Obesity in Pregnancy

Maternal Child and Adolescent Health Advisory Board Meeting

03/21/2018

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This presentation will briefly cover:

I. Risks of Obesity in Pregnancy and to the Fetus
II. Will diet counseling help during the pregnancy?
III. Weight gain recommendations for obese women
IV. Do diets work? Why do 80% of diets fail?
V. Problems with processed foods
VI. Fats vs. Carbs
VII. Safe vs. Unsafe diets
VIII. How to fight cravings
IX. Tips
X. Local resources

Risks of Obesity with Pregnancy

ACOG Committee Opinion #315, Sept 2005

- 3 fold increase in Gestational Diabetes
- 2-3 fold increase in Hypertensive disorders and Preeclampsia (14%)
- Hypertriglyceridemia; Cholelithiasis
- Non-Alcoholic Fatty Liver Disease (NAFLD)
- Thromboembolism
- Sleep Apnea (Pulm Htn, R Heart failure, inadequate O2 delivery to fetus)
- Preterm delivery
- 50% decrease in successful VBAC

- 48% chance of Cesarean delivery for BMI 35-40. (*Weiss JL A M Obst Gyn 2004;190:1091)*
- Emergency Cesarean delivery (inability to monitor by external transducers)
- Postop wound disruptions, infections, atelectasis, endometritis
- Anesthesia Complications
- Failed intubations (1/3), CV, Respiratory, Narcotic/Regional anesthesia
- Lactation Failure, difficulties latching

Fetal Risks from Maternal Obesity

Major Birth defects:

- 2x Neural tube defects
- 2x cardiac defects
- 3x gastro-intestinal defects and omphaloceles
- Inability to diagnose fetal anomalies (suboptimal in 37%)

King JC Ann Rev Nutr 2006 26:271
Krishnamoorthy U BJOG 2006 113:1134

Increased risk of

- Shoulder dystocia with nerve palsies
- Meconium aspiration
- Maternal BMI ≥ 30 conferred 25% obesity risk at age 4 (~3-fold) independent of birth weight
  Whitaker RC Pediatrics 2004;114:29

Perinatal mortality:

- 3x Antepartum mortality
- 2x Neonatal death
- 3x increase in miscarriage and recurrent miscarriage

Yu CKH BJOG 2006 113:1117

Macrosomia with higher % body fat, related to elevated free fatty acids in obese women.

Higher % body fat at birth correlates to Obesity/Metabolic Syndrome during childhood.
Catalano PM Obstet Gynecol 2007 109:419

Lynn Schimmel, NP

"Basically, pregnancy is too late to deal with the issue for most, as it's the pre-existing insulin resistance that hurts the baby"

Before pregnancy, Lynn strongly recommends The Obesity Code by Dr. Jason Fung and Timothy Noakes. These authors recommend low carbohydrate diets and intermittent fasting, which can be safe and very effective if they are well planned.
Lynn also recommends dietdoctor.com, which is an excellent resource on how to use low carbohydrate diets or intermittent fasting safely.

Unfortunately these diets cannot be part of a public health message. They can be dangerous if done by certain groups of people or without careful planning.
(See slides 19-21 for details.)

RCTs (non-pilot) Intervention Trials in Pregnancy *Skouteris H Obesity Reviews 2010;11:757*

- 120 women BMI >20: RCT *Polley BA Int J Obes 2002;26:1494*
  - Intervention at each prenatal visit: IOM recs, diet, exercise, feedback
  - 58% NW women exceeded IOM recs in control group vs 33% in intervention; No diff in OW; no change in % fat intake or exercise
- 50 women BMI > 29 at 12-18 wks *Wolff S Int J Obes 2008;32:495*
  - Intervention: 10 1-hr visits with dietician to limit GWG to 6-7 kg
  - 7 day diet logs at 27 and 36 wks gestation
  - Intervention group gained 6.6 vs 13.3 kg
- 100 women BMI >20: RCT *Asbee SM Obstet Gynecol 2009;113:305*
  - One intensive counseling session on diet an PA at 1st prenatal visit
  - Intervention group gained less wt; trend to better adhere to IOM recs (NS)
- 195 women BMI >29; RCT nutritional advice from brochure vs lifestyle education by nutritionist vs control > 15 wks gestation *Guelinckx I Am J Nutr 2010;91:373*
  - Active group: 3 one-hr sessions at 15, 20, 32 wks regarding healthy diet PA
  - 7 day diet logs and PA (Baecke) score q trimester
  - No difference in GWG but improvement in nutritional habits

Did diet counseling help?

No, not if overweight

Yes: with **10** 1-hr RD visits and **diet logs**, pts gained 14.5# vs. 29.3#

NA. Avg BMI was 26 ± 6 in this study

No, not with **3** 1-hr RD visit)

Gestational Weight Gain and Pregnancy Outcomes in Obese Women *Kiel DW Obstet Gynecol 2007;110:752*

Missouri Birth Certificate 120,251 (1990-2001)

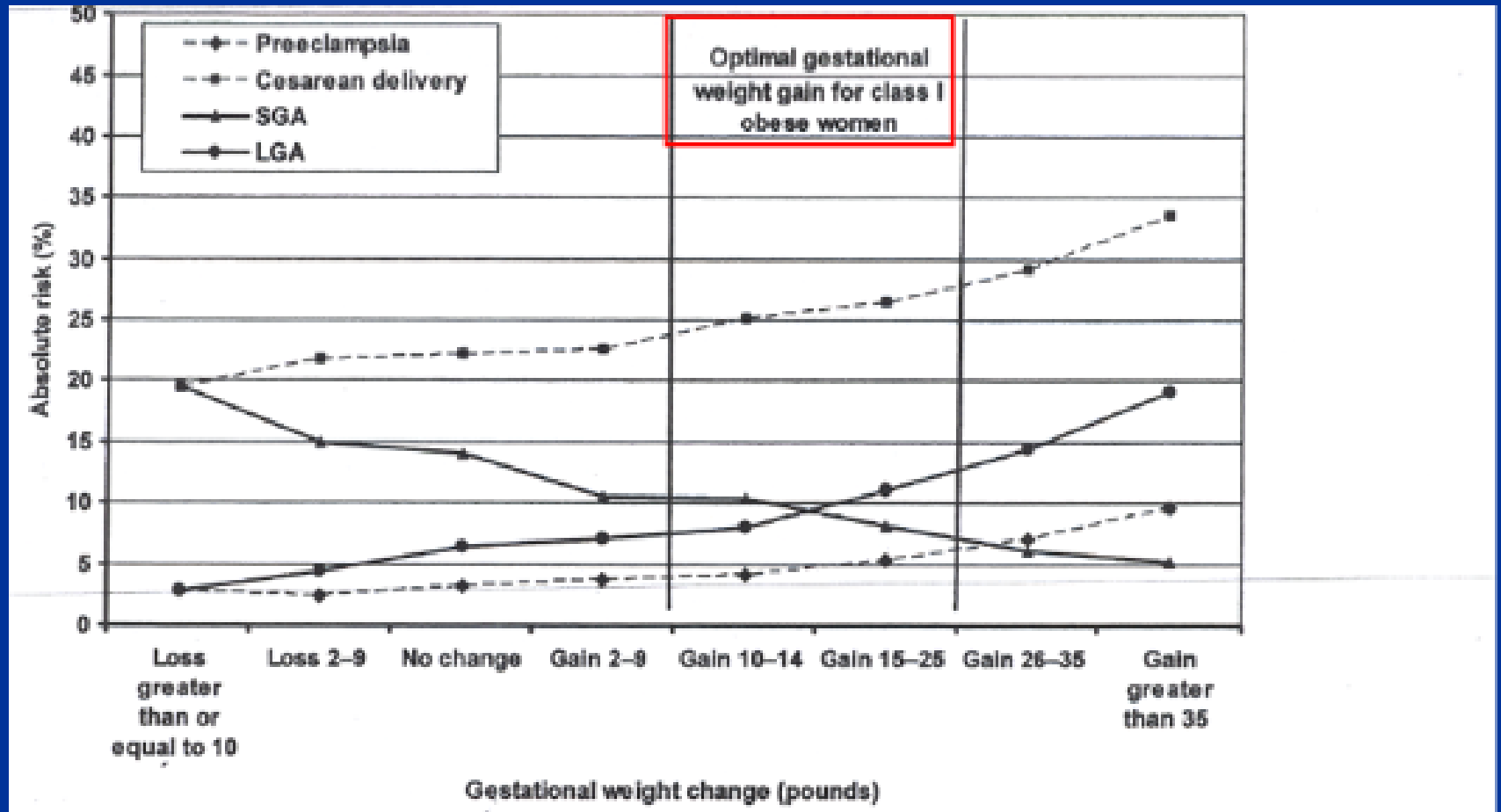


Fig. 1. Absolute risk of pregnancy outcomes by gestational weight gain category for class I obese women (body mass index 30–34.99). SGA, small for gestational age; LGA, large for gestational age.

Kiel. Weight Gain and Pregnancy Outcomes. Obstet Gynecol 2007.

Class I Obesity

BMI 30-34.9

Ideal Wt gain = 11-20 lbs

Gestational Weight Gain and Pregnancy Outcomes in Obese Women *Kiel DW Obstet Gynecol 2007;110:752*

BMI 35-39.9: 0-9 lbs optimal; SGA risk minimal without wt gain

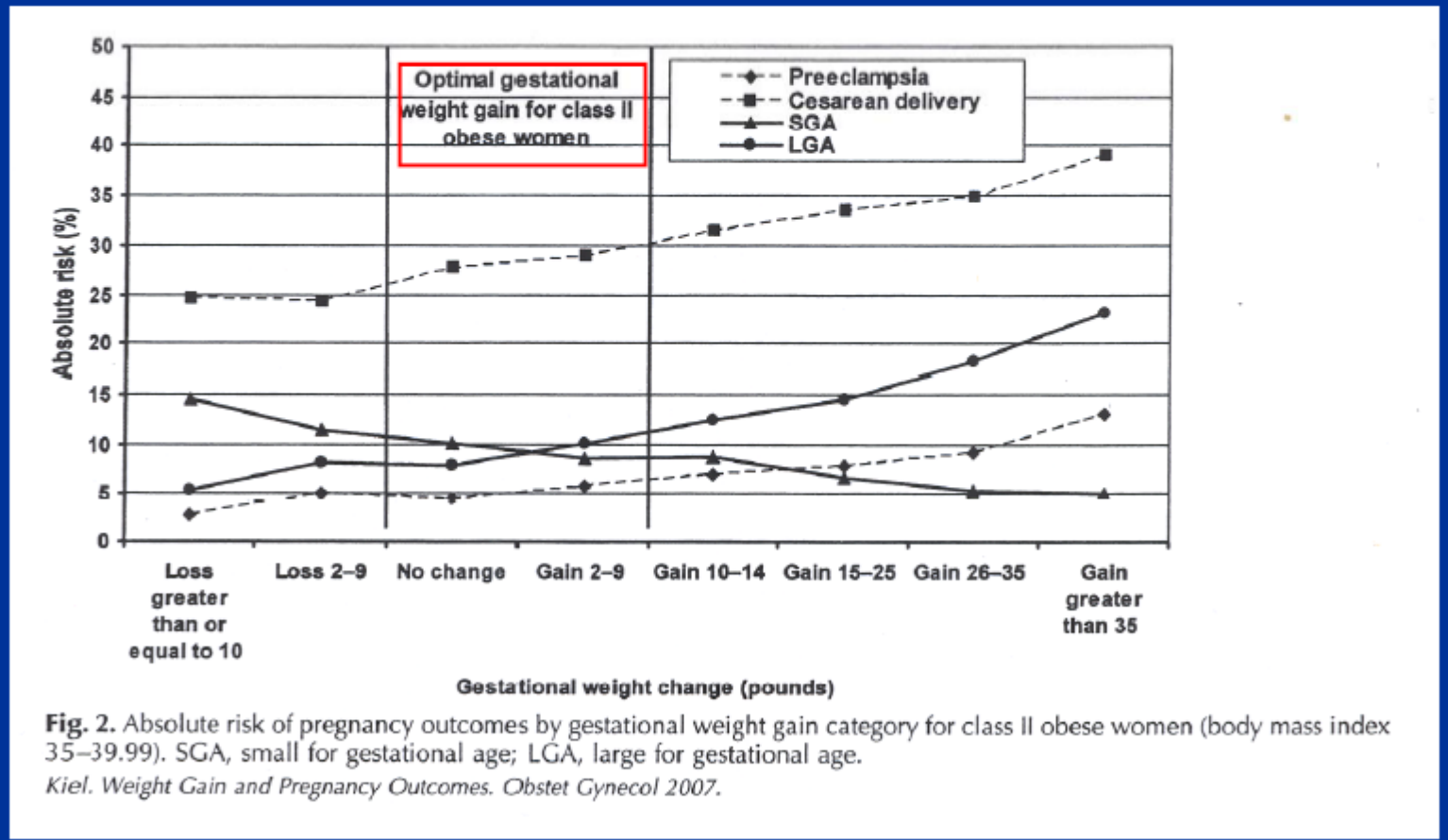


Fig. 2. Absolute risk of pregnancy outcomes by gestational weight gain category for class II obese women (body mass index 35–39.99). SGA, small for gestational age; LGA, large for gestational age.
Kiel. Weight Gain and Pregnancy Outcomes. Obstet Gynecol 2007.

Class II Obesity

BMI 35-39.9

Ideal Wt gain = 0-9 lbs

Gestational Weight Gain and Pregnancy Outcomes in Obese Women *Kiel DW Obstet Gynecol 2007;110:752*

BMI > 40: Wt **LOSS** 0-9 lbs optimal; SGA risk minimal

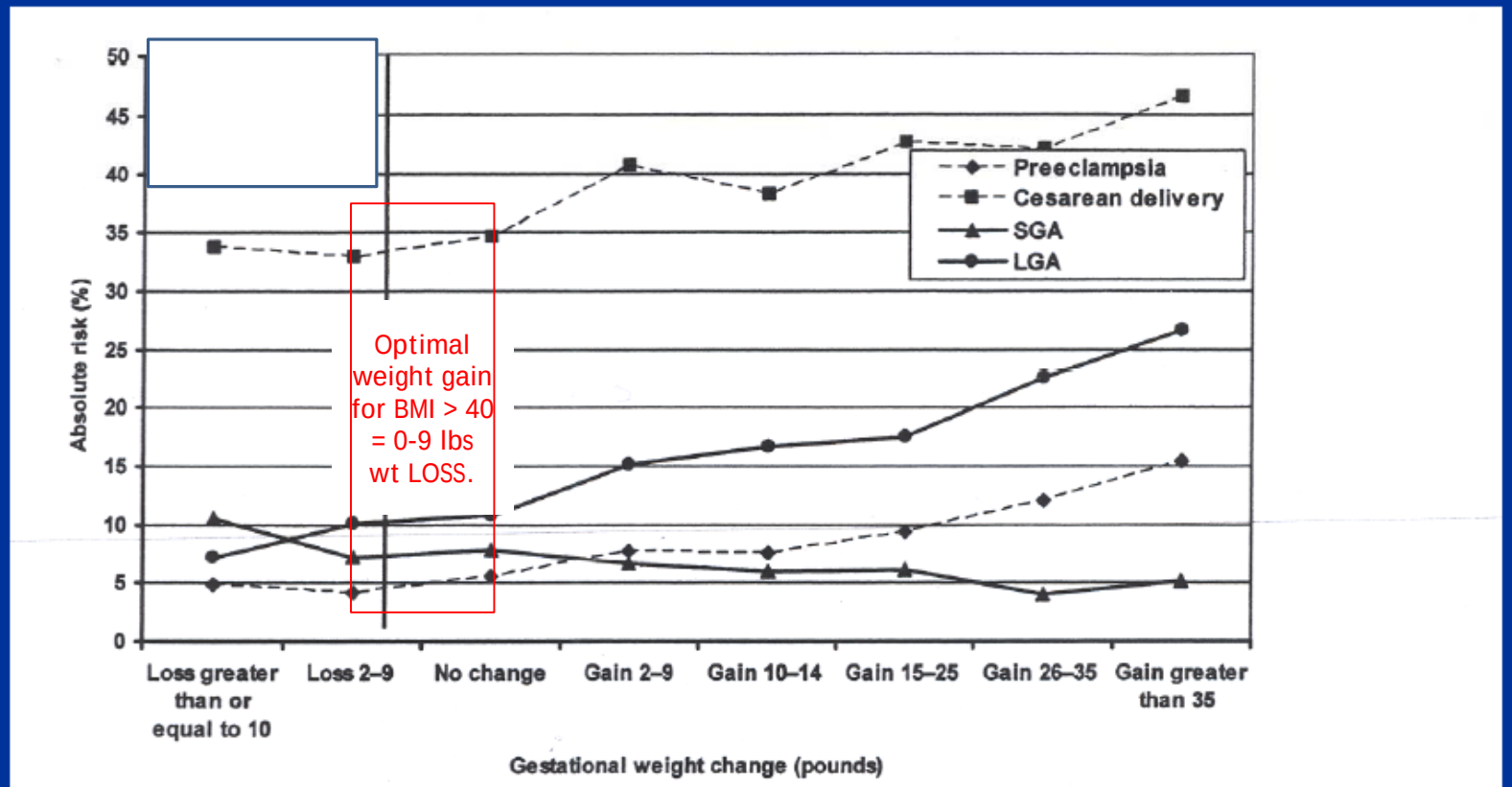


Fig. 3. Absolute risk of pregnancy outcomes by gestational weight gain category for class III obese women (body mass index greater than or equal to 40). SGA, small for gestational age; LGA, large for gestational age.
Kiel. Weight Gain and Pregnancy Outcomes. Obstet Gynecol 2007.

Class III Obesity

BMI > 40

Ideal = 0-9 lb Weight LOSS

Q: Do Diets Work?
A: Sometimes.

National Weight Loss Registry

- Voluntary anecdotal respondents reported average 67-pound weight loss maintained for five years.
- Lived on an average of 1400 calories a day.
- 45% designed their own weight loss plans, ***without*** a program, doctor, or dietitian.
- 55 % utilized the help of a ***variety*** of different weight loss programs.
- 78% ate breakfast every day (4% never ate breakfast).
- 98% exercised an average of 40 minutes daily.

Success Rates

- A classic 1959 study showed only **5%** long term success rate.
- A 2005 Meta-analysis showed an average **~20%** success rates for **losing 10%** of body weight and keeping it off for **at least one year**. *Wing RR AJCN 2005;82(1) 222S-225S*

Why do 80% of diets fail in these studies?

Causal factors for obesity include:

1. Genetics -- 40% of abdominal adiposity is attributable to genetics. *Wardle J. AJCN 2008;87(2):398-404*
2. Socio-economic status. (food stamp challenges by experts find it difficult to eat healthy on a low budget)
3. Social environment
4. Corporate greed. (*lobbyists for sugar, food industries & weight loss industries*)
5. Uterine environment. (*Vicious cycle worsening since the 1970's*)
   - LGA and high % body fat at birth.
   - SGA –organs underdeveloped at birth.
   - Obese mom has higher free fatty acid levels →increases fetal visceral fat.
   - Mom with insulin resistance → higher blood sugar → baby overproduces insulin and becomes insulin resistant.

Toxic stress from childhood trauma causes obesity, too.

- Patients use food or substances to soothe the anxieties caused by untreated ACE (adverse childhood experiences).
- "Dismissing them as 'bad habits' misses the point. . . . They are often self-treatment for ACE." *Vincent Felitti, MD 2002*
- Estimates that at least 8% of obesity cases and at least 17% of morbid obesity cases are related to ACE. *Williamson DF Int J Obes Relat Metab Disord 2002;26(8):1075-82*
- The need to use food to self-medicate the post-traumatic anxiety and repressed anger caused by a history of Adverse Childhood Experiences (ACE) may make it difficult or *impossible* to change their eating habits unless they have the time and resources to address the complex and painful underlying psychological issues.

https://acestoohigh.com/2012/05/23/toxic-stress-from-childhood-trauma-causes-obesity-too/

There is hope!

Characteristics of successful diets

- High in plant-based foods, especially vegetables. (Low carb diets only work well permanently if most of the carbs are from vegetables.)
- Avoid processed foods, sugar and white flour.
- Exercise
- The whole family participates in healthier eating.
- Accountability helps: Keeping food records, using an app to keep track of calories and nutrients
- Group support helps, whether online or in person.
- Open-minded, non-judgemental.
  (Must not be obsessive, overly strict or self-punishing.)

Why are vegetables so important?

- Better satiety per calorie.
- Gut biome flourishes with a variety of types of vegetable fiber. A healthy gut biome is beneficial not only to the digestive system, but to the immune system and mental health as well.
- Over 100 different anti-inflammatory antioxidants.
- Effective in preventing cancers, heart disease, high blood pressure and diabetes.
- Cooked dark green leafy vegetables are rich in omega-3 as well as vitamins and minerals, including calcium and iron.
- Good source of electrolytes: potassium and magnesium, which balance out the sodium in the diet.

Problems with Processed foods

1. Processed foods are purposefully designed to be "cravable"
2. Hidden sugars and salt in processed foods act as preservatives. Combined together, the flavors of salt and sugar cancel each other out, so the food won't taste too sweet or too salty even though they are very high in sugar and salt.
3. Interesterified oils have replaced trans fats in processed foods.
   - They improve the shelf life and the flavor of restaurant foods and packaged foods, just the way trans fats did for **more than 50 years before there was enough evidence to prove they were dangerous**.
   - Food labels do not state which oils are interesterified. They were approved by the FDA after two 3-week crossover studies. More recent studies show potential health risks but not enough to prove significant risk to public health. **There are no long term studies yet**. *Mensink RP Adv Nutr 2016; 7:719–29*
   - More studies are needed. Interesterified oils could be WORSE than trans fats!

Anything you cook at home with fresh ingredients will be healthier

The Increasing Use of Interesterified Lipids in the Food Supply and Their Effects on Health Parameters[1,2]

Ronald P Mensink,[3]* Thomas A Sanders,[4] David J Baer,[5] KC Hayes,[6] Philip N Howles,[7] and Alejandro Marangoni[8]

[3]Maastricht University Medical Centre, Maastricht, Netherlands; [4]King's College London, London, United Kingdom; [5]United States Department of Agriculture Agricultural Research Service, Beltsville, MD; [6]Brandeis University, Waltham, MA; [7]University of Cincinnati College of Medicine, Cincinnati, OH; and [8]University of Guelph, Guelph, Ontario, Canada

ABSTRACT

A variety of modified fats that provide different functionalities are used in processed foods to optimize product characteristics and nutrient composition. Partial hydrogenation results in the formation of *trans* FAs (TFAs) and was one of the most widely used modification processes of fats and oils. However, the negative effects of commercially produced TFAs on serum lipoproteins and risk for cardiovascular disease resulted in the Institute of Medicine and the 2010 US Dietary Guidelines for Americans both recommending that TFA intake be as low as possible. After its tentative 2013 determination that use of partially hydrogenated oils is not generally regarded as safe, the FDA released its final determination of the same in 2015. Many food technologists have turned to interesterified fat as a replacement. Interesterification rearranges FAs within and between a triglyceride molecule by use of either a chemical catalyst or an enzyme. Although there is clear utility of interesterified fats for retaining functional properties of food, the nutrition and health implications of long-term interesterified fat consumption are less well understood. The Technical Committee on Dietary Lipids of the North American Branch of the International Life Sciences Institute sponsored a workshop to discuss the health effects of interesterified fats, identify research needs, and outline considerations for the design of future studies. The consensus was that although interesterified fat production is a feasible and economically viable solution for replacing dietary TFAs, outstanding questions must be answered regarding the effects of interesterification on modifying certain aspects of lipid and glucose metabolism, inflammatory responses, hemostatic parameters, and satiety. *Adv Nutr* 2016;7:719–29.

Fats vs Carbs

- Low Fat vs higher fat had no significant differences in success rates. Success depended on the intensity of the intervention. *Tobias DK Lancet 2015: 3(12) 968-979.*
- "Low-carbohydrate, non–energy-restricted diets appear to be at least as effective as low-fat, energy restricted diets in inducing weight loss for up to 1 year." Nordman AJ *Arch Intern Med. 2006;166:285-293*
- Studies showing the "evils of saturated fats" had included trans fats and highly processed meats such as hot dogs. Newer studies on low carb/high fat diets using healthy fat sources show **improvements in cardiac risk factors and insulin sensitivity, despite the high fat intake.**
- Metabolism slows down while calories are restricted. It returns almost back to normal while weight is being re-gained. If you return to your previous calorie intake you will gain weight back. This means that successful weight loss requires permanent habit changes. *Weinsier RL AJCN 2000:1088-1094*

Choose a plan that sounds appealing enough to stay with for the rest of your life.

Standard Macronutrient ranges for pregnant women:

Carbohydrate:	40%–65%	= 175-350 g carbs each day*
Protein:	15%–35%	= 65-190 g protein each day*
Fat:	20%–40%	= 40-100 g fat each day*

*Assuming 1650-2200 calories each day

Academy of Nutrition and Dietetics, Practice Paper July 2014

Examples:

- My Plate
- Mediterranean diet
- DASH diet
- Weight Watchers
- Nutrisystem type plans

Safe for pregnancy ***if done correctly.***

If she used the diet successfully for 6-12 months before the pregnancy she will probably have learned how to include a wide variety of allowed foods.

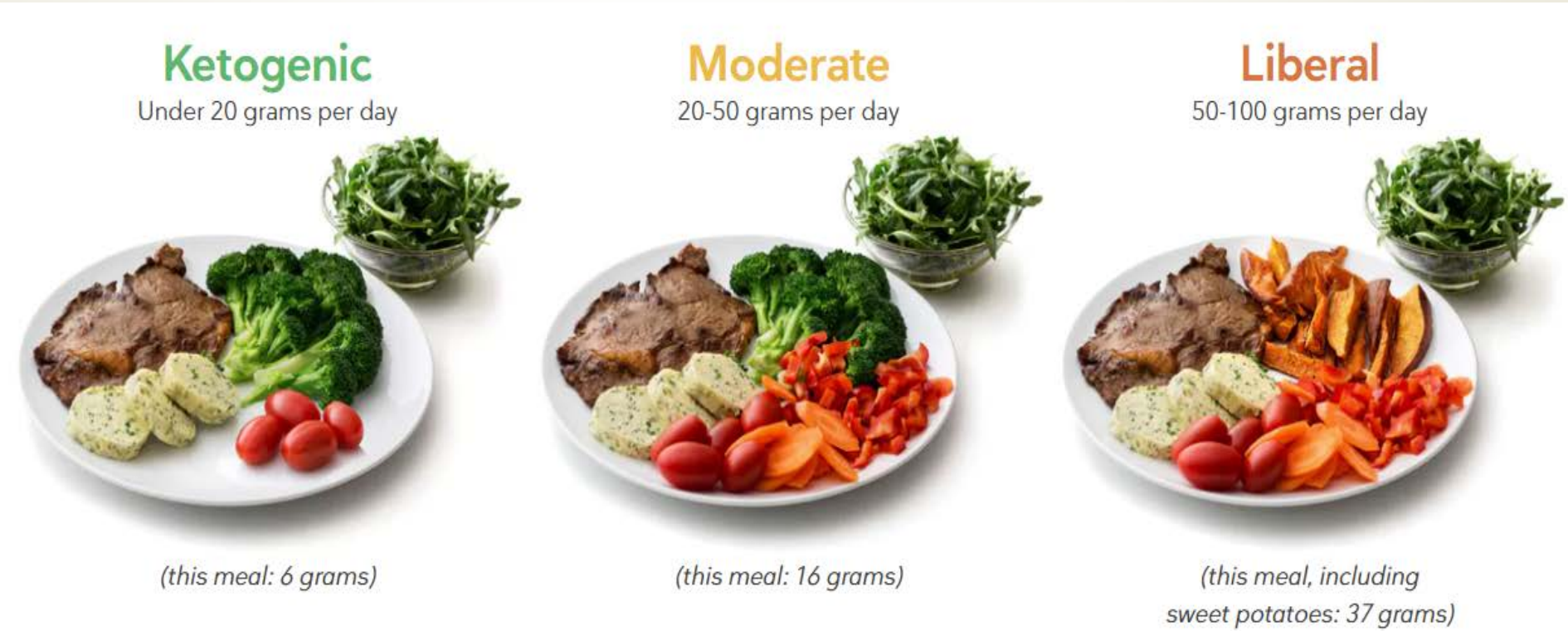
- **Vegan** - need to get enough protein and calcium
- **Paleo** - need non-dairy calcium-rich foods, healthy carbs from fruit, yams, beets, sweet potatoes, squash.
- **Liberal low carb.** Lily Nichols, RD wrote a book, *Real Food for Gestational Diabetes*, recommending 90-150 g net carbs each day for GDM.
- **Moderately low carb** : Controversial! I do not personally recommend this diet for pregnancy. Some web authors, including some MD's and RD's, define the following moderately low carb levels as safe for pregnancy in the context of healthy, non-processed food choices:

Carbohydrate:	15%–25%	= 65-140 g carbs each day*
Protein:	15%–35%	= 65-190 g protein each day*
Fat:	55%-70%	= 100-170 g fat each day*

*Assuming 1650-2200 calories each day

What does a healthy low carb diet look like?

The yellow things are herb butter --to put on the vegetables, NOT on bread! Carbs must be mostly vegetables. Fruit, usually berries, in limited amounts. Fats mostly saturated and monounsaturated. Adequate omega-3. Omega-6 must be lower than typical American diet.



https://www.dietdoctor.com/how-low-carb-is-low-carb

Unsafe for pregnancy

- **Keto.** Can be dangerous if inadequate liquid or electrolytes, or with excessive protein. Anecdotally has been used in pregnancy by women who were already using it successfully before pregnancy, but there is a consensus even among Keto proponents that it is unsafe for breastfeeding.

- **Intermittent fasting** (see next slide)

Never safe for ANYONE, never effective long term:

- Herbal diet supplements
- Herbal appetite suppressants

Intermittent fasting

Shown to be beneficial for:

- weight management,
- insulin resistance
- brain health.

Not to be used for:

- children,
- pregnancy, or
- breastfeeding.

You should **not** fast if you are:

- **Pregnant**
- **Breastfeeding**
- **A child under 18** (= *not good for families with children--Andrea*)
- **Underweight** (BMI < 18.5)

You may need medical supervision if you:

- Have Diabetes mellitus
- Have Gout or high uric acid.
- Take prescription medication. Some medications will be utilized differently while fasting.

Jason Fung, MD, https://www.dietdoctor.com/intermittent-fasting

Are cravings always bad?

Good cravings:

- Your body craves nutrients.
- Your body craves variety.
- you will be satisfied after eating a moderate amount.
- You won't want to stuff yourself or eat the same things every day.

Bad cravings:

- The first bite makes you hungrier.
- Even after you are full you want more.
- Once you start you can't stop.
- You crave the same things every day. (Note: your favorite healthy staple foods, fruits, and vegetables can be eaten every day as long as you include a variety.)

How to prevent or handle cravings:

- Pregnant women should eat small healthy meals or snacks every 2-4 hours. Baby pulls nutrients from mom's blood all day, so cravings can be sudden and intense if she goes too long without food. This is not necessarily true for non-pregnant people.
- For some people a small amount of the craved food will satisfy the craving. If so, it can be an occasional treat.
- For other people, avoiding the craved food completely works better, especially if family, friends and co-workers avoid the same foods.
- Work on developing alternatives to the trigger foods. Often, after you've been without them for at least two weeks you will stop craving them. This is why internet 14-day challenges can be helpful to some people.
- Example: replace ~~Hot Cheetos~~ with jicama and cucumber sprinkled with tajin and/or seseme seeds! Eat sunflower seeds on the side if you are still hungry.

Tips

- Empower women to make healthier choices. Understand that it may not be easy or even possible for them to change anything.
- Ask her to suggest something healthier that she might like to eat more often. Does she notice that she feels better when she eats healthier? People are more likely to remember what they hear THEMSELVES say than what they hear YOU say.
- Set an example. Try new vegetables. Enjoy vegetables more often.
- Focus on experimenting with healthier meals. The average family rotates 10 standard dinner meals. Two new recipes each month add up to 24 in a year. If you can find 10 that you like you can revamp your routines.
- Don't force the kids to eat it. Seeing you enjoy healthy food will have a better long term positive effect.
- Mindfulness. Start where you are. Be non-judgmental.

Apps/Online Resources

Can be used to analyze daily food intake for nutrient adequacy:

- USDA Super Tracker
- My Fitness Pal
- Cronometer

Local Resources

- Overeaters anonymous
- Food Addicts Anonymous
- Champions for Change

(details on next slides)

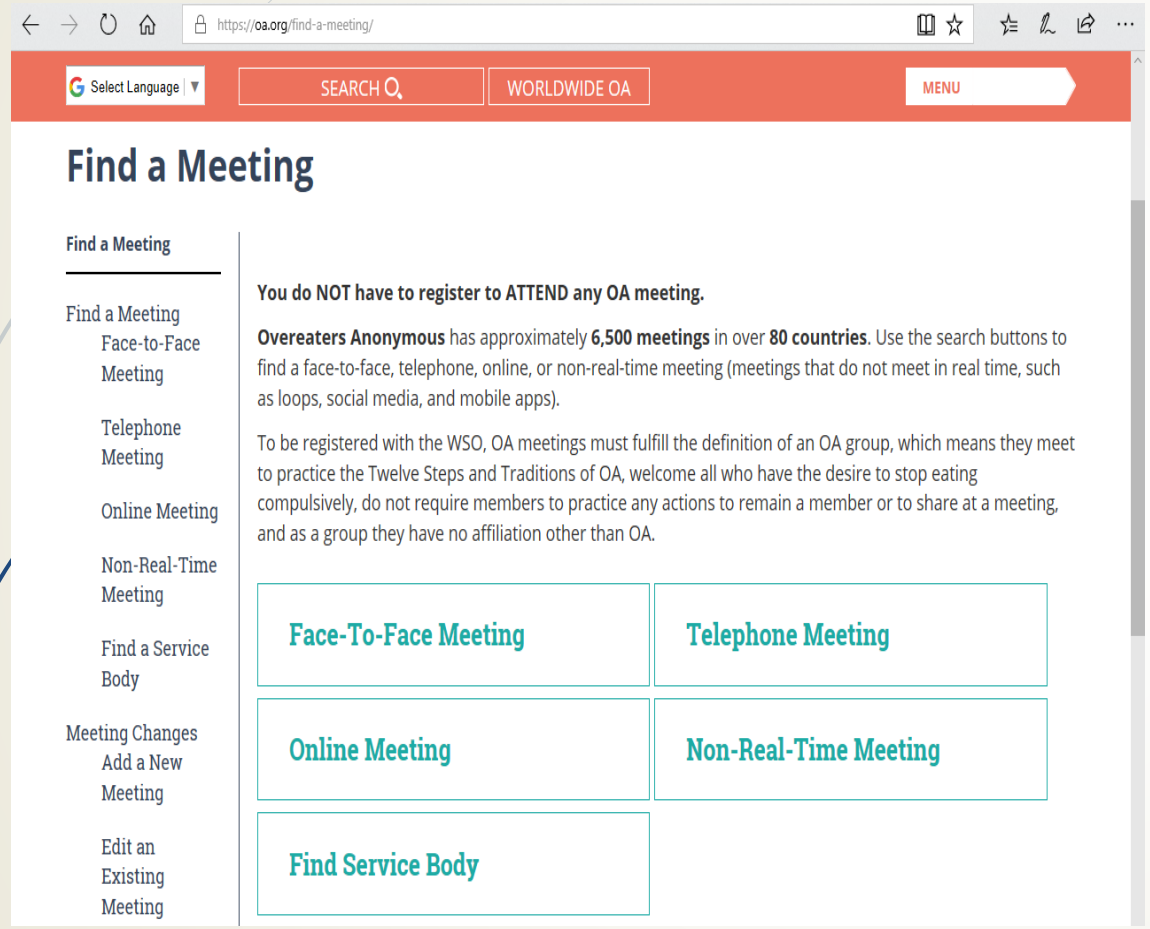
Champions for Change

A program from the CDPH Nutrition Education and Obesity Prevention Branch, (NEOPB), *Champions for Change* offers free information, tips, and tools that empower low-income families in California to eat healthier and become more physically active. Their website has recipes, videos, sample 2–week menus and more. Email them at C4Cinfo@cdph.ca.gov.

- https://cachampionsforchange.cdph.ca.gov/en/pages/eat-better.aspx
- https://cachampionsforchange.cdph.ca.gov/en/recipes/Pages/default.aspx

Overeaters anonymous

https://oa.org/



- Excellent for group support but not always reputable for diet advice.
- 12-step program.
- Food as an addiction.
- Abstinence from sugar, white flour and trigger foods.

Sort Results By:

1. **Friday**
6:00 PM
St Luke's Episcopal Church
515 2nd St
Guild Hall
Woodland, CA 95695
United States
Contact: Gail
Phone: 603-397-2339
Distance: 5 miles

Meeting #: 54418
Special Topic: Meditation, Tools
Special Focus:
Language: English
Open/Closed: Open
Additional Notes:
There will also be time for writing and/or meditation.

Details
View Map
Share Results

2. **Thursday**
6:00 PM
The Center for Spiritual Awareness
1275 Starboard Dr
West Sacramento, CA 95691
United States
Contact: Donna
Phone: 530-400-3993
Distance: 18 miles

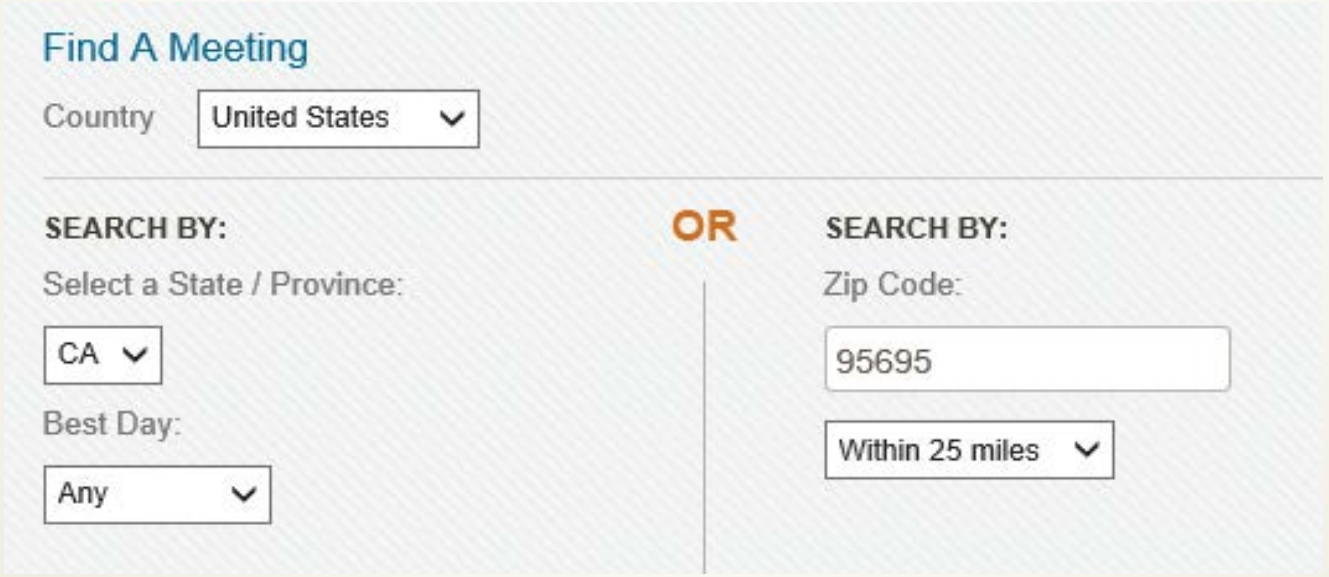
Meeting #: 54298
Special Topic: Big Book, Speaker/Discussion
Special Focus:
Language: English
Open/Closed: Open
Additional Notes:

Details
View Map
Share Results

Food Addicts Anonymous

www.foodaddicts.org

- Newcomers listen to successful members.
- Members qualify to share stories after attending for 90 days.
- Tend to give better diet advice than Overeaters Anonymous



Food Addicts Anonymous

Meetings within 25 miles of zip code 95695

RESULTS: *Click on the meeting name for meeting details and directions.*

Monday

Napa, CA - 7pm - Queen of the Valley Medical Center, Main Conf. Room 1
Sacramento, CA - 6:30pm - Greenhaven Lutheran Church

Tuesday

Sacramento, CA - 7pm - Faith United Methodist Church
Sacramento, CA - 6:30am - Southside Park Clubhouse (between T and W
Vacaville, CA - 7pm - Unity of the Valley Church

Wednesday

Davis, CA - 7pm - Davis United Methodist Church
Sacramento (Land Park), CA - 6:30pm - Centennial United Methodist Church

Friday

Sacramento, CA - 6:30am - East Portal Park Clubhouse (South of J Street, between 52n

Saturday

Sacramento, CA - 8am - Freemont Presbyterian Church, (Westminster Room) 2nd floor

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