

Trying to Making Sense of Diet Recommendations

Chef Todd Seyfarth, MS, RD, CSSD

Johnson & Wales University
Culinary Nutrition Program

Objectives

- ▣ Defining the barriers the influence poor food choices
- ▣ Finding commonalities with popular and effective recommendations
- ▣ Outline a possible unifying guidelines for general eating recommendations
- ▣ Figuring out how to get people to follow the guidelines...
- ▣ My ABC's of Good Health:
 - ▣ Always
 - ▣ Be
 - ▣ Cooking

Meal Time...



Consumer



WHAT'S HOT 2016 CULINARY FORECAST

TOP 10 FOOD TRENDS

- 1 Locally sourced meats and seafood
- 2 Chef-driven fast-casual concepts
- 3 Locally grown produce
- 4 Hyper-local sourcing
- 5 Natural ingredients/minimally processed food
- 6 Environmental sustainability
- 7 Healthful kids' meals
- 8 New cuts of meat
- 9 Sustainable seafood
- 10 House-made/artisan ice cream



NATIONAL
RESTAURANT
ASSOCIATION

<http://www.restaurant.org/Downloads/PDFs/News-Research/WhatsHot2016>

How the rest of America eats...



Percent distribution of total annual expenditures by major category for all consumer units, Consumer Expenditure Survey, 2010–2013

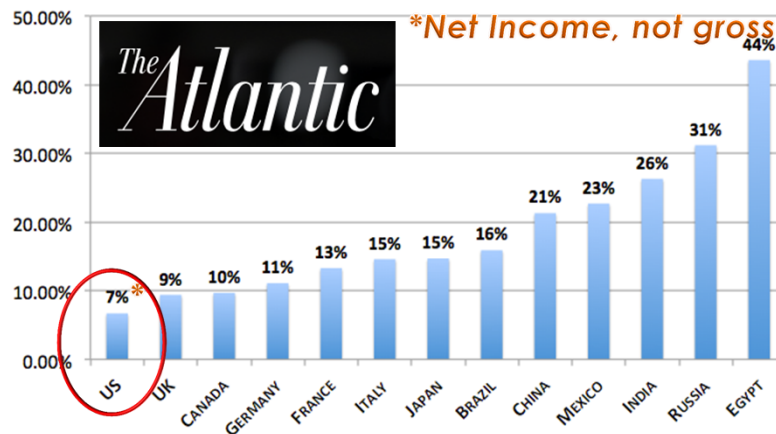
Spending category	2010	2011	2012	2013
Average annual expenditures	100.0	100.0	100.0	100.0
Food	12.7	13.0	12.8	12.9
Food at home	7.5	7.7	7.6	7.8
Food away from home	5.2	5.3	5.2	5.1

12%

<http://www.bls.gov/cex/csxann13.pdf>

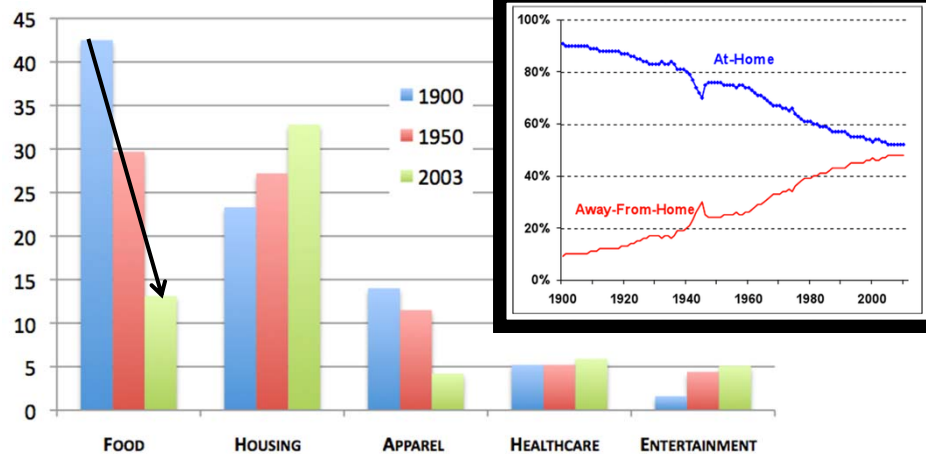
Comparison with the rest of the world

How Much of the Typical Family Budget Is Spent on Food at Home?



<http://www.theatlantic.com/business/archive/2013/03/cheap-eats-how-america-spends-money-on-food/273811/>

Changes in habits over time...



Food, Cooking Skills, and Health: A Literature Review

RACHEL ENGLER-STRINGER, PhD, Department of Community Health and Epidemiology, University of Saskatchewan, Saskatoon, SK

edged to involve cooking skills (such as using a microwave). In addition, she (13) explains that although a relationship exists between skills and knowledge and practices, the relationship is not straightforward: cooks do not necessarily use convenience foods because they cannot cook, but for other reasons, including, for example, a lack of time or a lack of interest. Short (14) found that study participants' approach to cooking was what mattered most when it came to how much, how often, and what

Lang and Caraher (12) agree that the issue might be a lack of confidence in using basic skills, rather than necessarily a decline in skills. They describe what they refer to as a "culinary transition," a "process in which whole cultures

Why?

Food, Cooking Skills, and Health: A Literature Review

RACHEL ENGLER-STRINGER, PhD, Department of Community Health and Epidemiology, University of Saskatchewan, Saskatoon, SK

formal learning environments, and through forms of mass media also is of interest. Mothers are most often reported as the major source of cooking learning in childhood (14,16). Caraher et al. (16) found that in England, the importance of school cook

<http://www.pewresearch.org/fact-tank/2014/12/22/less-than-half-of-u-s-kids-today-live-in-a-traditional-family/>
http://www.pewresearch.org/fact-tank/2014/06/12/5-facts-about-todays-fathers/ft_dual-income-households-1960-2012-2/

Where else do people learn to cook?



and 2011–2012 academic years in FCS secondary programs were just under 3.5 million (see Table 1). This indicates enrollment in programs has gone down 38% over the last 10 years. Based on the comparisons of states with robust data from the 2006 study as well as this study, proportions of

https://www.aafcs.org/res/newsroom/JFCS_105-4_Werhan.pdf

Is that so bad?

United States
Department of
Agriculture



Nutritional Quality of Food Prepared at Home and Away From Home, 1977-2008

assess changes in the consumption and nutritional quality of FAFH versus food prepared at home (FAH). In the past three decades, FAH has changed more in response to dietary guidance, becoming significantly lower in fat content and richer in calcium, whereas FAFH did not. In 2005-08, FAFH was also higher in saturated fat, sodium, and cholesterol and lower in dietary fiber than FAH. The increased popularity and lower nutritional quality of FAFH is prompting new health promotion strategies, such as menu labeling.

My Problem Thesis:

- The trend away from home-cooked meals, and a greater reliance on food prepared away from home is likely a significant contributor to the health problems facing America Today.
- It is probable that the shift to a greater reliance on food prepared away from the home is secondary to:
 - A lack of confidence and interest in cooking
 - &
 - Possible time constraints, due to increased demands outside of the home for the primary food-preparer
- Food outside of the home is typically less healthful than foods prepared inside the home
- And....

My Problem Thesis:

- From personal experience and observations of the buying habits of the general public, the overall “quality” of the food is less important than...
 - LARGE portion sizes
 - At a LOW cost

SO, what are good recommendations?!?

My Focus

- Most commonly researched diets
 - Dietary Approaches to Stop Hypertension (DASH)
 - Mediterranean Diet
 - Optimal Macronutrient Intake (OmniHeart)
- Most cited guidelines for healthy eating:
 - Dietary Guidelines for Americans 2015-2020 (8th edition)
 - American Heart Association's, “Healthy Eating”
 - USDA's Choose My Plate
 - *WHO Dietary Recommendations

Basic Principles

- Ignore Numbers and Percentages...
 - Good for studies... hard to teach
- Let's talk about Foods, Not Nutrients...
- Learn Your ingredients!!!

The Spread Sheet

	Whole Grains	More Fruit	More Vegetables	More Legumes	Low fat Dairy	Less Meats	Lean Meats, Fish Poultry	More Nuts & Seeds	Less Fat	Choose "healthy" Fats	Less Sugar
DASH	X	X	X	X	X	X	X	X	X	X	X
MEDITERRANEAN	X	X	X	X	X	X	X	X		X	X
OMNIHEART (HC)	X	X	X	X	X	X	X	X	X	X	X
OMNIHEART (HP)	X	X	X	X	X		X	X	X	X	X
OMNIHEART (HUF)	X	X	X	X	X	X	X	X		X	X
DGfA 2015-20	X	X	X	X	X	X	X	X	X	X	X
AHA	X	X	X	X	X	X	X	X	X	X	X
USDA	X	X	X	X	X	X	X	X	X	X	X
ALL	X	X	X	X	X		X	X		X	X

My Guidelines

- Try for a more Plant Focused Diet
 - Emphasize Fruits and Vegetables
 - Choose more whole grains
 - Incorporate Legumes, Nuts and Seeds
- Focus on your Protein
 - Low fat Meat options are preferred
 - Seafood is a wonderful option
 - Choose Low fat Dairy, if you consume dairy
- Know what healthy fats are, and go with them
- Limit your added sugar

Know Your ingredients!

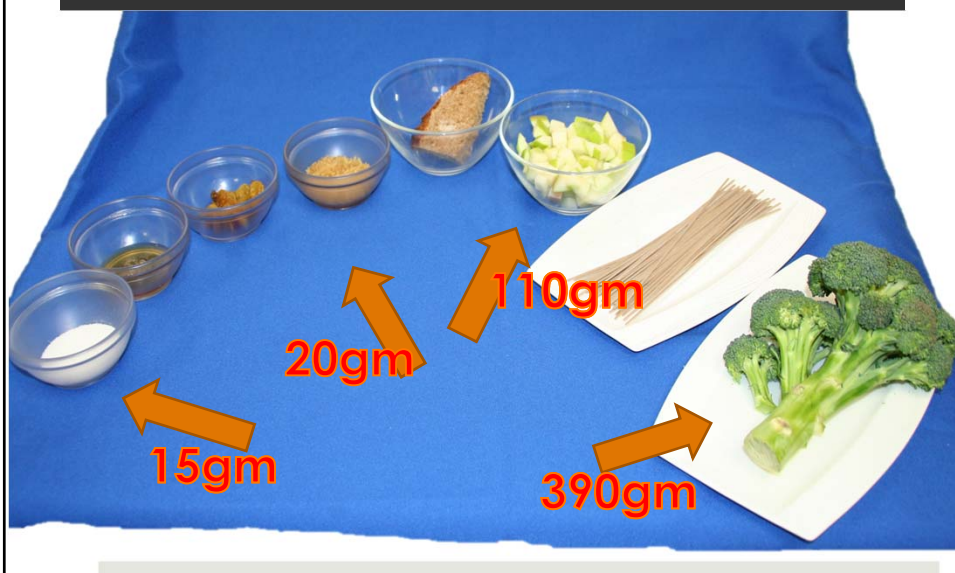


Know Your Ingredients!

Return On Investment (ROI)

- What Standard to use:
 - Calories : Volume of food?

15 gm of CARBS



Know Your Ingredients!

Return On Investment (ROI)

■ What Standard to use:

■ ~~Calories : Volume of food?~~

■ Gm Total CARB : Gm Fiber?

*Using: USDA's National Nutrient Database for Standard Reference (Release 28)

<http://ndb.nal.usda.gov/ndb/foods>

Total Carb : Fiber Ratio

FOOD (100 gm)	CHO	FIBER	RATIO
Chickpea- Cnd	27	8	3.4 : 1
Broccoli- Raw	7	3	2.3 : 1
Quinoa – Cooked	21	3	7:1
Brown Rice – Cooked	23	2	11.5 : 1
White Rice- Cooked	26	.4	65 : 1
Honey	83	.2	415 : 1
Sugar	100	0	NA

Vegetables vs. Whole Grains

Br J Nutr. 2010 Jul;104(1):125-34. doi: 10.1017/S0007114510000644. Epub 2010 Mar 23.

Markers of cardiovascular risk are not changed by increased whole-grain intake: the WHOLEheart study, a randomised, controlled dietary intervention.

Brownlee JA¹, Moore C, Chatfield M, Richardson DP, Ashby P, Kuznesof SA, Jebb SA, Seal CJ.

followed by 120 g WG for 6 weeks). Markers of CVD risk, measured at 0 (baseline), 6 and 10 weeks, were: BMI, percentage body fat, waist circumference; fasting plasma lipid profile, glucose and insulin; and indicators of inflammatory, coagulation, and endothelial function. Differences between study groups were compared using a random intercepts model with time and WG intake as factors. Although reported WG intake was significantly increased among intervention groups, and demonstrated good participant compliance, there were no significant differences in any markers of CVD risk between groups. A period of 4 months may be insufficient to change the lifelong disease trajectory associated with CVD. The lack of impact of increasing WG consumption on CVD risk markers implies that public health messages may need to be clarified to consider the source of WG and/or other diet and lifestyle factors linked to the benefits of whole-grain consumption seen in observational studies.

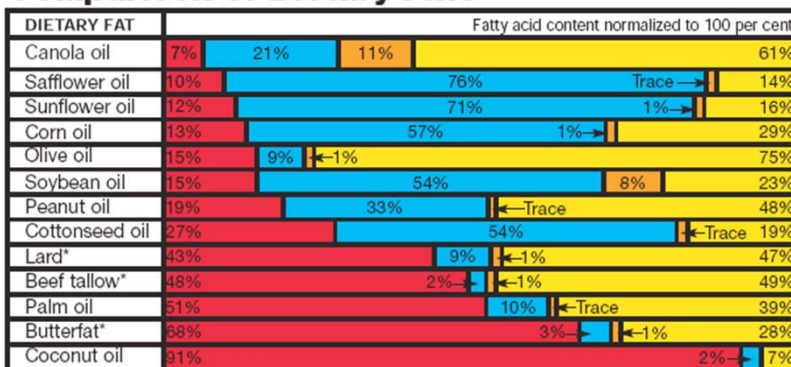
Know Your Ingredients!

Not all fats are created equal:



What else do we need to know about fat?

Comparison of Dietary Fats



* Cholesterol Content (mg/Teap): Lard 12; Beef tallow 14; Butterfat 33. No cholesterol in any vegetable-based oil.
Source: POB Pilot Plant Corporation, Saskatoon, Saskatchewan, Canada June 1994

■ SATURATED FAT

■ MONOUNSATURATED FAT

■ POLYUNSATURATED FAT

■ Linoleic Acid

■ Alpha-Linolenic Acid

(An Omega-3 Fatty Acid)



Proc Natl Acad Sci U S A. 2003 Feb 18; 100(4): 1751-1756.

Published online 2003 Feb 10. doi: [10.1073/pnas.0334211100](https://doi.org/10.1073/pnas.0334211100)

Cell Biology

PMCID: PMC149905

Differential effects of prostaglandin derived from ω -6 and ω -3 polyunsaturated fatty acids on COX-2 expression and IL-6 secretion

Dilpreet Bagga,* Ling Wang,* Robin Farias-Eisner,† John A. Glaspy,* and Srinivasa T. Reddy*§¶

Author information ► Article notes ► Copyright and License information ►

macrophages, PGE₃ is substantially less efficient compared with PGE₂. We further show that increasing the ω -3 content of membrane phospholipid results in a decrease in mitogen-induced PGE₂ synthesis. Taken together, our data suggest that successful replacement of ω -6 PUFA with ω -3 PUFA in cell membranes can result in a decreased cellular response to mitogenic and inflammatory stimuli.

Know Your Ingredients!

Fats:

- ▣ Refined:
 - ▣ Little Flavor
 - ▣ Good for cooking
- ▣ Unrefined:
 - ▣ Typically bad for cooking
 - ▣ Lots of flavor
 - ▣ (you are tasting impurities)

Modifying fat intake:

- ▣ “Displace” Omega 6 FAs with Monounsaturated (MUFA)
- ▣ And Increase your Omega 3’s
 - ▣ When Possible, replace
 - ▣ Vegetable oil
 - ▣ Corn oil
 - ▣ Soy Oil
 - ▣ With MUFA:
 - ▣ Avocado / Almonds
 - ▣ Canola
 - ▣ Olive
 - ▣ Peanut
- ▣ If you can, serve more fish high in fats.
 - ▣ White fish tend to store fats in their livers
 - ▣ I don’t see any issue with *Supplemental fish, krill or algae oils*

Extra Virgin Olive Oil

- Polyphenolic Compounds:
 - Oleocanthal

Nature, 2005 Sep 1;437(7055):45-6.

Phytochemistry: ibuprofen-like activity in extra-virgin olive oil.

Beauchamp GK¹, Keast RS, Morel D, Lin J, Pika J, Han Q, Lee CH, Smith AB, Breslin PA.

⊕ Author information

Abstract

Newly pressed extra-virgin olive oil contains oleocanthal—a compound whose pungency induces a strong stinging sensation in the throat, not unlike that caused by solutions of the non-steroidal anti-inflammatory drug ibuprofen. We show here that this similar perception seems to be an indicator of a shared pharmacological activity, with oleocanthal acting as a natural anti-inflammatory compound that has a potency and profile strikingly similar to that of ibuprofen. Although structurally dissimilar, both these molecules inhibit the same cyclooxygenase enzymes in the prostaglandin-biosynthesis pathway.

PMID: 16136122 [PubMed - indexed for MEDLINE]

Can we cook with them?

J Food Sci, 2007 Oct;72(8):S574-84.

Retention and distribution of polyphenols after pan-frying of French fries in oils enriched with olive leaf extract.

Chiou A¹, Salta FN, Kalogeropoulos N, Mylona A, Ntalla I, Andrikopoulos NK.

⊕ Author information

Abstract

Palm oil, olive oil, and sunflower oil were supplemented with an extract rich in polyphenols obtained from olive tree (*Olea europaea*) leaves at levels of 120 and 240 mg total polyphenols per kilogram of oil. Pan-frying of potatoes was performed in both the enriched and the nonsupplemented oils under domestic frying conditions. Total polyphenol content was estimated by the Folin-Ciocalteu assay, oleuropein was determined by HPLC analysis, while other individual polyphenols by GC/MS analysis. Fourteen polyphenol species were identified in the olive leaf extract, among which oleuropein predominated (1.25 g/kg olive leaves). All the enriched oils contained oleuropein before and after frying. Oleuropein as well as other polyphenol species were detected in all French fries cooked in enriched oils. Polyphenol intake by consuming French fries pan-fried in the enriched oils was calculated to be 6 to 31 times higher than that in the case of French fries fried in commercial oils, being dependent on the frying oil type.

What SHOULD we cook with them?

J. Agric. Food Chem. 2012 Nov 7;60(44):10920-9. doi: 10.1021/jf3027759. Epub 2012 Oct 29.

Effects of temperature and time on polyphenolic content and antioxidant activity in the pressurized hot water extraction of deodorized thyme (*Thymus vulgaris*).

Vergara-Salinas JR¹, Pérez-Jiménez J, Torres JL, Agosin E, Pérez-Correa JR.

Author information

Abstract

The effects of temperature (50-200 °C) and contact time (5-30 min) on the pressurized hot water extraction of deodorized thyme were explored for antioxidant activity, polyphenol profiles, and total antioxidants. Six not previously reported polyphenolic compounds were identified in thyme. An inverse correlation was found between the antioxidant activity and total antioxidants with the amount and diversity of polyphenols. The highest total extract yield and antioxidant activity were obtained at 200 °C, although maximum polyphenol extraction yields of hydroxycinnamic acids, flavones, flavonols/flavanones, and total polyphenols were detected at 100 °C and 5 min. Higher temperatures and longer exposure times reduced extract polyphenol diversity. Dihydroxyphenyllactic acid was the only phenolic compound for which extraction yield increased with temperature, probably as a product of the thermal degradation of rosmarinic acid. Consequently, for extracting phenolics from thyme, 100 °C and 5 min would be appropriate operating conditions, whereas antioxidant-active nonphenolic compounds were favored at higher temperatures and exposure times.

PMID: 23075096 [PubMed - indexed for MEDLINE]

~390° F

How to Store them?

J. Agric. Food Chem. 2015 Aug 5;63(30):6779-86. doi: 10.1021/acs.jafc.5b02187. Epub 2015 Jul 22.

Stability of Virgin Olive Oil Phenolic Compounds during Long-Term Storage (18 Months) at Temperatures of 5-50 °C.

Krichene D¹, Salvador MD², Fregapane G².

Author information

¹Centre de Biotechnologie de Borj Cedria, Laboratoire Biotechnologie de l'Olivier, B.P. 901, 2050 Hammam-Lif, Tunisia.

²Facultad de Ciencias Químicas, Departamento de Química Analítica y Tecnología de Alimentos, Universidad de Castilla-La Mancha, 13071 Ciudad Real, Spain.

Abstract

Virgin olive oil (VOO) phenolic compounds have high nutritional and biological properties. The purpose of this research was to study the stability of VOO phenolic compounds during long-term storage (18 months) at different temperatures (5, 15, 25, and 50 °C) and to verify the advantage of storing VOO at a temperature lower than the usual commercial conditions (20-25 °C). Four monovarietal VOOs that differed in their fatty acid profile and content of natural antioxidants were used in this study. The degradation of secoiridoid phenolics during storage displayed pseudo-first-order kinetics and depended on the initial content of phenolics related to olive oil variety. The initial degradation rate was similar at 5 and 15 °C but increased considerably at 25 °C and was even faster at 50 °C. Tyrosol derivatives were more stable than hydroxytyrosol compounds, especially in closed bottles with limited oxygen availability. The increase in the content of simple phenolics, the decrease of their secoiridoid derivatives, or the ratio of simple to secoiridoid phenolics could be used as indices of the oxidative and hydrolytic degradation of VOO phenolics. The shelf life of the studied VOO was considerably extended at reduced storage temperature (15 vs 25 °C). Moreover, storage conditions affected VOO phenolic content and therefore the expiration date of the health claim that olive oil polyphenols contribute to the protection of blood lipids from oxidative stress.

The Take Away

- Pick the right oil...
 - Store it right
 - Use it cold (if you want)
 - Cook with it (if you want)
 - Especially when cooking vegetables
 - Bolder flavor = better for you (possibly)

How do you rate anti-oxidant content?

- TAC
 - Total antioxidant capacity
- ORAC
 - *Oxygen radical absorbance capacity*
- PLUS
 - *Ferric reducing-antioxidant power (FRAP)*
 - *Total radical-trapping antioxidant parameter (TRAP)*
 - *Trolox equivalent antioxidant capacity (TEAC)*
 - Antiradical screening by thin layer chromatography (TLC)
 - Cellular antioxidant activity (CAA) assay
 - Cupric Ion Reducing antioxidant capacity (CUPRAC)

Ingredients with good supporting evidence:

http://www.ars.usda.gov/SP2UserFiles/Place/80400525/Articles/AICR07_ORAC.pdf

Table 1. Comparison of values in the USDA ORAC database per $\mu\text{mol TE}/100\text{g}$ and $\mu\text{mol TE}/\text{typical serving}$

ORAC Database Foods ranked per 100g basis	$\mu\text{mol TE}/100\text{g}$	ORAC Database Foods ranked per typical serving	$\mu\text{mol TE}/100\text{g}$
Spices, cloves, ground	314446	Baking chocolate, unsweetened	1 square (29) 14479
Spices, cinnamon, ground	267536	Elderberries, raw	1/2 cup (72.5) 10655
Spices, oregano, dried	200129	Apples, Red Delicious, raw, with skin	1 med (182) 7781
Spices, turmeric, ground	159277	Apples, Granny Smith, raw, with skin	1 med (182) 7094
Cocoa, dry powder, unsweetened	80933	Juice, Pomegranate, 100%	1 cup (253) 5923
Spices, cumin seed	76800	Candies, chocolate, dark	1 oz (28.35) 5903
Spices, parsley, dried	74349	Plums, dried (prunes), uncooked	1/2 cup (87) 5700
Spices, basil, dried	67553	Alcoholic beverage, wine, table, red	5 fl oz (147) 5693
Baking chocolate, unsweetened	49926	Artichokes, boiled	1/2 med (60) 5650
Spices, curry powder	48504	Apples, raw, with skin	1 med (182) 5609
Chocolate, dutched powder	40200	Cranberries, raw	1/2 cup (55) 5271
Sage, fresh	32004	Pears, raw	1 med (178) 5235
Spices, mustard seed, yellow	29257	Prune juice, canned	1 cup (256) 5212
Spices, ginger, ground	28811	Apples, Gala, raw, with skin	1 med (182) 5147
Spices, pepper, black	27618	Candies, semisweet chocolate	1 oz (28.35) 5118
Thyme, fresh	27426	Nuts, pecans	1 oz (28.35) 5086
Marjoram, fresh	27297	Plums, black diamond, with peel, raw	1 fruit (66) 5003
Spices, chili powder	23636	Apples, Golden Delicious, raw, with skin	1 med (182) 4859
Candies, chocolate, dark	20823	Blueberries, raw	1/2 cup (74) 4848
Candies, semisweet chocolate	18053	Apples, Red Delicious, raw, without skin	1 med (161) 4727

HOWEVER:



United States Department of Agriculture
AgResearch Magazine

February, 1999

In the second study, men and women had a 13- to 15-percent increase in the antioxidant power of their blood after doubling their daily fruit and vegetable intake compared to what they consumed before the study. Just doubling intake, without regard to ORAC scores of the fruits and vegetables, more than doubled the number of ORAC units the volunteers consumed, said Prior.

<http://agresearchmag.ars.usda.gov/1999/feb/aging/>

Added Sugars?

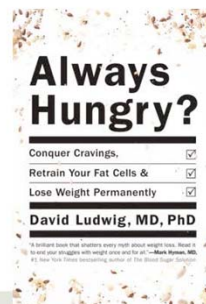
- Added Sugar & Juices
- Limit as much as you can.

J Nutr. 2015 Oct;145(10):2265-72. doi: 10.3945/jn.115.218016. Epub 2015 Sep 2.

Consumption of Honey, Sucrose, and High-Fructose Corn Syrup Produces Similar Metabolic Effects in Glucose-Tolerant and -Intolerant Individuals.

Raatz SK¹, Johnson LK², Picklo MJ².

ⓘ Author information



How to change attitudes about sugar:



Meats

■ Choose Lean Meat, or vegetable protein sources

Abstract ▼

Send to: ▼

Am J Clin Nutr. 2015 Aug;102(2):302-8. doi: 10.3945/ajcn.115.111757. Epub 2015 Jun 10.

Dietary Approaches to Stop Hypertension diet retains effectiveness to reduce blood pressure when lean pork is substituted for chicken and fish as the predominant source of protein.

Sayer RD¹, Wright AJ¹, Chen N², Campbell WW³.

Ⓜ Author information

RESULTS: Preintervention manual BP (DASH-P: 130/84 ± 2/1 mm Hg; DASH-CF: 129/84 ± 2/1 mm Hg) and postintervention manual BP (DASH-P: 122/79 ± 2/1 mm Hg; DASH-CF: 123/78 ± 3/1) were not different between the DASH-P and DASH-CF. Consumption of these DASH-style diets for 6 wk reduced all measures of BP ($P < 0.05$) with no differences in responses between the DASH-CF and DASH-P.

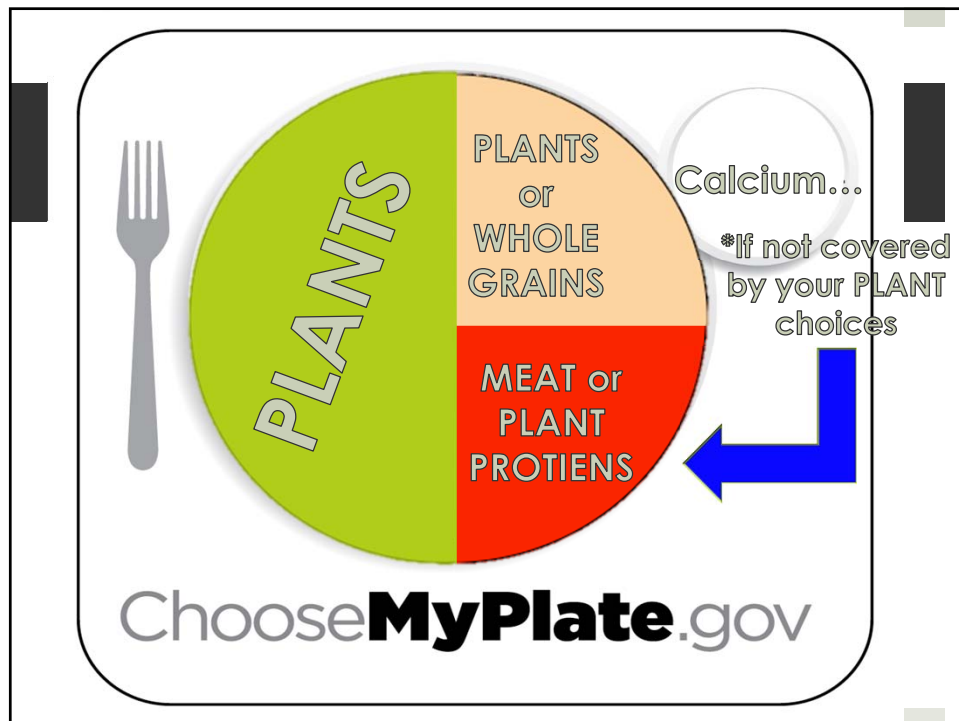
CONCLUSION: The results indicate that adults with elevated BP may effectively incorporate lean pork into a DASH-style diet for BP reduction.


Culinary Solutions



Know what you are making!

- Modify existing recipes.
- Develop new recipes.






Livsmedelsverket
NATIONAL FOOD AGENCY, SWEDEN

One-minute advice

MORE
Vegetables, fruit and berries
fish and shellfish
nuts and seeds
exercise




SWITCH TO
wholegrain
healthy fats
low-fat dairy products



LESS
red and processed meat
salt
sugar
alcohol





<http://www.livsmedelsverket.se/en/food-and-content/labeling/nyckelnalet/>

 Livsmedelsverket

Plan your Week

- Pick recipes that are quick.
- Pick recipes that have many similar ingredients
 - "Cross Utilization"
 - Shop for the week
- Prep as much as you can ahead of time...
- Don't ignore the Crockpot
- Allow for a Take-Out from time to time.


22


New recipes every week!

- Family of 4
- 5 Meals per week

~\$200 per week



Classic Box
(For Omnivores)



www.HelloFresh.com

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- Delicious Recipes
- Farm-Fresh Ingredients

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per meal, incl. shipping

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Recipe Development

- Start by emulating the “classics”
- Quickly prototype and test your idea
 - FAIL** QUICKLY, cheaply and efficiently!
- Keep what works
 - Dump what doesn't

Vegetable Purees

- If you want to lower fat, you can modify viscosity!
- You need a quality blender!
 1. DESIGN
 2. Speed
 3. Power
 - Shearing potential
 - Amount of Cavitation



How to Puree:

- Caulifredo Techniques:
 - <https://www.youtube.com/watch?v=ujPgTFRHhLY>

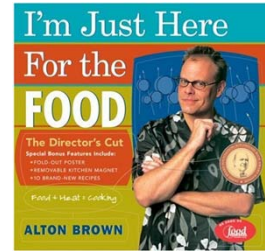
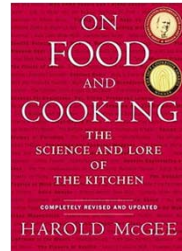
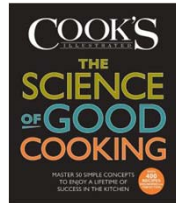
How to use lean proteins:

- ▣ Meatloaf Video:
 - ▣ <http://how2heroes.com/videos/healthy-eating/low-fat-meatloaf>
- ▣ Burger Video:
 - ▣ <https://www.youtube.com/watch?v=jBc9r8khFEw>
- ▣ Sausage Video:
 - ▣ <https://www.youtube.com/watch?v=-y4qztVLNC0>
- ▣ **Other Lean Protein Techniques (low heat cooking):
 - ▣ <https://www.youtube.com/watch?v=igp0Ud2qnPE>

Recipe Break down:

1. Choose a Low fat beef
2. Puree no more than a $\frac{1}{4}$ of the volume of beef as vegetables.
 - ▣ *Sautéed onions, mushrooms should make up the bulk*
 - ▣ *Be mindful of "green" vegetables*
 - ▣ *Adding beef base / bouillon may improve flavor*
3. Form your burgers, loafs, balls
4. Cook as normal.

How to learn more about cooking or Food and Temperature:



Planning Your Week:

Questions?

THANK YOU.

Todd Seyfarth, MS, RD, CSSD

Johnson & Wales University

Email: Tseyfarth@JWU.edu

Shameless Plug

■ *Johnson & Wales Culinary Nutrition Degree Candidates need to participate in an 11 week experiential education experience...*

■ **Experiential Education Coordinators**

■ Dianne Compos - Dianne.Compos@jwu.edu

401-598-2144

Kitchen resources (*they are free) FOOD SAFETY MATERIALS

■ JWU Gold Standard for food safety:

<http://www.jwu.edu/uploadedFiles/Documents/Academics/brochures/JWUCulFoodSafetyGoldStandardsGuideUNIV.pdf>