Study Cases
EpitheliaPro - FODZYME

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Presentation

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Learning objectives

- **Conduct a dietetic assessment and apply clinical reasoning for a client with suspected Small Intestinal Bacterial Overgrowth (SIBO)**
- **Develop** an individualized nutrition care plan for managing symptoms and supporting gut health in SIBO.
- **Evaluate** the nutritional challenges and priorities in a pregnant vegetarian client with Irritable Bowel Syndrome (IBS).
- **Apply** evidence-informed dietary strategies to complex digestive cases involving overlapping conditions and life stages.

Brief session outline

Study Case 1: Dietetic Management of a Client with Suspected SIBO

1. Case Presentation - Initial assessment - Initial interventions

- Overview of client history, presenting symptoms (e.g., bloating, gas, altered bowel habits), and relevant medical background.
- Discussion of factors increasing suspicion of SIBO (e.g., prior antibiotic use, IBS diagnosis, history of gastrointestinal surgery).
- Identification of red flags and need for referral.

2. Dietetic treatment plan (Over 8 Follow-Ups)

- Support and preparation for SIBO breath testing.
- Initiation of dietary support alongside medical treatment. Monitor treatment response; address side effects, support gut barrier function.
- Long-term strategies for gut health, including prebiotic/probiotic foods. Relapse prevention, stress management, and discharge planning.

Brief session outline

Study Case 2: Dietetic management of a pregnant vegetarian client with IBS

1. Case Presentation - Initial assessment

- Overview of client's current pregnancy stage, vegetarian diet, IBS symptoms, mental health, and food-related anxieties.
- Review of medical history and pregnancy progress. IBS symptoms review.

2. Dietetic treatment plan (Over 5 Follow-Ups)

- IBS-friendly food planning; gentle FODMAP or tailored approach.
- Review and adapt dietary intake as pregnancy progresses; address constipation or reflux.
- Introduction of food tolerance tracking to improve food variety. Birth prep nutrition and postpartum planning.

Disclosure

- Laurie Capovilla: I have no conflicts of interest to disclose, aside from my role as a member of the continuing education team at EpitheliaPro, a digestive health-focused nutrition clinic based in Quebec, Canada.

- Desiree Nielsen:
  Funding: none, Research: none
  Speaker/Consulting Fees: Kerry (Bio-K+ Probiotics), Kiwi Biosciences (FODZYME), Silver Hills Bakery, SPUD, Diabetes Canada, Half Your Plate Canada, Synthesis Agri-Food Network (What about wheat), Botanica Health, Conde Nast (SELF Magazine), Danone (Silk)
  Other: Owner of Desiree Nielsen Nutrition, Author of Eat More Plants, Good For Your Gut, Plant Magic
  Investments: none, speakers fees: none

Case study: Dietetic management of a client with suspected SIBO

Case Presentation

Objective / Reason for Consultation

"Digestive issues for several years, lost 50 pounds in a few months due to diarrhea, no IBD disease but elevated inflammatory markers (calprotectin and CRP), has had blood in the stool (not currently), uses Pantoloc for GERD, consulted a gastroenterologist, diagnosed w/ IBS.

Case Profile

- Female, 30 years old, BMI 23.3.
- Occupation: Clinical Pharmacist.
- Exercise: Cardio and weight training 3 times a week.
- Sleep: 7 hours/night, regenerative, but pain wakes her up
- Energy and Mood: Low libido, irritable all the time, chronic fatigue and brain fog, loss of appetite
- Chronic stress: 5/10.
- Health Conditions: undiagnosed (reported by patient) osteoarthritis (joint pain), ADHD
- Medications: Oral contraceptive, Proton pump inhibitors (PPIs) PRN, no supplements (probiotic sometimes but not constant)

Detailed GI symptoms review

1. Establish the timeline for the onset of symptoms: When did they begin?
   → She attended a wedding in 2018. The day after, she became severely ill with pain and vomiting. The pain, diarrhea, and bloating continued → Likely a result of food poisoning.

2. Digestive Symptoms:

- Pain & Sensations:
  - Persistent abdominal pain (24/7), less intense as the day progresses
  - Unusual sensations in the rectal and lower abdominal area
  - Sensation of a "bar" in the lower abdomen

- Bloating & Distension:
  Daily abdominal distension, starting in upper quadrant and bloating. Wakes up with distention (not bloating) and both worsens throughout the day
  Upper abdomen feels hard and tense (especially hypochondriac and epigastric areas)
  Bloating worsens immediately after meals, regardless of content, making her feel “full” early in the meal.
  Gas are smelly and loud, not a lot of control over them - no eructation.

Detailed GI symptoms review

- Bowel Habits:
  Diarrhea 1–2 times/day (Bristol 6–7), loose and foul-smelling,
  Steatorrhea occurs a few times per week, particularly after greasy or restaurant meals
  Sensation of incomplete evacuation
  Urgency to defecate, cramps, especially early morning (around 5:00 AM and 6:15–7:00 AM). Once the stool is passed, no cramps (even if pain/distention persist)
  Urgency can be severe enough to wake her from sleep
  No mucus, food residues or blood currently, but has had in the past

Other GI Symptoms: Acid reflux and excessive flatulence, everyday.

3. Extra digestive symptoms: Chronic fatigue, brain fog, joint pain.
Digestive symptoms NOT related to menstruation, which are regular

Initial Assessment

The food diary reveals:

1. The time intervals between meals are insufficient to support the migratory motor complex, and the last snack is too close to bedtime.
   The meals are also being consumed too quickly (in under 10 minutes).

2. Multiple sources of FODMAPs during meals and snacks, mostly sources of fructans and/or galacto-oligosachharides at every food intake.

3. Insufficient intake of total fiber, estimated at 16g/day.

4. Presence of irritants: 2-3 coffees a day, 1-2 alcohol consumption a day.

5. Behaviors: Eat fast because pharmacy setting → chewing is probably not appropriate.
   - Eat close to bedtime, feels hungry all the time

Initial interventions

1. Call your MD to get a prescription and get tested for SIBO
   - Lots of redflags here indicate potential SIBO VS IBS. Such as altered distention, brain fog, reflux, weight loss, timing of events, diarrhea… (1)

2. Optimize the Migratory Motor Complex (MMC) (2)
   - Aim for approximately 4 hours between meals and 2 hours the snack and the next meal, if necessary.
   - Eat at least 2-3 hours before bedtime (especially for GERD)
     → *Nutritional considerations: Need to rebalance the meals for her to feel satiated for that time to increase satiety to last 3-4 hours before the next meal.*
   - Up the protein intake for breakfast to around 20 g minimum (additional support such as protein source and recipes have been provided)

1. Increase soluble fiber: Add 1 teaspoon of psyllium husk per day, in 250ml of water or in a muffin/homemade bar (recipes have been provided)

2. Reduce irritants (alcohol, let's try one day out of 2 to start with, and no coffee on empty stomach)

3. Fill out a food and symptom journal

Note: The client had been taking probiotics intermittently, which may not be appropriate given the current suspicion of SIBO. I recommended discontinuing them for now.

Follow-Up 1: 1 week post evaluation

- Progress:
  - MD appointment is in 1.5 months.
  - Stool are better, less urgency still loose but more formed (bristol 6 VS 7). Bloating and distention has not changed.
  - Eats every 4h. Meal times are still 10min
  - Food diary shows worsening of symptoms after meals, especially if contains fodmap but even without.

- Interventions:

  1. Start the low FODMAP elimination diet for 4 weeks (has to be stopped at maximum 7 days before your scheduled time for the SIBO test)
  - Necessary tools to achieve that properly have been shared and discussed with the client.
  → Grocery list for low-FODMAP foods, menu planning, specific brands that don't contain fodmaps etc
  - Download the Monash University app to facilitate the process

  2. Fill out the food journal + symptom journal (both virtual)

  3. Order FODZYME to use throughout your business trip in 2 weeks to help manage FODMAP intake while eating conference-provided meals.

  4. Aim for at least 20 min to consume your meal.
  Take smaller bites, and make sure to swallow completely before taking the next one. Try setting your utensil down after every three bites, and pause halfway through your meal to check in with your hunger levels.

Follow-Up 2: 2 weeks post evaluation

- Progress:
  - 1 week in the low fodmap diet. Patient is efficient, not fodmap is noticeable in her food journal.
  - Stool consistency is unchanged (still a bristol 6), less urgency and pain, but still present.
  - Distension has not changed but less gas and bloating.
  - No steatorrhea, no weight change

- Intervention: she leaves for her business trip in 1 week.

  1. Let's plan the fodmap-free protein-rich snacks to bring on her business trip to avoid getting too hungry and making less safe food choices.

  2. Add 1 scoop of partially hydrolysed guar gum everyday (like the Fiber 4 from natural webber), to also bring on the trip with you.

  3. Preventions of symptoms during the trip:
  - Let's discuss the impact of high fat meals, alcohol, caffeine, dehydration and stress/anxiety on symptoms.
  - Let's discuss the impact of the plane itself on GI symptoms, especially bloating.

  → Tips:
  - Use FODZYME during the plane ride
  - Practice diaphragmatic respiration before going on the conference to calm her nervous system.
  - Do yoga positions that helps with gas excretion : to do after the plane and morning and night at the hotel.

Follow-Up 3

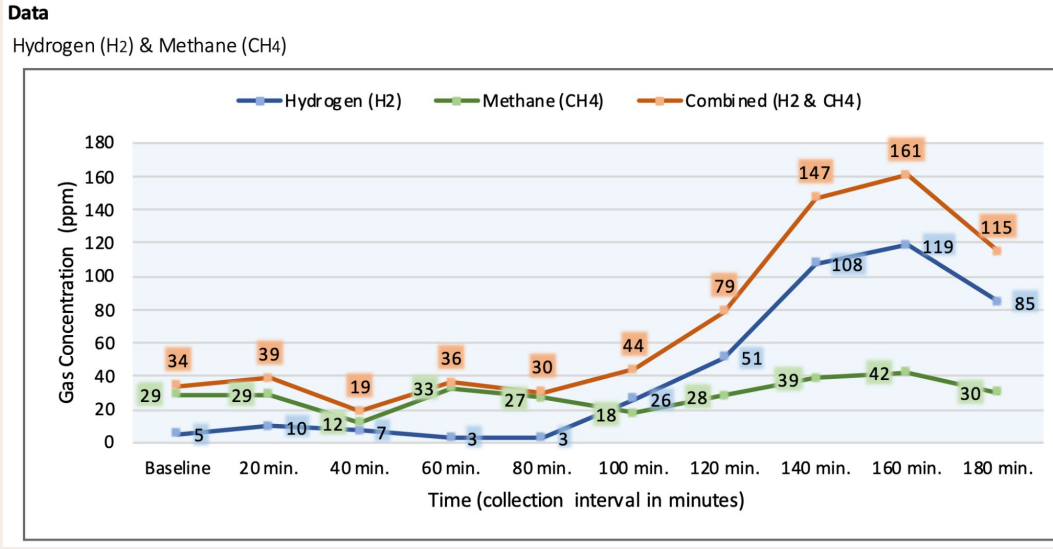
- Progress:
  Pte back home, Fodzyme allowed her to remain with way less symptom during the business trip and conference, so she didn't have to worry about eating differently from her colleagues.
  → The patient reports that it significantly helped with her anxiety as she wasn't afraid to have emergencies after her meals.
  MD appointment coming up. Took an appointment at the lab in the days following her medical appointment.

- Intervention:

1. Reintroduce FODMAPs strategically
   - Gradually include high-FODMAP foods over the next 3–5 days.
   - Eat at least one high-FODMAP food per meal to ensure enough exposure for accurate breath test results.
   - Start today and continue until the 24h-48h before the test.

2. Plan to follow the preparation diet for the breath test (3)
   - Begin the low-fermentation prep diet exactly 24–48 hours before the test.
   - Eliminate all high-fiber, high-FODMAP, and fermentable foods that we identified today. Stick to white rice, eggs, chicken, fish, and clear broths.
   - Start the prep diet two days before the scheduled breath test date.

Follow-Up 4



- Progress:
  - Breath test revels IMO (SIBO unclear)
  - Antibiotics have been prescribed by MD for treatment (rifaximin and metronidazole x 15 days)

- Intervention :

1. Include FODMAP-containing foods to a comfortable and tolerable degree during treatment to support proper overgrowth eradication.
2. Incorporate prebiotics gradually as tolerated to nourish beneficial gut bacteria.
3. Practice diaphragmatic breathing daily to support symptom relief and vagus nerve activation.
4. Engage in yoga daily—especially poses that promote gas release and abdominal relaxation.
5. Take daily walks to stimulate digestion and support motility.
6. Chew food thoroughly at every meal to improve digestion and reduce fermentation.
7. Add *Saccharomyces boulardii* and told her to keep using the hydrolyzed guar gum (4) that we had added to the protocol, as they have been shown to enhance the effectiveness of Rifaximin.
8. Stay well-hydrated throughout treatment to support detox pathways and minimize die-off symptoms.

Follow-Up 6: 2 weeks into treatment

- Progress:

  - Treatment Update: Antibiotic treatment is progressing well. Initial worsening during the first week, but symptoms are now improving.

  - Key food journal insights:
  → Symptoms are closely linked to **total carbohydrate load per meal** rather than just FODMAP content,
  → Reactions occur with both FODMAP and non-FODMAP foods (even if it's worse with fodmaps sources), **independent of fiber content** (e.g., black rice vs. white rice).

- Intervention & Guidance:

1. Use the **personalized portion guide** developed today to meet your dietary needs and manage: Food frequency, distribution of carbohydrate intake, balanced portions of vegetables, protein, and fats.

2. Continue with the food and symptoms journal.

Follow-Up 7: 4 weeks into treatment

- Progress:
  -Tomorrow is the last day of antibiotics.
  -With the portion guide, reduced irritants, and stress management, the patient no longer experiences acid reflux, except at work.
  -Minimal symptoms, but low dietary diversity persists: food journal shows 25g of fiber/day + 5g of the guar gum supplement + 2–3 prebiotic sources.

- Intervention (Gradual fiber diversification plan):

1. Increase fiber intake progressively to enhance tolerance
   For the next week,
   → Include at least ½ cup of whole grains starches per day at lunch or supper
   Additional support has been provided for sources/recipes.
   → At least 1 cup of high fiber vegetables per day
   Additional support has been provided for sources/recipes.

2. Contact pharmacist to discuss potential tapering off of PPIs.
   → SIBO is a consequence, not a condition itself. Given that PPIs increase the risk of SIBO (5), we should reevaluate their necessity with her doctor/pharmacist.

3. Schedule a breath test to confirm IMO/(SIBO) eradication, to be performed two weeks after completing antibiotics.

Follow-Up 8: 3 weeks post treatment

- Progress:
  - Patient does not have any symptoms anymore, except on days where she works in the pharmacy and after restaurants.
  - The SIBO/IMO test came back negative. The treatment has been effectif.
  - We identified several challenges in managing symptoms within the pharmacy setting.
  → Irregular eating schedule: No fixed meal times, often eating while standing.
  → Reduced hydration: Limited time for bathroom breaks
  → Work-related social meals: At least one team dinner per week.
  → Inconsistent FODMAP reactions: Symptoms appear at work but not at home, suggesting that stress, caffeine intake, and workplace factors may impact digestion.

- Intervention

1. Implemented diaphragm breathing techniques to improve bloating at work
2. Remove tight jeans causing excessive abdominal compression during workdays. Went with suits pants (ended up working really well)
3. Adjusted daily habits to minimize symptom triggers where possible.
4. Strategic use of FODZYME during outings to help with fructans, GOS, and lactose digestion.
5. Pharmacist agreed to remove PPIs.

CASE STUDY: DIETETIC MANAGEMENT OF A PREGNANT VEGETARIAN CLIENT WITH IBS

Case Presentation

- Reason for Consultation: "Management of IBS, meeting my dietary needs as a pregnant vegetarian woman with lots of restrictions"

- Client Profile
  - Age : 33
  - Profession: Lawyer (sedentary, high-stress work environment)
  - Diet: Long-term vegetarian (ovo-lacto)
  - Pregnancy: 14 weeks gestation at first consult (beginning of 2sd trimester). Plan to work until 32sd -34th weeks depending on how she feels

- Medical & Nutritional History
  - IBS-M diagnosis (2 years ago) (never saw a RDN for that reason)
  - Symptoms worsened during early pregnancy
  - Longstanding GI issues: bloating, urgency, abdominal pain, alternating constipation/diarrhea
  - Disordered eating tendencies (ED) → increased food fear and dietary restriction. Feels like it was fine before because it would help her manage her weight, but now fear of harming fetus due to restrictive diet.
  - High meal-related anxiety
  - Supplements: Prenatal multivitamin, B12, algae-based DHA
  - BMI: 18.5. Gained 0.5kg since beginning or pregnancy, (lower end of the "normal" range)
  (Pre-pregnancy weight: ~52 kg (at a height of 168 cm / 5'6")
  Current weight at 14 weeks: 52.5 kg. Total weight gain so far: +0.5 kg)

Detailed GI symptoms review

- Alternating constipation/diarrhea:
  - Can go 3–4 days without a bowel movement. False urges during the week: gas passes, but no stool.
  - When she does go: Bristol 7, often accompanied by excessive gas. Following that, diarrhea can persist for several days, often accompanied by frequent urgency — particularly after consuming coffee.
  - Occasionally passes mucus, especially after passing the first few stools post constipation days (no blood)
  - Reports incomplete evacuation sensation
  -Does not notice any significant worsening of symptoms according to her menstrual cycle.

- Bloating:
  - Begins after the first meal of the day. No to mild distention (mild when has not been to the bathroom in a few days)
  - Progressively worsens throughout the day

- Abdominal pain:
  - Occurs randomly, most days of the week
  - Ongoing for the past 2 years.

- History
  - Mild constipation during law school, but no abdominal pain at that time
  - Notes that symptoms have worsened over time

Initial Assessment

- Dietary Recall shows:
  - **Food avoidance**: garlic, onion, legumes, apples, all gluten sources and most starches (even gluten free), cruciferous veg → >15 foods eliminated, low fiber (estimated at 15g/day) & diversity (eats the same thing everyday)
  - Protein intake insufficient: only 1 of 3 meals includes a protein source (intake has not been calculated yet)
  - **Plant proteins (soy, legumes)** often avoided due to symptom triggers
  - **Hydration**: inadequate → drinks about 500ml of liquid a day.
  - Meal frequency suboptimal: up to 6h between meals, snacks limited to rice crackers
  - **Eating behavior**: fast eating, usually standing or while working,
  - **Overview**: high anxiety, sedentary routine

- <u>Interventions:</u> Goals: meeting dietary need, reducing food related fear, optimizing food consistency.

1. Order FODZYME to reduce food-related anxiety and to support gradual food reintroduction as soon as possible.
2. Add a protein with which you are comfortable at every meal.
   → She chose eggs, lactose-free cheese, fortified nutritional yeast, pumpkin seed and hemp seed powder,
   → Reassurance: **vegetarian diet is safe in pregnancy** if nutritionally adequate.
3. Added 2 kiwis a day (with cheese during snack) (helps with constipation (6))
   and 1tbs of flaxseed a day in her breakfast to start increasing fiber intake.
4. Increased liquid intake to 2l/day (7)
5. Fill out a food and symptoms journal

Follow-Up 1: 1 week post evaluation

- Patient progress: (15 weeks of pregnancy)
  - FODZYME ordered but not arrived yet.
  - Weight has not changed (52.5kg)
  - Digestion: Patient feels a bit more energized, slight improvement in stool frequency but feeling but stool are still either bristol 6 or 1. Bloating has not changed.
  - Protein intake : food journal shows about 12g of protein per meal and 5g per snack (1 snack.day) (0,78g/kg of protein) (VS 1.1g/kg minimum for pregnancy (8)
  -Food journal still shows a really restricted diet. Some High fodmap sources are present (sweeteners, nuts, some fruits and teas)
  - Drinks 1.5l/day

- Interventions:

1. Increase food diversity with a gentle FODMAP approach* to increase the diversity/ quantity of food consumed without increasing the symptom load and subtiture the obvious sources. → The goal here is to add food that are low in fodmaps for her to add diversity and reduce food related anxiety VS to removed more food!
2. Discussed low fodmap plant-based protein snack options to improve protein intake and distribution throughout the day
3. Take a daily light walking after meals, at least 5 min, to support digestion and motility
4. Add psyllium (IBS-friendly fiber), diluted in 250ml of water.
5. Fill out a food and symptoms journal

*Chose a gentle fodmap approach because:
- Already a lot of restriction, stress and food aversions. A low fodmap diet is not recommended during pregnancy.
- Digestive system is already shifting: Pregnancy can cause constipation, bloating, and gas due to hormonal changes and physical pressure from the growing uterus—so not all symptoms are food-related. -At this point, nutrient intake is critical

Follow-Up 2: 2 weeks post evaluation

- Patient progress: (16 weeks of pregnancy)
  - 1 week into gentle low fodmap diet
  - Weight : gained 0,5kg (53kg)
  - Fodzyme got delivered (has not tried it yet)
  - Symptom improvement noted since reduction of high fodmap sources less bloating, more stable bowel habits, one stool every 2 days (versus 3-4). Consistency : soft but formed - bristol 5 (versus 7)
  -Patient eats the same thing everyday because still anxious, but now has protein snacks.
  - Only eats vegetables : small carrots and cucumber and only cereals/starch source is white rice.
  -Patients takes daily digestive walks and get about 1ml/kcal of water per day.

- Interventions: Goal: gradual fiber increase - diversity

1. Over the next 4 days: Add 1 cup of cooked vegetables → started with cooked low-FODMAP veggies for lunch and diner.
   If well tolerated, with 1tbs of olive oil.
   Additional support/resources have been provided
2. On Day 5, add ½ cup of a low-FODMAP, fiber-rich starchy source such as millet, quinoa, black rice, buckwheat, or potatoes with skin.
   Additional support/resources have been provided
3. Try FODZYME with a bit of hummus for a snack, on the 7th day if symptoms had not worsened with the increase of fibers.
4. Introduced mindful eating techniques: slow eating, chewing, structured mealtimes

Follow-Up 3: 3 weeks post evaluation

2 weeks into gentle Fodmap diet

- Patient progress: (17 weeks of pregnancy)
  - Weight : gained 1kg (54kg)
  - Hummus has been well tolerated when taken with FODZYME.
  - Introduced cooked vegetables and some new starches, which have been tolerated well.
  - Current incomfort level: 5/10, less bloating. Stool : one day out of 2, bristol 4.
  -Had a flare-up on a court day—barely ate due to anxiety about bloating during court, which may have contributed to the symptoms.

- Intervention:

1. Explored technics do manage stress-related flares at work : Introduced diaphragmatic breathing (9)
2. Chose a "safe breakfast", snacks and meals to try on days out of court with FODZYME to increase confidence. If well tolerated out of court, implant those meals/snacks during court days.
3. Add one low fodmap prebiotic foods at each meal to support gut microbiota
   (*list and recipes and additional support/resources have been provided)*

Follow-Up 4: 4 weeks post evaluation

3 weeks into gentle Fodmap diet - time to plan the reintroduction/ tolerance test

- Patient progress

  - Symptoms are well controlled overall, with daily bowel movements and no urgency, except occasional stress-related episodes (which have improved).
  - Energy intake has returned to appropriate levels for second trimester needs.
  - Weight: 54.7kg: slow weight gain but within range.

- Intervention:

1. Preparing to begin a structured FODMAP reintroduction phase next week, including planning and creating a grocery list.
2. Increased use of FODZYME, especially during family dinners and court days, has provided greater flexibility and reduced food-related anxiety.
3. Established a "portion guide' to help her determine the optimal distribution during the day and the minimum amount of protein source, starches, vegetables and add fat we are trying to aim everyday to support healthy weight gain to support the growth of the baby.

*GOAL:

→ Support a diverse and nutrient-rich diet to promote both gut health and fetal development.

→ Once tolerance is better understood through the FODMAP reintroduction process, the client will be encouraged to continue including a wider variety of foods, using FODZYME selectively on food less tolerated to minimize symptoms without unnecessary restriction.

→ Empower the client to build confidence around food

Follow-Up 5: Check up 3 weeks post reintroduction

Patient progress:

- IBS symptoms minimal, have been able to understand the threshold of tolerances for fructans from starches, onion, garlic, and sorbitol
- Eating a **more diverse, liberalized vegetarian diet.** She realized that she could tolerate 100g of form tofu, but needs FODZYME for using textured vegetable protein (probably because still not able to tolerate GOS)
- Practicing **proactive symptom prevention** (calm meal routine, diaphragmatic breathing before meals, takes the time to sit to eat and to take a break from work)
- Improved sleep hygiene

Intervention: for late pregnancy adaptation:

- **Plan to cook some well tolerated meals with husband to freeze to be ready for baby arrival**
- Continued FODZYME with high-FODMAP snacks/dinners (especially helpful with onions and lentils)
- Established **postpartum meal plan template** to support fiber, iron, calcium, and protein needs (considering potential breastfeeding)
- Reviewed easy-to-digest, high-energy postpartum snack ideas
- Client expressed feeling **“in control” of her gut again**

Plans to continue using FODZYME as needed postpartum.
Is aware that tolerance and symptoms may vary after the birth - to be followed.

Conclusion

- In the first case, FODZYME was used as a supportive tool to reduce symptoms and alleviate food-related anxiety outside of the client's usual routine, allowing for greater flexibility in situations like dining out or traveling.

- In the second case, FODZYME was used as a tool to increase dietary diversity in a critical context, where the pregnant client experienced significant food-related anxiety and severe dietary restrictions.

→ FODZYME can be a valuable adjunct in the dietetic management of gastrointestinal symptoms across a diverse client population.

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THANK YOU

QUESTIONS ?