i-valeric acid</b>			
Baseline	2.1±1.8	2.4±1.1	NS
After 24 h	2.7±1.8	4.0±2.9	0.003**
<b>n-caproic acid</b>			
Baseline	0.6±0.7	0.5±0.8	NS
After 24 h	0.5±0.5	0.5±0.7	NS
<b>i-caproic acid</b>			
Baseline	0.02±0.06	0.04±0.02	NS
After 24 h	0.1±0.2	0.1±0.2	NS

Digestion 2016



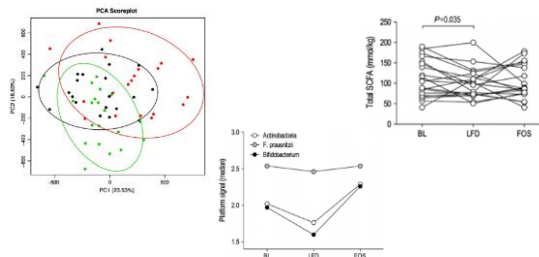
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ORIGINAL ARTICLE

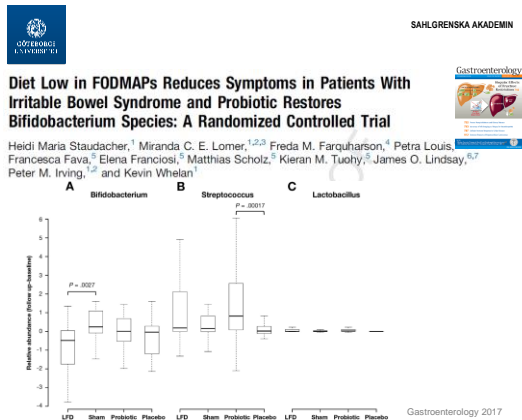
WILEY

### Effects of varying dietary content of fermentable short-chain carbohydrates on symptoms, fecal microenvironment, and cytokine profiles in patients with irritable bowel syndrome

T. N. Hustoft, T. Hausken, S. O. Ystad, J. Valeur, K. Brokstad, J. G. Hatlebakk, G. A. Lied





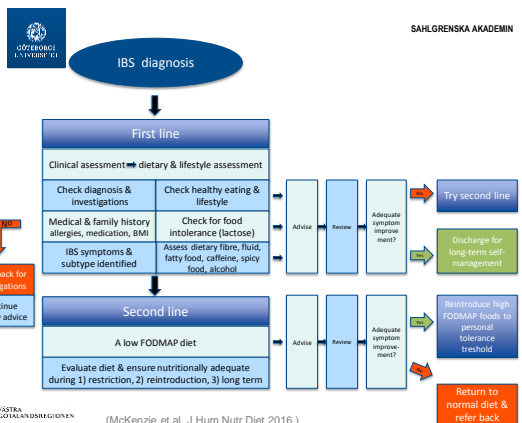


**BDA** The Association of UK Dietitians  
Journal of Human Nutrition and Dietetics  
THE OFFICIAL JOURNAL OF THE BRITISH DIETETIC ASSOCIATION

**CLINICAL GUIDELINES**  
**British Dietetic Association systematic review and evidence-based practice guidelines for the dietary management of irritable bowel syndrome in adults (2016 update)**

Y. A. McKenzie,<sup>1</sup> R. K. Bowyer,<sup>2</sup> H. Leach,<sup>3</sup> P. Gulla,<sup>4</sup> J. Horobin,<sup>5</sup> N. A. O'Sullivan,<sup>5</sup> C. Pettitt,<sup>7</sup> L. B. Reeves,<sup>8</sup> L. Seaman,<sup>2</sup> M. Williams,<sup>7</sup> J. Thompson,<sup>10</sup> M. C. E. Lomer<sup>1,11</sup> (IBS Dietetic Guideline Review Group on behalf of Gastroenterology Specialist Group of the British Dietetic Association)

(Hum Nutr Diet 2016)



**Handläggning kostråd till IBS-patienter**

- Individuella kostråd
- Bekräfta & förklara
- När och hur lika viktigt som vad man äter
- Kombinerar traditionella kostråd med **reduktion** av FODMAP
- Prova probiotika
- **Realistiska mål**

**IBS är mer än bara mat**

- Regelbundna toalettvanor
- Stress
- Psykisk hälsa
- Fysisk hälsa
- Avslappning och andning
- Fysisk aktivitet
- Hormoner
- Sömn

