

Objectives

- Introduce Dietitians profession in the US
- Discuss change in dietary fats and cholesterol recommendations
- Review 2013 American Heart Association / American College of Cardiology Nutrition/Lifestyle management guidelines to Reduce Cardiovascular Risk
(ACC) 2013 (AHA)
- Introduce the No. 1 Dietary Pattern in US

US Dietitians are trained in 3 major areas



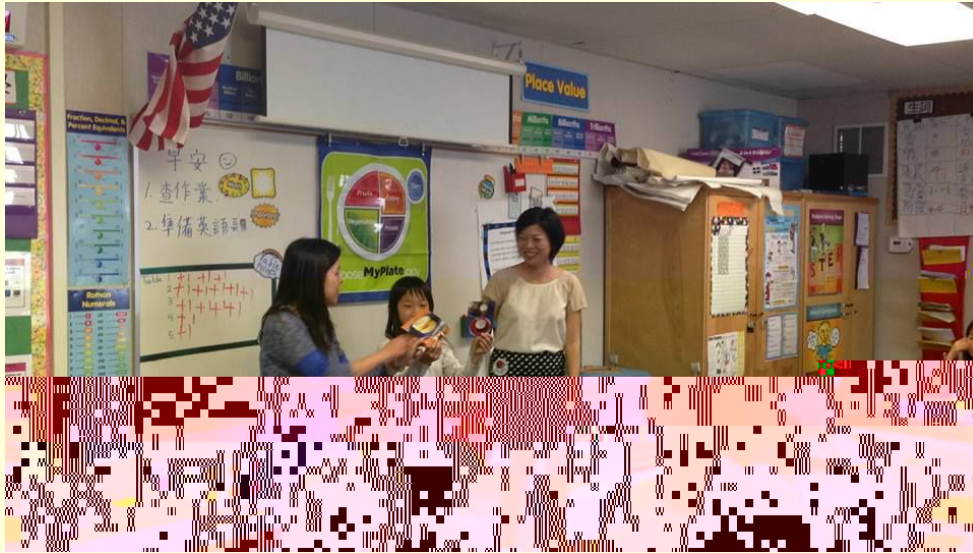
- Clinical
- Community
- Food Service

My Team



Community Nutrition

- Schools



- College



- Senior Center, Cancer Support Group, Community



- Restaurants, Media, Column, interviews, website



Outpatient Nutrition Consultation



Nutrition Consultation Outcome Data Analysis

- Patients from 2013-14 referred to my nutrition clinic for Medical Nutrition Therapy (MNT)
2013-14
- Patients received MNT for 3-12 months
3-12
- BMI, HbA_{1c}, total cholesterol, and LDL are examined

Outcome Data analysis Results

% Changes after MNT



- Weight 2.01% among the obese patients (BMI>30)

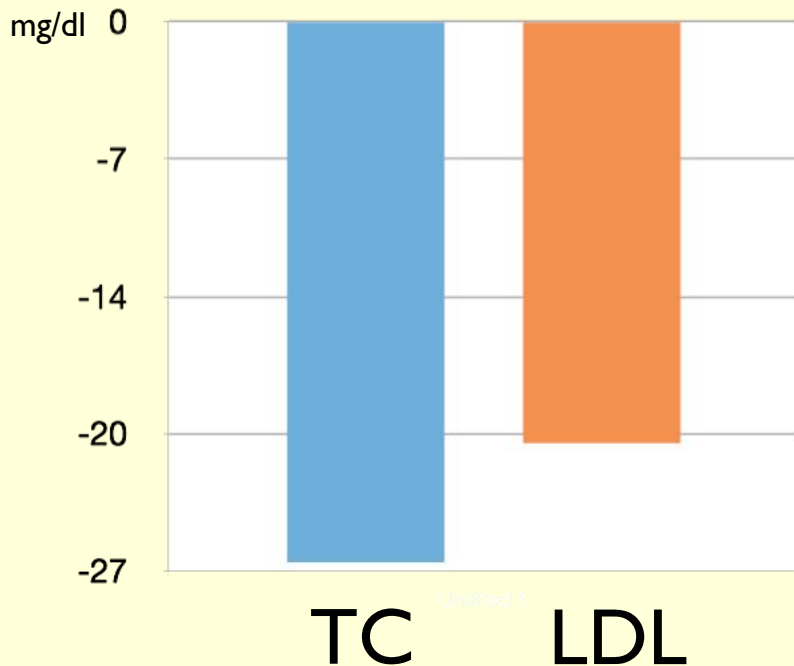
2.01%

- HAlc 1.73% among diabetic patients

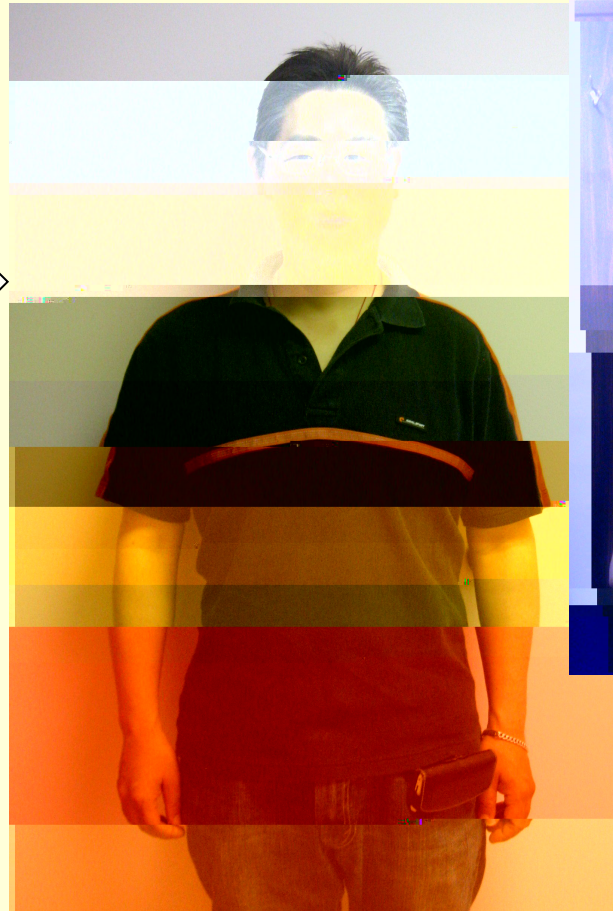
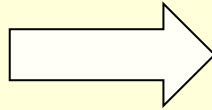
1.73%

Outcome Study Results

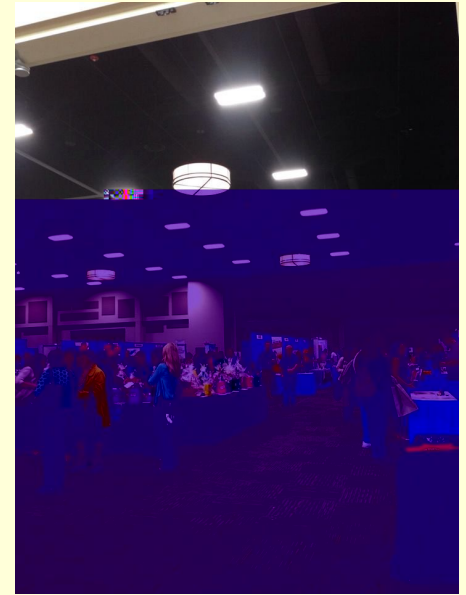
Change in Lipid Profil



- Total Cholesterol \downarrow 27 mg/dl
27 mg/dl
(1.5 mmol/dl)
- LDL \downarrow 21 mg/dl
21 mg/dl
(1.17 mmol/dl)



Continuing Education



2015 加州营养师协会年度会议

Why care about Heart Health?

?

- Cardiovascular Disease (Heart Disease and Stroke) is the No. 1 Killer in US
- Cardiovascular Disease is the first 3 main causes of death in China according to the China Health Statistics in 2012 (1)

2012

(1) Center of Disease Control and Prevention. Deaths: Final. Data for 2013. NVSR Volume 64, Number 2013. Internet: http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf (accessed 12 July 2015)

The Fat Theory of Heart Disease Etiology

Too much: :

1. Total dietary fat
2. Dietary saturated fat
3. Trans Fat
4. Dietary cholesterol
5. Sodium
6. Overweight

Which of these are true ??

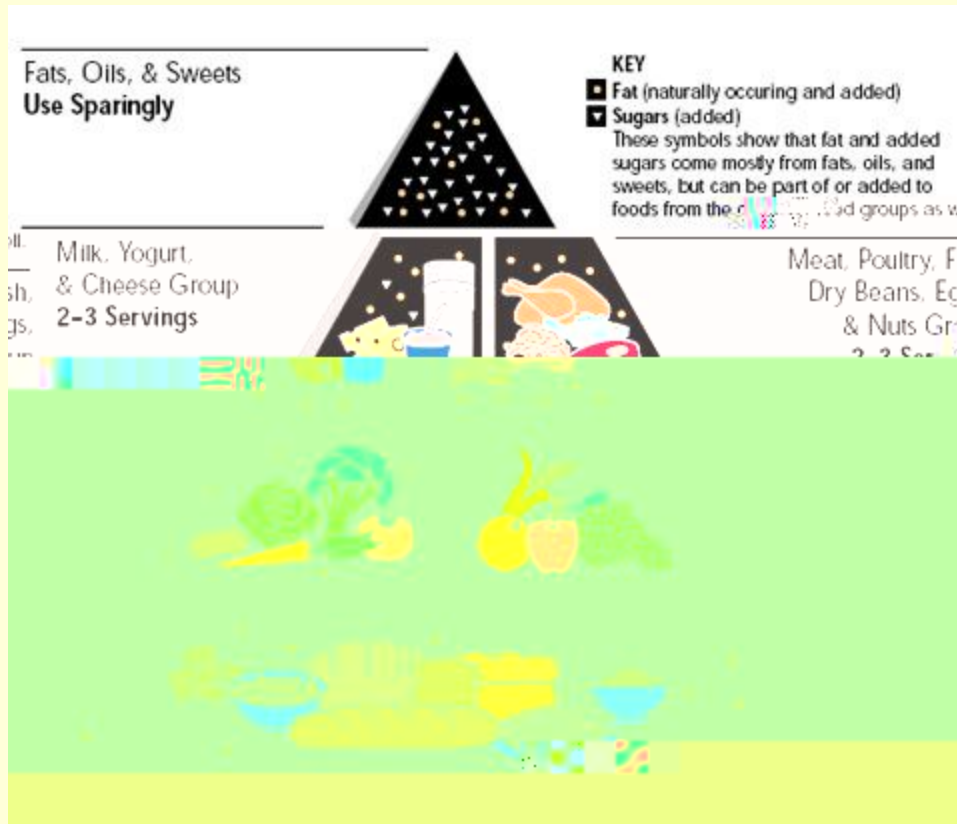


Heart Disease Etiology

- Most people including students and faculty thinks Dietary fat and Cholesterol as a major contributor of heart disease.
- The Low Fat Diet campaign started 1990s
1990



Heart Health - History of Dietary Recommendation

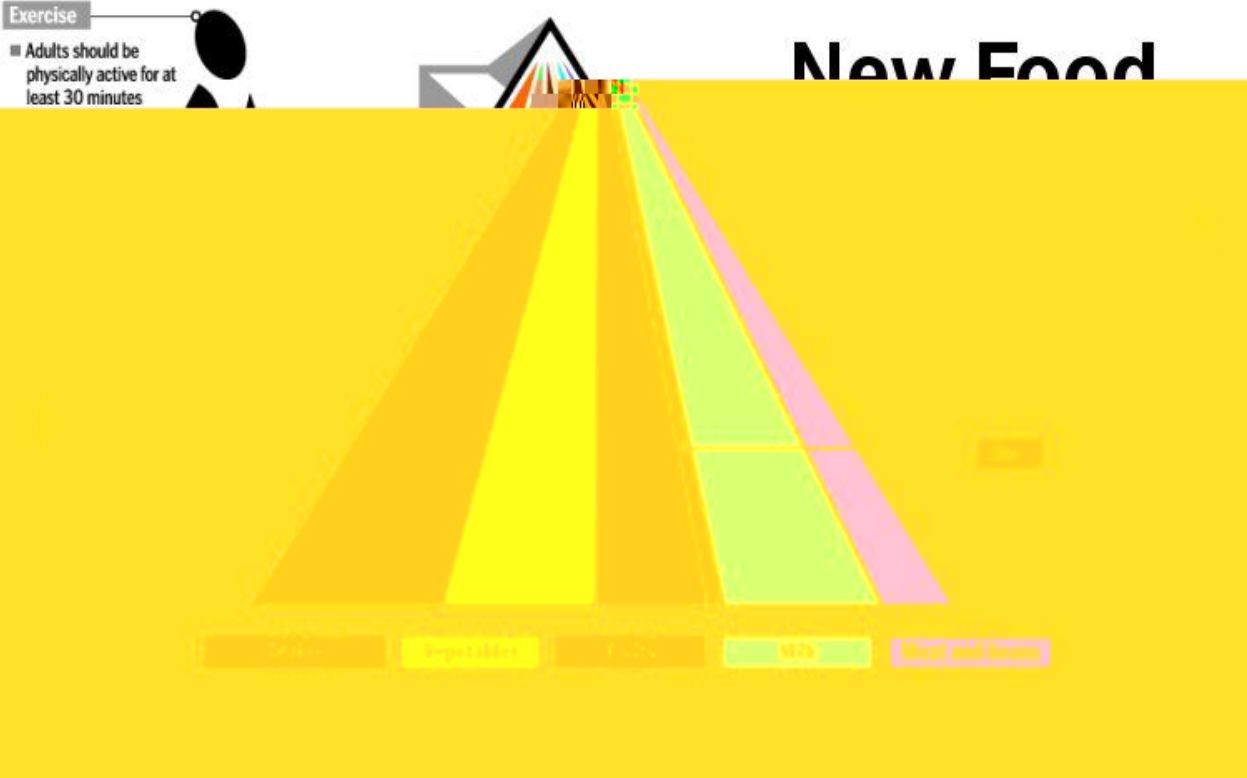


- 1990s – focus on low fat, high carbohydrate
- Did not help in reducing rate in Obesity (it actually increased), Heart Disease and Certain Cancers.
- 1990s –

• **USDA Food Guide Pyramid 1992**



Heart Health - History of Dietary Recommendation



2005 New Food Pyramid – emphasize the types of fats

2005-

Total Fat ():
<30%

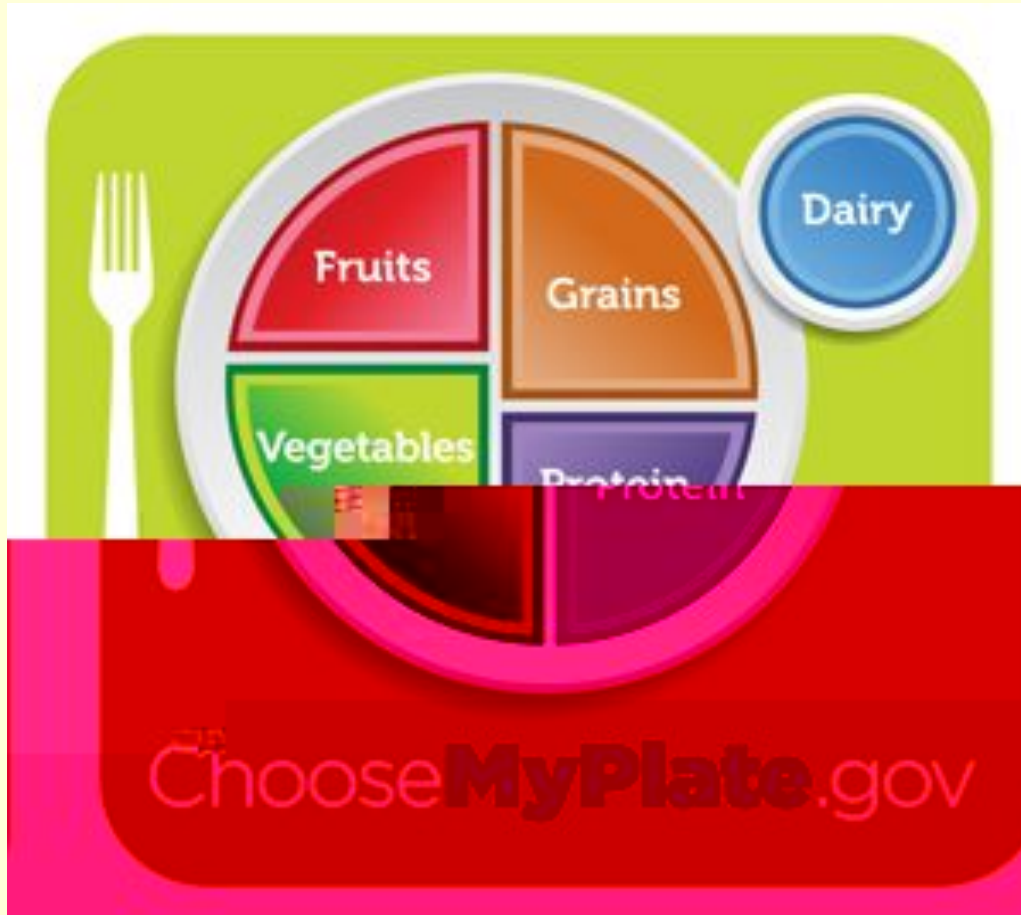
Sat. Fat ():
<=10%

Cholesterol ():
<=300 mg

2007 Chinese Dietary Guidelines



Heart Health - History of Dietary Recommendation



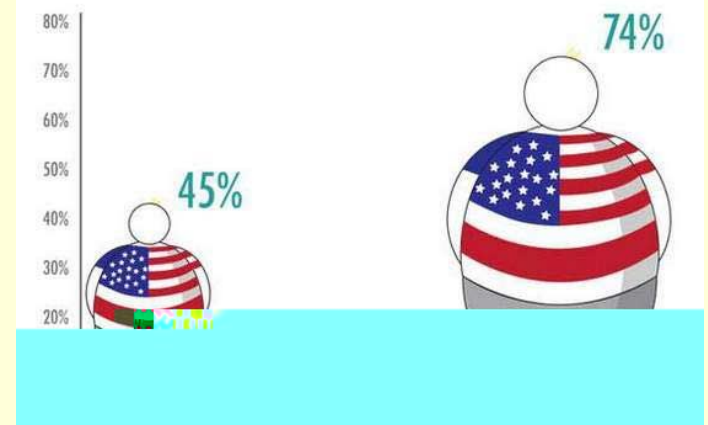
2010 guidelines:
Dietary advice should put the emphasis on optimizing types of dietary fat and not reducing total fat
2010

- 2012 USDA My Plate

The failing of the Low fat theory

Obesity rate has been increasing despite the whole nation is into the low-fat diet mode. **Why?**

为什么呢？



The failing of the Low fat theory

**Dietary fats replaced with refined CHO
and sugar !**

!



Low fat means Low Calories???

- Food companies create low-fat versions of all foods and says it's "heart healthy"

"

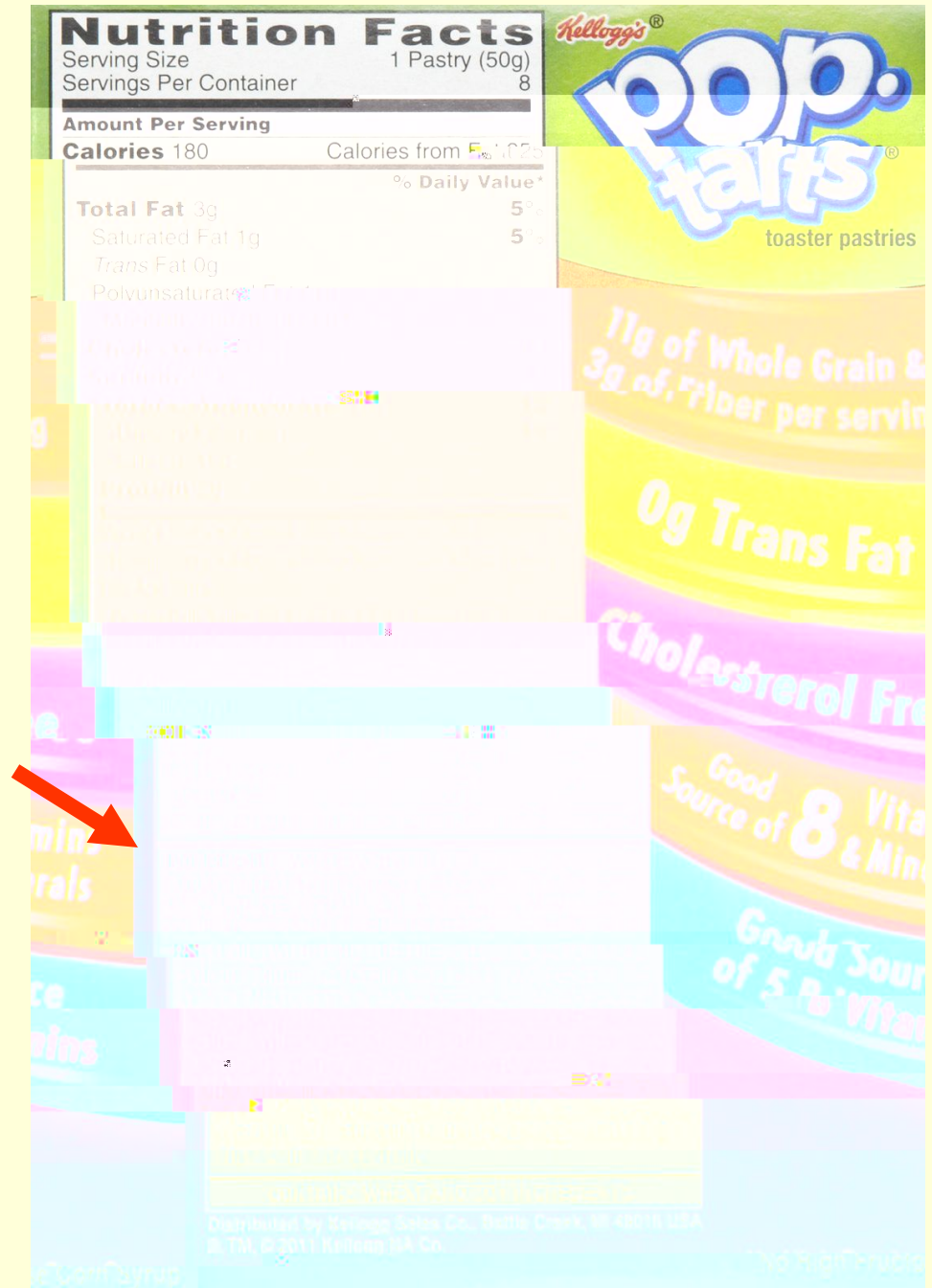
"

- Butter was replaced with Margarine which is high in trans fat!



Low fat = Healthy?

= ?



The failing of the Low fat theory

Some large studies:

- Women's Health Initiative (WHI) Dietary Modification Trial 1993-2001 (*Journal of the American Medical Association*) (2)
- Nurses Health Study (I & II) (3)

Both have consistently found little relation between the percentage of calories from fat and risks of breast cancer, colon cancer, or coronary heart disease.

(2) Beresford SA, Johnson KC, Ritenbaugh C, et al. Low-fat dietary pattern and risk of colorectal cancer: the Women's Health Initiative Randomized Controlled Dietary Modification Trial. *JAMA* 2006;295:643–54.

(3) The Nurses' Health Study. <http://www.channing.harvard.edu/nhs/>. Accessed July 2015.

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Dietary Cholesterol

- There is insufficient evidence to determine whether lowering dietary cholesterol reduces LDL-C.
- Observational studies suggest no association between cholesterol intake and CHD or CVD risk within the range of typically consumed values.

(Kanter MN et al. Adv. Nutr 2012)

Dietary Cholesterol Challenges

A large egg = 210 mg chol, unsaturated fat 3 g,
saturated fat 2g

200 mg/day dietary cholesterol intake:

Some people have little or no increase in LDL-C

Some hyper-responder: could raise LDL-C level by 4
– 8 mg/dL

Dietary Cholesterol Challenges

Hyper-responders

- 25% of population might respond to dietary cholesterol with increased LDL-C and HDL-C
 - Children (5)
 - Young adults (6)
 - Elderly (7)
 - Diabetics () (8)
- Some groups: only HDL-C increased, not LDL-C

(5) Ballesteros MN, Cabrera RM, Saucedo Mdel S, Fernandez ML. Dietary cholesterol does not increase biomarkers for chronic disease in a pediatric population from northern Mexico. *Am J Clin Nutr.* 2004 Oct;80(4):855-61.

(6) Herron KL, Lofgren IE, Sharman M, Volek JS, Fernandez ML. High intake of cholesterol results in less atherogenic low-density lipoprotein particles in men and women independent of response classification. *Metabolism.* 2004 Jun;53(6):823-30.

(7) Greene CM1, Zern TL, Wood RJ, Shrestha S, Aggarwal D, Sharman MJ, Volek JS, Fernandez ML. Maintenance of the LDL cholesterol:HDL cholesterol ratio in an elderly population given a dietary cholesterol challenge. *J Nutr.* 2005 Dec;135(12):2793-8.

(8) Shin JY1, Xun P, Nakamura Y, He K. Egg consumption in relation to risk of cardiovascular disease and diabetes: a systematic review and meta-analysis. *Am J Clin Nutr.* 2013 Jul;98(1):146-59.

Unfortunately, currently, no clinical tools to identify hyper and hypo-responders

Dietary Cholesterol

- Previous guidelines: Cholesterol intake should not exceed 300 mg/day

300

- Evidence did not support 300 mg/day dietary cholesterol limit

300 /

Conclusion for Now

- 2015 Dietary Guidelines Advisory Committee (DGAC) will not bring forward the recommendation because available evidence shows no appreciable relationship between consumption of cholesterol and serum cholesterol, consistent with the conclusions of the AHA/ACC report.

2015

DGAC

- Cholesterol is not a nutrient of concern for Over consumption! (If your serum cholesterol is normal)

Looking Forward

The new guidelines from the National Lipid Association Part 2 will be out in September 2015 to answer the 3 questions:

全国

1. Does consumption of dietary cholesterol increase LDL-C in dyslipidemic patients?
2. What should be the recommendations for those on a therapeutic diet intended to lower levels of atherogenic cholesterol with regard to cholesterol intake and egg consumption?
3. Is there a sub-group of individuals that are sensitive to dietary cholesterol intake that leads to an increase in LDL-C and CVD risk?

So, how many Egg yolks can I eat?

- The bottom line is:
- We do not need to throw away all the yolks.
- The Golden rule of nutrition is still **MODERATION!**

!



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Saturated Fat Challenge

Substitution of Saturated fat In controlled feeding trials among adults, for every 1% of energy from saturated fatty acid (SFA) that is replaced by 1% of energy from CHO (Carbohydrate), MUFA (Monounsaturated fatty acid), or PUFA (Polyunsaturated Fatty Acid)

1%

(9)

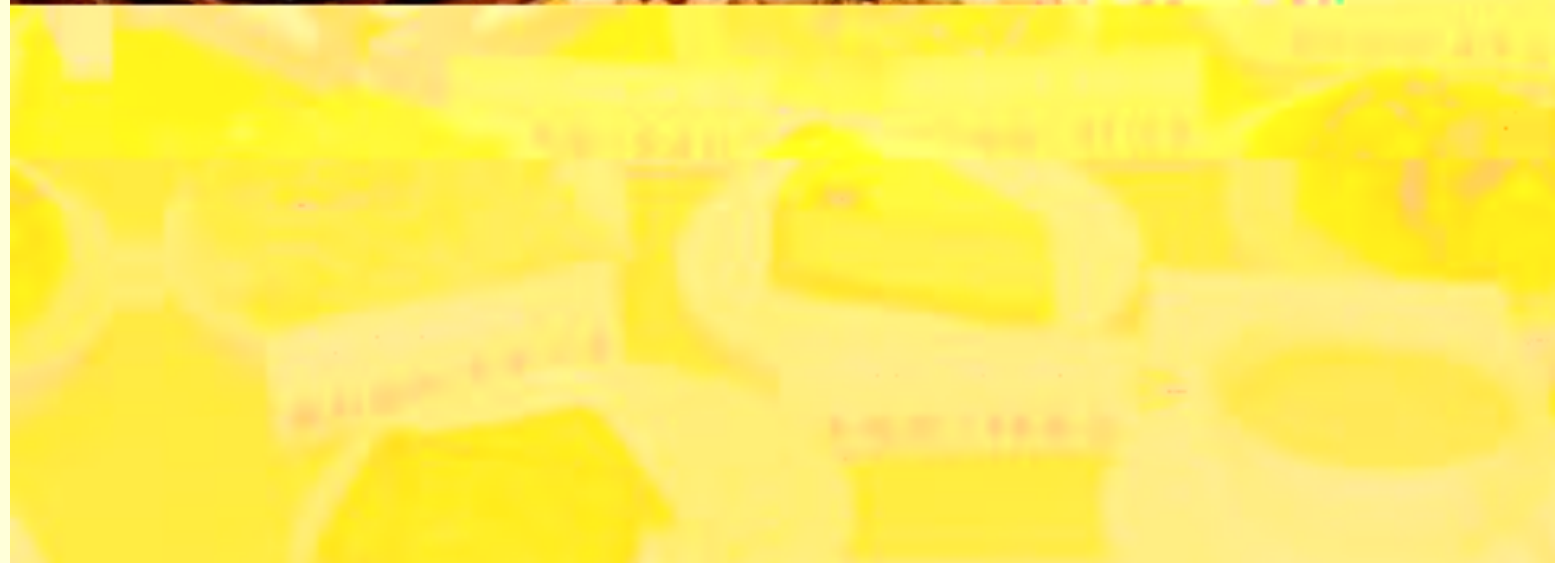


Results

	1.2	1.3	1.8
	0.4	1.2	0.2
	1.9	0.2	0.4

Consume less saturated fats

1. (Saturated fat)
2. (Monounsaturated Fat)
3. (Polyunsaturated Fat)



Recommendation for Saturated Fats

- Limiting the amount of saturated fats you eat to less than 7 percent of your total daily calories. --
 - That means if you need about 2,000 calories a day, less than 140 calories (or 16 grams) should come from saturated fats.

< 7%

(Previous Guideline was <10%)

<10



The Fat Theory of Heart Disease Etiology

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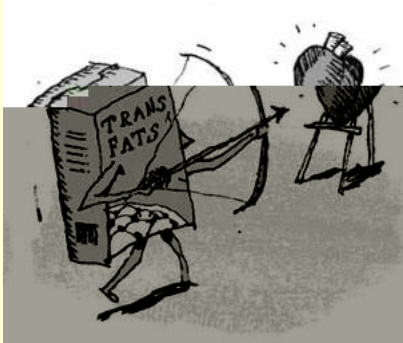
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Which of these are true ??



What is Trans Fat?



- " "
- " "
- 2006
- Nurse Study 900 14
- 15%

Trans Fat Challenges

- In controlled feeding trials among adults for every 1% of energy from Trans Fats replaced with 1% of energy from MUFA or PUFA:
 - - Lower LDL by 1.5- and 2.0 mg/dl respectively
 - 1.5mg/dl 2.0 mg/dl
 - Lower TG by 1.2 and 1.3 mg/dL
 - 1.2 mg/dl 1.3 mg/dL

Recommendation for Trans Fats

- Limiting the amount of trans fats to less than 1 percent of your total daily calories. That means if you need about 2,000 calories a day, less than 20 calories (or 2 grams) should come from trans fats.

-

How to achieve the trans fat guideline?

-

-

The Fat Theory of Heart Disease Etiology

Too much: :

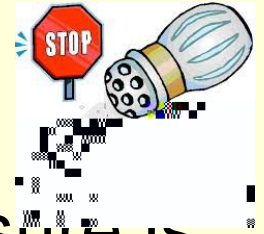
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Which of these are true ??



Sodium Recommendations

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- Many studies have shown that blood pressure is directly related to dietary sodium, so it makes sense for at-risk individuals to cut back.

Those most prone to salt sensitivity include the elderly, African Americans, and people with hypertension, diabetes, or chronic kidney disease.

Sodium Recommendations

钠

- Consume no more than 2400 mg of sodium day
2400
- Further reduction of sodium intake to 1500 mg/day leads to greater BP reduction
1500
- Just reducing sodium intake by at least 1000 mg/day lowers BP
1000

How to lower Sodium intake?

-

-

-

-

-

-

()

The Fat Theory of Heart Disease Etiology

Too much: :

1. Total dietary fat
2. Dietary saturated fat ✓
3. Trans Fat ✓
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Which of these are true ??



Weight

- Strong evidence to show that :
 - Sustained weight loss of 3%-5% is likely to result in clinically meaningful reductions in triglycerides, blood glucose, HbA1C, and the risk of developing type 2 diabetes;
 - 3 -5 2
 - Greater amounts of weight loss will reduce BP, improve LDL-C and HDL-C, and reduce the need for medications to control BP, blood glucose and lipids as well as further reduce triglycerides and blood glucose
 - LDL-C HDL-C

Healthy Weight

WHO	Asian	Classification
>18.50	>17.50	Underweight
18.50 – 24.99	17.50 – 22.99	Normal weight
25.00 – 29.99	23.00 – 27.99	Over weight
30.00 – 34.99	28.00 – 32.99	Obese
35.00 – 39.99	33.00 – 37.99	Severely Obese

Weight Recommendations

- Achieving and maintaining a healthy weight.
- Any approaches that help to lower energy intake can produce weight loss

Weight Control Formula



↑Activity



+



↓cal intake



=



↓Weight

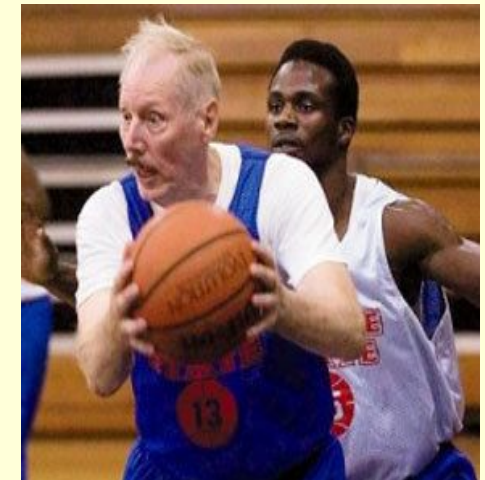


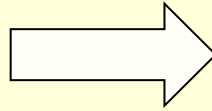
Physical Activities

体力活动

- Advise adults to engage in aerobic physical activity to lower LDL-C
- 3-4 times a week
- Lasting on average 40 min per session
- Involving moderate to vigorous intensity physical activity.

3-4 , 40







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6. Overweight ✓

Which of these are true ??

2, 3, 5, 6



AHA/ACC Guidelines



1. Consume a dietary pattern that emphasizes intake of vegetables, fruits, and whole grains
2. includes low-fat dairy products, poultry, fish legumes, non-tropical vegetable oils and nuts,
3. Limits intake of sweets, sugar-sweetened beverages and red meats

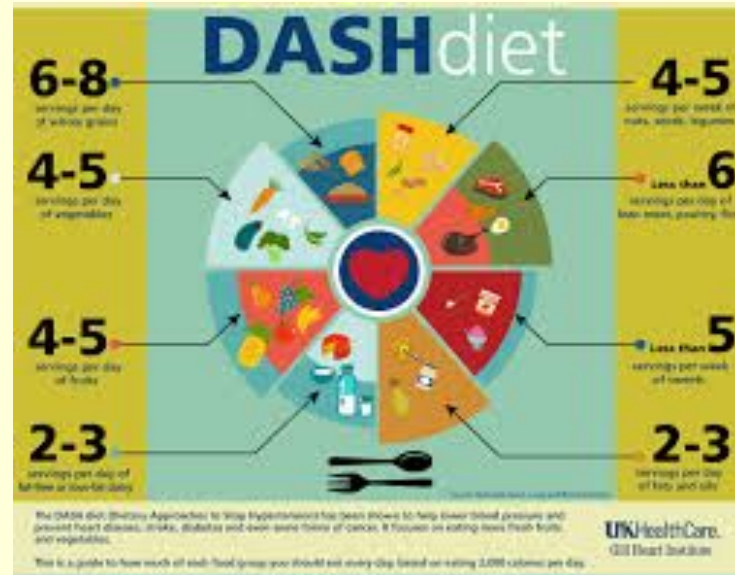
<http://dg.cnsoc.org/upload/affix/20140818110158083.pdf>

How to put it into practice?

- adapt this dietary pattern to appropriate calorie requirements, personal and cultural food preferences, nutrition therapy for other medical conditions eg DM
- Following plans like DASH, USDA Food pattern, and Mediterranean
 - DASH ()
- Referral to a registered dietitian

The No. 1 Dietary Pattern in US

DASH () – Dietary Approach to Stop Hypertension



DASH



- Higher intake of vegetables, fruits, and low-fat dairy products
- Higher in whole grains, poultry, fish and nuts
- Low in sweets, sugar-sweetened beverages, and red meats
- Low in saturated fat, total fat, and cholesterol
- High in potassium, magnesium calcium,
- Rich in protein and fiber



DASH and BP

- DASH diets was supplied to adults with blood pressure 120-150/80-95 mmHg and both body weight and sodium intake were kept stable, when compared to a typical American diet of 1990s,

DASH 120-
150/80-95 mmHg,
- Lowers BP 5-6 / 3 mmHg
5-6 / 3 mmHg

DASH and Blood Lipids

- DASH diets was supplied to adults with a total cholesterol level <260 mg/dL, LDL-C <160 mg/dl, and body weight was kept stable,, when compared to a typical American diet of 1990s,
- DASH (260)
mg/dL 160 mg/dl ,)
 - Lowers LDL-C by 11 mg/dL
11 mg/dL
 - Lowers HDL-C by 4mg/dL
4mg/dL
 - No effect on TG

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