The Benefits and Effects of the Specific Carbohydrate Diet

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Objectives

• Discuss the connection between nutrition and IBD
• Learn what the SCD is and how it works
• Explore the pros and cons of the SCD
• Discuss current research and what we still need to find out
Diet and IBD

• Genetics + environment + immune system = IBD

• Could food be an environmental trigger??

• Potential mechanisms
  – Food as a direct trigger of inflammation
  – Food alters the gut microbiome
  – Food alters gut permeability
History of SCD

• Originally developed in 1920’s by Dr. Sidney Haas as treatment for celiac disease.
• In 1994 biochemist Elaine Gottschall published *Breaking the Vicious Cycle.*
  – Crohn’s disease
  – Ulcerative colitis
  – Diverticulitis
  – Celiac disease
  – Cystic fibrosis
  – Chronic GI disorders
  – Autism spectrum disorders
So, what exactly is the specific carbohydrate diet?
The specific carbohydrate diet allows carbohydrate foods consisting of monosaccharides, and excludes foods containing disaccharides and most polysaccharides.
• All fruits
• Most non-starchy vegetables
• Nuts and nut flours
• Most seeds
• Meat and fish (non-processed)
• Most dried beans
• Eggs
• Aged cheeses
• Dry curd cottage cheese
• Butter and oils (coconut, sunflower, olive)
• Homemade 24 hour fermented yogurt
• Honey
• Unflavored gelatin
- All grains
- Potatoes
- Corn
- Milk and cream products
- Soft cheeses
- Canned beans
- Flax, chia and hemp seeds
- All sugar (except honey)
- Preservatives of any kind
- Artificial sweeteners (except sweet-and-low)
Carbohydrate Digestion

• **Monosaccharides** consist of one molecule and do not require enzymes for digestion.

• **Disaccharides** and **polysaccharides** require enzymes to break molecules apart before they can be absorbed.

### Monosaccharides

- **Glucose**
- **Fructose**
- **Galactose**
"The Vicious Cycle"

- Water drawn into intestine
- Small intestine mucosal injury
- Chronic diarrhea
- Increased metabolic by-products
- Bacterial overgrowth
- Carbohydrate malabsorption

Adapted from Elaine Gotschall *Breaking the Vicious Cycle*
How to Implement the SCD
Intro Diet
To be followed for no more than 2-5 days

• Homemade bone broth
• Eggs
• 100% apple cider
• Gelatin (unflavored)
• Meats – roasted, boiled or broiled
• Carrots – peeled and cooked for 4 hours
Stage 1

• All items from intro diet
• Veggies – peeled, seeded and well cooked
• Fruits – ripe banana, applesauce, peeled/seeded and well cooked pear sauce
• Meat
• Alternative milks – homemade coconut, almond or pecan milk and SCD yogurt
Stage 2

- Veggies – peeled, seeded and well cooked
- Fruits – peeled, seeded and cooked
  - Apricot
  - Avocado
  - Peach
  - Pineapple
  - Plum
- Meat
- Nut butter
- Alternative milk and SCD yogurt
Stage 3

- Veggies – peeled, seeded and well cooked
- Fruits – peeled, seeded and cooked
- Dried fruit and raisins with no added sugars
- Meat – crisp fried pork or SCD legal bacon
- Nut butter
- Alternative milk and SCD yogurt
Stage 4

- Veggies – introduction of raw veggies
- Fruits – peeled and seeded but may be raw
- Nut and seed flours, small pieces of nuts and shredded coconut
- Legumes – split peas and lentils, navy and lima beans soaked and well cooked
Stage 5 – Maintenance

- Veggies – all, raw and cooked
- Fruit – all, raw and cooked
- Meat – all
- Nuts and nut butters
- Beans and legumes – all dried, no canned beans, no garbanzo or kidney beans
## Sample 1 Day Menu

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breakfast</td>
<td>Scrambled eggs</td>
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<tr>
<td></td>
<td></td>
<td>Baked apple sweetened with honey and cinnamon</td>
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<tr>
<td></td>
<td></td>
<td>Homemade nut muffin with butter and homemade jam</td>
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<td></td>
<td>Lunch</td>
<td>Tuna salad made with homemade mayonnaise on a bed of lettuce</td>
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<td></td>
<td></td>
<td>Olives and pickles</td>
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<td></td>
<td></td>
<td>Sliced cheddar cheese</td>
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<td></td>
<td>Snack</td>
<td>SCD yogurt with berries</td>
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<tr>
<td></td>
<td>Dinner</td>
<td>Homemade spaghetti sauce with ground beef served over spaghetti squash</td>
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<tr>
<td></td>
<td></td>
<td>Freshly grated cabbage salad with oil and vinegar</td>
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<tr>
<td></td>
<td></td>
<td>Peas and carrots with butter</td>
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<tr>
<td></td>
<td></td>
<td>SCD cheesecake</td>
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<tr>
<td>Pros</td>
<td>Cons</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Improvement in symptoms</td>
<td>Restricted diet</td>
<td></td>
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<tr>
<td>Decrease in inflammation</td>
<td>Potential impact on growth in children</td>
<td></td>
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<tr>
<td>Changed/improved microbiome</td>
<td>Expense</td>
<td></td>
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<tr>
<td>Possibly reduce need for medication</td>
<td>Cooking time and skills</td>
<td></td>
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<tr>
<td></td>
<td>Social impact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duration of diet</td>
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Research and Evidence

- Seattle Children’s 2016
  - 12 individuals with CD and UC, 2 did not complete the study
  - Clinical improvements in symptoms and inflammatory markers
  - Improvements in fecal microbiome

- Stanford 2015
  - 11 participants with CD
  - Clinical improvements in symptoms and inflammatory markers
  - Now conducting a prospective study
Bottom line

• The SCD may help control symptoms, decrease inflammation, and improve microbiome in IBD

• More research is needed to help determine:
  – Who would benefit most
  – Mechanism of action for the diet
  – Exact changes in microbiome that are most beneficial

• Always discuss with your medical team before starting any nutrition based therapy!
Questions?
Resources for patients

- *Breaking the Vicious Cycle* Elaine Gottschall
- *Nutrition in Immune Balance (NIMBAL) Therapy* David L Suskind, MD
- [www.breakingthевичiouscycle.info](http://www.breakingthевичiouscycle.info)
- [www.scdrecipe.com](http://www.scdrecipe.com)
- [www.pecanbread.com](http://www.pecanbread.com)
- [www.lifewithibd.com](http://www.lifewithibd.com)
- [www.nomorecrohns.com](http://www.nomorecrohns.com)
- [www.wellbees.com](http://www.wellbees.com)
- [www.comfytummy.com](http://www.comfytummy.com)
Citations

• Suskind DL et al. Clinical and fecal microbial changes with diet therapy in active inflammatory bowel disease. *J Clin Gastroenterology* 2016; 00:000-000
• Suskind DL. *Nutrition in immune balance therapy: Using diet to treat inflammatory bowel disease*. Published 2015.