9-10-2020

Fad Diets

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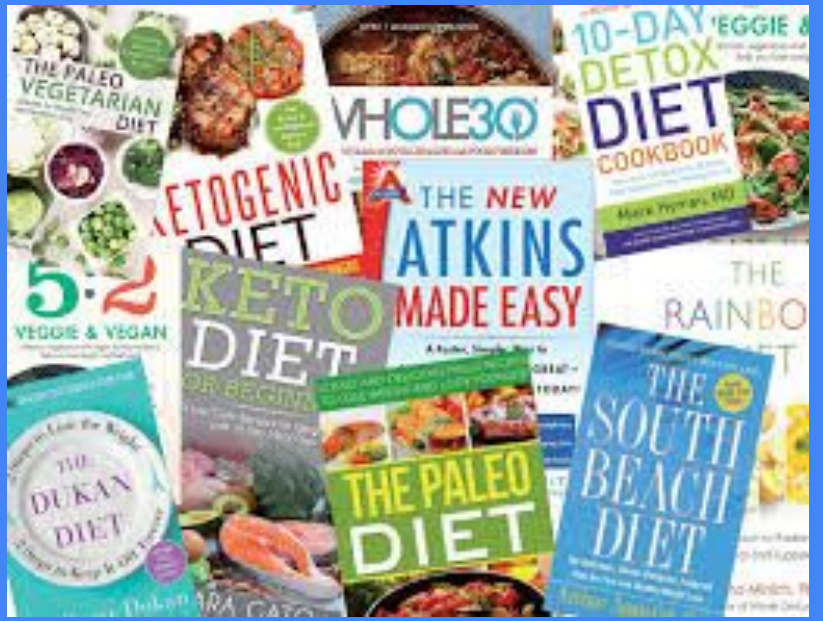
Fad Diets



Behavioral Health Lecture Series
Simon Newsom -PGY3

Disclosures

I intermittently intermittent fast

Overview

- Brief history of dieting
- Overview of different types of fad diets
- Conditions affected by specific dieting
- Physicians role in dieting

Case 1

SM is a 48 yo female, BMI 34, who is presenting for her annual physical. She has no acute complaints, but mentions she is trying to lose weight and is wondering what your thoughts are on that “new cool diet” out there, (unfortunately she cant remember the name), and is wondering if you can give her more information on the diets available.

Intro

At any given point, ~45% of women and 30% of men in the US are trying to lose weight

Despite this, the prevalence of obesity has doubled in the past 20 years.

CDC:

- 72% of Americans are overweight
- 40% are obese

Diet is the leading cause of death and disability in the USA

50%

Of Americans diet annually

Fad Diets

A trendy weight-loss plan that promises rapid, dramatic results

Tell you what you can and cannot eat

Generally do not encourage a change in lifestyle

Typically, these diets are not healthy and don't result in long-term weight loss.

History of Dieting

“Four Humours”

1550 BC- Ebers Papyrus

500 BC Warrior Diet

19th century Victorian England - sip and spit, sugar free diet

1830’s Sylvester Graham -whole grain diet

Arsenic diet pills, Tapeworm diet

1925 Cigarette Diet

1930’s Hollywood Grapefruit diet

1950’s Cabbage soup diet

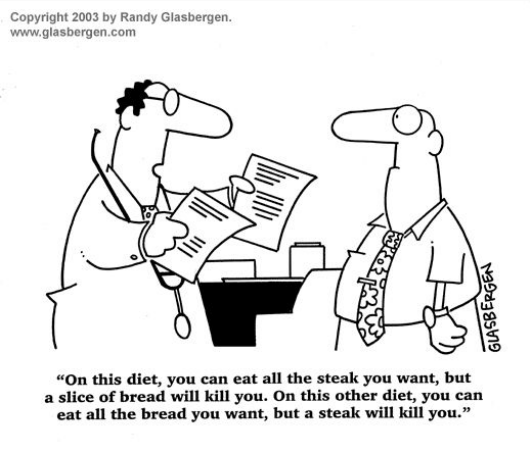
1960-70’s Weight Watchers, Sleeping beauty diet, Slim Fast

1990’s Atkins Diet

21st Century: Ketogenic, IF, Paleo, gluten free

Red Flags /How to Spot a Fad Diet

- Promise weight loss >2 lb per week
- Highly restrictive or nutritionally unbalanced (no carb, liquid diet only)
- Encourage Superfoods that can “burn fat” or detoxify
- Promise “One size fits all” or silver bullet
- No discussion of exercise
- Based largely on anecdotal stories
- Focus on appearance vs overall health



Most Common Diets

Caloric Restriction

Weight Watchers - “Step by small step”

Foods are assigned a point value, based on calories, fat, and fiber content

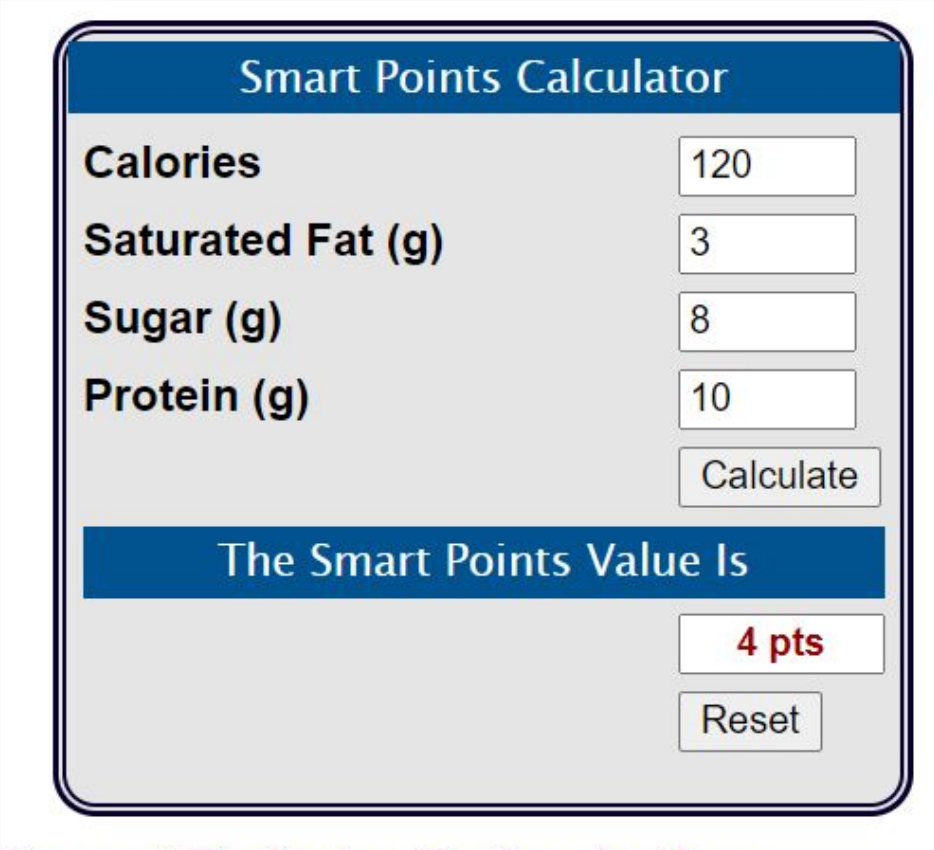
Allotted daily points, can spend as you like (no foods are off limits!)

Weekly meetings or group meetings and weekly weigh-ins are part of the process

Goal of ~2 lb/ week weight loss

Weight Watchers

Points= (Calories * .0305) + (Sat Fat * .275) + (Sugar * .12) - (Protein * .098)



Weight Watchers

Variable cost and services

- Interactive app
- 24/7 chat services
- Fitness tracker, recipes, rewards for healthy behavior
- Workshops (in persona and virtual)
- Personal coach

Free to choose food yourself

Weight Watchers

Has been shown to consistently demonstrate greater efficacy at reducing weight at 12 months compared to placebo.

Overweight participants assigned to WW were 9x more likely to lose 10% of their weight than participants who used publically accessible websites only

Weight Watchers

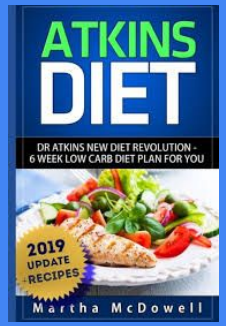
Regularly viewed as the top fad diet of the past half century

1. Easy to follow/ flexible
2. Lots of support
3. No excluded food groups
4. Constantly evolving

Case 2

DO is a 24 year old M w/ hx of epilepsy. BMI 33. He comes in for consultation for weight loss. He asks if there are any diets that may help with his seizures, as he read in a magazine on an airplane that certain diets can improve epilepsy in certain patients. What would you recommend?

Low Carb Diets/ Low Glycemic Index



- Examples: Atkin's, The Zone, Ketogenic Diet
- Atkins Diet
  - High protein/ fat, low carb (<35g/ day)
  - More than 10 million copies have been sold
  - No longer the diet of unlimited bacon and eggs

Table 2. Sample daily menus based on authors' diet book instructions

	Atkins-Induction	Atkins-Maintenance	Ornish	USDA Food Guide Pyramid	The Zone
Breakfast	Omelet 3 large eggs 1 oz cheddar cheese 1 tsp butter 2 tsp salsa 2 oz Canadian bacon	Omelet 3 large eggs 1/2 cup cottage cheese ½ avocado 1 cup cantaloupe	1 cup cooked plain oatmeal 1 apple cut up 1 tsp cinnamon 1 slice whole wheat bread 1 tsp preserves 1 cup skim milk	Yogurt Parfait 8 oz nonfat yogurt 1/2 medium banana 1/4 cup low-fat granola 1 cup orange juice w/ calcium 1 slice whole wheat bread 1 tsp natural peanut butter	Omelet 2/3 cup Egg Beaters 1 oz reduced-fat cheese 1 ½ oz ham 1/2 cup vegetables 1 slice thin, whole wheat bread 1/2 tsp natural peanut butter
Lunch	Grilled Chicken Salad 6 oz grilled boneless chicken breast w/ skin 2 cups romaine lettuce 1/4 cup slivered almonds 1 tbsp olive oil 1 tsp vinegar	Tuna Salad 6 oz tuna in water, drained 2 tbsp mayonnaise 2 cups romaine lettuce 1/2 cup red cabbage	Chicken-Dill Wrap 2 ounces cooked boneless, skinless chicken breast 2 cups romaine lettuce 1 medium tomato 1/4 cup chick peas 1 tbsp lemon juice 2 tbsp nonfat plain yogurt 1 tsp dill weed 1 flour tortilla 1 cup pineapple chunks	Tuna Pocket 3 oz tuna in water, drained 1 tbsp light mayonnaise 2 cups romaine lettuce 1/4 tomato sliced 6 baby carrots 1 cup 1% milk	Tuna Pocket 3.3 oz tuna in water, drained 2 tsp light mayonnaise 2/3 whole wheat pita Salad 2 cups romaine lettuce 2/3 tsp olive oil 1 Tbs vinegar 1 cup skim milk
Snack			1 cup nonfat plain yogurt 1/2 medium banana	1 medium apple	1/2 cup lowfat plain yogurt
Dinner	8 oz grilled tuna steak 1/2 cup broccoli 1 tsp butter	6 oz roast turkey 3/4 cup green beans 1/4 cup onion sautéed in 1 tsp butter 1/4 cup slivered almonds	1 baked potato, about 1/3 lb Broccoli Slaw 1 cup grated broccoli 1/2 cup grated carrot 1/4 cup corn kernels 1 tbsp nonfat mayonnaise	4 oz baked boneless, skinless chicken breast 1 cup cooked brown rice 1 cup broccoli sautéd in 1 tsp olive oil	3 oz baked boneless, skinless chicken breast 1/2 cup cooked pasta 2 1/2 cups broccoli
Snack				3 cups air popped popcorn	1 peach 1/3 cup 1% cottage cheese

Food	Grams of Carbs
Slice of whole wheat bread	18g
Slice of white bread	15g
1 banana	27g
Cup of rice	45g
1 potato	37g
1 bag of potato chips	120g

Table 1.
A Modified Summary of the Basic Differences Between Low-Carbohydrate and Low-Fat Diets

Component	Low-Carbohydrate Diet	Low-Fat Diet
Caloric or energy restriction	Not needed; ketosis may help to reduce caloric intake	Needed
Food choices	Very restricted	Moderately restricted
Initial rate of weight loss	Fast, with increased diuresis	Gradual, with some diuresis
Weight loss	Dependent on duration	Dependent on duration
Weight maintenance	Unproven over the long term	Unproven over the long term
Compliance or dropout rate	Compliance is low and dropout rate between 33%-50% short term	Compliance is low and drop out rate between 33% to 50% short term
LDL ("bad") cholesterol	No change	Reduced
HDL ("good")	Greater increase	Increase
Triglycerides	Greater reduction	Reduced
Unique benefit	Treatment for drug-resistant epilepsy (increases brain acetone); acts as anticonvulsant	None noted
Potential long-term concerns	Calciuria (renal stones and reduced bone mass); high protein content (patients with renal/liver disease); atherogenicity (high saturated fat, trans fat, and cholesterol levels and relative absence of fruits, vegetables, and whole grains)	None noted

High protein/ Low Carb Diet

Associated with short term improvement in weight, HDL, TG, BP

Encourage high intake of saturated fat→ may accelerate atherosclerosis long term

Increased risk of bone density loss and renal stones due to increased acid

Atherosclerotic Risk?

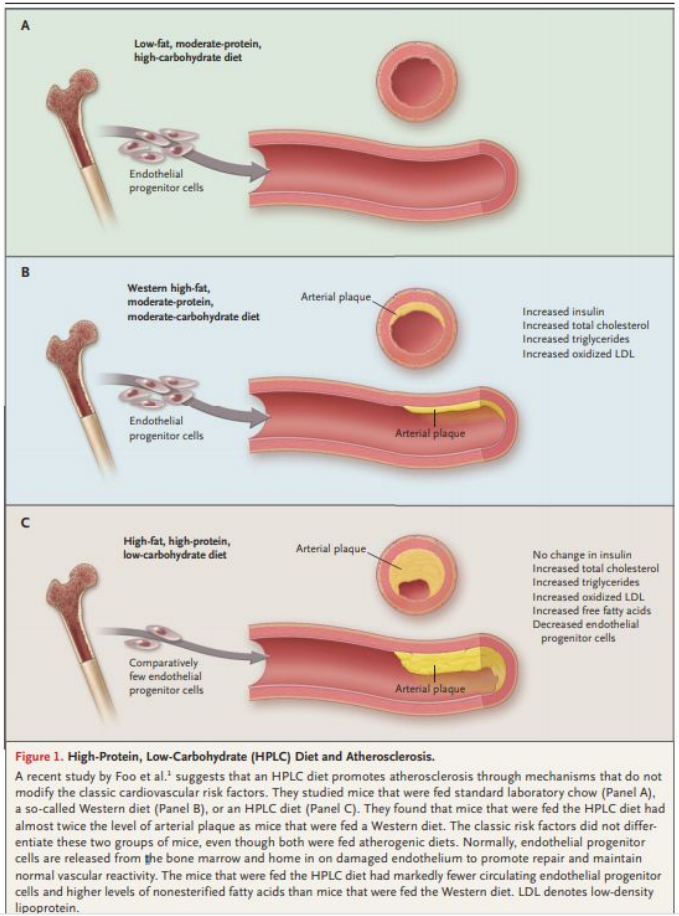


Figure 1. High-Protein, Low-Carbohydrate (HPLC) Diet and Atherosclerosis.

A recent study by Foo et al.[1] suggests that an HPLC diet promotes atherosclerosis through mechanisms that do not modify the classic cardiovascular risk factors. They studied mice that were fed standard laboratory chow (Panel A), a so-called Western diet (Panel B), or an HPLC diet (Panel C). They found that mice that were fed the HPLC diet had almost twice the level of arterial plaque as mice that were fed a Western diet. The classic risk factors did not differentiate these two groups of mice, even though both were fed atherogenic diets. Normally, endothelial progenitor cells are released from the bone marrow and home in on damaged endothelium to promote repair and maintain normal vascular reactivity. The mice that were fed the HPLC diet had markedly fewer circulating endothelial progenitor cells and higher levels of nonesterified fatty acids than mice that were fed the Western diet. LDL denotes low-density lipoprotein.

Ketogenic Diet

Approximately 55%-60% fat, 30%- 35% protein and 5% -10% carbohydrates (<50g per day of total carbs)

Well documented short term effects on weight, few studies looking at sustained weight loss

Keto flu?

Contraindicated in CKD, insulin sensitive diabetics need to be cautious

Ketogenic Diet

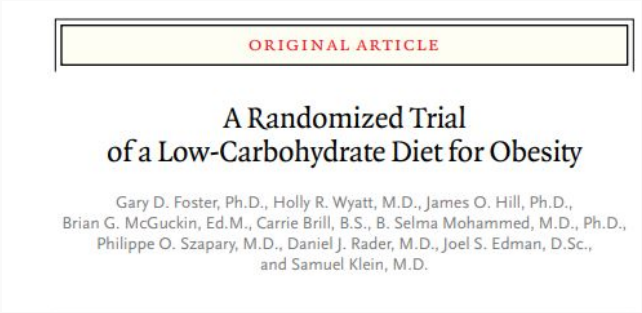
1. In the absence of circulating sugar from food, insulin levels drop
2. Induces gluconeogenesis and glycogenolysis to meet the cellular demand
3. No additional dietary glucose taken in
4. This leads to state of catabolism (breakdown) to meet the body's demands, and the body will break down fat stores into ketone bodies (ketosis)
5. Breakdown of fat stores ultimately leads to weight loss
6. This shift usually takes 2-4 days of consuming <50g of carbohydrates daily

Obesity

Common to see rapid initial weight (~10lb in two weeks) loss due to diuretic effect

LCHF diets produced greater weight loss for initial six months, but no significant difference one year out

Known association with decreased sugary food intake and improvement of metabolic syndrome and DM



ORIGINAL ARTICLE

A Randomized Trial of a Low-Carbohydrate Diet for Obesity

Gary D. Foster, Ph.D., Holly R. Wyatt, M.D., James O. Hill, Ph.D., Brian G. McGuckin, Ed.M., Carrie Brill, B.S., B. Selma Mohammed, M.D., Ph.D., Philippe O. Szapary, M.D., Daniel J. Rader, M.D., Joel S. Edman, D.Sc., and Samuel Klein, M.D.

Diabetes

HFLC diets have been shown to help control blood glucose due to less glucose ingestion and improved insulin sensitivity

Must be care in patients on insulin or at risk of hypoglycemia

Epilepsy

Ketosis has long been shown to have a positive effect on patients suffering from epilepsy, and has been part of treatment for decades

Ketosis increases brain acetone levels, which act as an anticonvulsant

May also affect GABA levels and limit ROS, boosting energy production in brain tissue

Case 3

TR is a 42M with IDDM (on lispro TID with meals), who recently relocated from Silicon Valley and is presenting for a well check. He reports that his friends back home have all lost weight and gained energy after they started intermittent fasting. He asks you if it is safe for him to try this diet. How would you counsel this patient?

Caloric Restriction

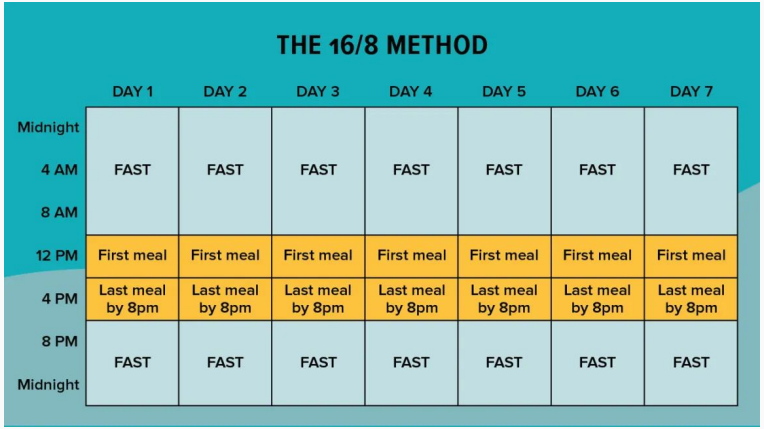
Intermittent Fasting

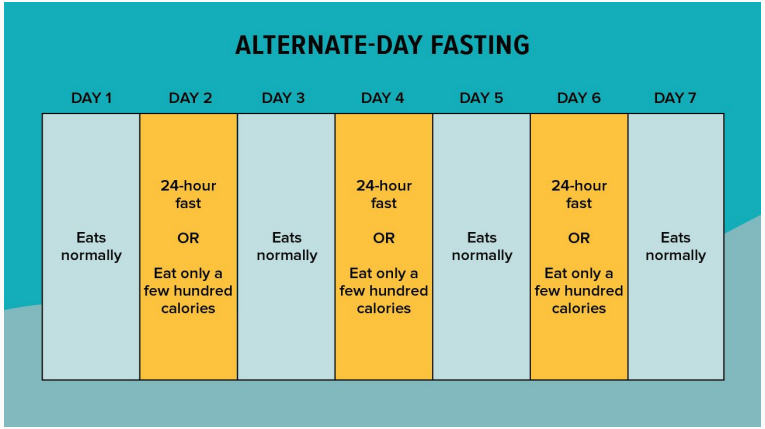
Most popular diet in 2018

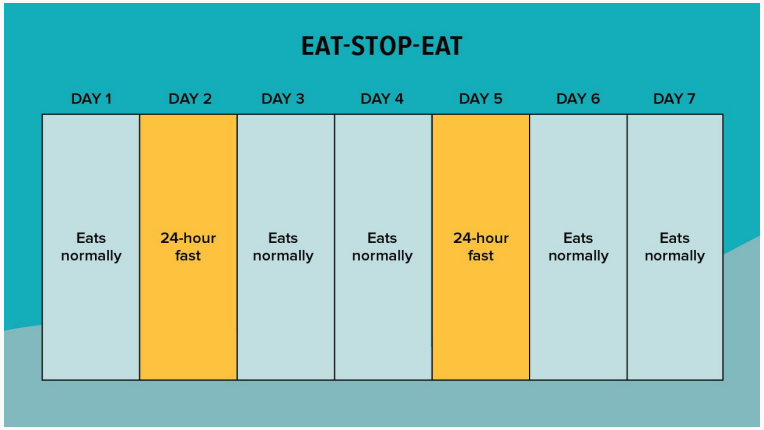
Starvation based diet

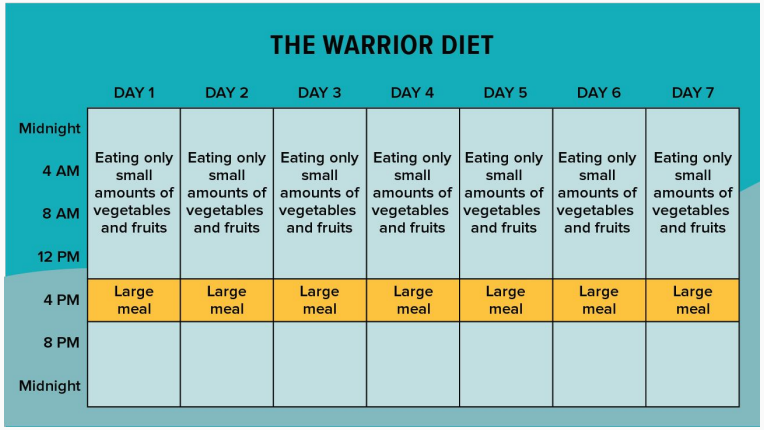
Restrict only *when* you eat, not what you eat

American Heart Association claims it may lower insulin resistance, cardiac disease, inflammation and encourage weight loss









Fasting Plans

Adaptive Mechanism/ Metabolic Switch

1) Fed state
    a) Dietary glucose is energy source
    b) Fat storage
2) Post absorptive State
    a) Glucagon secreted
    b) Glycogenolysis
3) Fasted State -- Metabolic Switch”
    a) Glycogen depleted
    b) Fat hydrolysis

Weight loss

Typical weight loss 7-11 lbs over 10 week period

Few studies looking at long term sustainable weight loss

Most studies have shown no significant difference between fasting and daily caloric restriction one year out

Intermittent Fasting

REVIEW ARTICLE

Dan L. Longo, M.D., *Editor*

Effects of Intermittent Fasting on Health, Aging, and Disease

Rafael de Cabo, Ph.D., and Mark P. Mattson, Ph.D.

1. Increased growth hormone
2. Reduce inflammation
3. Improved insulin sensitivity
4. Cellular regeneration
5. Preserved lean muscle mass
6. Extended lifespan
7. Improved sleep quality
8. Improvement in chronic pain and mood disorder

These benefits are proposed to be due to stimulation of evolutionary adaptive response

- increased expression of antioxidants
- DNA repair
- protein quality control
- mitochondrial biogenesis and autophagy
- down-regulation of inflammation

Physical and Cognitive Conditioning

Young men who IF have been shown to lose more fat while maintaining more lean muscle

Mice maintained on alternate-day fasting have better running endurance than mice that have unlimited access to food.

IF enhances cognition in multiple domains, including spatial memory, associative memory, and working memory

Aging

Goodrick et al

The average lifespan of rats is increased by up to 80% when they are maintained on a regimen of alternate-day feeding

Coleman et al 2009

20 year study that showed that caloric restriction slowed aging in rhesus monkeys

Risks

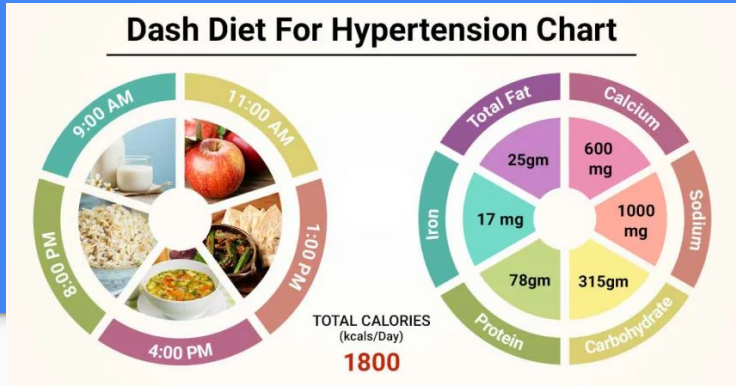
Must be careful in patients who are insulin dependent diabetics, especially mealtime insulin, although this may ultimately increase insulin sensitivity

Other considerations: on meds requiring food for coadministration, pregnant or breastfeeding women, dementia

Case 4

PN is a 58 yo M with hx of HTN on amlodipine, chlorthalidone and lisinopril. He presents for annual physical and is hoping to learn more about dietary modifications that can help with his blood pressure. In addition to lifestyle modifications, he is interested in a specific diet to help lower his BP. What would you recommend?

DASH Diet



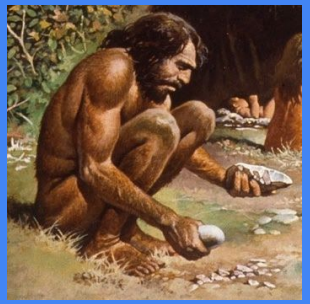
“Dietary Approaches to Stop Hypertension”

Recommended for people with HTN or at risk of heart disease

Focuses on fruits, vegetables, whole grains and lean meats

Goal of limiting salt intake (<2300mg daily) to decrease BP

Paleo



Based on diet of paleolithic man

Goal: eliminate many of the processed sugars and foods that eat more whole plant and animal foods

Restrictive - cannot eat dairy, processed foods, grains, legumes

May help to lower visceral fat

Paleo

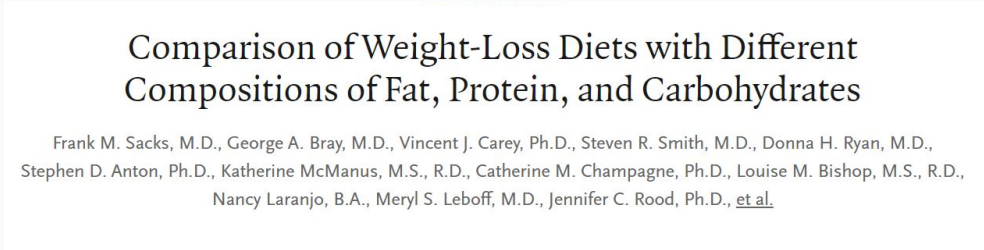
Weight loss due to:

1. Increased protein intake
2. Elimination of processed carbs/ added sugar (few empty calories)
3. Whole foods emphasized (increased non starch fiber)

So which is best?

2009 Sacks et. al. showed that reduced-calorie diets result in clinically meaningful weight loss regardless of which macronutrients they emphasized

There is no “best diet” and each should be taken in the overall context of the individual patient



Case 5

CD is 35F presenting for follow up of her many chronic conditions. She is a new patient to your office and reports that she has struggled with her weight for years, and has been hesitant to make an appointment because her previous doctor “always seemed like he was disappointed in me and judged me for my weight”. She reports she has gained the “COVID 19” and is eager to lose weight again.

Stigma

Primary care providers hold both explicit and implicit biases about people with obesity

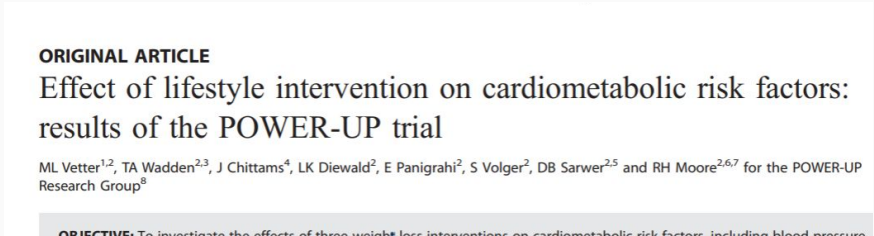
- Less rapport building
- More dominant language
- Lower expectations regarding compliance
- Less time spent educating patients
- Over-attribute symptoms to obesity
- Less likely to refer to specialists

Our Role as Physicians

Physician acknowledgement of patients weight has been shown to increase patient desire to lose weight, and report clinically significant weight loss

Patients were more likely to lose 5-10% of body weight if their physicians told them they were overweight

Patients who reported support from PCP lost twice as many lbs as those who didn't



ORIGINAL ARTICLE

Effect of lifestyle intervention on cardiometabolic risk factors: results of the POWER-UP trial

ML Vetter[1,2], TA Wadden[2,3], J Chittams[4], LK Diewald[2], E Panigrahi[2], S Volger[2], DB Sarwer[2,5] and RH Moore[2,6,7] for the POWER-UP Research Group[8]

Our Role as Physicians

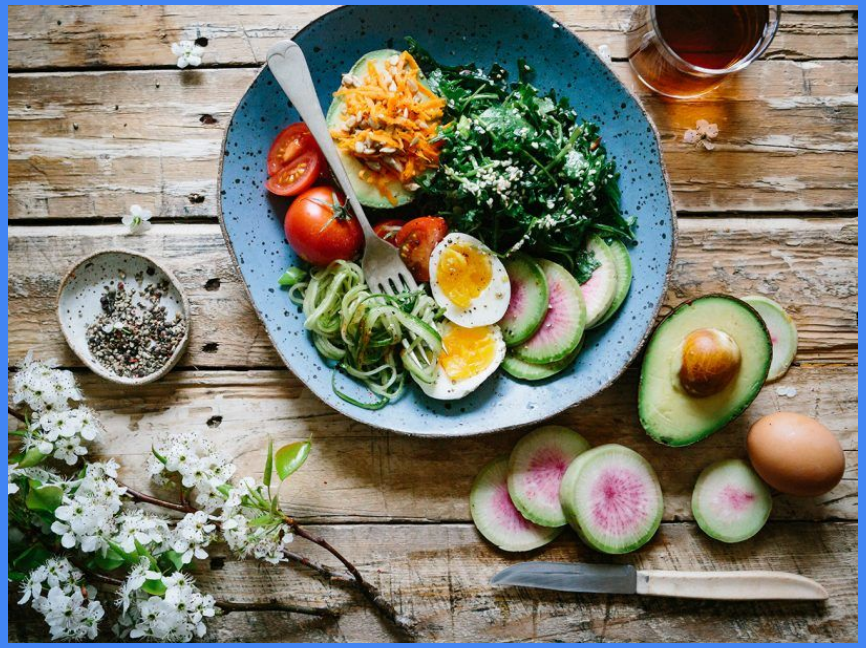
We have the potential to improve out patients dietary habits by providing basic evidence based nutritional advice

Focus should be on good *balanced* nutritions and health eating *behaviors*

Recognize at risk patients and refer to specialists when appropriate

Bottom Line

1. Fad diets are not going away
2. Most can help people lose weight rapidly, although few are sustainable long term
3. It is our role as physicians to encourage healthy lifestyle changes to create long term, sustainable improvement in health outcomes



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