



Risks of Medical and Fad Diets for Children

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Faculty Disclosure

- There are no commercial products or services being discussed
- No financial disclosures
- No unlabeled use of a product is being discussed

Objectives

- Describe metabolic risks associated with high protein diets
- Enumerate 3 nutrition deficiencies that can be seen with long term enteral nutrition use
- Describe the value of “integral diets” to support a healthy microbiome

Lets define Medical Diets

A therapeutic diet is a meal plan that controls the intake of certain foods or nutrients. It is part of the treatment of a medical condition and are normally prescribed by a physician and planned by a dietician. A therapeutic diet is usually a modification of a regular diet.

Examples:

- Gluten Free diet
- Low Sucrase diet
- Low lactose diet
- High fiber diet

Fad Diets?

Fad diet is a diet that becomes popular for a short time, similar to fads in fashion, without being a standard dietary recommendation, and often making pseudoscientific or unreasonable claims for fast weight loss or health improvements.

Examples:

- Food specific diets
- Liquid diets
- Intermittent fasting



Diet Fads in the News



The New York Times

STUDENT OPINION

Does Social Media Affect Your Body Image?

What messages have you received from social media about how your body should look?

When Teen Boys Use Supplements

Some supplements are more effective than others — and some may be harmful, experts warn.

Risk of High-Protein Diets

Protein requirements: For kids (1-2 gr/kg)

1. High-protein diets limit carbs so much that you might not get enough nutrients or fiber.
2. Some high-protein diets allow red meats, processed meats and other foods high in saturated fat. These foods may increase your risk of heart disease and cancer (over time).
3. High protein diet risks also include:
Nephrolithiasis, excessive bone resorption (loss) and calcium loss in urine.

Choose your protein with care.
Stay away from processed meats.

Pick good protein choices such as:

- Soy protein
- Beans
- Nuts
- Fish
- Lean chicken with no skin
- Lean beef
- Pork
- Low-fat dairy products

Vegetarian/Vegan diets in kids

What matters more is regarding the exclusions. A lacto-ovo vegetarian diet offers plenty of high-quality protein to a child by including eggs and dairy products.

Vegan diets are much more strict and eliminate all animal derived products from diet.

Dutch study of children ab lactated to a macrobiotic diet showed higher risk of nutritional rickets and lower levels of B complex vitamins.

Position papers from the American and Canadian guiding societies have suggested B12 fortification and 35% increase in protein intake for infants in vegan diet for concern of lower quality of the non-animal peptides.

European societies have shown much more disquiet advocating for supervision, avoidance of veganism for toddlers and Vit D, Ca, B12 and DHA supplementation.

Risks of Gluten Free

- 1. Lack of fiber**
- 2. Higher levels of fat and carbohydrates compared to GC products**
- 3. Nutritional deficiencies: Vit B complex and iron**
- 4. Risk of arsenic, mercury and mycotoxins**

Recent studies have shown that GF diet patients:

- Have lower BMI
- Don't have lower cholesterol or higher HDL compared to regular diet.

Pros and Cons of GFD

Conditions With Potential Benefits From a GFD

Gluten-sensitive irritable bowel syndrome

Nonceliac gluten sensitivity

Schizophrenia or other mental health conditions

Atopy

Fibromyalgia

Endometriosis

Obesity

Athletic performance

Potential Harms of a GFD

Deficiencies of micronutrients and fiber

Increases in fat content of foods

Hyperlipidemia

Hyperglycemia

Coronary artery disease

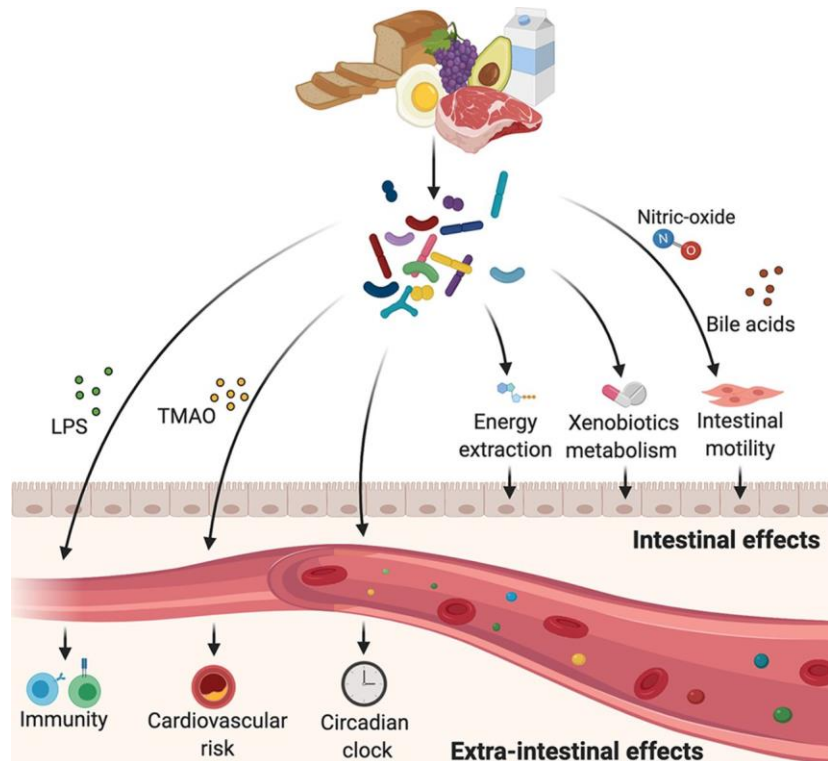
Increased financial costs

Social impairment or restrictions

Miland B. Gastroenterol Hepatol 2018

What about diet and microbiome?

- Gut microbiome is strongly influenced by the composition, amount and timing of the host's diet.
- Circadian clock perturbations can induce dysbiosis and is associated to abnormal glucose tolerance and is transferable by fecal transplant.



Microbiome as signaling hub:

Ketogenic diets exert their effect through the intestinal microbiome and do not work in microbiome-depleted mice.

Fecal implantation from a KD animal to a NF animal confers same protection.

Case #1

15 yo CCF with diagnosis of Crohn's disease involving ileum and R colon at an outside institution.

Ped GI team offered biologics but family preferred a more holistic approach and initially treated with mesalamine and started on a Specific Carbohydrate Diet.

Symptoms improved but inflammatory markers in blood still abnormal and stool markers also up.

Started on Enteral Nutrition Therapy using a polymeric formula for exclusive nutrition for 6 weeks and now completing 6 week food reintroduction and here for a 2nd opinion!

???

Specific Carbohydrate Diet for IBD

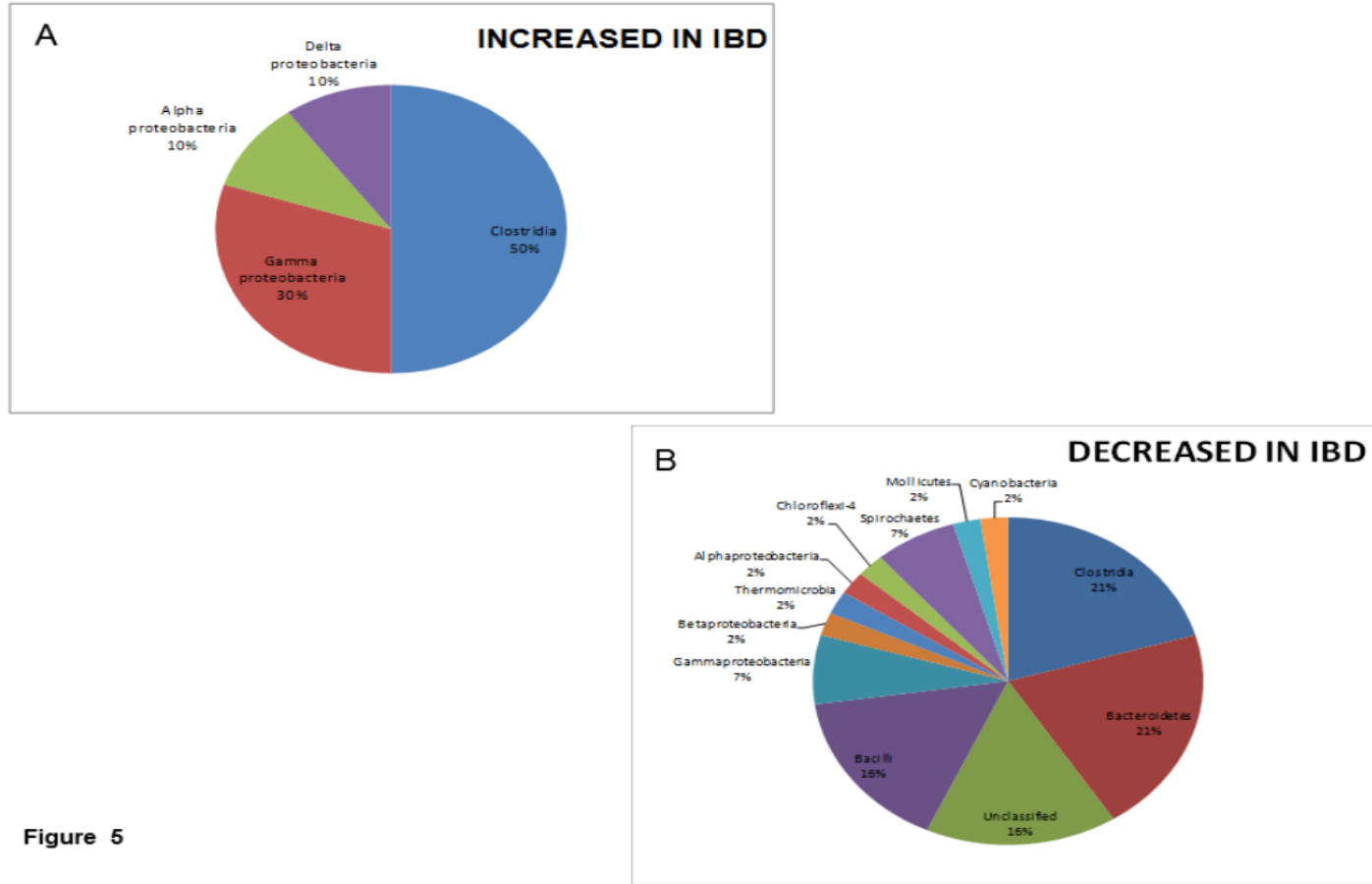


Figure 5

SCD continued

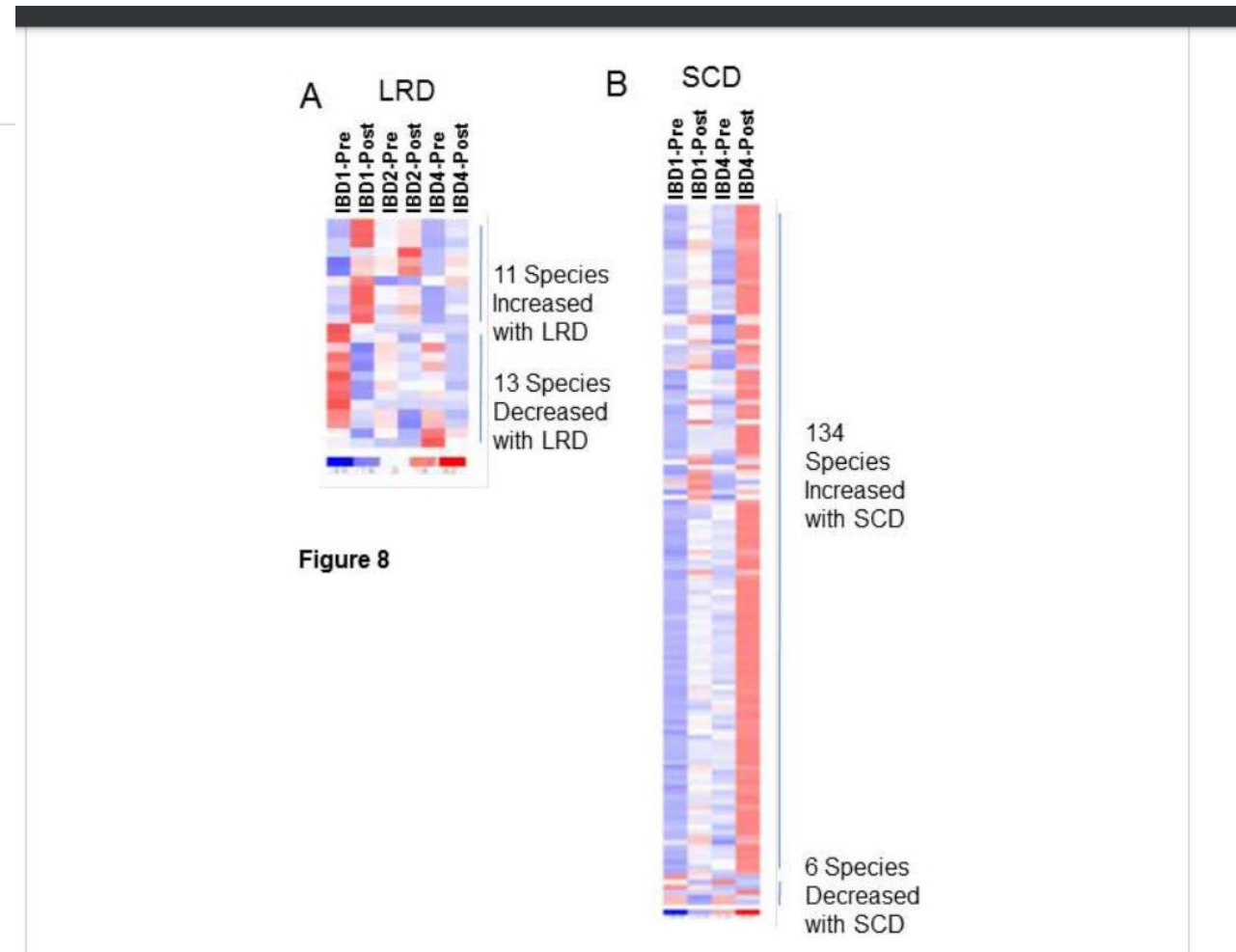


Figure 8

Quick word on PROBIOTICS

Nonpathogenic, live microorganisms that, when consumed in adequate amounts, are capable of conferring a health benefit to the host

May or may not be native to human digestive tract

Lactic acid bacter

Lactobacillus species

Bifidobacterium species

Streptococcus thermophilus

Enterococcus faecium

Lactococcus species

Leuconostoc species

Pediococcus species

Non-lactic acid bacteria

Bacillus species

Propionibacterium species

E. coli Nissle 1917

Non-pathogenic yeast

Saccharomyces boulardii

Safety of Probiotics:

Specific to each genus, species and strain

Bifidobacterium: Predominant in breast fed infants

B. lactis widely used in foods, including infant weaning foods and yogurt with no adverse reactions reported

“LGG” is *Lactobacillus paracasei* subspecies *rahamnosus*. Originally “GG” after Goldin and Gorbach, who first identified it.

“*B. lactis* Bb12” is *Bifidobacterium animalis* subspecies *lactis*, strain Bb12

Safety of Probiotics

Pros:

Use of lactic acid bacteria in food is in thousands of metric tons annually worldwide

No increases in infections have been documented with increased consumption

No evidence for higher incidence of infections than normal intestinal microbiota

Cons:

Specific strains interact with gut cellular and metabolic functions

Probiotics can translocate – especially in those with impaired epithelial barrier

Episodes of lactobacillus bacteremia have been reported in compromised patients

- Indwelling lines
- Immunosuppression

Complications of Probiotic Therapy

D-lactic acidosis	50 yo	Ann Intern Med	1995;122:839-842
Fungemia	1 yo	JPGN	1995;21:113-115
Fungemia	8 mo	Supp Care Cancer	2000;8:504-505
Endocarditis	23 cases	Rev Infect Dis	1986;8:771-776
Meningitis	12 do	Pediatr Infec Dis	1988;7:669-671
Bacteremia	21 cases	Yale J Biol Med	1978;51:505-512
Bacteremia	90 cases	Clin Infect Dis	2002;35:1155-60
Bacteremia	2 cases	JPGN	2004;38:457-8
Death	[24 probiotics v. 9 placebo; RR 2.5]	Lancet	2008;371:651-9

Thank You/Any Questions?



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