

To Carb or Not to Carb?

Everything you need to know about keto and low carb diets!

DAN BURTON BScPharm, PharmD, APA, CAC, CDE, CBE

Founder of Healthcare Evolution

Empowering as many people as possible to live a happier and healthier life!

dan.burton@healthcareevolve.ca

<https://www.healthcareevolve.ca>

 @theofficialdrdan

Presenter Disclosures

I have the following relationships with these commercial interests:

- Founder: Healthcare Evolution Inc.
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- Committee: Co-President for Obesity Canada Calgary Chapter

I have received no speaker's fee or support for this learning activity.

Note

- This event is being recorded for promotional purposes and future course development
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TODAY'S LEARNING OBJECTIVES



REVIEW

What are low carb and ketogenic diets?



OUTLINE

What is Ketosis and the 'Keto Flu'?



EXPLORE

the evidence around keto and low carb diets.

Macronutrients

Protein

- Irreplaceable
- Repairs tissue, part of bodily functions, allows for enzymatic reactions to occur, and can be used as fuel if needed

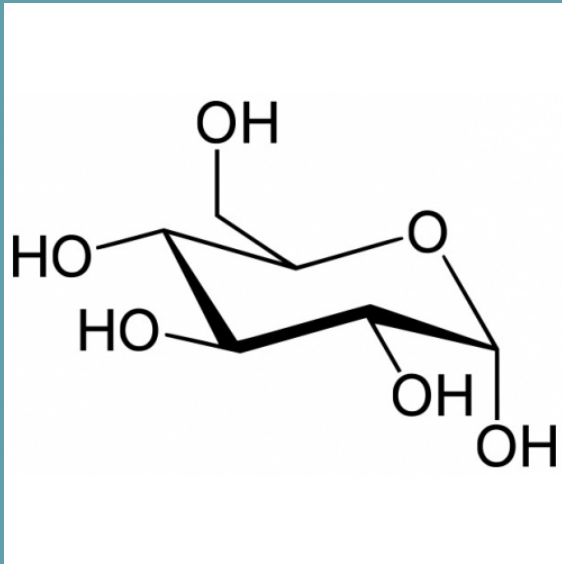
Carbohydrates

- Primary fuel source
- Provides us energy to do our day-to-day activities
- Many vitamins, and other nutrients as well

Fat

- Secondary fuel source – how the body stores energy for later
- Protection and insulation
- Helps with cellular regulation and signalling

Carbohydrates or Glucose



Digestion breaks carbohydrates down to monosaccharides (single sugar molecules) for absorption

- Glucose is the main one

Glucose is stored as glycogen in the muscle and liver

- Liver can share its glycogen when needed
- Muscle is selfish
- Glucose is prioritized to top up muscle and liver glycogen following a meal
- Glucose takes water into our cells as well 'Water Weight'

A large orange circle is positioned on the left side of the slide, partially cut off by the edge.

Macronutrients

Acceptable Macronutrient Distribution Ranges (AMDR)

- Protein 10-35%
- Carbohydrates 45-65%
- Fat 5-10%
- Average North American diet = ~200-350g of carbs/day



Quick Math Example



If you say are going on a 1800 calorie/day diet, how would you determine your distribution of macronutrients?

Example is protein is 25% of your diet



Protein = 4 calories/gram



Carbs = 4 calories/gram



Fats = 9 calories/gram



Protein 25% = $1800 \times 25\% = 450$ calories of protein = $450 / 4 = 112.5$ g of protein/day

Low Carb Diets

- Low Carb Diet
 - Atkins, paleo
 - Carb intake (<45% of daily calories)
 - Fat and protein ratios will vary



Ketogenic Diets

- Ketogenic Diet
 - Originally created for epilepsy
 - Low Carb (5%) and High Fat (70%)
 - The idea is you replace your carb intake via fat intake
 - Goal is to reach a state of Ketosis





Why is it so popular?!

Carbohydrate-Insulin Theory of Obesity

Check out my YouTube – Dr Dan – Weight-loss via Habit Mastery

A close-up photograph of several strips of bacon cooking in a dark, non-stick pan. The bacon is sizzling, with visible oil and small bubbles around it. The strips are arranged in a slightly overlapping, wavy pattern. The lighting is warm, highlighting the texture of the meat and the glistening fat.

Bring on the Bacon

Ketogenic Diet Foods

- Proteins
 - Animal sources, seafood, eggs, cheese, Greek yogurt (sugar free), etc.
 - Can still follow a vegan diet however, more challenging with trying to reduce carb intake
- Fats
 - Polyunsaturated fats
 - Avocado, olive oil, nuts and seeds
 - Avoid saturated fats
 - Solid at room temperature (butter, coconut oil)
 - Processed foods, fried foods
- Veggies
 - Low carb veggies
 - Think green veggies

LOW CARB VEGGIES

BASED ON A 1 CUP SERVING 



Watercress
0.4 G OF CARBS



Arugula
0.7 G OF CARBS



Kale
0.9 G OF CARBS



Green Leaf Lettuce
1 G OF CARBS



Spinach
1 G OF CARBS



Broccoli Raab
1.1 G OF CARBS



Swiss Chard
1.3 G OF CARBS



Cucumbers
1.8 G OF CARBS



Mushrooms
OF CARBS



Celery
3 G OF CARBS



Zucchini
3.8 G OF CARBS



Radish
3.9 G OF CARBS



Eggplant



Cabbage



Asparagus

Types of Ketogenic Diets

- **Standard Ketogenic Diet (SKD)**
 - Very low carb, moderate protein and high fat. 70% fat, 20% protein, and 10% carbs
- **Cyclical Ketogenic Diet (CKD)**
 - Diet involves periods of higher carb refeeds, such as 5 keto days and 2 high carb days
- **Targeted Ketogenic Diet (TKD)**
 - Allows for carbs around workouts
- **High Protein Ketogenic Diet**
 - Like SKD however includes more protein. 60% fat, 35% protein, and 5% carbs



Ketogenic Sample Diet

- **Breakfast** Two fried eggs, tomato slices, coffee with heavy cream
- **Snack** Full-fat cottage cheese topped with pine nuts
- **Lunch** Spinach salad with a grass-fed burger on top, cheese and avocado
- **Snack** Roasted, salted almonds
- **Dinner** Grilled salmon with a side of broccoli topped with butter



What is Ketosis?



- Body starts to use fat as its main fuel source
 - Due to a depletion of glycogen stores and low carbohydrate intake
 - Mechanism already built into the body (Remnants of caveman ancestors)
 - We all have likely gone into ketosis at some point or another ie. After sleeping all night
 - Fat and Fatty Acids get broken down into 'Ketones'
 - Ketones can be used by a variety of tissues in our body as fuel instead of carbohydrates

What is Ketosis?

- Takes approximately 4-5 days to achieve a state of ketosis
 - Some say <50g of carbs per day (~3 slices of bread)
 - Challenging as almost EVERYTHING has carbs
 - Note: Fiber does not count towards those carbs as it isn't digested/absorbed

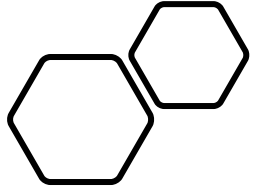


‘Keto Flu’

- Symptoms you might experience when starting a ketogenic diet:
 - Headache, fatigue, brain fog, constipation, nausea, sugar cravings, nausea, cramps, sore muscles, bad breath ‘ketone breath’
 - Should subside after 1-2 weeks the keto group calls this ‘fat adapted’
 - Possible ongoing symptoms
 - Constipation (usually lack of fiber), ongoing decrease in performance?, increased thirst
- 
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Ketoacidosis

- Healthy individuals likely is non-issue
 - Symptoms: increased thirst, vomiting, peeing a lot, abdominal pain, confusion, trouble breathing, dry or flushed skin




How do we know you are in KETOSIS?!

- Ketone strips
- Testing your Blood


Health Claims of Ketogenic Diet?


- 1) Reduced cravings and appetite
- 2) Weight-loss
- 3) Reduced inflammation
- 4) Improve cholesterol?
- 5) Diabetes and blood sugar control
- 6) Decrease in blood pressure
- 7) Improve heart health
- 8) Improve brain health
- 9) Treating a number of cancers
- 10) Increased focus and energy
- 11) Treating epilepsy in children
- 12) May be helpful for PCOS







What does the evidence say?




- Epilepsy
 - TRUE
 - Evidence
 - The ketogenic diet was originally developed as a method to treat seizures in children in the early 1900s
 - Mechanism of action not clear but may have a calming effect on the neurons of the brain
 - Many studies have shown it to be effective
 - Long-term sustainability is challenging
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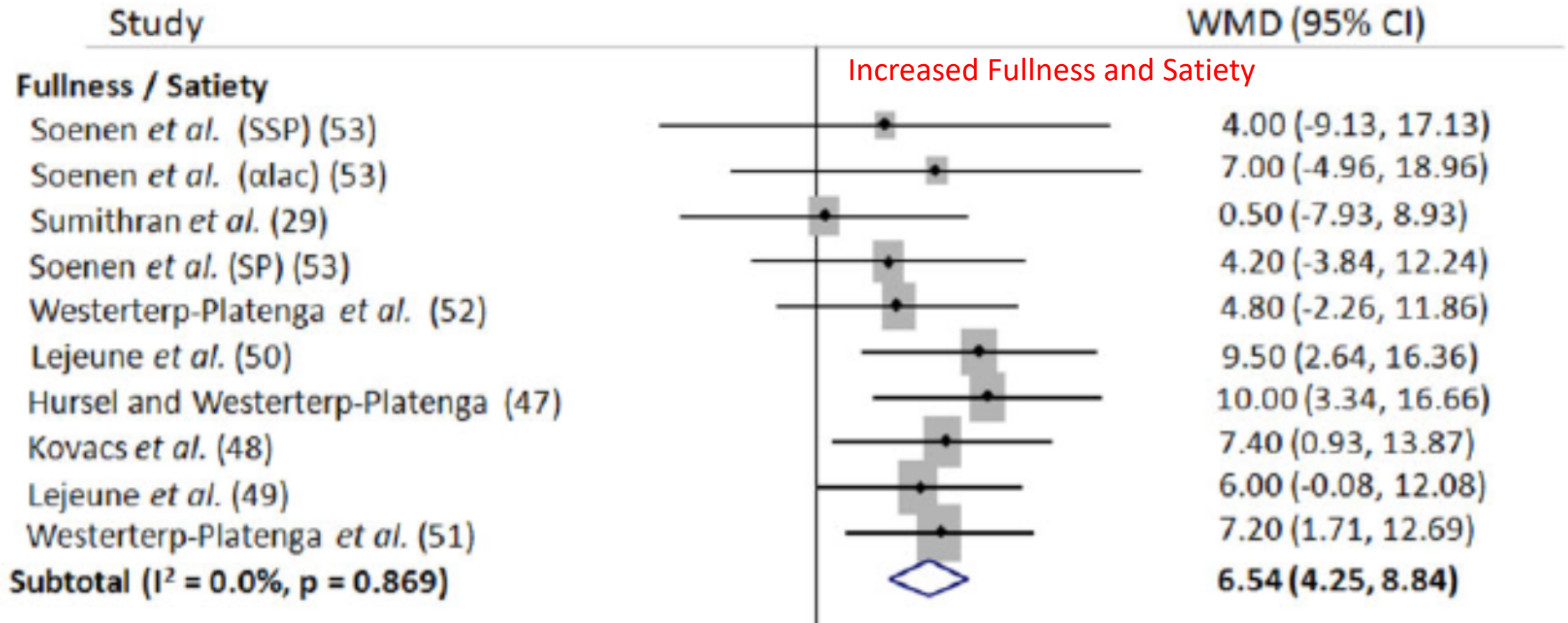


What does the evidence say?

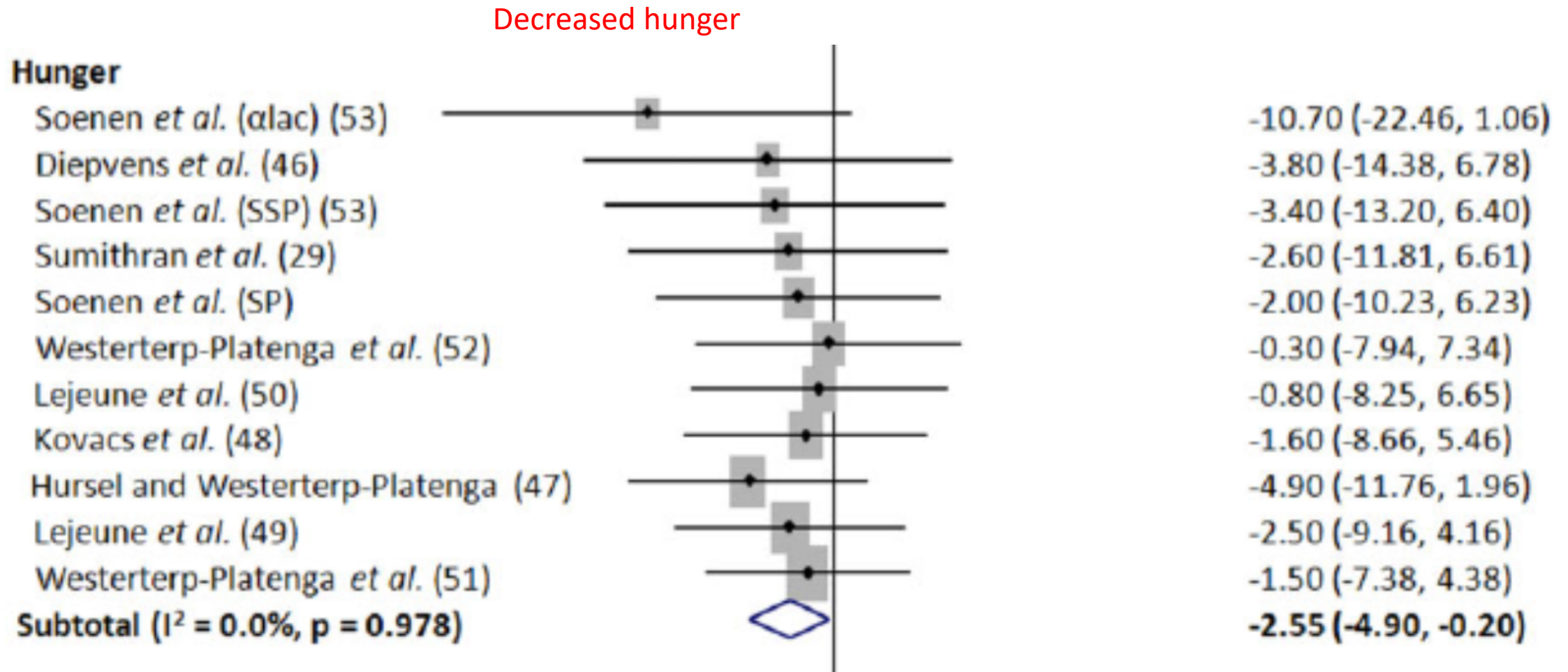


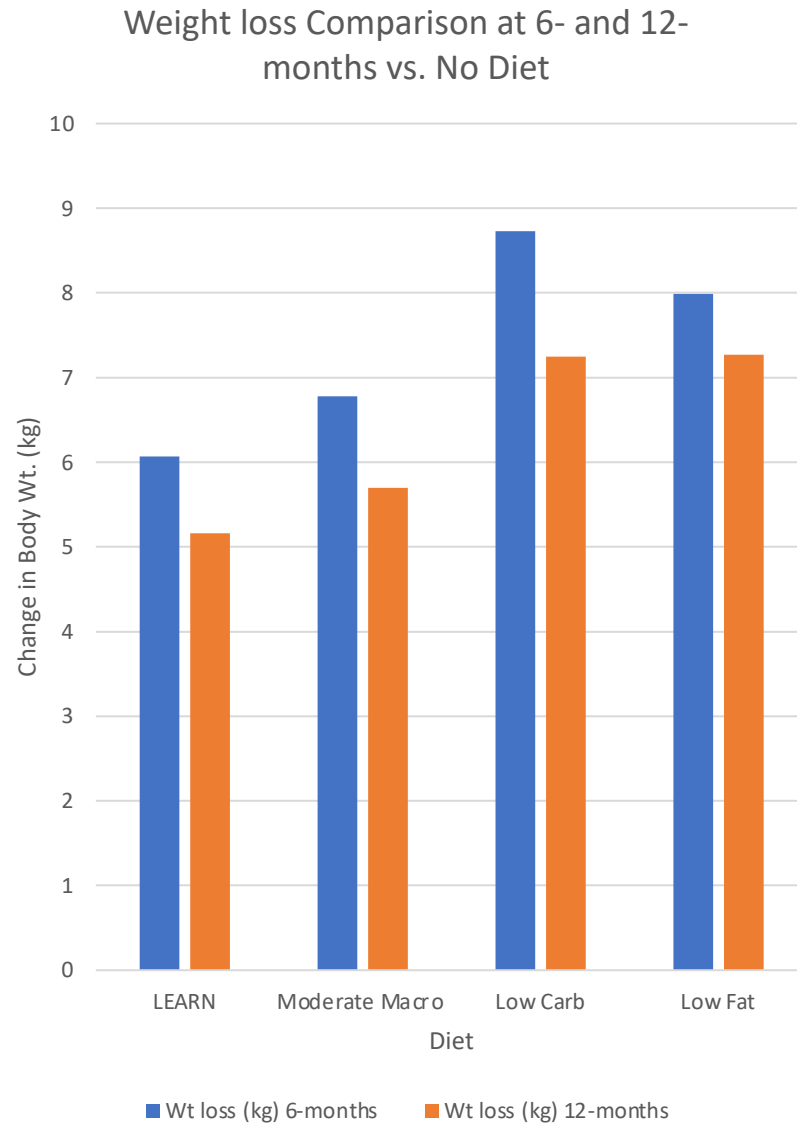
- Reduced cravings and appetite
 - TRUE
 - Evidence
 - In a calorie restriction the body compensates by making you hungry and less palatable foods more enjoyable
 - Very low carb and keto diets may help to manage this.....but only a little bit?
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What does the evidence say?



What does the evidence say?



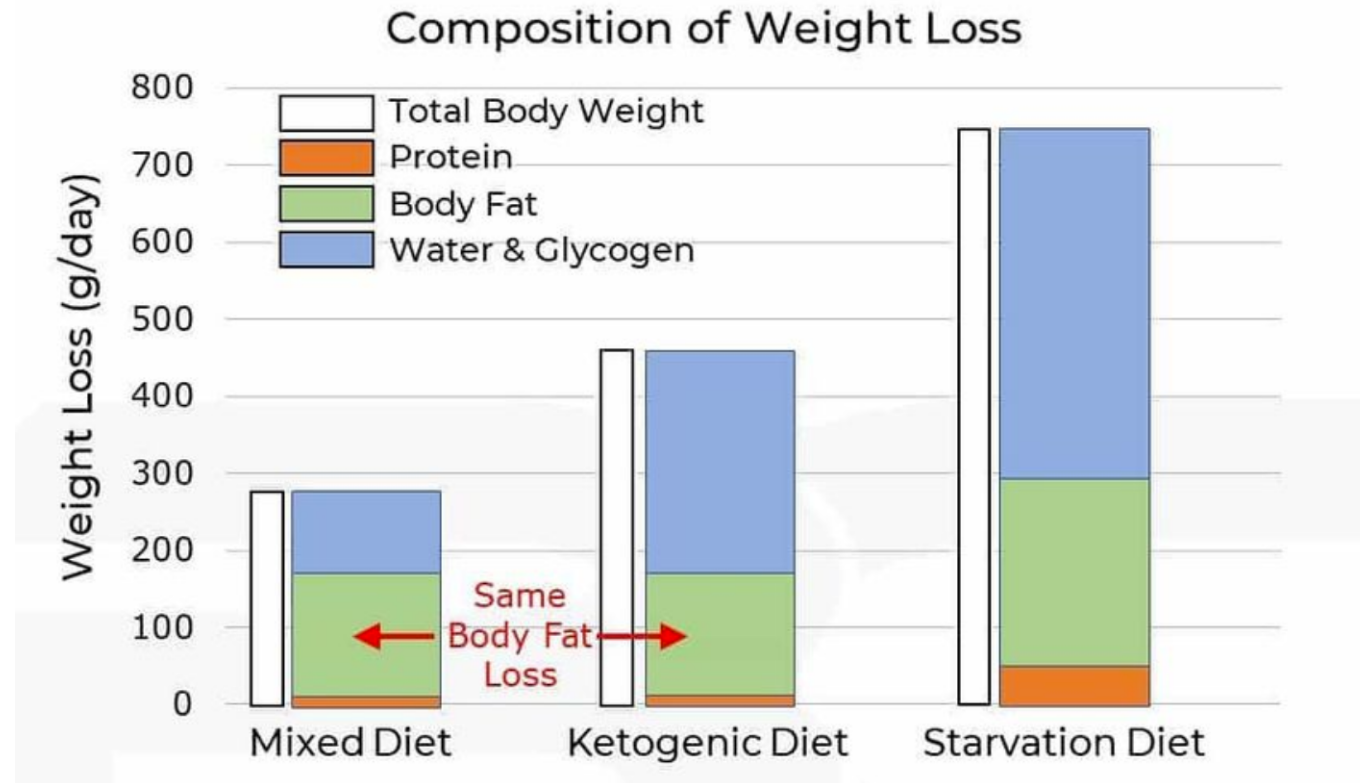


What does the evidence say?

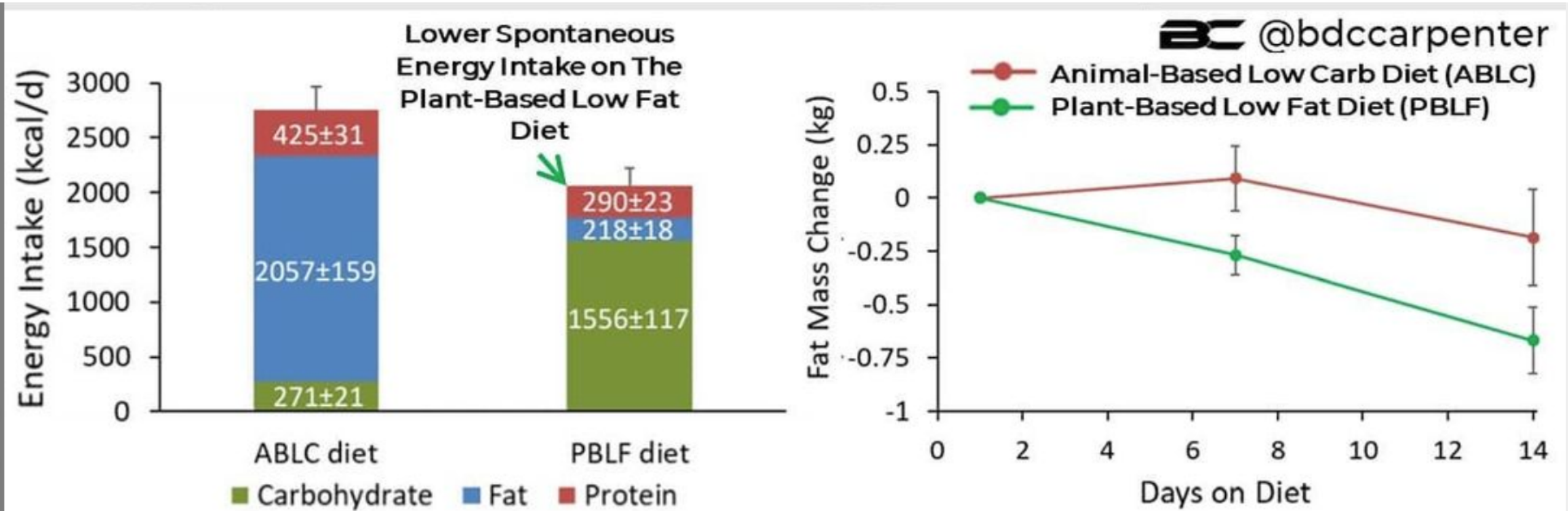
- Weight-loss
 - TRUEish
- Evidence
 - It can be effective for Wt. Loss


What does the evidence say?

- Weight-loss
 - Greater initial weight-loss?




Sorry Carnivore Friends







What does the evidence say?




- Diabetes
 - True but only in the short-term?
- Evidence
 - Many studies demonstrate that blood sugar levels, A1C, weight-loss, and cardiovascular risk can decrease
 - Studies have been short and long-term trials these benefits seem to disappear
 - Why? Most likely adherence...
 - Seem to also be safe in Type 2 Diabetes
 - **Avoid:** If on insulin or have Type 1 Diabetes



What does the evidence say?



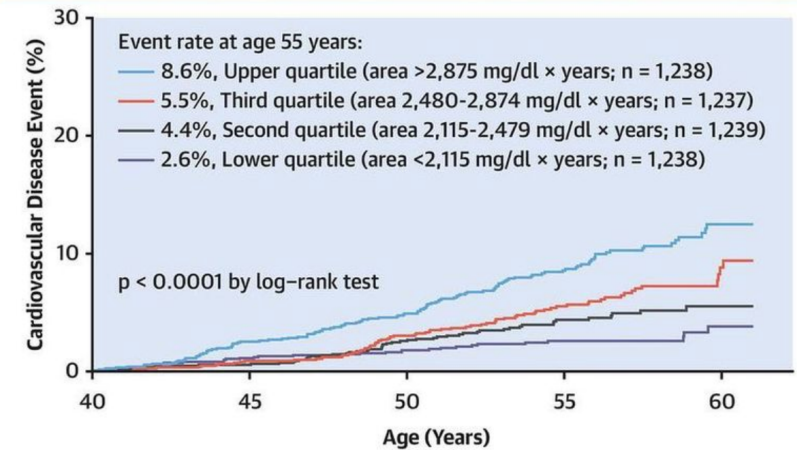
- Improve heart and brain health;
Cancer; Migraines; Acne
 - Nothing magical....
 - Evidence
 - May worsen heart health?!
Increase LDL?
 - Brain Health (Alzheimer's and Parkinson's) – Possible data is very limited
 - Migraines – Minimal to no evidence
 - Acne? May actually cause more acne!
 - Cancer – tumors may feed on sugars, so we starve them with keto diet?
 - No concrete data at this point
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Risks

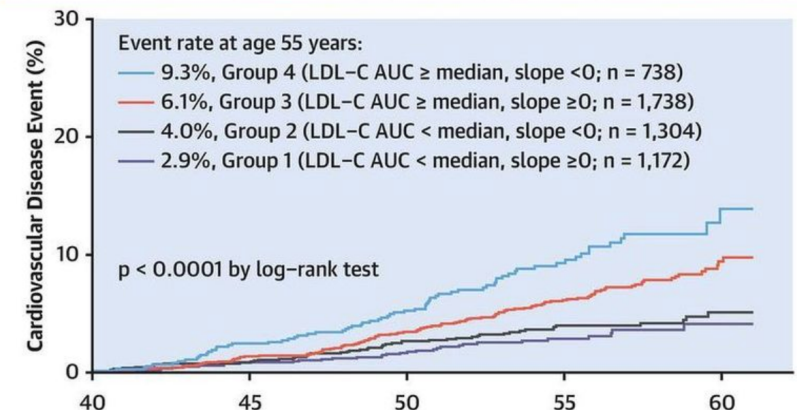
- Can increase your LDL – especially if eating with lots of saturated fats

CENTRAL ILLUSTRATION: Kaplan-Meier Curves of Incident Cardiovascular Disease Event Rates

A Risk According to LDL-C AUC Only Subgroups



B Risk According to LDL-C AUC and Slope Subgroups





Risks

- May worsen liver and/or kidney problems
 - Keto Flu
 - Hypoglycemia (Diabetes)
 - Constipation
 - Nutrition Deficiency
-

Practice Experience?

- Many patients fail....generally I see them after they have failed
 - Excited by initial weight-loss
- Some people feel great on it and it works for them (<1%)
- People constantly cycle on and off – this may be harmful more research to come
- Might recommend in Type 2 Diabetes and PCOS
- Sustainability is the key.....

Where to start?

Reduce portions

I don't believe you need to reach full ketosis

Carbs should be a $\frac{1}{4}$ of your plate

Increase your protein and veggie intake

Ketone Supplements – Don't waste your money



INTERMITTENT FASTING

*How did millennials make skipping breakfast cool?
Or, is there actually something to it?*

FREE LIVE WEBINAR WITH DR. DAN
WEDNESDAY, MARCH 17, 2021
ONLINE AT 6PM MST



Let's connect!

Where to find me:



Channel: Dr. Dan - Weight-loss via Habit Mastery



Page: Dr. Dan - Healthcare Evolution (@theofficialdrdan)
Group: HE Family with Dr. Dan




Email: dan.burton@healthcareevolve.ca



Website: www.healthcareevolve.ca



Q+A

- Slides should have already been distributed to you
 - Can shoot me questions after the event as well!
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Thank YOU!

