



# Diet and IBD: Food For Thought

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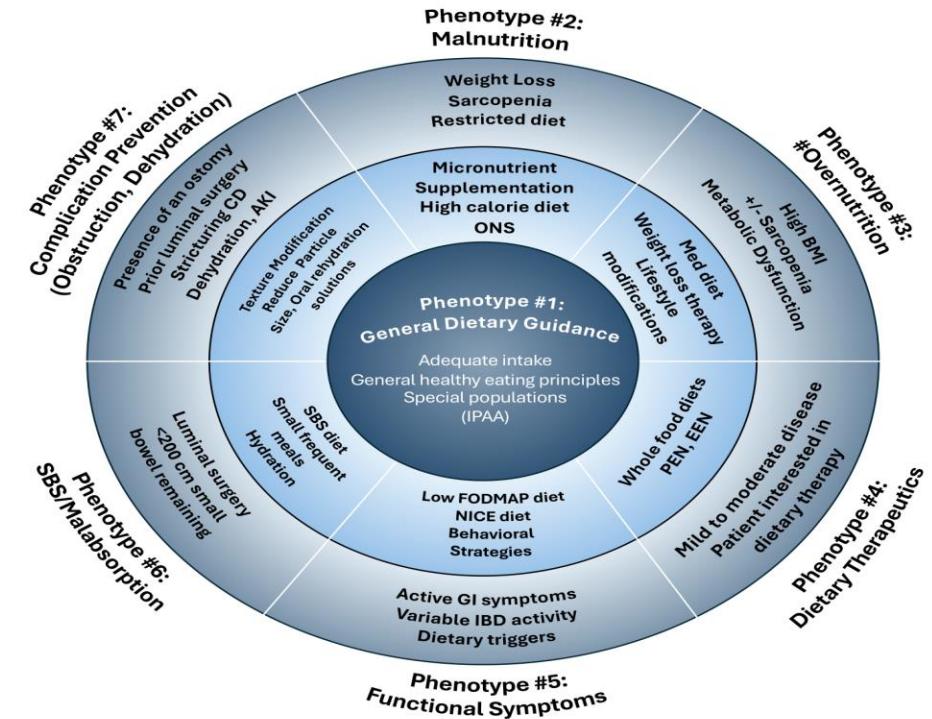
# Learning Objectives

- 1 Discuss the nutrition phenotypes to personalize dietary approaches for the IBD patient
- 2 Discuss advances in dietary interventions in 2025
- 3 Explore implications and applications of dietary approaches for clinical practice
- 3 Discuss future novel directions for dietary sciences as applied to IBD

# Nutrition Phenotypes in IBD

Ask yourself: What am I hoping diet will accomplish in this patient?

- Improve malnutrition/sarcopenia
- Induction of remission
- Maintenance of remission
- Disease prevention
- Prehabilitation/improved surgical outcomes
- High output Ileostomy / SBS / Pouchitis
- Improve overweight/obesity induced immune and metabolic dysregulation





# Malnutrition and Sarcopenia

# Prevalence of Malnutrition in Hospitalized and Outpatient IBD

**45%** moderate or severe malnutrition  
1.2% on discharge summary

In IBD inpatients, **75–90%** of patients are malnourished when admitted to hospital

In IBD outpatients, **20–30%** of patients are malnourished

> 40% for **myopenia** among 4060 IBD patients



### Medications

- Steroids: ↓ calcium, phosphate and zinc absorption
- Sulfasalazine: folate deficiency
- Cholestyramine: ↓ BA, FSV absorption

### Primary Sclerosing Cholangitis

- ↓ bile flow: fat and FSV malabsorption

### Relative pancreatic insufficiency

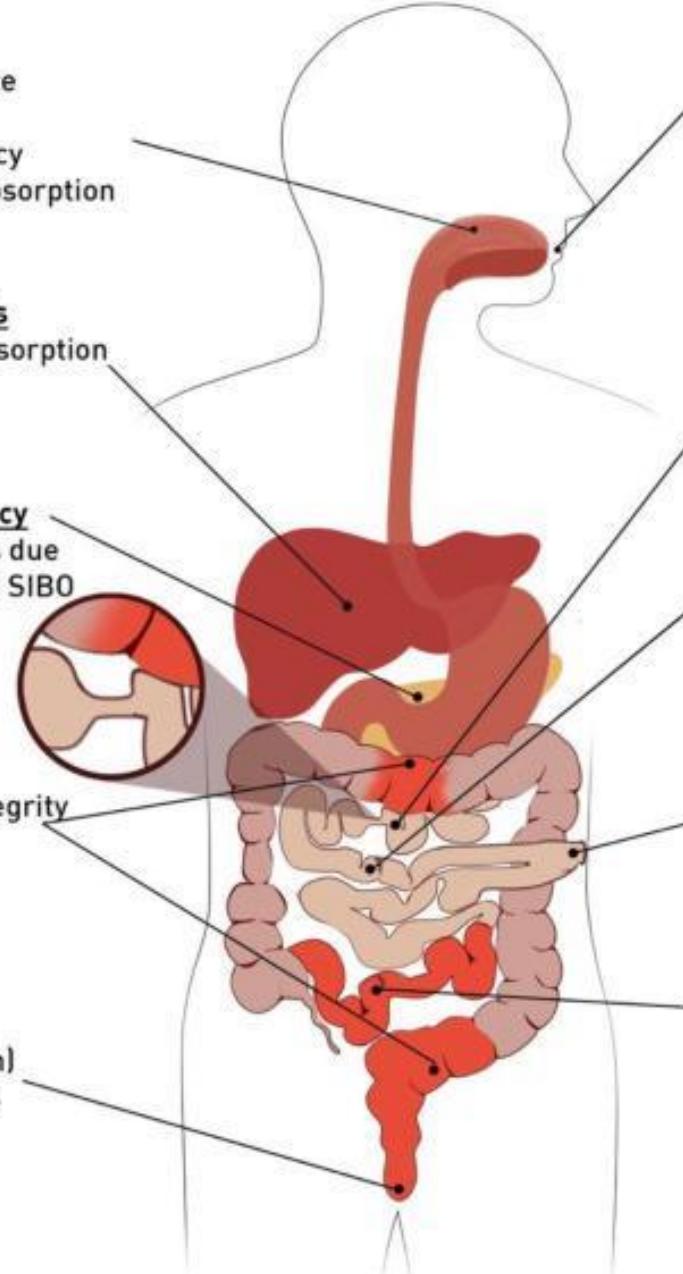
- ↓ mixing of digestive enzymes due to ↑ transit (post-surgical) and SIBO

### Active inflammation

- ↓ absorptive area
- ↓ epithelial transport and integrity
- Protein losing enteropathy
- ↑ nutrient requirements
- ↑ GI blood (iron) loss

### Diarrhea

- ↑ fluid, electrolyte (potassium) and trace elements (zinc) loss
- Dehydration



### Reduced oral intake

- Restrictive or exclusion diets
- Anorexia, abdominal pain, nausea, vomiting
- Hospital procedures, endoscopy prep and prolonged NPO

### SIBO

- Symptoms: bloating, diarrhea
- ↓ B12, BA deconjugation

### Surgery

- ↓ surface area for absorption
- Dysmotility: ↑ or ↓ transit

### Enterocutaneous fistula

- Loss of fluid, macro and micronutrients

### Ileal surgery

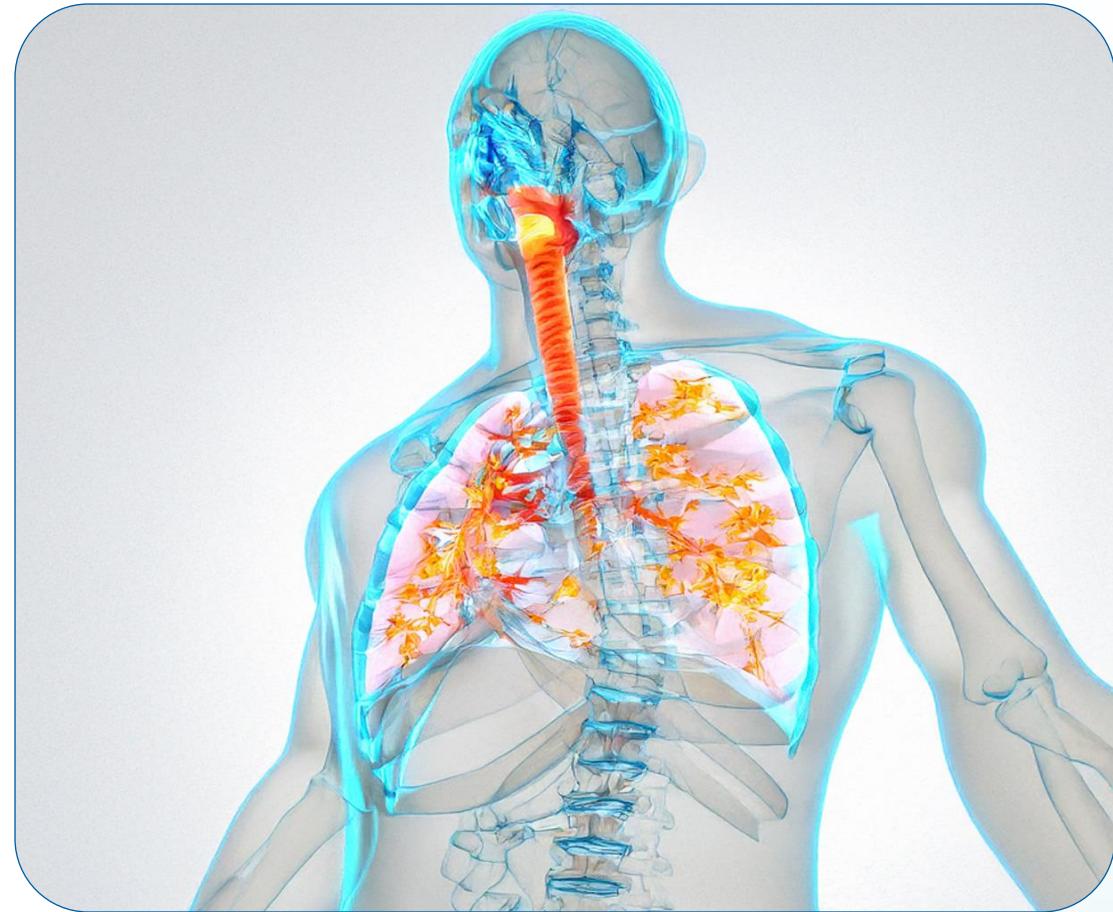
- > 50-60 cm ileum resected/diseased: partial BA malabsorption and B12 deficiency
- > 100 cm ileum resected: BA deficiency and fat malabsorption

#### Abbreviation Legend

- B12 – Vitamin B12
- BA – Bile acids
- GI – Gastrointestinal
- FSV – Fat soluble vitamins A, D, E, K
- NPO – Nil per os
- SIBO – Small Intestinal Bacterial Overgrowth

# Complications of Malnutrition in IBD

- Increased infections (pulmonary, wound infection, abscess, UTI)
- Increased length of stay and readmission rates to hospital
- Wound breakdown, delayed wound healing
- Leakage or bleeding at the surgical site
- Cardiac and respiratory insufficiency
- Compromised bone health
- Decreased effectiveness of anti-TNF agents
- Decreased function and quality of life



## General aspects

R3A: Patients with IBD are at risk of malnutrition and therefore should be screened for malnutrition at the time of diagnosis and thereafter on a regular basis.

R3B: Documented malnutrition in patients with IBD should be treated appropriately, because it worsens the prognosis, complication rates, mortality and quality of life.

R4: In general, the energy requirements of patients with IBD are similar to those of the healthy population; provision should be in line with this.

R5: Protein requirement are increased in active IBD, and intake should be increased (to 1.2-1.5 g/kg/d in adults). The protein requirements in remission are generally not elevated and provision should be similar (about 1g/kg/d in adults) to that recommended for the general population.

R6: Patients with IBD should be checked for micronutrient deficiencies on a regular basis and specific deficits should be appropriately corrected.

**Best Practice Advice 5: Exclusive enteral nutrition may be an effective therapy in malnourished patients before undergoing elective surgery for Crohn's disease to optimize nutritional status and reduce postoperative complications**



# **DIET and IBD PREVENTION**



## The Rise of IBD in Canada

**2023**  
1 every  
48 minutes



**2035**  
1 every  
38 minutes

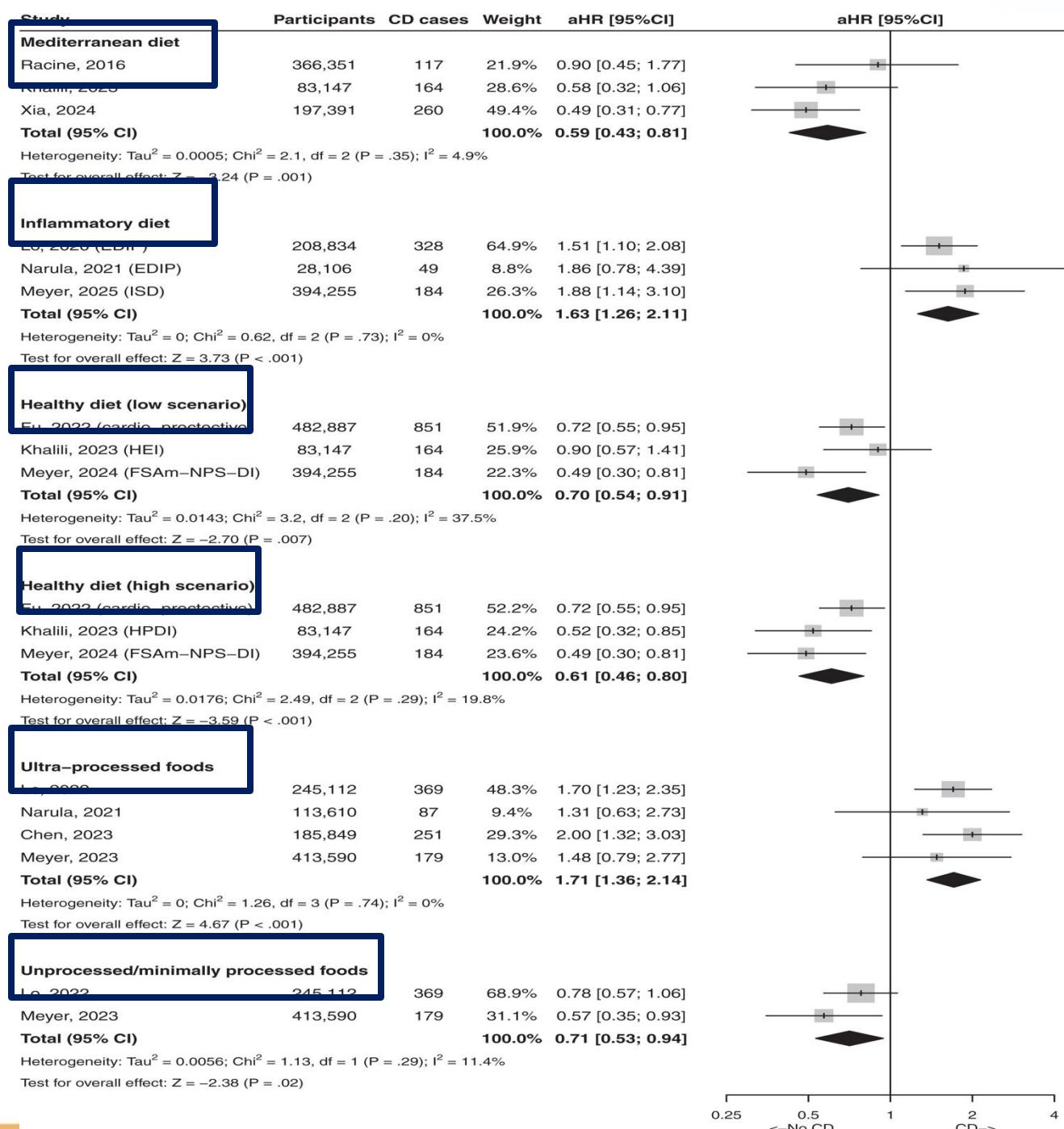
2023 Impact of Inflammatory Bowel Disease in Canada  
– Crohn's and Colitis Canada

# Pathogenesis of IBD



# Impact of Diet on IBD Development Systematic Review and Meta-analysis

– Meyer et al. Eclin Med 2025

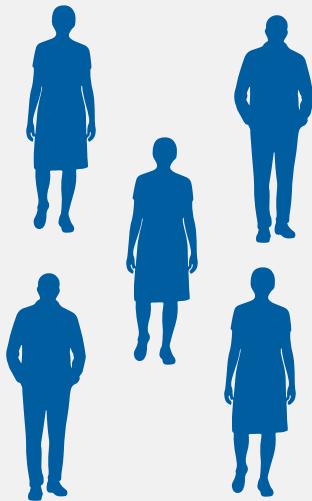


# GEM Study

## 2289 Healthy FDR's of Patients With CD

### Cross-Sectional Analysis

Healthy First-Degree Relatives N=2,289



### Dietary Pattern

Mediterranean-like Dietary Pattern



vs. Non-Mediterranean-like Dietary Pattern

### Effect of Dietary Pattern

Altered Microbiome Composition

↓ *Ruminococcus*

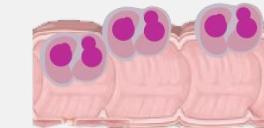
↓ *Dorea*

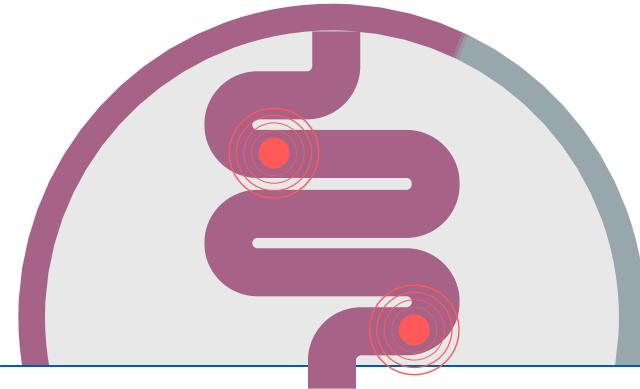
↑ *Faecalibacterium*



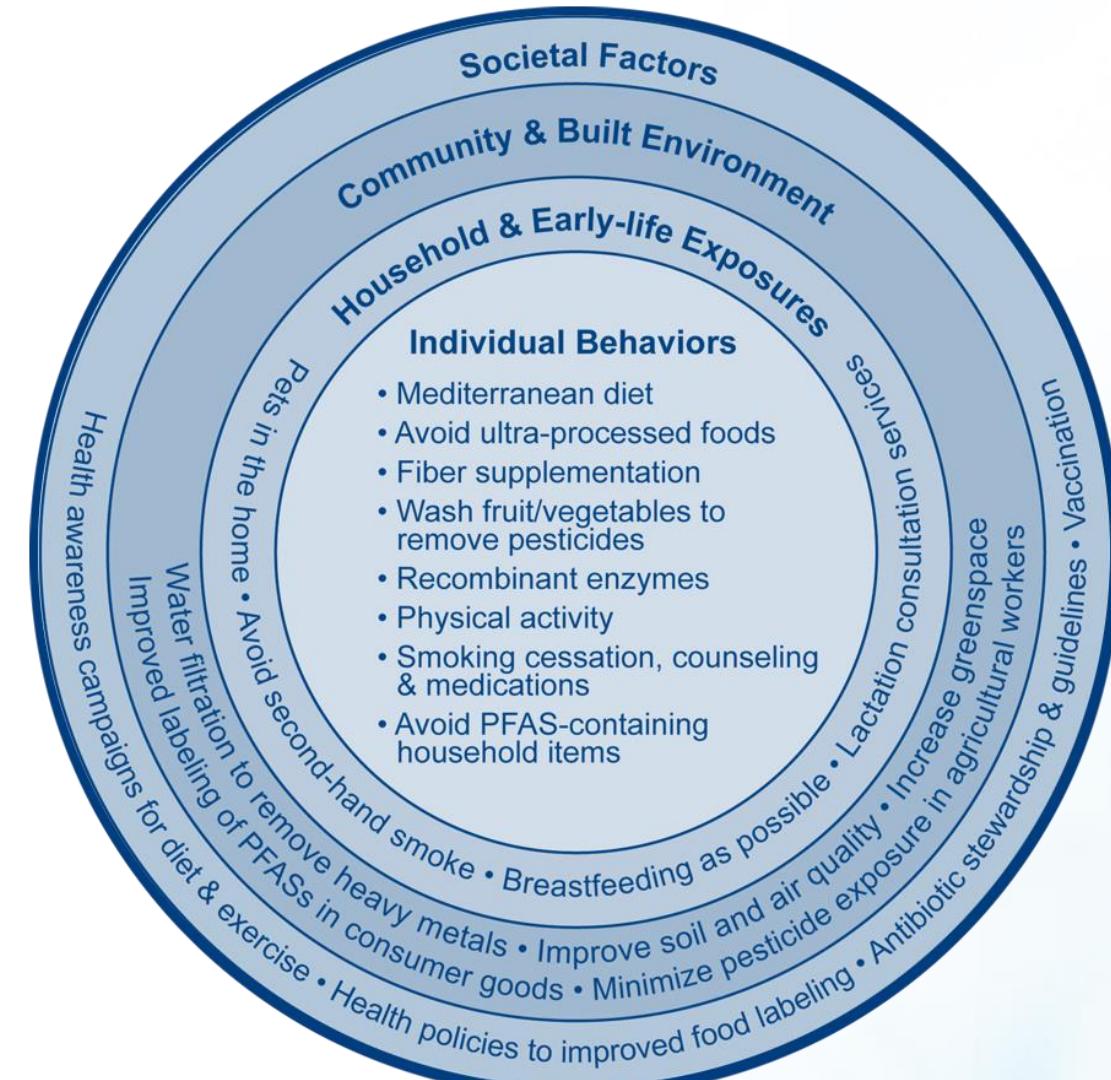
Subclinical Gut Inflammation

↓ Fecal Calprotectin





## Potential environmental and lifestyle inflammatory bowel disease prevention measures. Candidate interventions.



<sup>a</sup>Inflamm Bowel Dis, izaf168, <https://doi.org/10.1093/ibd/izaf168>

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# DIET as IBD TREATMENT

## Induction & Remission

# The IBD Diet Revolution has Arrived!

## REVIEW ARTICLE

### Revolution in diet therapy for inflammatory bowel disease

Sarah L. Melton,<sup>\*†</sup>  Alice S. Day,<sup>‡§¶</sup>  Robert V. Bryant,<sup>‡§¶</sup>  and Emma P. Halmos<sup>\*</sup> 

<sup>\*</sup>Department of Gastroenterology, Monash University & Alfred Health, <sup>†</sup>Nutrition Department, Alfred Health, Melbourne, Victoria, <sup>‡</sup>Inflammatory Bowel Disease Services, Department of Gastroenterology and Hepatology, The Queen Elizabeth Hospital, <sup>§</sup>Faculty of Health Sciences, School of Medicine, University of Adelaide and <sup>¶</sup>Basil Hetzel Research Institute, Woodville South, Adelaide, South Australia, Australia

doi:10.1002/jgh3.13097

Gastroenterology 2024;166:521–532

## CLINICAL PRACTICE UPDATES

### AGA Clinical Practice Update on Diet and Nutritional Therapies in Patients With Inflammatory Bowel Disease: Expert Review

Jana G. Hashash,<sup>1</sup> Jaclyn Elkins,<sup>2</sup> James D. Lewis,<sup>3</sup> and David G. Binion<sup>4</sup>



## JOURNAL ARTICLE ACCEPTED MANUSCRIPT

### ECCO Consensus on Dietary Management of Inflammatory Bowel Disease

Vaios Svolos, Hannah Gordon, Miranda C E Lomer, Marina Aloi, Aaron Bancil, Alice S Day, Andrew S Day, Jessica A Fitzpatrick, Konstantinos Gerasimidis, Konstantinos Gkikas ... [Show more](#)

#### Author Notes

*Journal of Crohn's and Colitis*, jjaf122, <https://doi.org/10.1093/ecco-jcc/jjaf122>

Published: 12 July 2025 Article history ▾

IBD: inflammatory bowel disease.

Clinical Nutrition 42 (2023) 352–379



ELSEVIER

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journal homepage: <http://www.elsevier.com/locate/clnu>



#### ESPEN Guideline

ESPEN guideline on Clinical Nutrition in inflammatory bowel disease

Stephan C. Bischoff <sup>a,\*</sup>, Palle Bager <sup>b</sup>, Johanna Escher <sup>c</sup>, Alastair Forbes <sup>d</sup>, Xavier Hébuterne <sup>e</sup>, Christian Lodberg Hvas <sup>b</sup>, Franciska Joly <sup>f</sup>, Stansilaw Klek <sup>g</sup>, Zeljko Krznařic <sup>h</sup>, Johann Ockenga <sup>i</sup>, Stéphane Schneider <sup>j</sup>, Raanan Shamir <sup>k</sup>, Kalina Stardelova <sup>l</sup>, Daria Vranesic Bender <sup>m</sup>, Nicolette Wierdsma <sup>n</sup>, Arved Weimann <sup>o</sup>

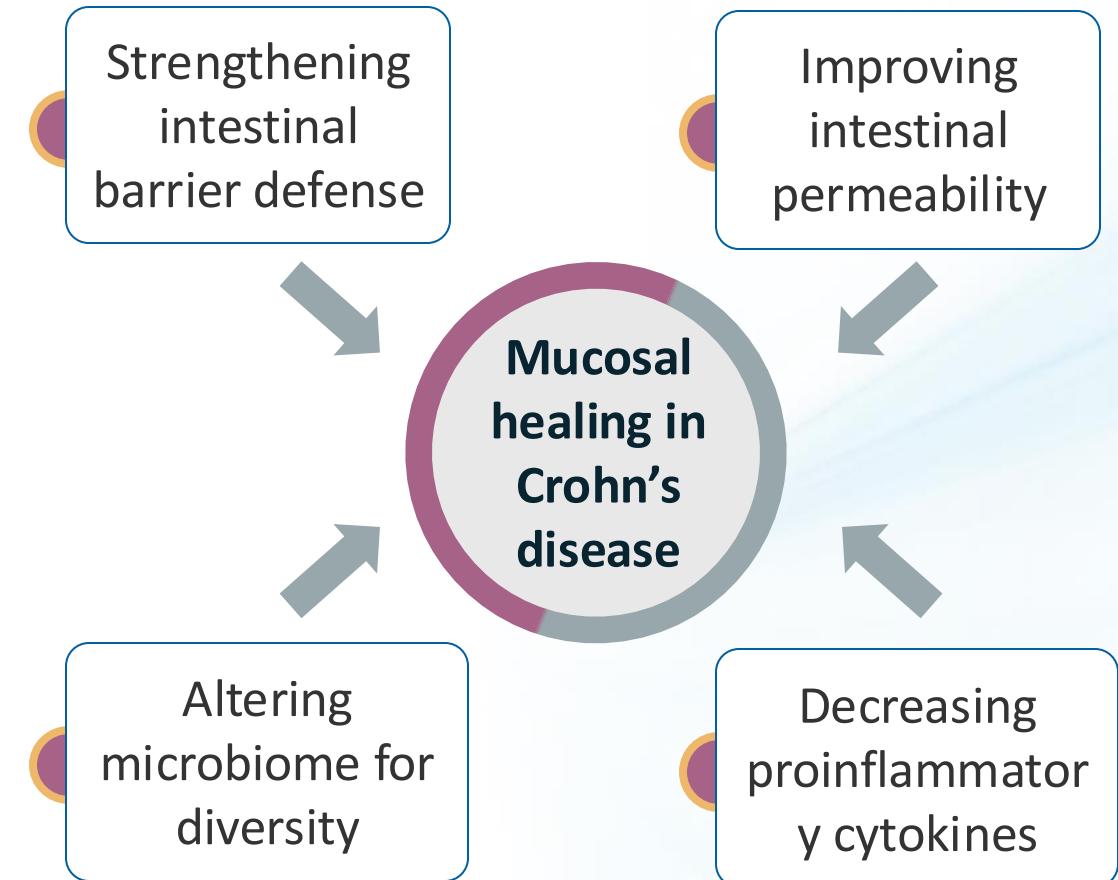
# Why a Diet Revolution in IBD?

- Current immune-based therapies for IBD still have 30-40% primary nonresponse rate with 40% secondary loss of response despite new advanced therapeutic options
- Diet leverages different mechanisms of action vs. immune-based therapies
- Increased patient awareness and demand
- THE DATA SUPPORT IT



# EEN – What is the Mechanism of Action?

- **Immune response:** ↓ pro-inflammatory cytokines (IL-1, IL-6, IL-8), restores intestinal barrier integrity, and modulates TNF-'alpha' pathways in epithelial cells
- **Microbiota modulation:** Shifts gut microbiome reducing pro-inflammatory taxa (*Escherichia coli*), increasing beneficial species (*Faecalibacterium, Roseburia*)
- Paradoxical findings when examining the effects of EEN which contains emulsifiers, maltodextrin, etc.
- Still not completely understood.

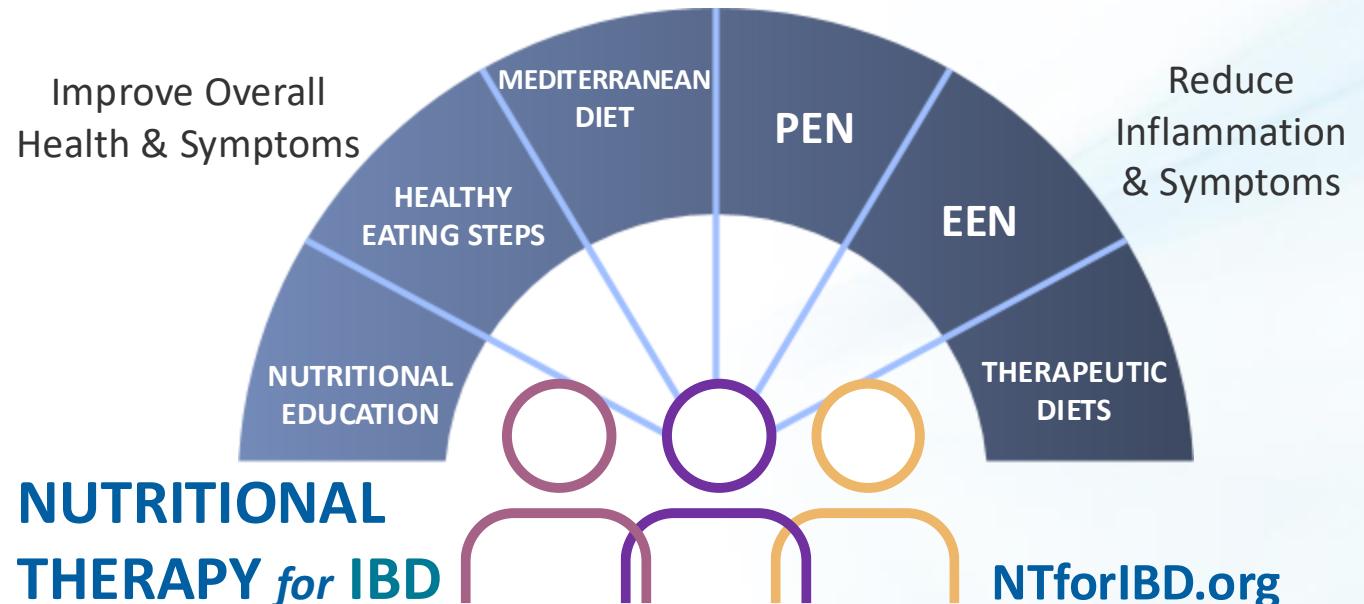


# Therapeutic Diets

- CDED + PEN Induction
- CDED + PEN Maintenance
- Tasty and Healthy
- Mediterranean Diet
- Specific Carbohydrate Diet
- Modified Specific Carbohydrate Diet
- Intermittent Fasting
- IBD AID (Auto Immune Diet)
- Autoimmune Protocol Diet
- Low-Sulfur Diet
- IBD Food Pyramid

## Evidence-Based Nutritional Therapy

An Option For Every Patient



# Nutrition Considerations: Active Disease

## Data on the use of CDED + PEN

- 15 studies (4 RCTs, 5 adults)
- Tolerance: CDED + PEN > EEN
- Induction clinical remission, CRP normalization ~70%
- Induction and maintenance of clinical remission >1 year (80% sustained remission)
- CDED + PEN: significant weight gain
- Reduction in UPF consumption
- Higher MED diet scores
- Better response in bionaïve vs. those who had loss of response to a biologic
- Limited endoscopic data

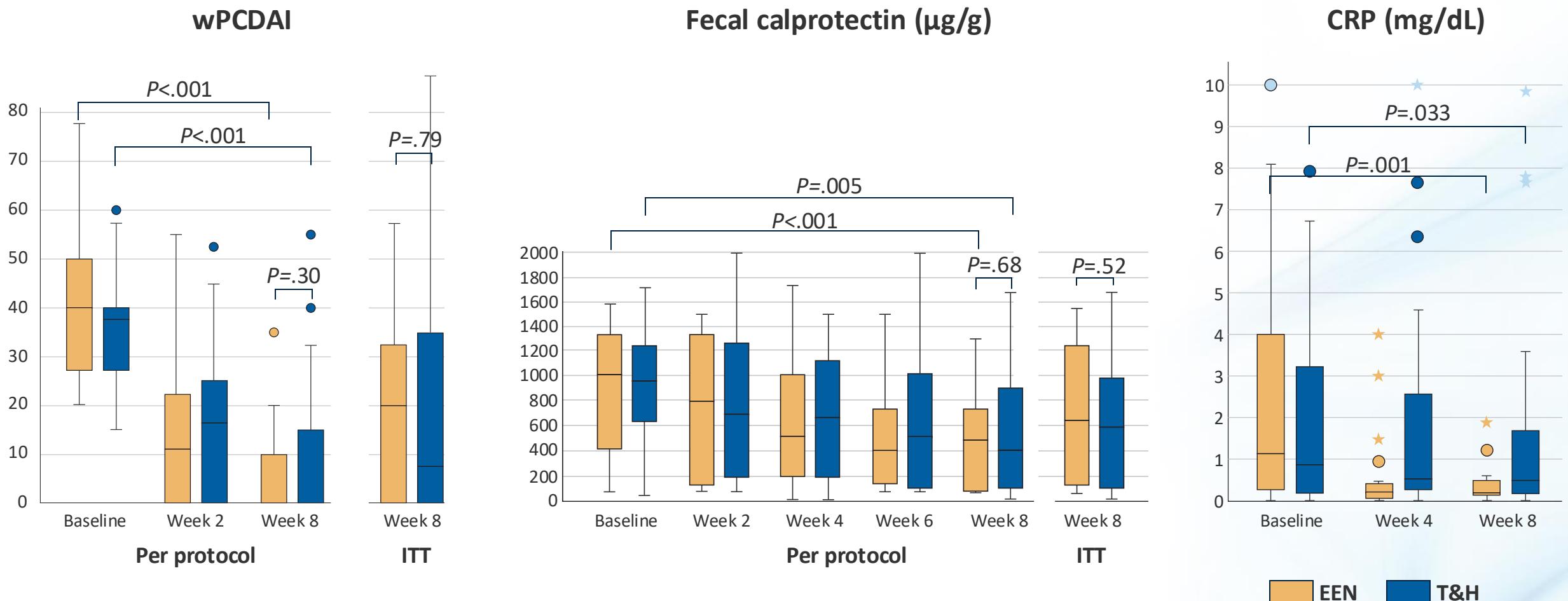
*Inflammatory Bowel Diseases*, 2023, XX, 1–15  
<https://doi.org/10.1093/ibd/izad255>  
Advance access publication 18 November 2023  
Review Article - Clinical



### The Crohn's Disease Exclusion Diet: A Comprehensive Review of Evidence, Implementation Strategies, Practical Guidance, and Future Directions

Rotem Sigall Boneh, RD, MSc, <sup>\*†,ID</sup> Catherine Westoby, RD, MRes, <sup>‡</sup> Ilan Oseran, MA, <sup>§</sup>  
Chen Sarbagili-Shabat, RD, MSc, <sup>\*¶</sup> Lindsey G. Albenberg, DO, <sup>||</sup> Paolo Lionetti, MD, <sup>\*\*,ID</sup>  
Víctor Manuel Navas-López, MD, PhD, <sup>††</sup> Javier Martín-de-Carpi, MD, <sup>‡‡</sup> Henit Yanai, MD, <sup>§§,ID</sup>  
Nitsan Maharshak, MD, <sup>¶¶</sup> Johan Van Limbergen, MD, PhD, <sup>||||,\*\*\*</sup> and Eytan Wine, MD, PhD <sup>†††,ID</sup>

# Tasty & Healthy Whole Foods Diet vs. EEN: A Randomized Controlled Trial n=83



CRP: c-reactive protein; EEN: exclusive enteral nutrition; ITT: intention-to-treat; T&H: therapy & health; wPCDAI: weighted pediatric crohn's disease activity index.  
Frutkoff et al; Gastro. July 2025.

# Anti-inflammatory diet – IBD MAID (Marsh et al. 2024)†



## Design:

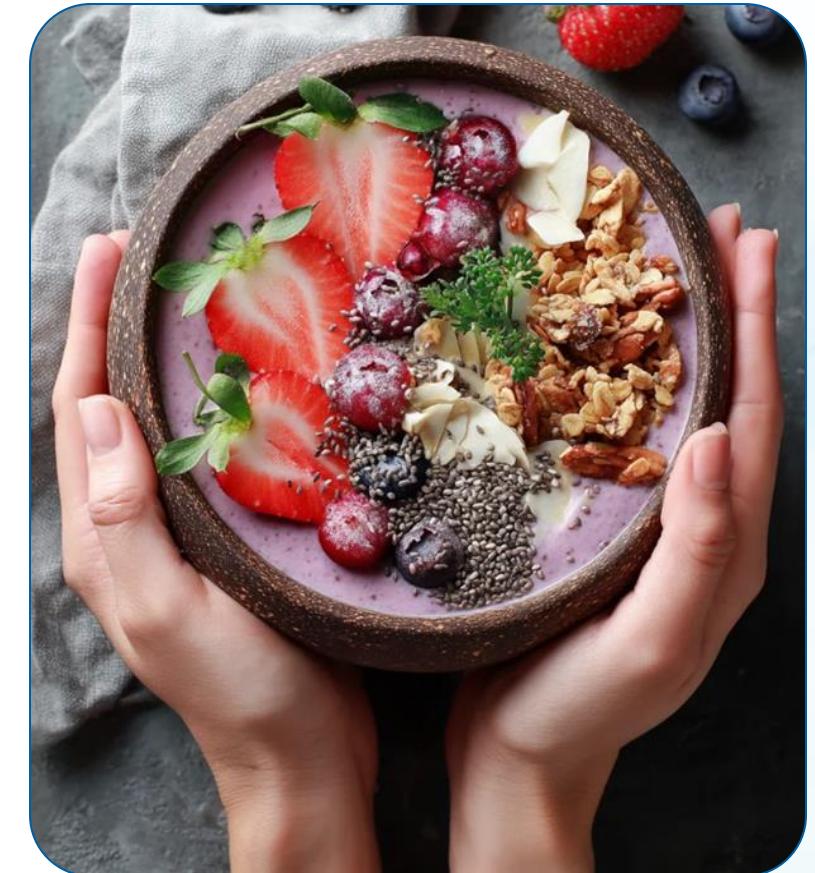
RCT of adult patients with UC or CD with an increase in symptoms and FCP > 50.

## Intervention:

- IBD-MAID diet (meals provided) or general healthy eating guidelines
- modified anti-inflammatory dietary pattern purposely designed to reduce intake of food additives (IBD-MAID)

## Key Results:

- IBD-MAID was both well-tolerated and well-adhered to.
- statistically significant improvements in symptoms, QOL FCP and Crohn's disease activity
- Not significant in UC



†Marsh A, et al. Eur J Clin Nutr. 2024 Dec;78(12):1072-1081s

# IBD Food Pyramid

## AGA Clinical Practice Update 2024

### Best Practice Advice 1:

Unless there is a contraindication, all patients with IBD should be advised to follow a Mediterranean diet rich in a variety of fresh fruits and vegetables, monounsaturated fats, complex carbohydrates, and lean proteins and low in ultra-processed foods, added sugar, and salt for their overall health and



Review

### From Evidence to Practice: A Narrative Framework for Integrating the Mediterranean Diet into Inflammatory Bowel Disease Management

Riya Gautam Naik <sup>1,2</sup>, Sarah A. Purcell <sup>2,3,4</sup>, Stephanie L. Gold <sup>5</sup>, Victoria Christiansen <sup>6</sup>, Leah D. D'Aloisio <sup>1</sup>, Maitreyi Raman <sup>7</sup> and Natasha Haskey <sup>1,\*</sup>

## THE IBD FOOD PYRAMID

### Priority 5

Choose certain fats like EVOO more often while limiting saturated fats and trans fats



**Limit** saturated fats

**Limit** trans fats (hard margarine, palm oils, shortening, commercially prepared baked goods)



### Priority 4

Choose a variety of proteins like chicken and fatty fish while limiting red and processed meat



**Limit** red meats less than 0.5 lbs (250 g)/week

**Limit** high-mercury (large) fish

**Limit** processed meats to <0.06 lbs (30 g)/week  
Processed meats are anything smoked or cured like ham, sandwich meats, bacon, sausage



### Priority 3

Choose mostly homemade meals and limit meals out of the house and foods with additives



**Limit** processed food and baked goods

**Limit** additives like Maltodextrin, Carrageenan, Polysorbate 80, Sulphates



### Priority 2

Choose certain starches like sweet potatoes and rice as well as legumes



Include legumes include beans, peas, lentils, chickpeas and edamame  
Try starting with  $\frac{1}{4}$  cup servings or try pureed

### Priority 1

Choose fruits, veggies, & leafy greens



**Include** a variety of coloured foods to ensure you consume balanced set of vitamins, minerals & nutrients

# Therapeutic Diet Intervention (Unpublished)†



## Design:

Crohn's disease, mild-moderate 13-week RCT  
(n=64) – 35% bioexposed with active disease biomarkers

## Intervention:

### Therapeutic Diet Intervention vs. Habitual Diet

Outcomes: symptoms, gut inflammation, systemic inflammation



## Key Results:

- 👤 **Symptoms (HBI)** ↓ Significant improvement ( $p=0.0327$ )
- 🦠 **Gut Inflammation (FCP)** ↓ Calprotectin reduced ( $p=0.0341$ )
- 🌡️ **Systemic Inflammation (CRP)** ↓ CRP decreased ( $p=0.0254$ )

†Raman et al.

# Constructing a Metagenomic Estimation of Dietary Intake (MEDI) Database

- Uses stool metagenomic sequencing to identify **food DNA** (>400 foods)

## Findings:

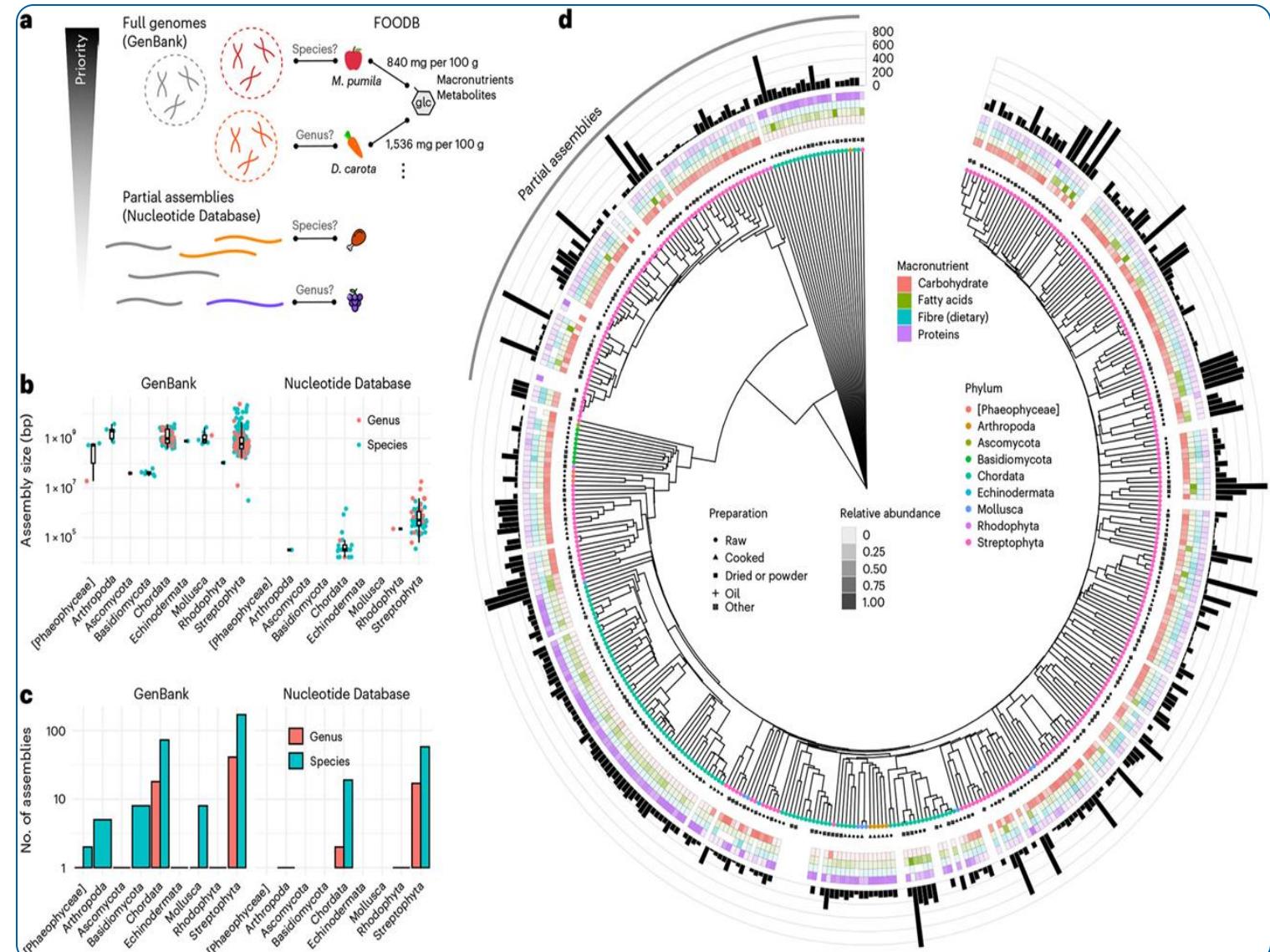
- Qualitatively reliable vs. **food records** in controlled studies

## Opportunities:

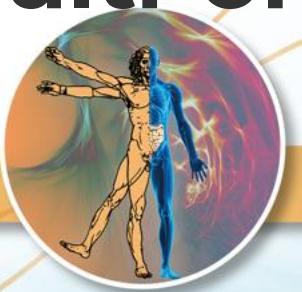
- Objective tool for diet assessment in IBD/nutrition studies
- Integrates with microbiome research

## Challenges:

- Extensive validation still needed



# Multi-omic digital twins models predict FCP



Diet recall



Metabolites



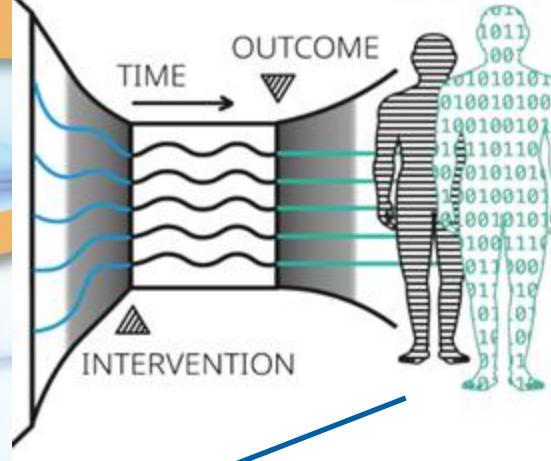
Taxa  
(from MG)



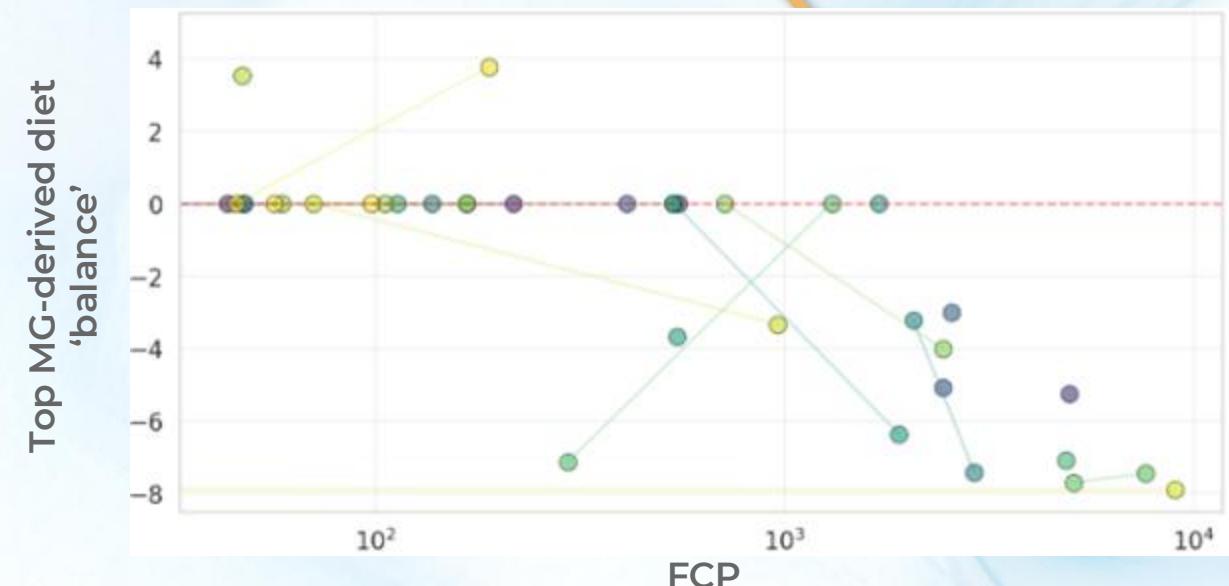
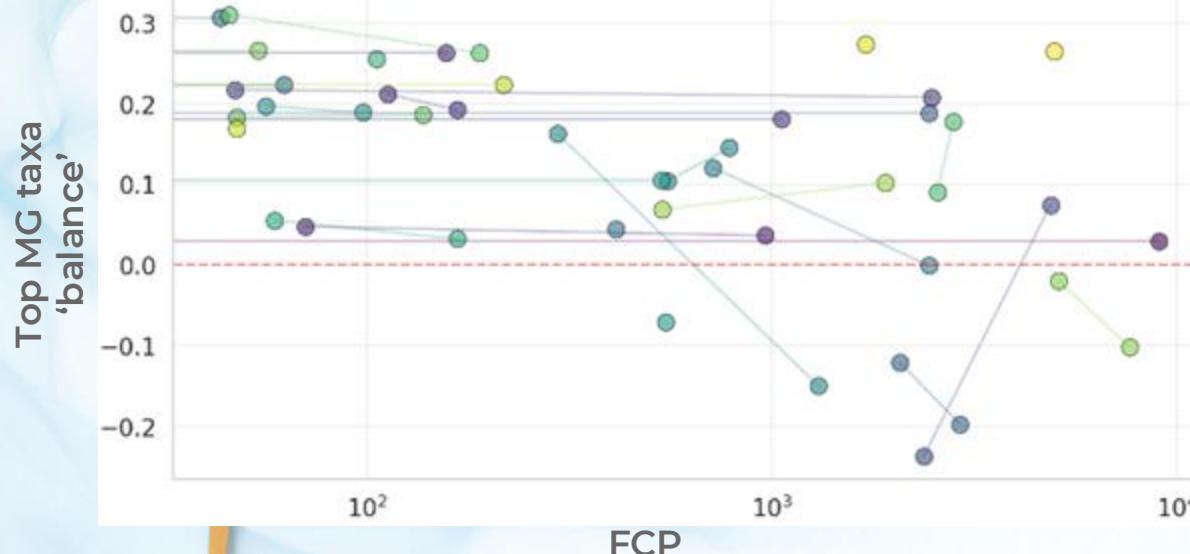
Diet  
(from MG)



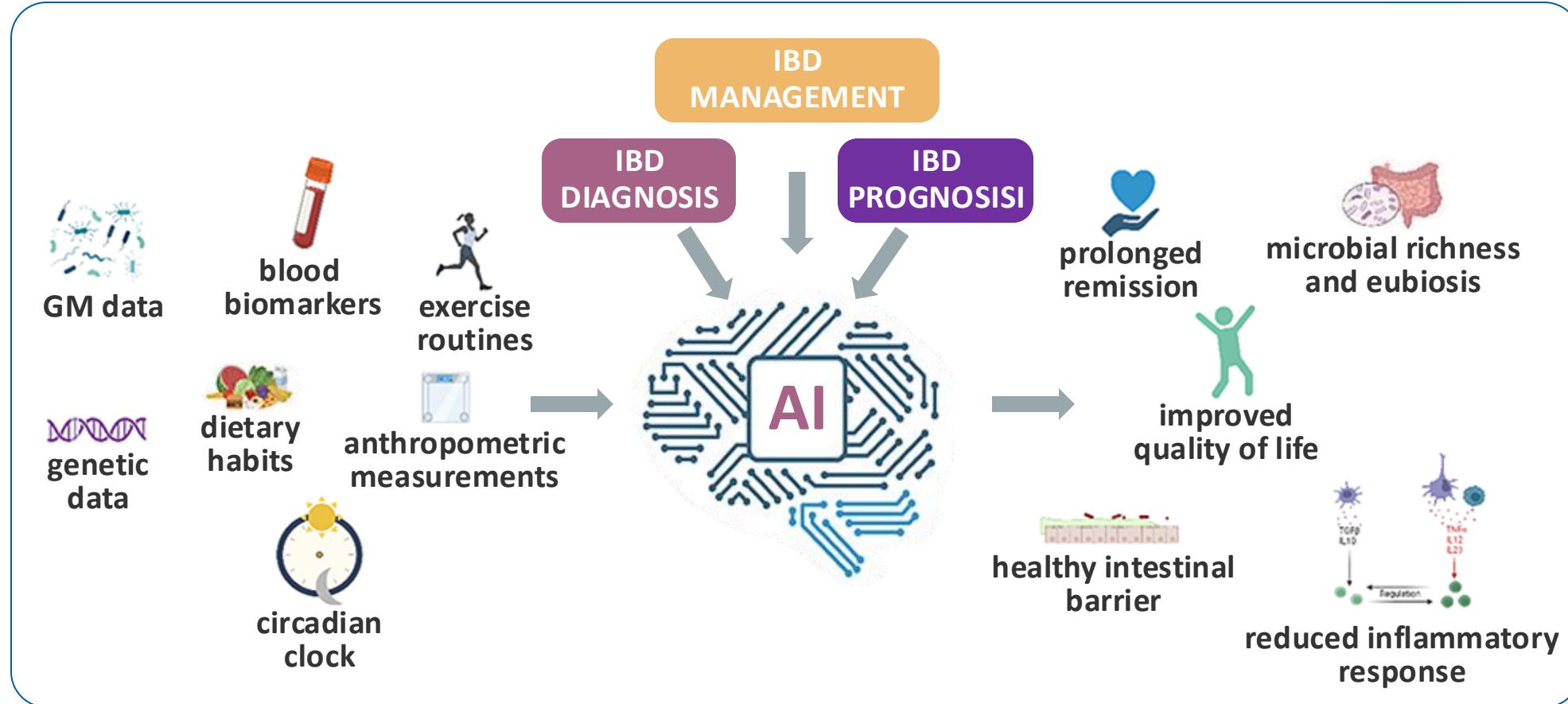
DIGITAL  
TWINS



gut<sup>3</sup>  
analytics



## Nutrition is no longer a one size approach for all



# Practical Implementation of Diet/ Nutrition Intervention

Malnutrition - YES/NO

ARFID – Yes/NO

Define Disease Activity

YES

Clinical Symptoms  
YES/NO

Patient Ready?  
Current Medical Therapies?  
Support Available (RD, Coach)

Oral Therapeutic Diet  
EEN / PEN

Define Disease Activity

NO

Clinical Symptoms  
YES

IBS Overlap / Low FODMAPs  
Mediterranean Diet

Define Disease Activity

NO

Clinical Symptoms  
NO

Mediterranean Diet + Weight  
Management

Monitoring (HBI, CRP, FCP,  
Cross-Sectional Imaging, Endoscopy)



**Thank you!**  
**Time for discussion!**

