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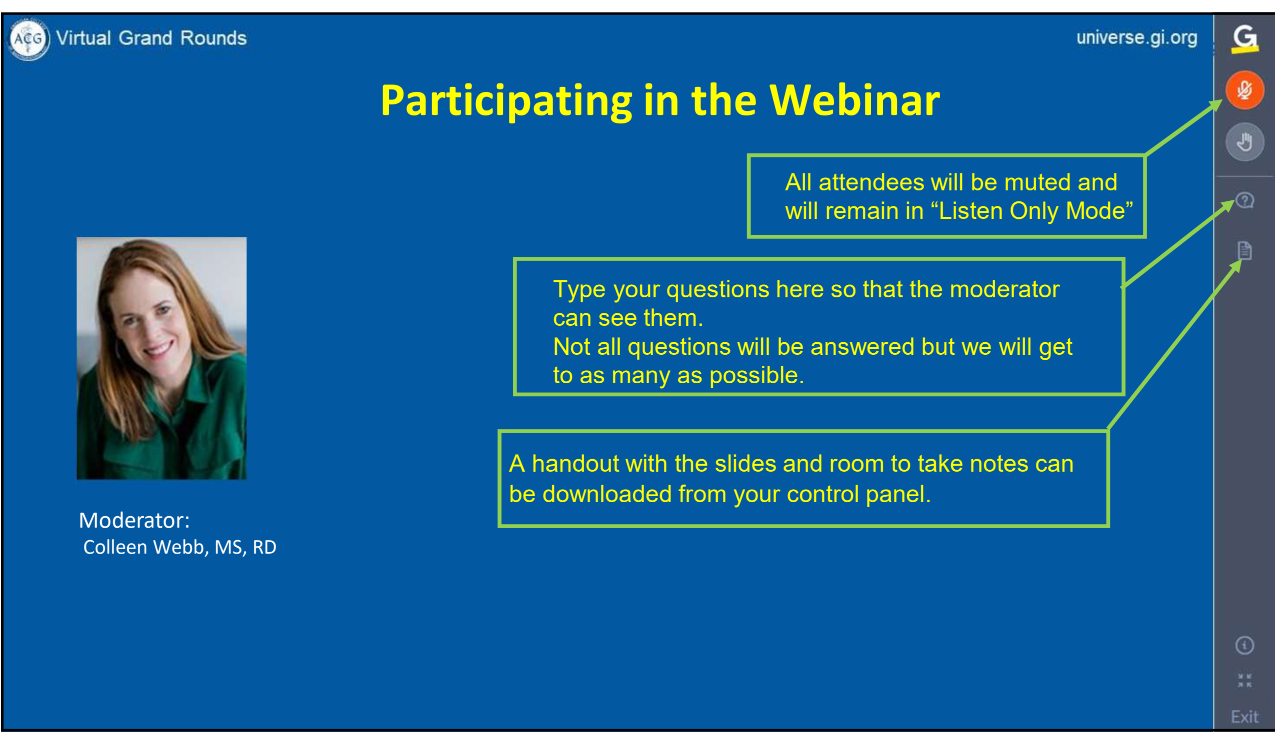

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Virtual Grand Rounds

Baylor College of Medicine

Diet, Nutrition, and Inflammatory Bowel Disease: Digesting the Facts

Jason K. Hou, MD, MS, AGAF, FACG
Director, BCM IBD Program
Associate Professor, Baylor College of Medicine

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Objectives

- Review basis for diet and IBD connection
- Understand challenges for diet and IBD research
- Review clinical data on food as medicine for IBD
- Describe practical means of integrating diet and nutrition in IBD clinical practice

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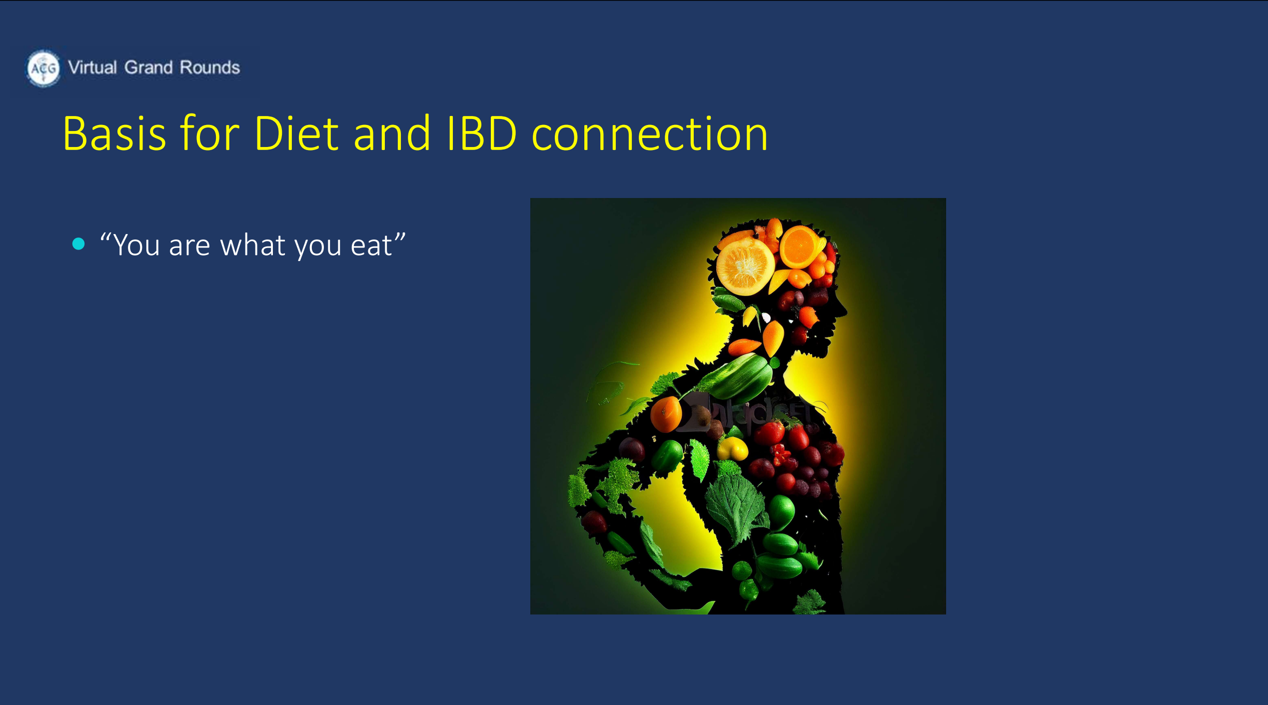

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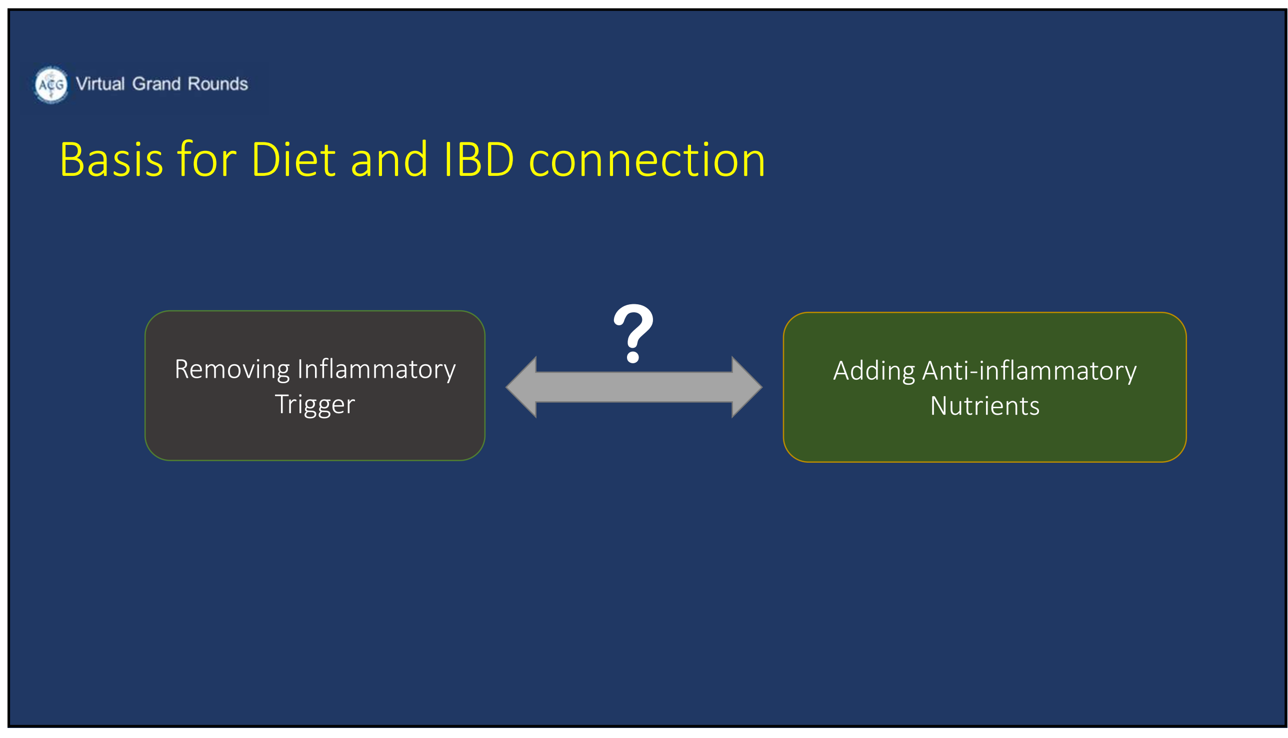

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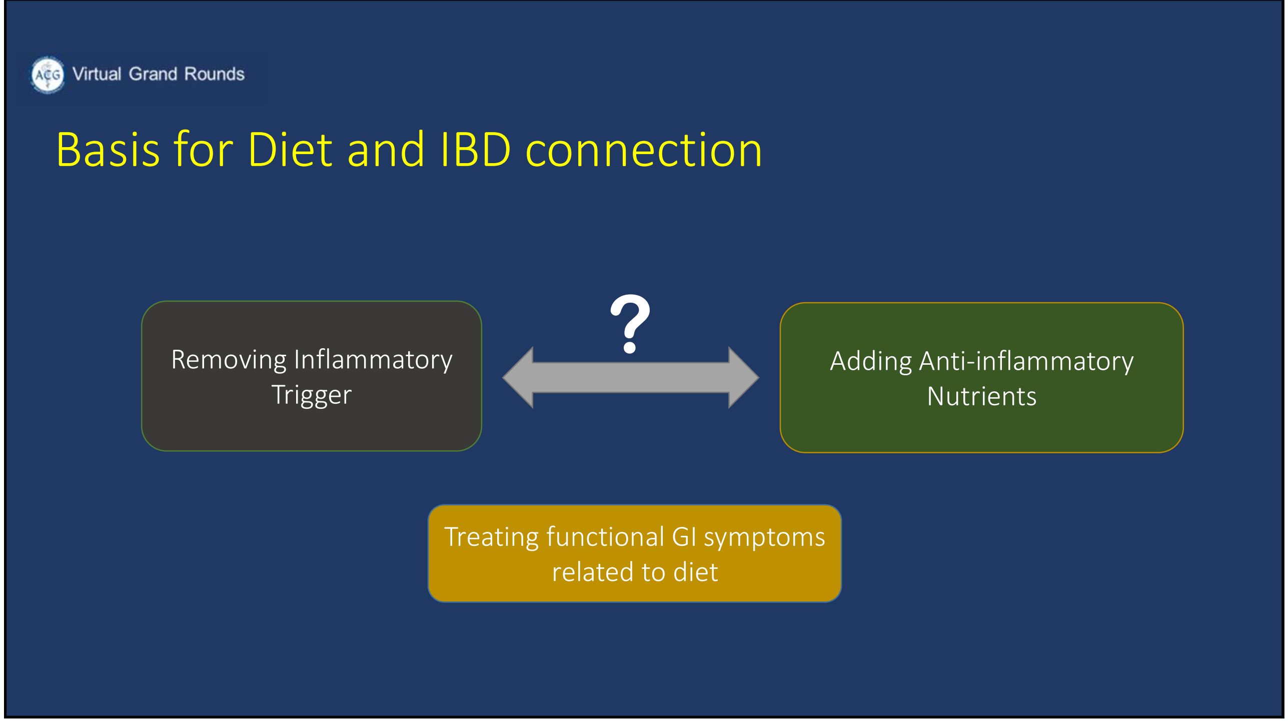

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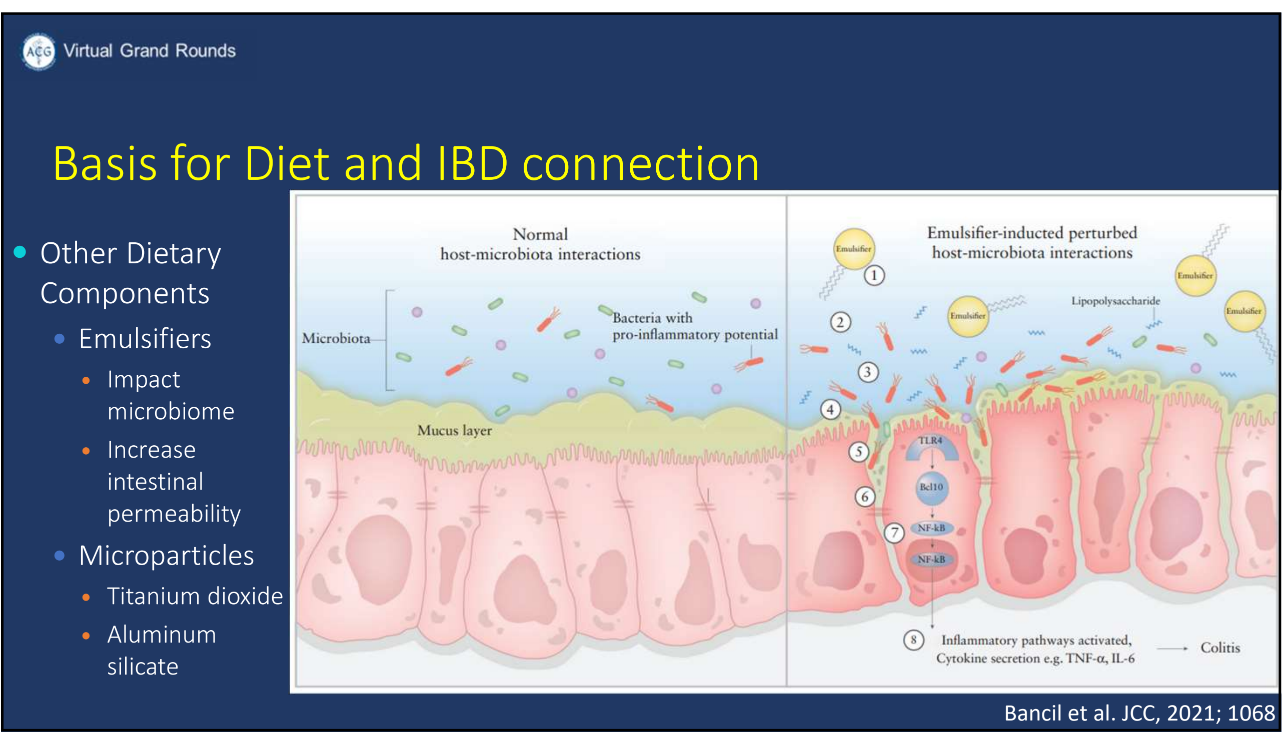

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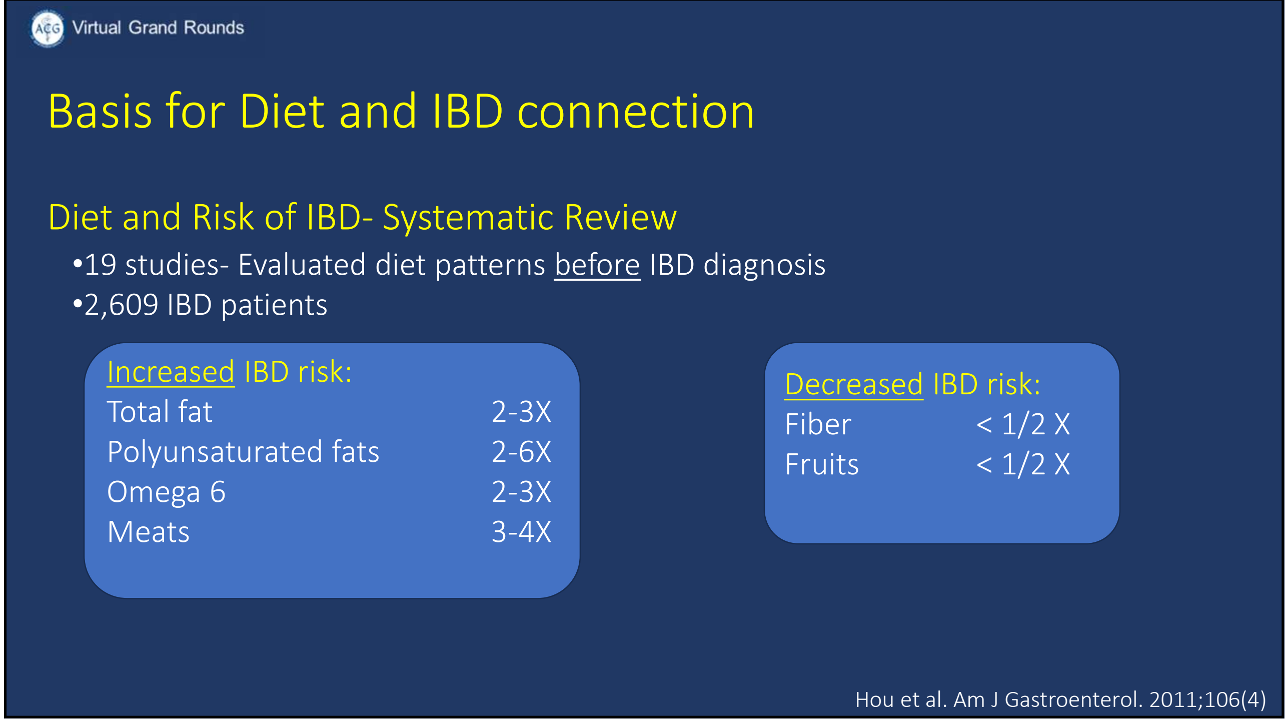

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Challenges for Diet and IBD Research

- Dependent on how well people remember what they ate - "recall bias"
- Diet adherence is low
- Variation in baseline diet
- How to control?
- How to blind?

Limketkai et al. Cochrane Database 2019(2). Art. No.: CD012839

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Challenges for Diet and IBD Research

Food type ≠ nutritional content

Seafood		Sum SFA g/100 g (%) [b]	Sum MUFA g/100 g (%) [b]	Sum PUFA g/100 g (%) [b]	Sum *n*-3 g/100 g (%) [b]	Sum *n*-6 g/100 g (%) [b]	EPA g/100 g (%) [b]	DHA g/100 g (%) [b]
Common Name	Sample							
Sardine	Whole fish (n = 9) [c]	1.9 ± 0.64 (31)	1.2 ± 0.52 (18)	2.9 ± 1.1 (45)	2.6 ± 1.1 (41)	0.20 ± 0.04 (3)	1.2 ± 0.82 (17)	0.87 ± 0.15 (16)
Sardine	Fillet with skin (n = 9) [d]	2.0 ± 0.69 (31)	1.2 ± 0.52 (18)	3.1 ± 1.3 (46)	2.8 ± 1.1 (42)	0.02 ± 0.04 (3)	1.3 ± 0.91 (17)	0.93 ± 0.15 (16)
Anchovy	Whole fish (n = 3) [e]	1.2 ± 0.01 (31)	0.60 ± 0.01 (15)	1.9 ± 0.03 (48)	1.8 ± 0.03 (44)	0.14 ± 0.004 (4)	0.54 ± 0.01 (14)	1.0 ± 0.02 (25)
Anchovy	Fillet with skin (n = 6) [f]	1.0 ± 0.32 (30)	0.60 ± 0.26 (17)	1.6 ± 0.39 (47)	1.5 ± 0.34 (43)	0.13 ± 0.05 (4)	0.41 ± 0.01 (13)	0.84 ± 0.21 (25)
Atlantic horse mackerel	Fillet (n = 25)	0.19 ± 0.09 (29)	0.12 ± 0.07 (17)	0.31 ± 0.10 (50)	0.27 ± 0.09 (44)	0.03 ± 0.01 (6)	0.06 ± 0.03 (9)	0.19 ± 0.05 (31)
Axillary seabream	Fillet (n = 50)	0.31 ± 0.34 (30)	0.23 ± 0.40 (18)	0.45 ± 0.32 (48)	0.39 ± 0.27 (42)	0.06± 0.05 (6)	0.06 ± 0.06 (6)	0.28 ± 0.15 (31)

Aakre et al. Foods. 2020;9, 1516

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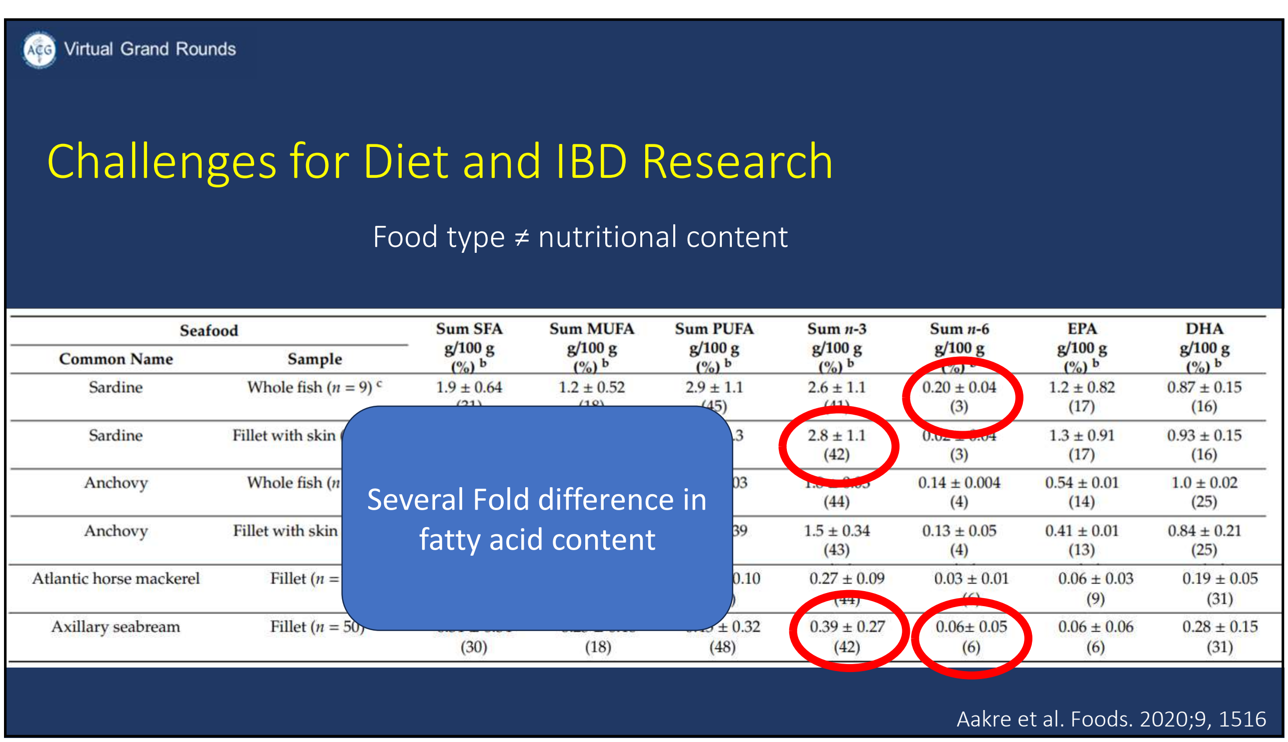

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Sardine	Whole fish (n = 9) [c]	1.9 ± 0.64 (21)	1.2 ± 0.52 (18)	2.9 ± 1.1 (45)	2.6 ± 1.1 (41)	0.20 ± 0.04 (3)	1.2 ± 0.82 (17)	0.87 ± 0.15 (16)
Sardine	Fillet with skin [illegible]	[illegible]	[illegible]	[illegible]3	2.8 ± 1.1 (42)	[illegible] (3)	1.3 ± 0.91 (17)	0.93 ± 0.15 (16)
Anchovy	Whole fish (n [illegible]	[illegible]	[illegible]	[illegible]03	[illegible] (44)	0.14 ± 0.004 (4)	0.54 ± 0.01 (14)	1.0 ± 0.02 (25)
Anchovy	Fillet with skin [illegible]	[illegible]	[illegible]	[illegible]39	1.5 ± 0.34 (43)	0.13 ± 0.05 (4)	0.41 ± 0.01 (13)	0.84 ± 0.21 (25)
Atlantic horse mackerel	Fillet (n = [illegible]	[illegible]	[illegible]	[illegible]0.10	0.27 ± 0.09 (44)	0.03 ± 0.01 (6)	0.06 ± 0.03 (9)	0.19 ± 0.05 (31)
Axillary seabream	Fillet (n = 50)	[illegible] (30)	[illegible] (18)	[illegible] ± 0.32 (48)	0.39 ± 0.27 (42)	0.06± 0.05 (6)	0.06 ± 0.06 (6)	0.28 ± 0.15 (31)

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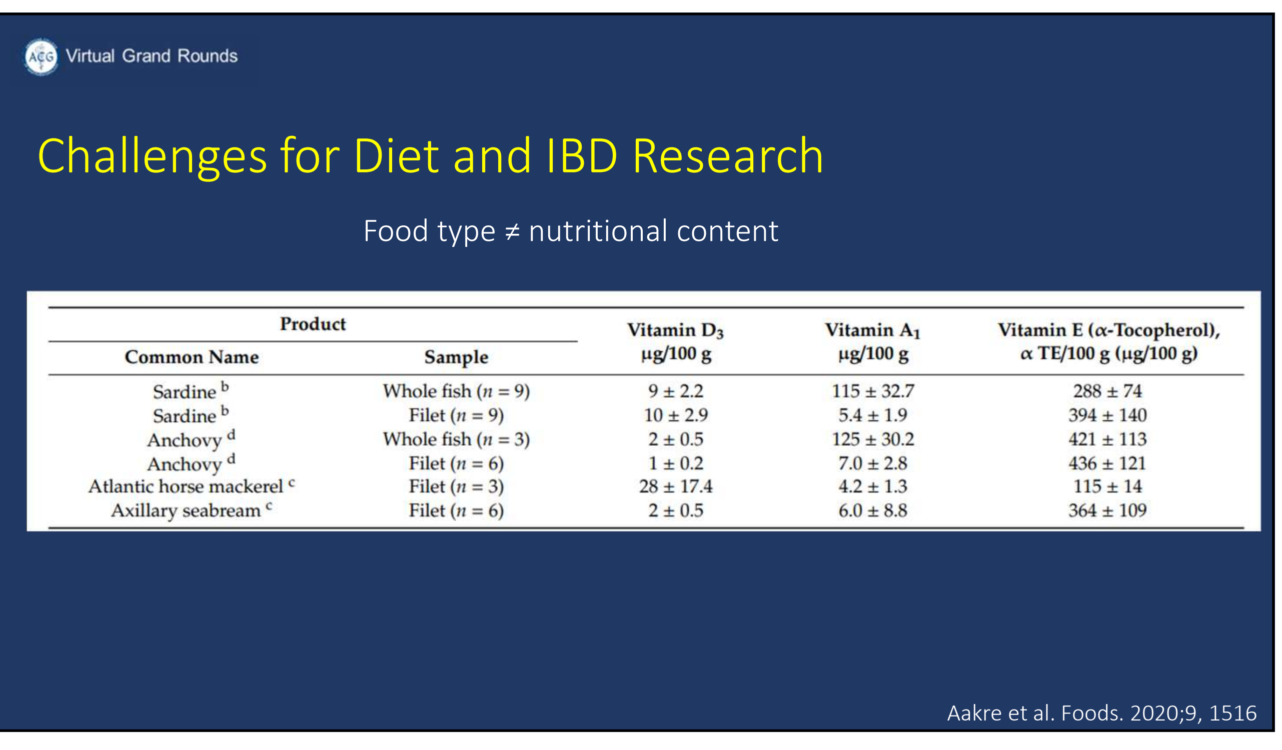

Product		Vitamin D_3 µg/100 g	Vitamin A_1 µg/100 g	Vitamin E (α-Tocopherol), α TE/100 g (µg/100 g)
Common Name	Sample			
Sardine [b]	Whole fish (n = 9)	9 ± 2.2	115 ± 32.7	288 ± 74
Sardine [b]	Filet (n = 9)	10 ± 2.9	5.4 ± 1.9	394 ± 140
Anchovy [d]	Whole fish (n = 3)	2 ± 0.5	125 ± 30.2	421 ± 113
Anchovy [d]	Filet (n = 6)	1 ± 0.2	7.0 ± 2.8	436 ± 121
Atlantic horse mackerel [c]	Filet (n = 3)	28 ± 17.4	4.2 ± 1.3	115 ± 14
Axillary seabream [c]	Filet (n = 6)	2 ± 0.5	6.0 ± 8.8	364 ± 109

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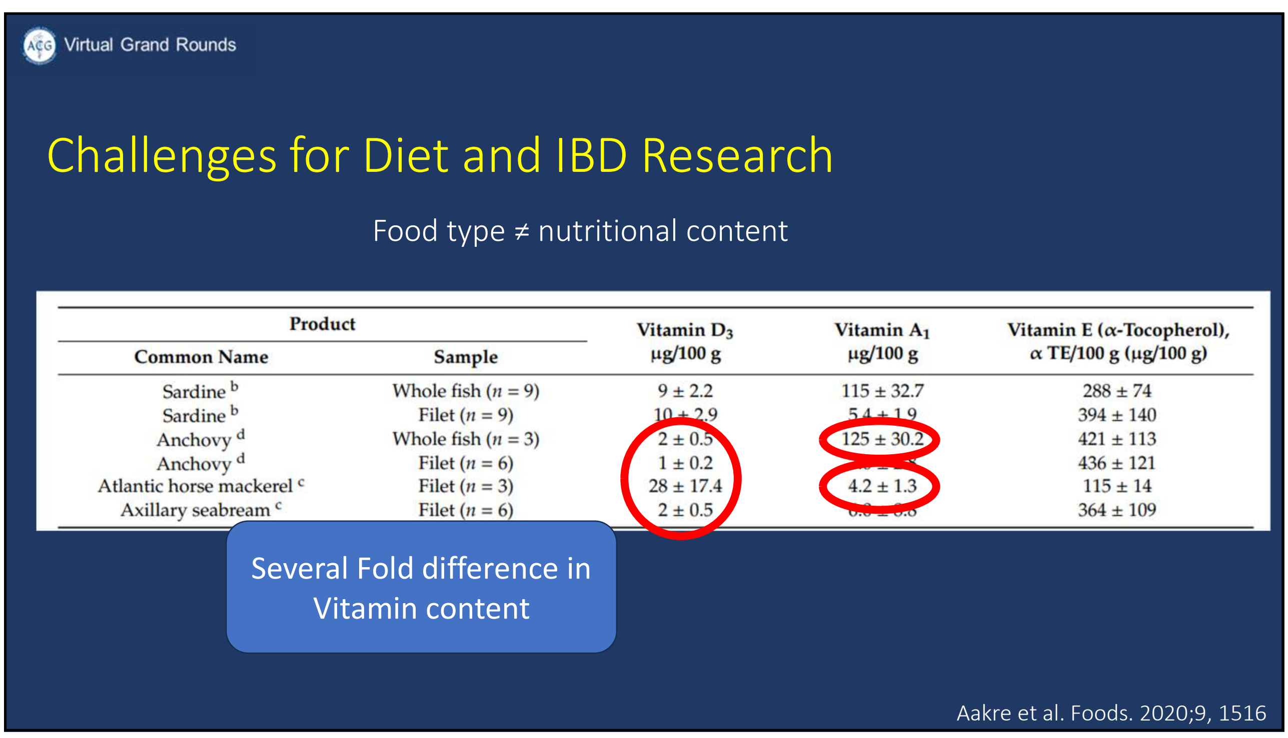

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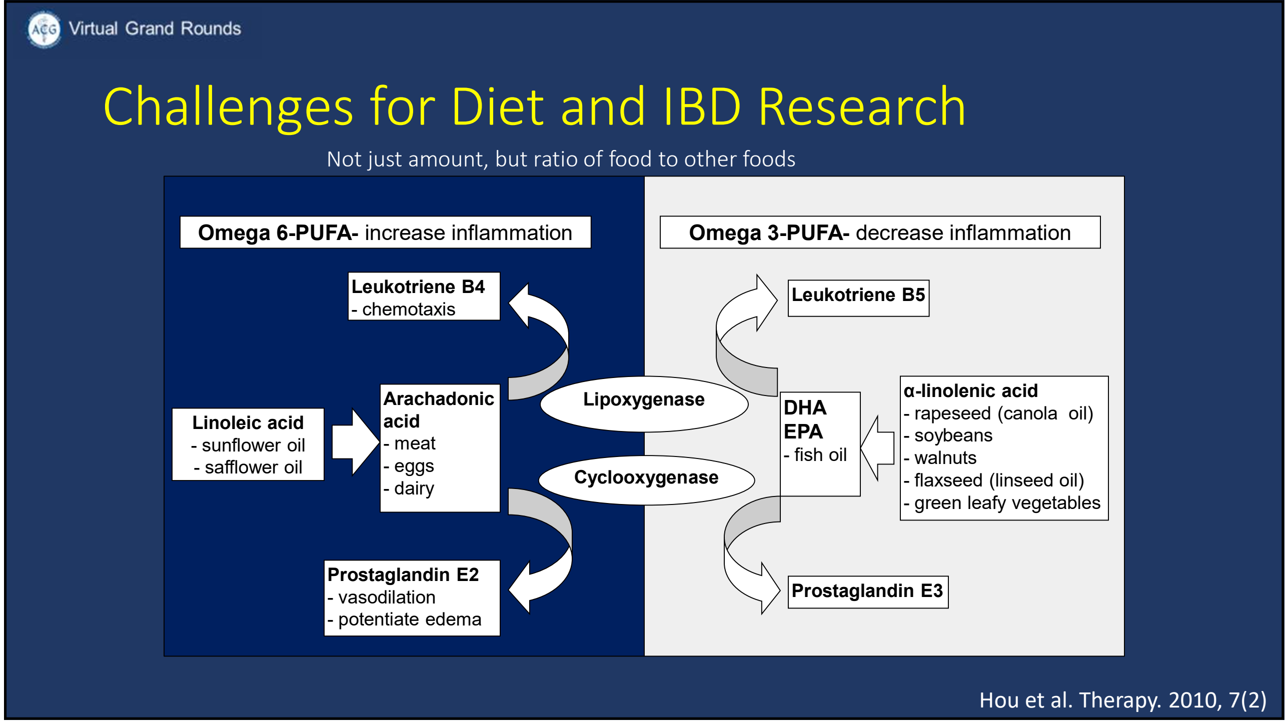

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Objectives

- Basis for Diet and IBD connection
- Challenges for Diet and IBD research
- Review clinical data on food as medicine for IBD
- Describe practical means of integrating diet and nutrition in IBD clinical practice

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Objectives

- Basis for Diet and IBD connection
- Challenges for Diet and IBD research
- Review clinical data on food as medicine for IBD

- Describe practica... on in IBD clinical practice

Exclusive Enteral Nutrition (EEN)
Specific Carbohydrate Diet (SCD)
Crohn's Disease Exclusion Diet (CDED)
Low FODMAPS

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Exclusive Enteral Nutrition (EEN)

- All nutrition from formula- NO solid food
- Mostly used in pediatrics, Crohn's
- Nearly as effective as prednisone
- VERY difficult to maintain
- Not clear if it works for adults

ECCO-ESPGHAN statement 6

In children with active luminal CD, dietary therapy with exclusive enteral nutrition [EEN] is recommended as first line for induction of remission. LoE: 2 | Agreement: 92%.

Rheenen et al. JCC. 2021, 171

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Exclusive Enteral Nutrition (EEN)

Enteral nutrition compared to corticosteroids for induction of remission in Crohn's disease

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)
	Risk with corticosteroids	Risk with Enteral nutrition			
Remission rate - ITT	715 per 1,000	551 per 1,000 (415 to 737)	RR 0.77 (0.58 to 1.03)	409 (8 RCTs)	⊕⊝⊝⊝ VERY LOW [1, 2, 3]
Remission rate - ITT adult studies	734 per 1,000	477 per 1,000 (382 to 602)	RR 0.65 (0.52 to 0.82)	352 (6 RCTs)	⊕⊝⊝⊝ VERY LOW [4, 5]
Remission rate - ITT pediatric studies	607 per 1,000	820 per 1,000 (559 to 1,000)	RR 1.35 (0.92 to 1.97)	57 (2 RCTs)	⊕⊝⊝⊝ VERY LOW [6, 7]
Remission rate - per-protocol - pediatric studies	607 per 1,000	868 per 1,000 (625 to 1,000)	RR 1.43 (1.03 to 1.97)	55 (2 RCTs)	⊕⊝⊝⊝ VERY LOW [6, 7]

Narula et al, Cochrane Database of Systematic Reviews 2018, Issue 4. Art. No.: CD000542

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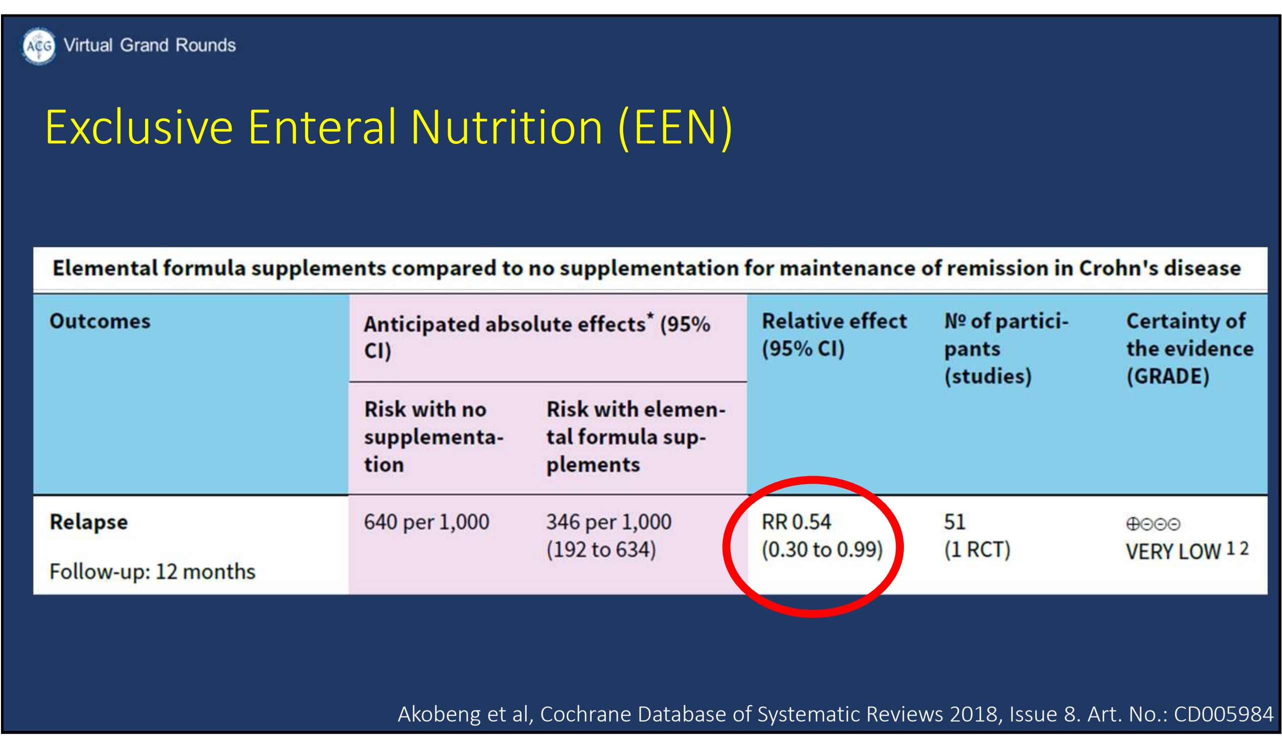

Elemental formula supplements compared to no supplementation for maintenance of remission in Crohn's disease

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)
	Risk with no supplementation	Risk with elemental formula supplements			
Relapse Follow-up: 12 months	640 per 1,000	346 per 1,000 (192 to 634)	RR 0.54 (0.30 to 0.99)	51 (1 RCT)	⊕⊝⊝⊝ VERY LOW [1,2]

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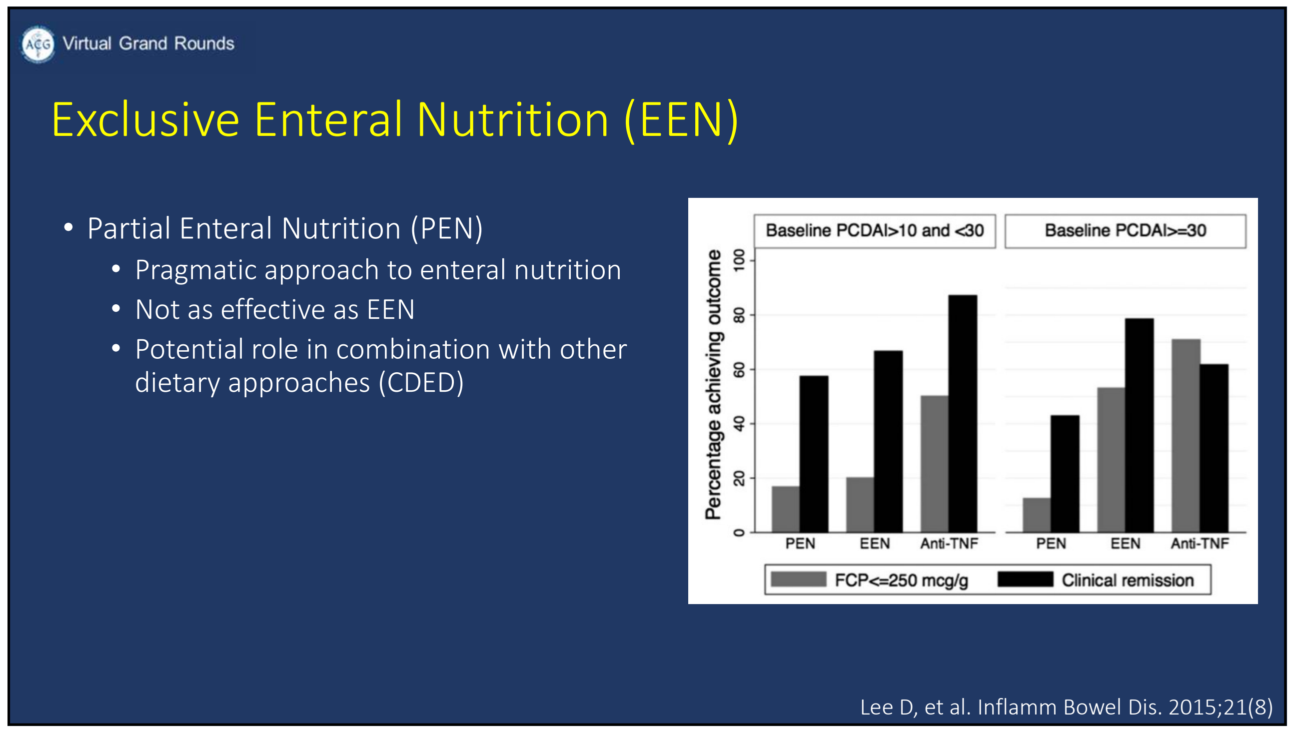

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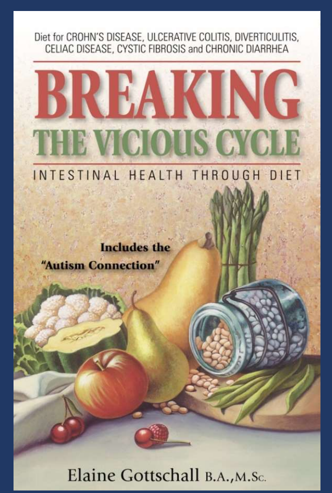
American College of Gastroenterology

Specific Carbohydrate Diet (SCD)

- Initially proposed by Dr. Sidney Haas as treatment for celiac disease in 1924
- Theory:
  - → Some carbohydrates are poorly absorbed
  - → Bacterial/yeast overgrowth
  - → Small intestine injury
- Some studies to suggest may reduce GI symptoms in IBD
  - No placebo controlled studies
- Difficult to maintain
- At risk for nutritional deficiency



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DINE-CD: RCT of SCD vs. Mediterranean Diet

- 194 Adult CD patient randomized 1:1 to Simple Carbohydrate Diet vs. Mediterranean Diet
  - Mild-mod Crohn's disease
  - Evidence of active inflammation within 3 mo before screening (CRP, Calpro, Endoscopy)
  - Allowed continuation of treatment (including biologics)
- 6 weeks of prepared food, then 6 weeks following diet independently
- Primary Outcome: Symptomatic remission @ week 6

Lewis et al. Gastroenterology 2021:161

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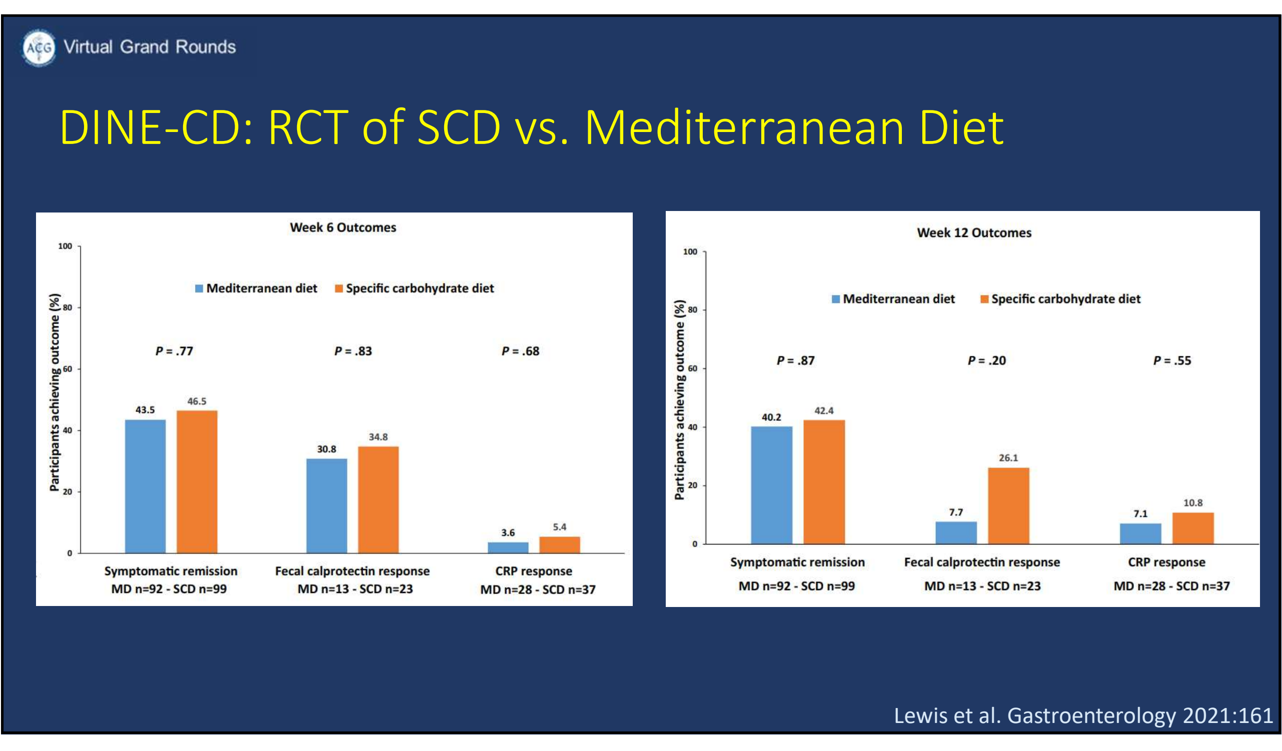

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Crohn's Disease Exclusion Diet (CDED)

- "Whole food" diet
  - Reduce dietary components hypothesized to induce dysbiosis and increase intestinal permeability
- 3 Phases- combined with partial enteral nutrition (PEN)
  - Phase 1- Exclusion
  - Phase 2- Add back
  - Phase 3- Maintenance

Nutritional Therapy for IBD

Crohn's Disease Exclusion Diet (CDED)

Levine, A et al. Gastroenterology 2019:157(2)

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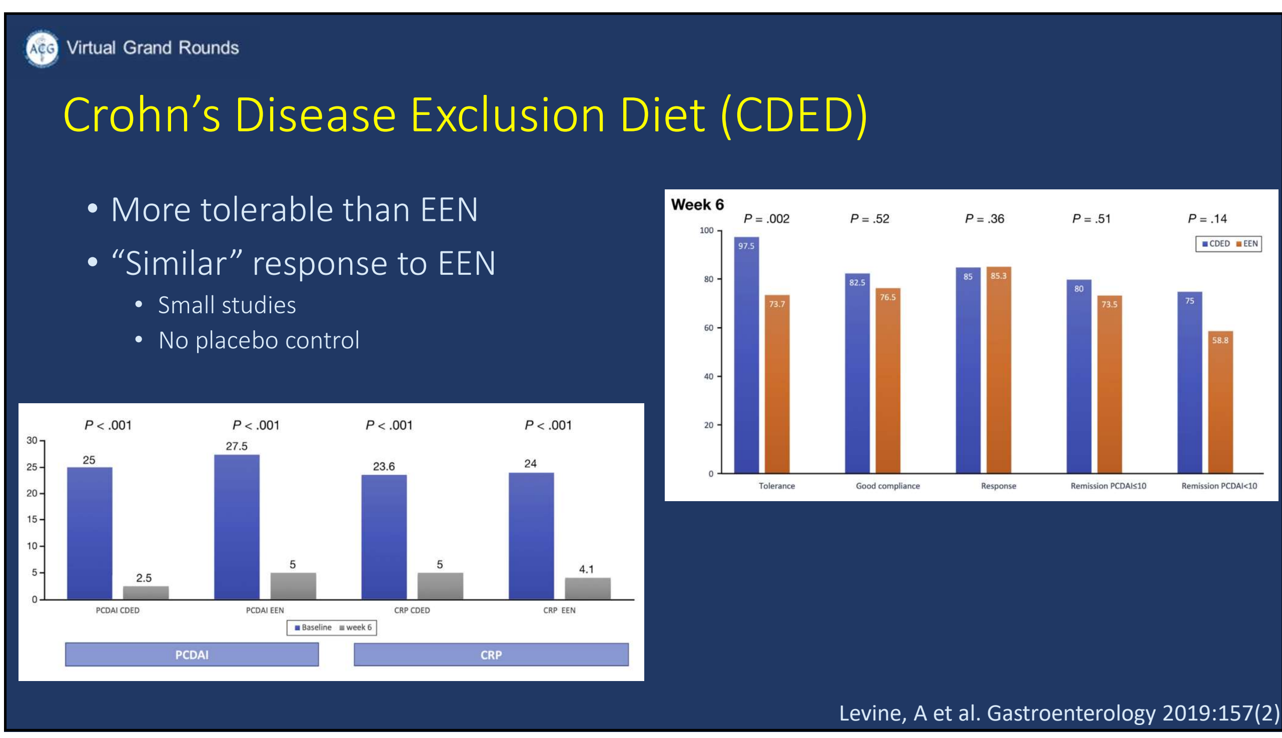

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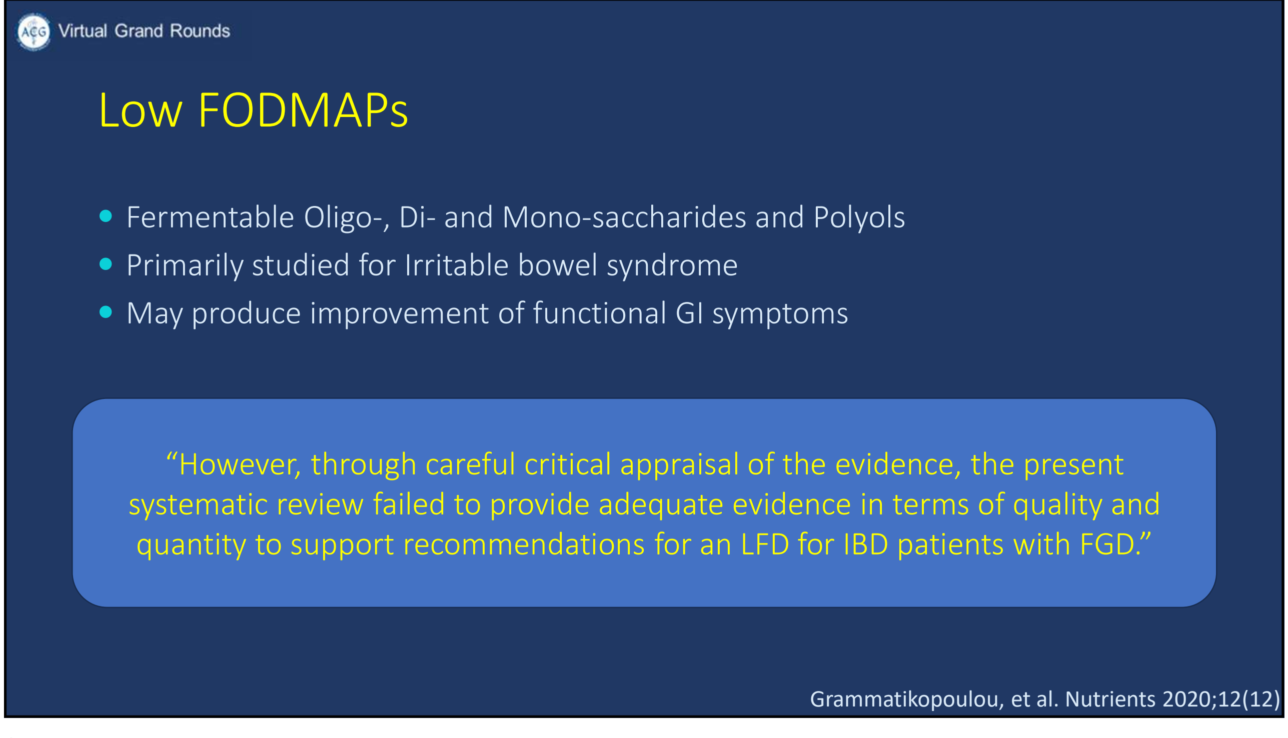

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Objectives

- Basis for diet and IBD connection
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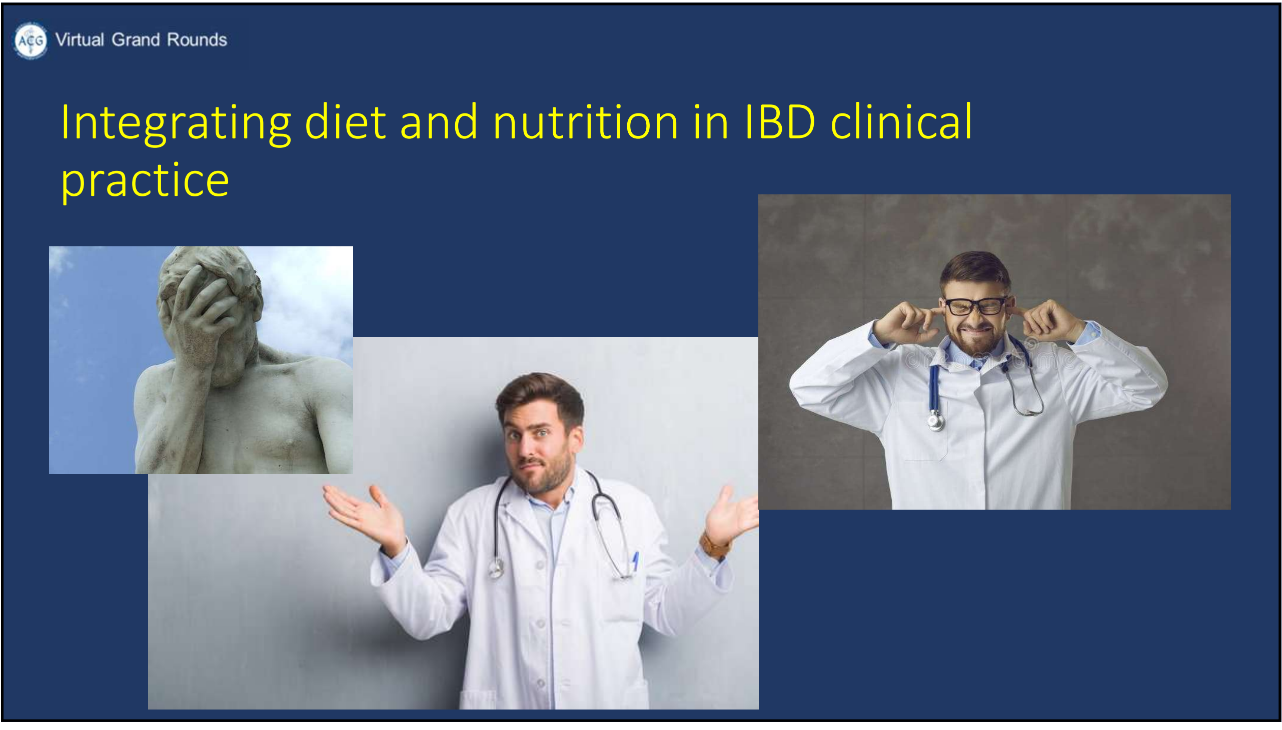
Integrating diet and nutrition in IBD clinical practice



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Integrating diet and nutrition in IBD clinical practice:

- Tip 1) Recognize food avoidance is very common among IBD patients
  - 75% of patients modified diet at diagnosis
  - 82% of patients restrict food to prevent flares

	Yes (%)
Do you believe that diet can be a trigger for IBD flare?	85.4
Do you believe that your diet may cause nutritional deficiencies?	65.9
Do you think that you should avoid some products to prevent disease relapse?	81.7
Are you on a special diet (vegetarian, lactose free, gluten free, low FODMAPS)	53.7

Godala et al. J Clin Med. 2023 (12), 3455

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Integrating diet and nutrition in IBD clinical practice:

- Tip 1) Recognize food avoidance is very common among IBD patients
- Tip 2) Proactively engage with patients about food
  - “What did you eat yesterday?”
  - “Do you eat anything on days you are out of the house?”

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Integrating diet and nutrition in IBD clinical practice:

- Tip 1) Recognize food avoidance is very common among IBD patients
- Tip 2) Proactively engage with patients about food
  - "What did you eat yesterday?"
  - "Do you eat anything on days you are out of the house?"
- Tip 3) Become familiar with patient directed diets (defined diets)

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Integrating diet and nutrition in IBD clinical practice:

- Tip 1) Recognize food avoidance is very com
- Tip 2) Proactively engage with patients abou
  - "What did you eat yesterday?"
  - "Do you eat anything on days you are out of the house?"
- Tip 3) Become familiar with patient directed diets

Exclusive Enteral Nutrition (EEN)
Specific Carbohydrate Diet (SCD)
Crohn's Disease Exclusion Diet (CDED)
Low FODMAPS

Anti-inflammatory diet (IBD-AID)
Autoimmune protocol diet (AIP)
CD- TREAT

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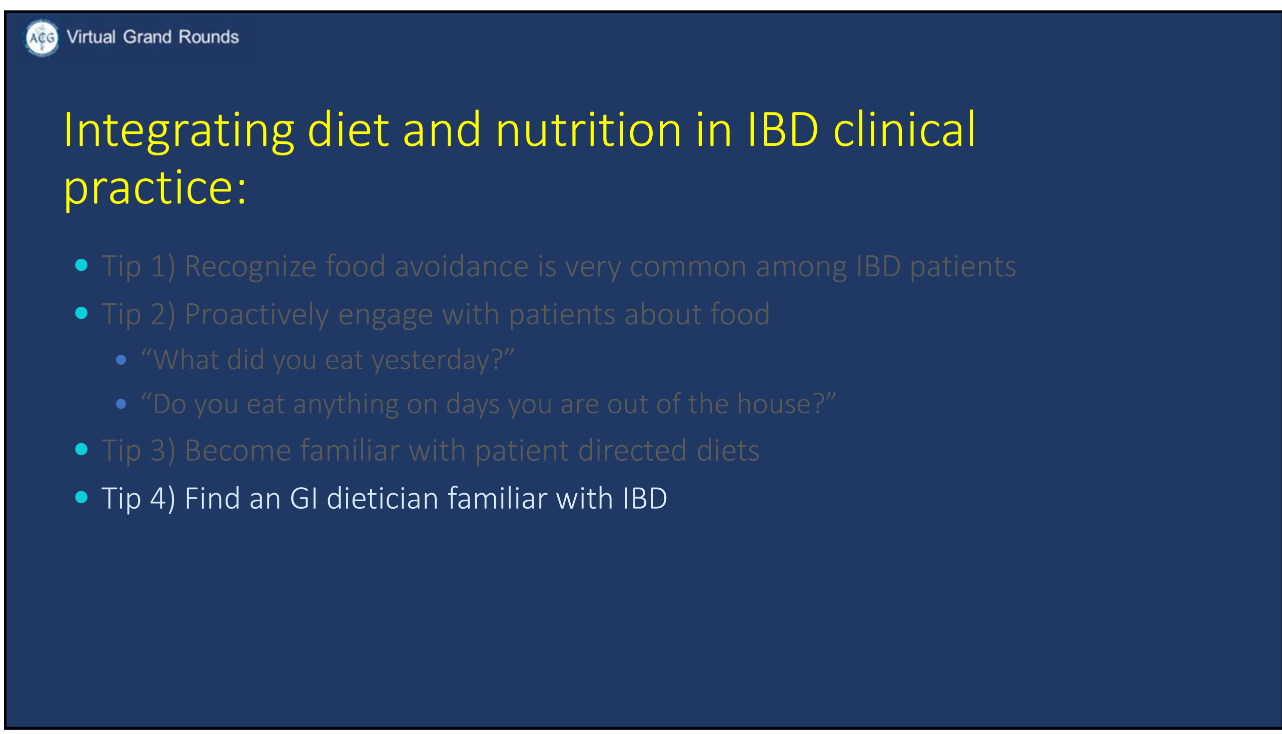

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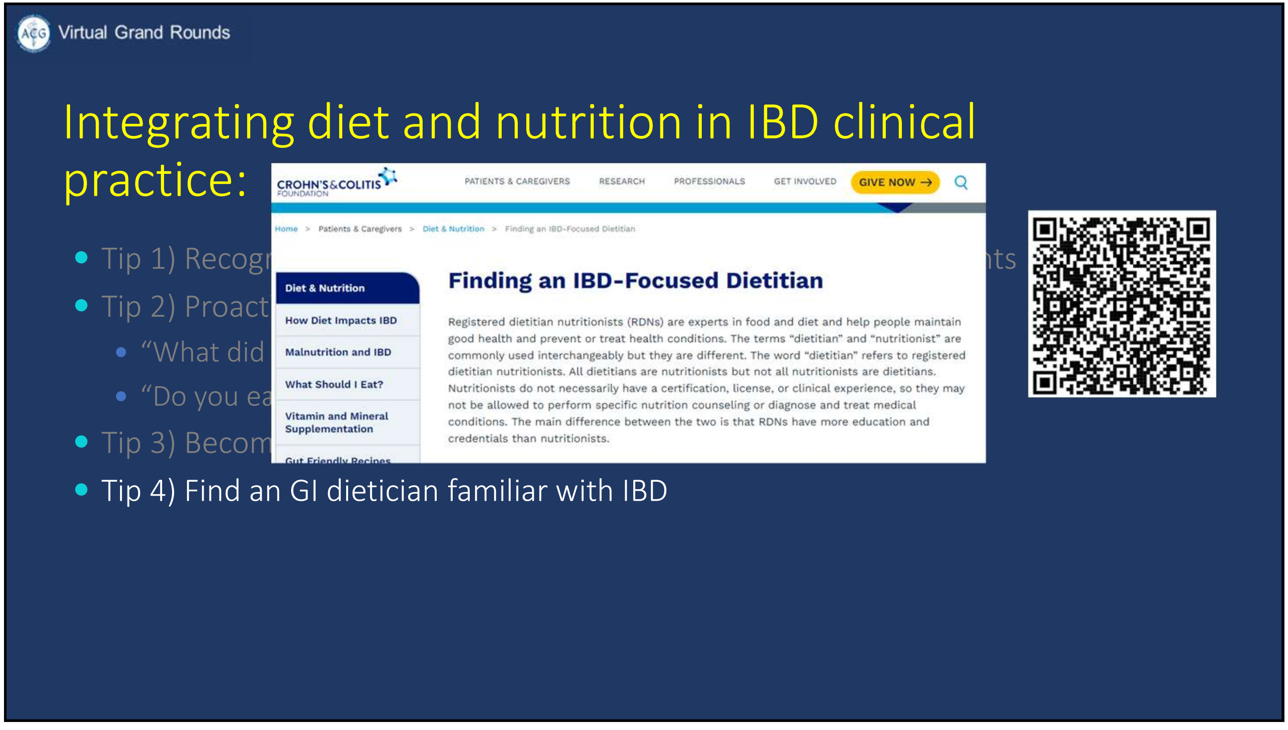

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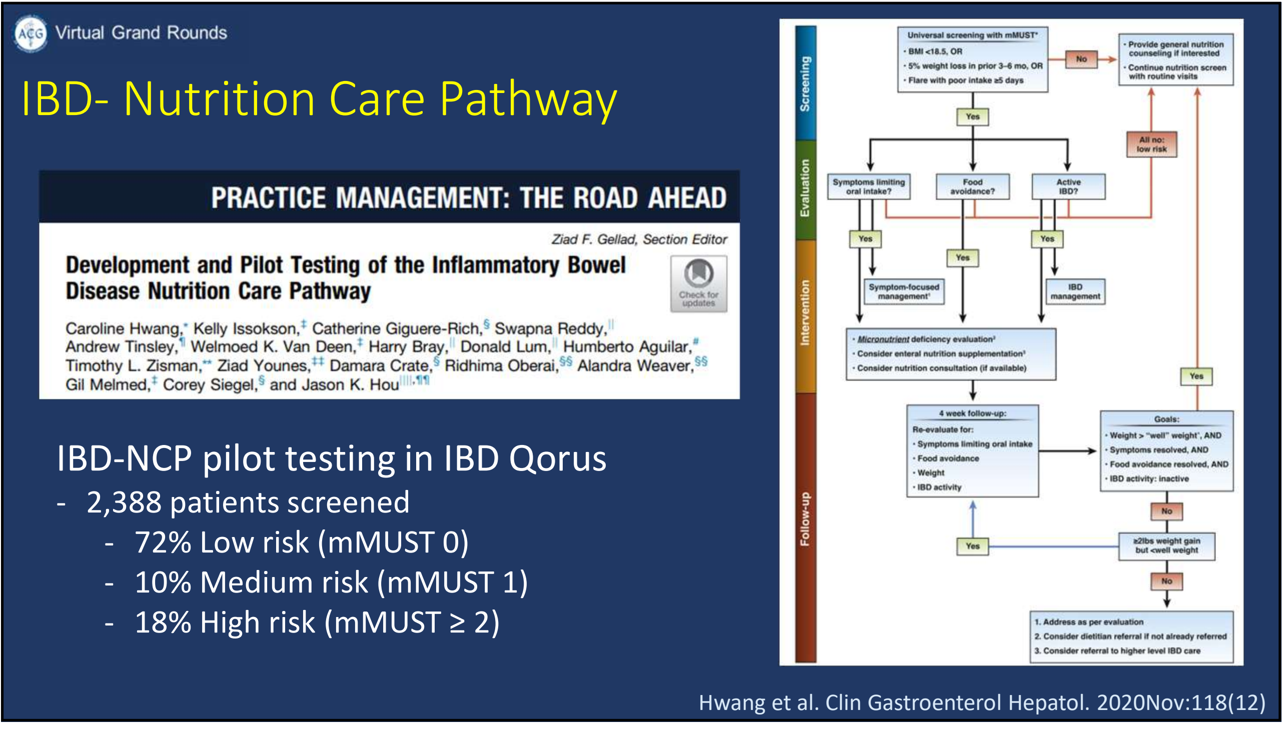
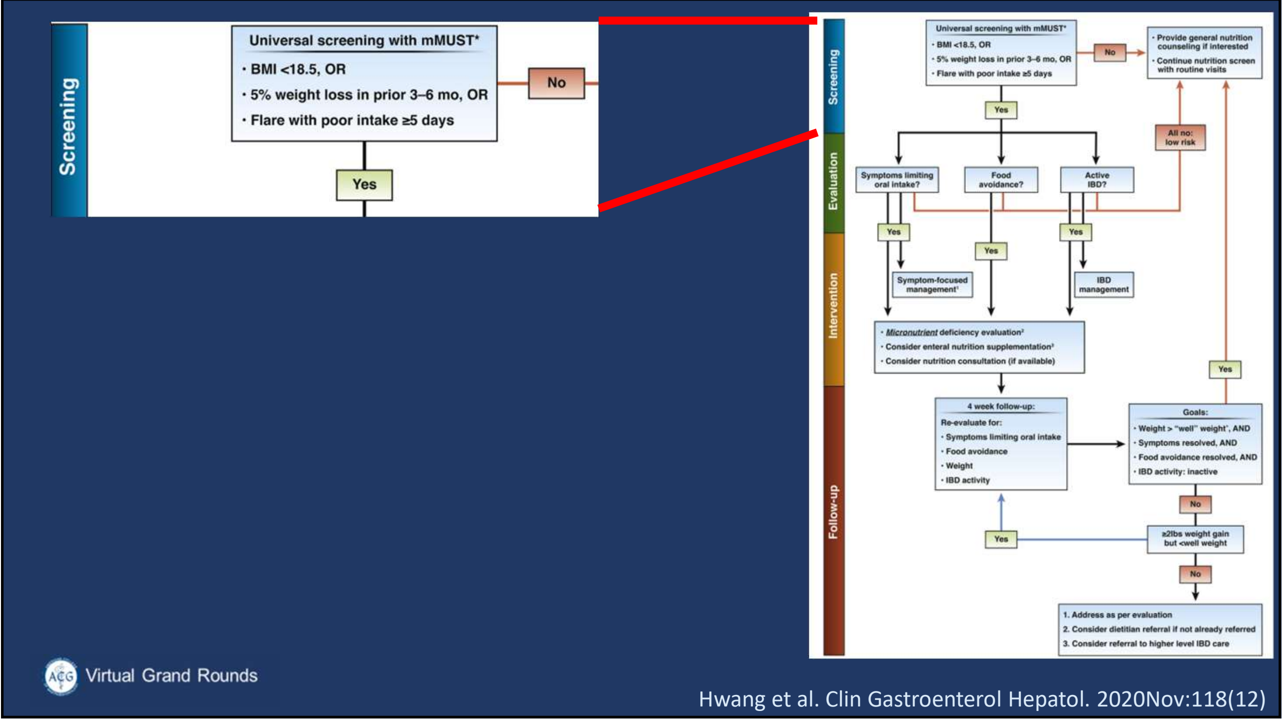
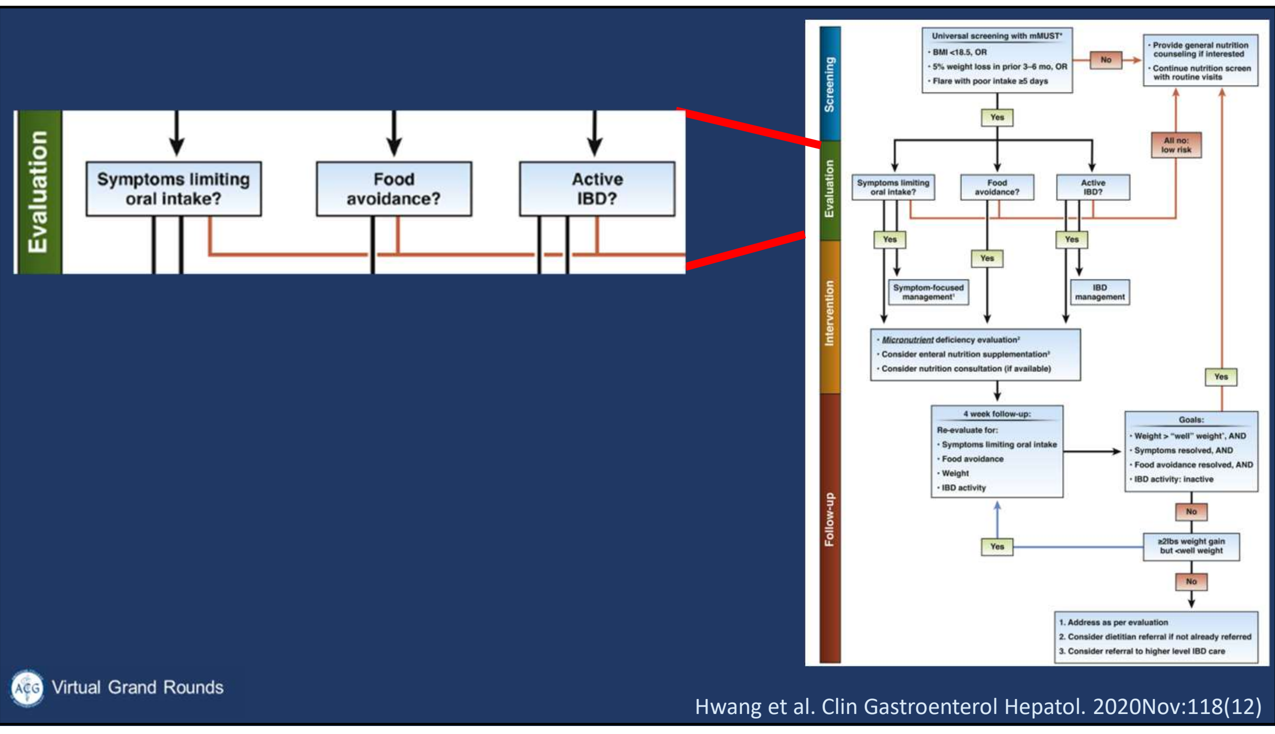

Virtual Grand Rounds
IBD- Nutrition Care Pathway
PRACTICE MANAGEMENT: THE ROAD AHEAD
Ziad F. Gellad, Section Editor
Development and Pilot Testing of the Inflammatory Bowel Disease Nutrition Care Pathway
Check for updates
Caroline Hwang, Kelly Issokson, Catherine Giguere-Rich, Swapna Reddy, Andrew Tinsley, Welmoed K. Van Deen, Harry Bray, Donald Lum, Humberto Aguilar, Timothy L. Zisman, Ziad Younes, Damara Crate, Ridhima Oberai, Alandra Weaver, Gil Melmed, Corey Siegel, and Jason K. Hou
IBD-NCP pilot testing in IBD Qorus
- 2,388 patients screened
- 72% Low risk (mMUST 0)
- 10% Medium risk (mMUST 1)
- 18% High risk (mMUST ≥ 2)
Screening
Evaluation
Intervention
Follow-up
Universal screening with mMUST*
• BMI <18.5, OR
• 5% weight loss in prior 3-6 mo, OR
• Flare with poor intake ≥5 days
No
• Provide general nutrition counseling if interested
• Continue nutrition screen with routine visits
Yes
All no: low risk
Symptoms limiting oral intake?
Food avoidance?
Active IBD?
Yes
Symptom-focused management
IBD management
• Micronutrient deficiency evaluation
• Consider enteral nutrition supplementation
• Consider nutrition consultation (if available)
4 week follow-up:
Re-evaluate for:
• Symptoms limiting oral intake
• Food avoidance
• Weight
• IBD activity
Goals:
• Weight > "well" weight, AND
• Symptoms resolved, AND
• Food avoidance resolved, AND
• IBD activity: inactive
≥2lbs weight gain but <well weight
1. Address as per evaluation
2. Consider dietitian referral if not already referred
3. Consider referral to higher level IBD care
Hwang et al. Clin Gastroenterol Hepatol. 2020Nov:118(12)


Screening
Universal screening with mMUST*
• BMI <18.5, OR
• 5% weight loss in prior 3–6 mo, OR
• Flare with poor intake ≥5 days
No
Yes
Virtual Grand Rounds
Hwang et al. Clin Gastroenterol Hepatol. 2020Nov:118(12)



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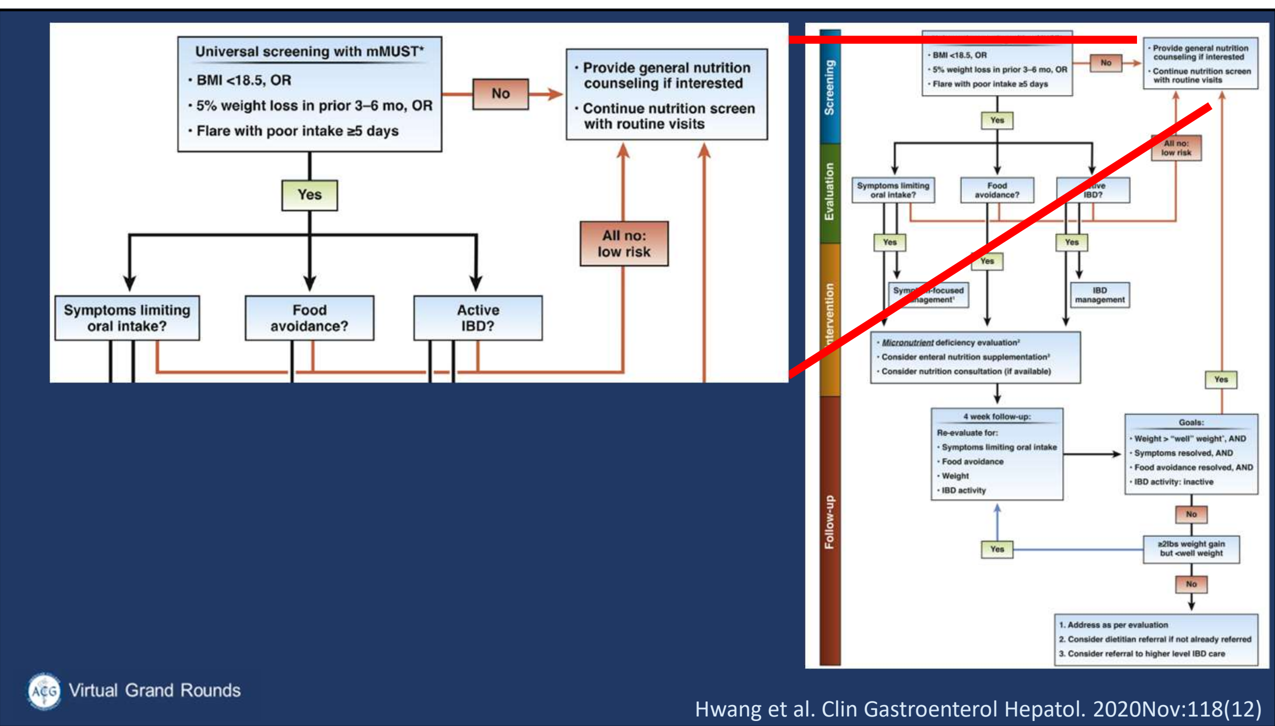

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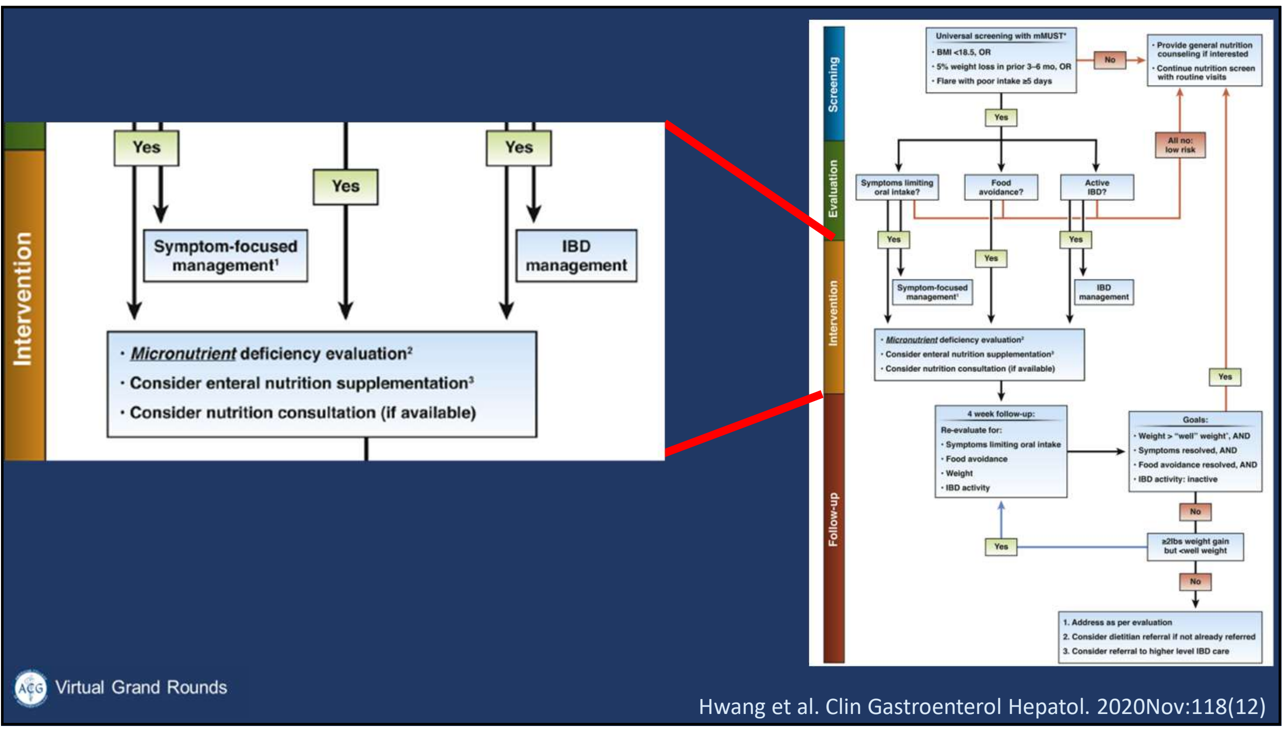

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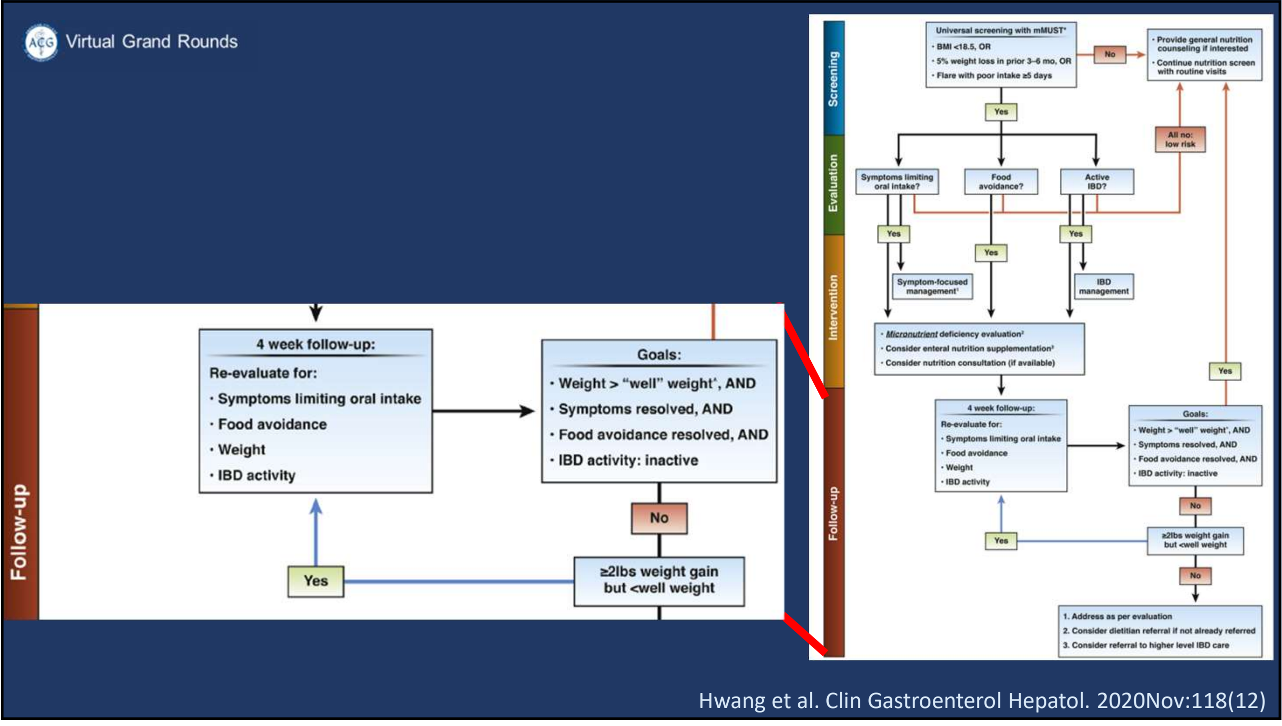

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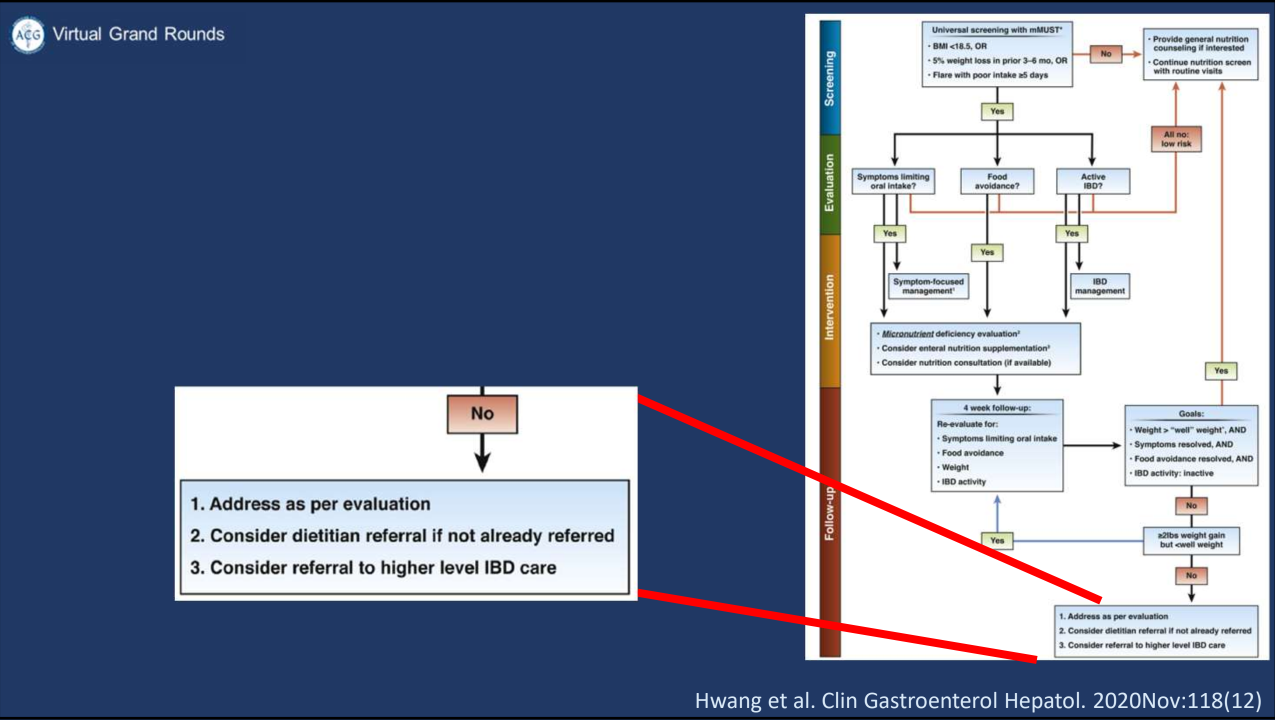

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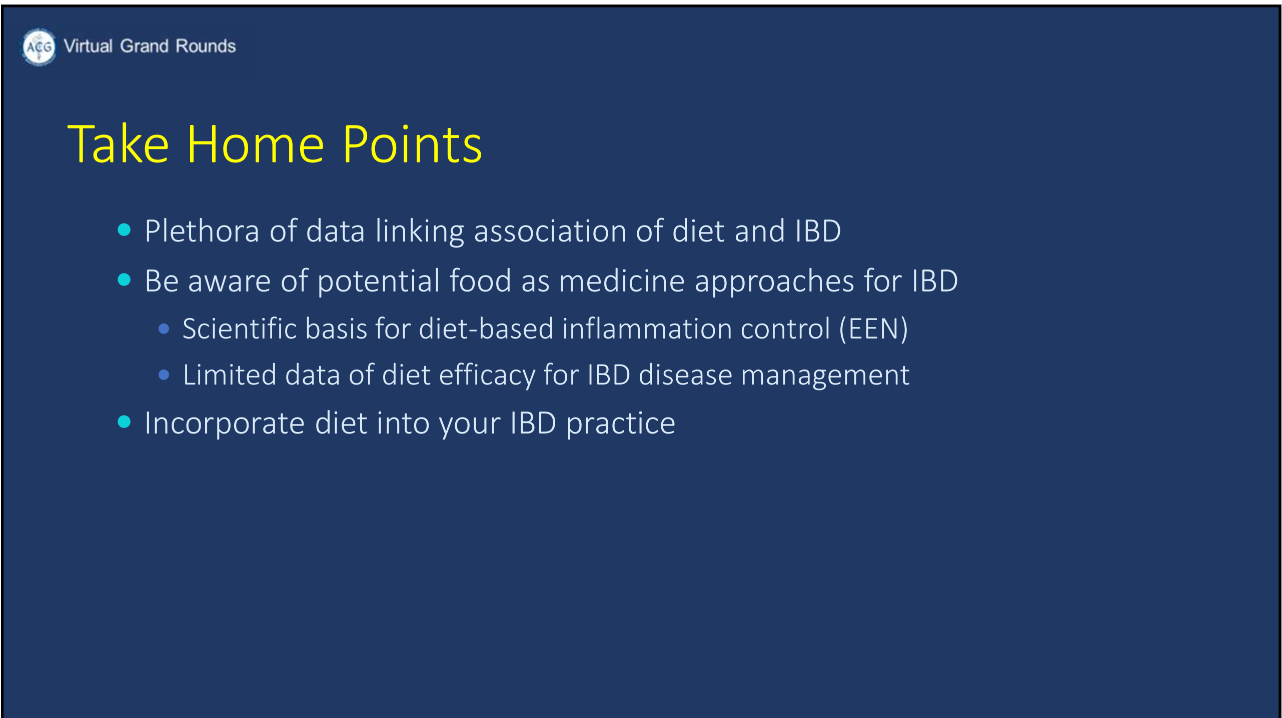

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Take Home Points

- Incorporate diet into your IBD practice
  - Tip 1) Recognize food avoidance is very common among IBD patients
  - Tip 2) Proactively engage with patients about food
  - Tip 3) Become familiar with patient directed diets
  - Tip 4) Find an GI dietician familiar with IBD
  - Tip 5) Be familiar with the IBD-Nutrition Care Pathway

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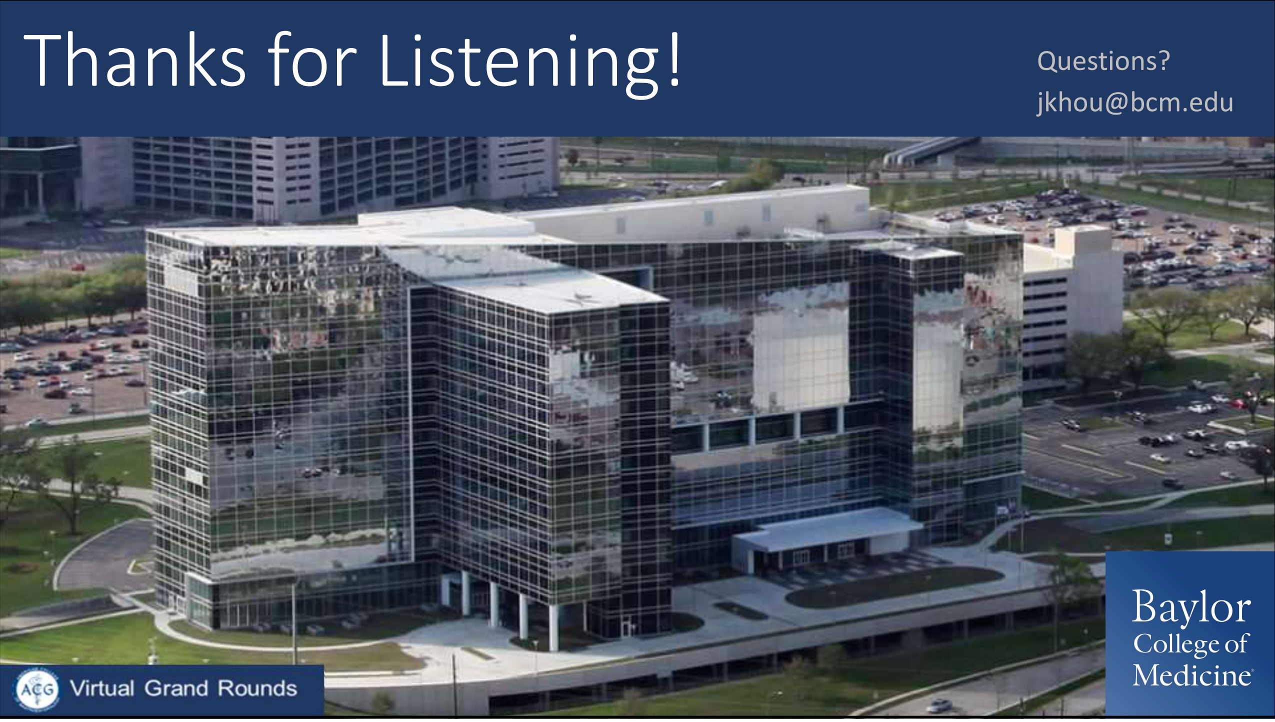
Thanks for Listening!

Questions?
jkhou@bcm.edu



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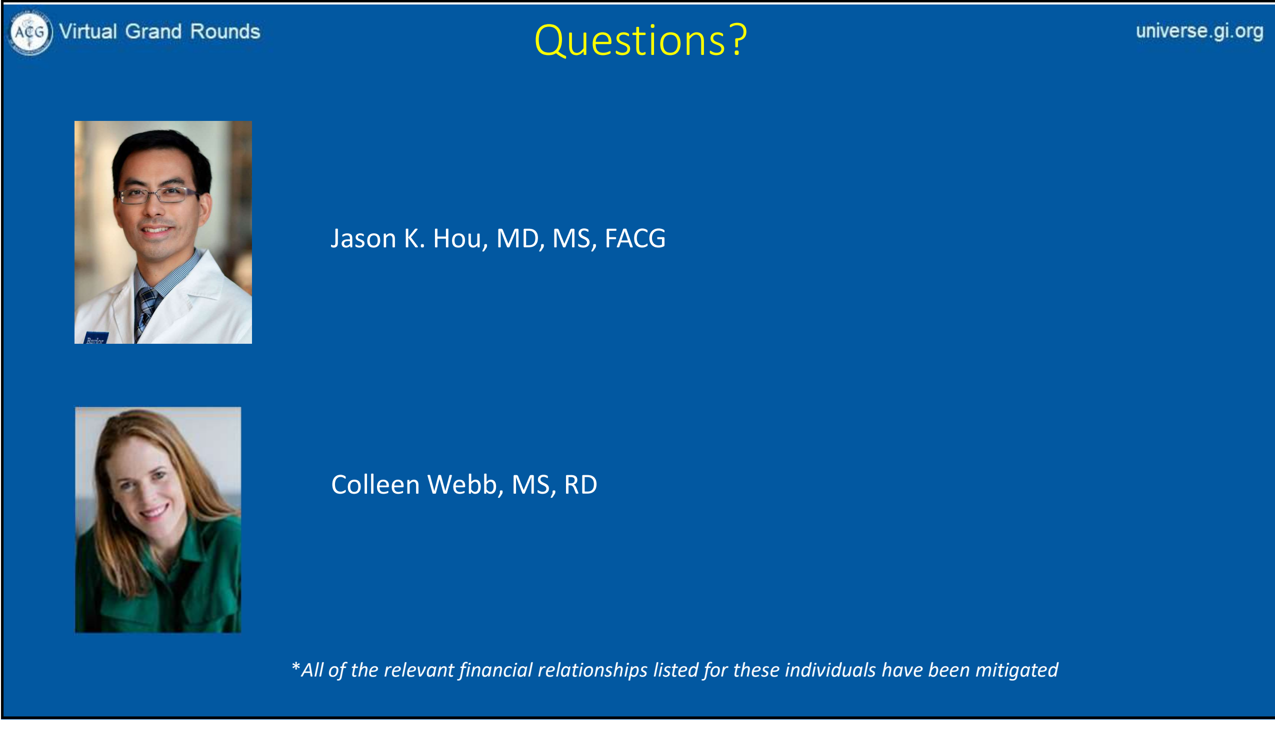

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