

# NUTRITION INTERVENTIONS FOR WEIGHT LOSS

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September 17<sup>th</sup> 2017

# Disclosures

None.

# Objectives

- Compare and contrast popular diets and evidenced based diets as part of a patients weight loss and maintenance goals
- Apply evidenced based diet information to patients inquiring about following a popular diet.

# DIETS THROUGH HISTORY

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People love talking about how and what they're eating.  
(They just couldn't always post it to the internet).

# Vinegar and Water

Timeline: 1820

Lord Byron



Diet: Small amounts of apple cider vinegar daily suppresses appetite and assists in weight loss.

Fact: Vinegar enhances satiety. Likely due to invoking feelings of nausea.

# Letter on Corpulence

Timeline: 1863

William Banting

Diet:

## **Breakfast**

4-5oz meat, large cup of tea (no milk or sugar), 1oz dry toast.

## **Dinner**

5-6oz of any fish except salmon, any meat except pork, any vegetable except potato, 1oz dry toast, any kind of poultry or game. 2-3 glasses of good claret, sherry, or Madeira  
(no Champagne, Port or Beer)

## **Tea**

2-3oz of fruit, cup of tea (no milk or sugar)

## **Supper**

3-4oz of meat, glass or two of claret

*Avoid bread, butter, milk, sugar, beer, potatoes.*

*6-8 hours of sound sleep*

*Recommends not drastically changing diet without first talking to your physician*

**Fact: Reduce portion sizes and consulting your physician is sound advice.**



# Tapeworms

Timeline: Early 1900's.



Diet: Swallow tapeworm. Weight loss follows.

Fact: Weight loss likely to occur aided by unpleasant side effects on top of the parasitic effects.

# Lucky Strike

Timeline: 1928

Diet: “Reach for a Lucky instead of a sweet”

Fact: While there is a connection between nicotine and appetite, smoking is not recommended as a healthy dieting strategy.





# Ketogenic

Timeline: 1921 and now.

Initially used for pediatric epilepsy patients.

Diet: High fat, moderate protein, very low carbohydrate

Facts:

- Low carbohydrate lowers insulin spikes.
- Reducing food choices, reduces food items eaten, reducing calorie intake.
- May help regulate hormones that play a part in appetite

# Gluten Free

Timeline: 1952 and now

In celiac disease, there is immune response to gluten thus needing to avoid.

Diet: excludes the protein gluten.

Fact: For the palatability of gluten free items, many refined and processed starches are added as well as fat.

# EVIDENCED BASED DIETS FOR WEIGHT LOSS

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What does work?

# Why.

- Losing 3-5% of body weight and maintaining can have clinically relevant health improvements.(1)
  - Reductions in triglycerides
  - Blood glucose
  - Decreased risk of developing type 2 diabetes
- Losing 5-10% of body weight (in six months) and maintain can reduce
  - Low density lipoprotein
  - High density lipoprotein
  - Blood pressure
- Maintenance generally means 1 year (2)
  - There is no truly defined time for “maintenance”

# How much and how fast?

- Reduction of 500-750 kcal/day
  - Woman: 1200-1500 kcal/day
  - Men: 1500-1800 kcal/day
- Reduce calories through restriction of certain food types
  - High-carbohydrate foods
  - High-fat foods
- Up to 2 pounds per week

# Look AHEAD study

- RCT with 5,145 overweight/obese adults with type 2 diabetes.
- Randomized to either intensive lifestyle intervention (ILI) or usual care of diabetes support and education (DSE).
  - ILI- 8 years of comprehensive weight loss counseling
  - DSE- 8 years of periodic group education only
- 88% of both groups completed the 8 year assessment
  - ILI lost 4.7%(+/-0.2%) of initial weight
  - DSE lost 2.1%(+/-0.2%) of initial weight (p<0.001).
- In the ILI group, participants who lost at least 10% of weight in the first year.
  - 39.3% were able to maintain 10% at year 8
  - 25.8% were able to maintain 5-10% at year 8.

# Evidenced Based Diets

| Diet   | Investigated using RCTs <sup>a</sup> with evidence considered supportive for weight loss | Investigated using RCTs with evidence considered non-supportive for weight loss | Lacking investigation for weight loss using RCTs |
|--|--|---|--|
| <b>Small, food-based</b>   |  |   |  |
| Increasing fruits and vegetables                                     |  | X   |  |
| Decreasing sugar-sweetened beverages                                 | X  |   |  |
| Decreasing fast food   |  |   | X  |
| <b>Portion control</b>   | X  |   |  |
| <b>Larger-, energy-, macronutrient- and/or dietary pattern-based</b> |  |   |  |
| <b>Energy-focused</b>  |  |   |  |
| Low-calorie diet   | X  |   |  |
| Meal replacement/structured meal plans                               | X  |   |  |
| Very-low-calorie diet  | X  |   |  |
| <b>Macronutrient-focused</b>   |  |   |  |
| Low-carbohydrate   | X  |   |  |
| Low glycemic index/load without energy restriction                   |  | X   |  |
| High protein with energy restriction                                 | X  |   |  |
| <b>Dietary-pattern focused</b>                                       |  |   |  |
| Energy density   |  |   | X  |
| DASH <sup>b</sup> with energy restriction                            | X  |   |  |
| Mediterranean with energy restriction                                | X  |   |  |
| <b>Dietary-timing focused</b>  |  |   |  |
| Eating frequency   |  |   | X  |
| Timing of eating   |  |   | X  |
| Breakfast consumption  |  |   | X  |

**Figure 2.** Evidence-base for dietary interventions for weight loss in adults. Sources include 2013 American Heart Association, American College of Cardiology, and the Obesity Society Guideline for the Management of Overweight and Obesity in Adults and the Academy of Nutrition and Dietetics' Evidence Analysis Library. <sup>a</sup>RCTs=randomized controlled trials; <sup>b</sup>DASH=Dietary Approaches to Stop Hypertension.

# Small, food-based changes

- Small behavior changes
- These small changes may be easier to sustain
- Shift energy balance 100-200 kcal/day
  
- Avoiding sugar-sweetened beverages and replacing with water
  - Can show 2%-2.5% weight loss in six months. (5)



# Portion Control Changes

- Pre-packaged where calorie amount is defined
- Portion size controlled
  - Food is delivered in specific serving size
- Communication strategies
  - Tool available to assist with choosing appropriate portion sizes
    - Eg. MyPlate

# Larger, energy, macronutrient, and/or dietary pattern-based changes

- Target larger nutrients
  - Energy or macronutrient
- Target dietary pattern
  - Mediterranean diet
- Both methods shown to reduce energy intake to a negative energy balance enough to result in weight loss (1)

# Larger, energy, macronutrient, and/or dietary pattern-based changes

- Explicit calorie goal
- Ad lib approach without calorie goal
  - Reduction in calories by restriction of certain food items
  - Provision of prescribed foods (meal replacement shakes)

# Energy focused

- Low calorie diet (LCD)
  - >800 kcal/day, typically 1200-1600 kcal/day.
  - All food choices for meals and snacks are provided
    - Liquid shakes or bars
- Easier to adhere to given no need to be put in position to make difficult choices.
  - Six studies comparing LCD of conventional foods or meal replacements found 2.54kg and 2.43 kg greater weight loss in meal-replacement group at 3-month and 1 year follow ups. (8)

# Energy Focused

- Very Low Calorie Diet (VLCD)
  - <800 kcal/day
    - Usually in form of liquid shakes
  - Designed to preserve lean body mass
    - 0.8-1.5g/kg protein x IBW
  - Appropriate only for those with BMI >30kg/m<sup>2</sup>.
  - Meta-analysis of six RCTs comparing weight loss on VLCD vs LCD
    - In 4 months: -16.1%± 1.6% vs -9.7%±2.4% of initial weight
    - In long term follow up (>1yr): -6.3% ±3.2% vs 5.0%±4.0%. (9)

# Macronutrient focused

- Low carbohydrate
  - Usually no more than 20g per day. (10)
- Weight loss between low carbohydrate and low fat are not considered to be too different
  - When paired with LCD over 12 or more months
    - LCD with Low Carbohydrate
      - Greater reduction in triglycerides and greater increase in HDL.
    - LCD with Low Fat
      - Greater reduction in LDL(1)

# Macronutrient focused

- High Protein
  - Consuming at least 20% of calories from protein
  - No defined amount from fat or carbohydrate (11)
  - Energy restriction as well
  - Can be done with conventional food items or meal replacements

# Dietary Pattern Focused

- Puts emphasis on overall diet rather than specific parts
  - What to eat rather than how much to eat.



# Dietary Pattern Focused

- DASH
  - Developed to reduce hypertension
  - Encourages
    - Fruits, vegetables, whole grains, nuts, legumes, seeds, low-fat dairy, lean meats
  - Limits
    - Sodium, caffeine, alcohol

# Dietary Pattern Focused

- Mediterranean
  - Generally the diet of Crete, Greece, southern Italy
  - Encourages
    - Fruits, vegetables, grains, nuts, seeds, minimally processed foods, olive oil, dairy products, fish and poultry
  - Discourages
    - red meat

# Overall goals

Obtainable

Sustainable

Questions?

# References

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# Helpful links

- <https://www.choosemyplate.gov/>
- <http://www.nwcr.ws/>