Added Sugar: How to Kick the Habit

Kristin Kirkpatrick, MS, RD
Cleveland Clinic Wellness Institute
Nutrition in The News
For the Love of Hot Dogs

We went back to the drawing board and the cutting board. We kept tasting and tinkering until we had a line of the world’s best hot dogs. Here, you’ll find them all.

Show: All Hotdog Products | Beef | Flavored Varieties | Selects | Turkey | Wieners

4 Products

Wieners
Advantages of Polyunsaturated Fats

Saturated fat produces more fat storage and less muscle building than polyunsaturated fats
The “Muffin study”

Choice of fat causes epigenetic changes and could alter the different in fat storage

Also linked to improved carbohydrate metabolism in the body
Caffeine Overdose Kills Teen

16 year old boy in South Carolina

Drank large diet Mountain Dew, café latte from McDonald’s, and some type of energy drink two hours prior to death

Died of arrhythmia according to the corner
CYP1A2 GENE
NEW LABEL / WHAT'S DIFFERENT

Servings: larger, bolder type

Nutrition Facts
8 servings per container
Serving size 2/3 cup (55g)

Amount per serving
Calories 230
% Daily Value*
- Total Fat 8g 10%
- Saturated Fat 1g 5%
- Trans Fat 0g
- Cholesterol 0mg 0%
- Sodium 160mg 7%
- Total Carbohydrate 37g 13%
- Dietary Fiber 4g 14%
- Total Sugars 12g
  Includes 10g Added Sugars 20%
- Protein 3g

Vitamin D 2mcg 10%
Calcium 260mg 20%
Iron 8mg 45%
Potassium 235mg 6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

- Serving sizes updated
- Calories: larger type
- Updated daily values
- Actual amounts declared
- New footnote

New: added sugars
Change in nutrients required
FOOD SERVING SIZES GET A REALITY CHECK

Serving Size Changes
What’s considered a single serving has changed in the decades since the original nutrition label was created. So now serving sizes will be more realistic to reflect how much people typically eat at one time.

CURRENT SERVING SIZE | NEW SERVING SIZE
4 SERVINGS | 3 SERVINGS
1 PINT | 1 PINT
200 CALORIES | 270 CALORIES

Packaging Affects Servings
Package size affects how much people eat and drink. So now, for example, both 12 and 20 ounce bottles will equal 1 serving, since people typically drink both sizes in one sitting.

1 SERVING PER BOTTLE FOR EITHER BOTTLE SIZE
FDA delays rule requiring new nutrition facts panel on food

- The Food and Drug Administration is delaying a rule that would require food companies to label their products with a revised nutrition facts panel.

- The FDA originally said companies had until July 26, 2018 to comply, but said Tuesday it will give companies additional time.

- The new panel would make the calorie listing larger, make serving sizes clearer and specify the amount of added sugars in products.
The PURE Study

Fruit, vegetable, and legume intake, and cardiovascular disease and deaths in 18 countries (PURE): a prospective cohort study

Victoria Miller, Andrea Meite, Mahesh Delhagham, Somath Chongpinyo, Yoshele Zhang, Somath Swamyathan, Gilles Dagenais, Rajiv Gupta, Vishweshwar Mohan, Scott Leary, Shankar Banglewala, Alina E. Schulte, Edwige Montal-Viljoen, Alvina Asezumi, Yukihito Arimoto, Khudai Yousaf, Nooshikamin Ismail, Nishantse Pool, Jignesh Chhajed, Rafael Diaz, Omar Rahme, Maqsood Mominvaldez, Fernando Linares, Kettyarenda, Andrea Mollee, Afzaloune Sardar, Ronásio Jéph, Patricio Lopez-Jimenez, RameshKardje, Aniko Binscker, Y Ramon Katz, Wei Li, Jianfeng Liu, Xiangyu Liu, Buyun Lin, Konni Tan, Sonia Raman, Salim Yusuf, on behalf of the Prospective Urban Rural Epidemiology (PURE) study investigators

Summary

Background: The association between intake of fruit, vegetables, and legumes with cardiovascular disease and deaths has been investigated extensively in Europe, the USA, Japan, and China, but little or no data are available from the Middle East, South America, Africa, or south Asia.

Methods: We did a prospective cohort study (Prospective Urban Rural Epidemiology [PURE]) in 113,335 individuals aged 35 to 70 years without cardiovascular disease from 433 communities in 18 low-income, middle-income, and high-income countries in seven geographical regions: North America and Europe, South America, the Middle East, South Asia, China, southeast Asia, and Africa. We documented their diet using country-specific food frequency questionnaires at baseline. Standardized questionnaires were used to collect information about demographic factors, socioeconomic status (education, income, and employment), lifestyle (smoking, physical activity, and used alcohol intake), health history, and medication use, and family history of cardiovascular disease. The follow-up period varied based on the date when recruitment began at each site or country. The main clinical outcomes were major cardiovascular disease (defined as death from cardiovascular causes and non-fatal myocardial infarction, stroke, and heart failure), fatal and non-fatal myocardial infarction, fatal and non-fatal strokes, cardiovascular mortality, non-cardiovascular mortality, and total mortality. Cox frailty models with random effects were used to assess associations between fruit, vegetable, and legume consumption with risk of cardiovascular disease events and mortality.

Findings: Participants were enrolled into the study between Jan 1, 2003, and March 31, 2013. For the current analysis, we included all reported outcome events in the PURE study database through March 31, 2017. Overall, combined mean fruit, vegetable and legume intake was 3.91 (SD 2.77) servings per day. During a median 7.4 years (5.5–9.3) of follow-up, 67,484 major cardiovascular disease events, 1,649 cardiovascular deaths, and 57,759 total deaths were documented. Higher total fruit, vegetable, and legume intake was inversely associated with major cardiovascular disease, myocardial infarction, cardiovascular mortality, non-cardiovascular mortality, and total mortality in the models adjusted for age, sex, and center (random effect). The estimates were substantially attenuated in the multi-variable adjusted models for major cardiovascular disease (hazard ratio [HR] 0.99, 95% CI 0.97–1.01, p-value 0.915), myocardial infarction (HR 0.99, 0.74–1.00, p-value 0.93), stroke (HR 0.92, 0.67–1.25, p-value 0.702), cardiovascular mortality (HR 0.97, 0.57–1.92, p-value 0.85), non-cardiovascular mortality (HR 0.84, 0.68–1.04, p-value 0.14), and total mortality (HR 0.82, 0.69–0.96, p-value 0.0001). The HR for total mortality was lowest for three to four servings per day (HR 0.78, 95% CI 0.69–0.88) compared with the reference group, with no further apparent decrease in HR with higher consumption. When examined separately, fruit intake was associated with lower risk of cardiovascular, non-cardiovascular, and total mortality, while legume intake was inversely associated with non-cardiovascular death and total mortality (in fully adjusted models). For vegetables, raw vegetable intake was strongly associated with a lower risk of total mortality, whereas cooked vegetable intake showed a modest benefit against mortality.

Interpretation: Higher fruit, vegetable, and legume consumption was associated with a lower risk of non-cardiovascular, and total mortality. Benefits appear to be maximum for both non-cardiovascular mortality and total mortality at three to four servings per day (equivalent to 375–500 g/day).

Funding: Full funding sources listed at the end of the paper (see Acknowledgments).

Introduction: This recommendation is largely based on observational
A New Frontier in How We Eat?

**Summary:** As more people live into their 80s and 90s, researchers have delved into the issues of health and quality of life during aging. A recent mouse study sheds light on those questions by demonstrating that a high fat, or ketogenic, diet not only increases longevity, but improves physical strength.

**FULL STORY**

Dr. Jon Ramsey with the UC Davis School of Veterinary Medicine holds a mouse. His study found that a high fat diet makes mice live longer.

*Credit: Don Preisler/UC Davis*

As more people live into their 80s and 90s, researchers have delved into the issues of health and quality of life during aging. A recent mouse study at the UC Davis School of Veterinary Medicine sheds light on those questions by demonstrating that a high fat, or
**Myth 1.** A carbohydrate is a carbohydrate; they all have the same calories.

Half true. There are three molecules that make up all the various kinds of carbohydrate: glucose, galactose, and fructose. All three molecules have the same caloric density—4.1 kcal/gm — which is why people erroneously conclude that “a calorie is a calorie.” **Glucose** is what’s found in starch; it’s the energy of life; all cells in all organisms on the planet burn glucose to make energy. **Galactose** (the molecule exclusively found in milk sugar) is rapidly converted in the liver to glucose. **Fructose** (the molecule that makes sugar sweet) is also metabolized in the liver, but any excess is converted into liver fat. Chronic and excess alcohol or fructose exposure both cause fatty liver disease, which drives the pathologic process of insulin resistance, and causes the same chronic diseases — obesity, heart disease and diabetes.
Sugar and alcohol have similar toxic liver effects on the body

- Evidence shows that excessive sugar can have a toxic effect on the liver, similar to the metabolism of ethanol (AKA: Alcohol)
- Further, sugar can cause many of the chronic health problems as alcohol:

  ~ Hypertension ~ Myocardial Infarction ~ Dyslipidemia ~ Pancreatitis ~ Obesity ~ Malnutrition ~ Hepatic Dysfunction

Myth 2. People can limit their sugar consumption without any difficulty.

In fact, sugar is weakly addictive. In animal studies, fructose causes the four criteria of addiction: bingeing, withdrawal, craving, and sensitization to other addictive substances (meaning after chronic exposure to sugar, it’s easier to get hooked on another drug). In humans, fructose lights up the reward center in your brain called the nucleus accumbens on MRI; but after repeated exposure, the reward center lights up less and less, so you need more and more to achieve the same effect. Fructose has effects on the reward center similar to alcohol; and just like alcohol, can lead to a “vicious cycle” of consumption and disease.
Food Addiction
Can Some Foods Hijack the Brain?

By Bonnie Liebman

Picture three random American adults in a room. Odds are, one is obese, one is overweight, and one is normal weight.

If the three were children, one would be overweight or obese. And obesity rates in children are still rising.

Clearly, there’s no single cause of the obesity epidemic. Our 24/7 exposure to calorie-dense food and long hours at a desk or dashboard play a role. But new evidence suggests that some foods may keep us eating by hijacking the brain like an addictive drug.

“How much overeating in the population is attributable to these foods working on the brain so people keep coming back for more?” asks Kelly Brownell, professor of psychology at Yale University.

“It’s possible that once people start consuming these foods, the brain changes in ways that make it very difficult to stop.”

Here’s what we’re learning about food and addiction.

Continued on page 3.
A Common Defect? People who are obese have fewer dopamine receptors (indicated by red in these brain scans), just like people who are addicted to cocaine or alcohol.

Adapted from Nature Neuroscience 8: 555, 2005.
Continuous eating or binge eating a high fat, high sugar diet alters opioid receptor levels in an area of the brain that controls food intake. Opioids are a family of chemicals with actions similar to those of morphine; however, opioids exist naturally in the brain and have been linked to feelings of pleasure and euphoria.
Are you Addicted to Sugar?
The Reality of Sugar Addiction

- Sugar and drug addictions are similar.
- One study showed a greater neurological reward provided by intense sweetness than by the drug cocaine.
- Research shows sugar withdrawal may be similar to withdrawal from nicotine, morphine, & alcohol.
Unlimited Availability

24/7
Rewarded with Sugar
Sugar Shockers: Ketchup

5 Tbsp Serving

Tomato Ketchup
Ingredients:
#3 High fructose corn syrup
#4 Corn syrup

20g SUGAR

Vanilla Whipped Frosting

3 Tbsp Serving

Ingredients:
#1 Sugar
#5 Corn syrup
1 Bar (40g)

Oats & Chocolate Chewy Bar

Ingredients:
#2 Semisweet chocolate chips
#4 Corn Syrup
#7 Sugar

10-11g SUGAR

Milk Chocolate Bar

Ingredients:
#1 Milk chocolate

1/2 of a Bar (20.4g)
Sugar Shockers: Pasta Sauce

1 Cup Light Tomato & Basil Pasta Sauce
Ingredients: #4 Sugar

= 18g SUGAR

Chocolate Fudge Cake Mix
Ingredients: #2 Sugar #3 Corn syrup

1/10 of package (4.3g)
Tonic Water

Ingredients:
#2 High fructose corn syrup

Fruit Punch

Ingredients:
#2 High fructose corn syrup

8 fl oz

22g SUGAR

7 fl oz
10 Easy Steps to Start your Sugarless Healing
#1

Figure out your personality

DETOX

7-DAY Sugar Detox

GRADUAL
#2
Change Your Sip

Instead of:
#2

Change your sip

Choose

- Spindrift Sparkling Water
- Madhava Agave Lemonade
- LaCroix Sparkling Water
#3 Start Your Day with Protein
THIS is starting the day with sugar or TONS of carbs looks
Instead….Start The Day With Protein
Or “Upgrade Your Carb Sources”
You Can Also Add Protein to “Smart” Carb
### Triscuit Nutrition Facts

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<th>Serving Size</th>
<th>Amount Per Serving</th>
<th>% Daily Value*</th>
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<td>6 crackers</td>
<td>Calories 120</td>
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<td>Calories from Fat 35</td>
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<td></td>
<td>Trans Fat 0g</td>
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</tr>
<tr>
<td></td>
<td>Polyunsaturated Fat 2g</td>
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<tr>
<td></td>
<td>Monounsaturated Fat 1g</td>
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<tr>
<td></td>
<td>Cholesterol 0mg</td>
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<td></td>
<td>Sodium 160mg</td>
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<td></td>
<td>Potassium 115mg</td>
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<td></td>
<td>Sugars 0g</td>
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<td>Protein 3g</td>
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### Soul Sprout Nutrition Facts

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<td>1 oz</td>
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<td>17%</td>
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<tr>
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<td></td>
<td>Total Fat 11g</td>
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<td></td>
<td>Saturated Fat 1g</td>
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<td></td>
<td>Trans Fat 0g</td>
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<td></td>
<td>Cholesterol 0mg</td>
<td>0%</td>
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<tr>
<td></td>
<td>Sodium 200mg</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Total Carbohydrate 8g</td>
<td>3%</td>
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<tr>
<td></td>
<td>Dietary Fiber 6g</td>
<td>24%</td>
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<td></td>
<td>Sugars &lt;1g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protein 8g</td>
<td></td>
</tr>
</tbody>
</table>

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Vitamin A 0%  •  Vitamin C 2%
Calcium 10%  •  Iron 8%

*Percent Daily Values are based on a 2,000 calorie diet.
These Things make You HUNGRY
This Things Make You FULL

- Eggs
- Salmon
- Nuts
- Legumes
- Butter
- Olive Oil
#4 Limit the Fruit and the Ditch Starchy Veggies (at least for a while)
High GI VS low GI foods

Blood Glucose Levels

- Chips, biscuits, cakes, ice cream, dates, jasmine rice, potatoes, processed food, watermelon, white bread

- Basmati rice, vegetables, lentils, pasta, wholegrain bread, oats, oranges

Time/hours

1 hour

2 hours

High GI

Low GI
Don't replace real sugar with artificial sugar

0 Calories ≠ 0 Consequences

- Replacing sugar with artificial is similar to switching from cigarettes to cigars
  - Does not subside cravings for sweetness
- A 2013 study from the journal of Diabetes Care found that artificial sweeteners can alter the way the body metabolizes sugar
Artificial Sweeteners & Weight Gain

- A rat study from 2008 found an association with weight gain
  - Confusion between the gut and brain
- Ingestive and Digestive reflexes gear up but no calories follow
- Result: People eat more or expend less energy
Start an exercise regimen and add milk to your diet

- Boost your “feel good” effects through foods other than sugar
- Whey protein—a major protein found in milk—has been shown to increase serotonin
  - Serotonin is a feel good hormone that is associated with mood elevation
  - Fun fact: serotonin was first isolated at the Cleveland Clinic
- Other studies have found association between exercise and a serotonin boost
#7 Improve your sleep habits

- A new 2013 study found that our circadian sleep cycles effect nutritional health
- Previous studies show that sleep deprivation leads to more high-calorie treats
- Without getting enough ZZZs, diet and exercise are difficult to achieve
The Internal Circadian Clock Increases Hunger and Appetite in the Evening Independent of Food Intake and Other Behaviors

Frank A.J.L. Scheer\textsuperscript{1,2}, Christopher J. Morris\textsuperscript{1,2} and Steven A. Shea\textsuperscript{1,3}

Objective: Despite the extended overnight fast, paradoxically, people are typically not ravenous in the morning and breakfast is typically the smallest meal of the day. We assessed whether this paradox could be explained by an endogenous circadian influence on appetite with a morning trough, while controlling for sleep/wake and fasting/feeding effects.

Design and Methods: Twelve healthy non-obese adults (six males; age, 20-42 years) were studied throughout a 13-day laboratory protocol that balanced all behaviors, including eucaloric meals and sleep periods, evenly across the endogenous circadian cycle. Participants rated their appetite and food preferences by visual analog scales.

Results: There was a large endogenous circadian rhythm in hunger, with the trough in the biological morning (8 AM) and peak in the biological evening (8 PM; peak-to-trough amplitude = 17\%; \( P = 0.004 \)). Similarly-phased significant endogenous circadian rhythms were present in appetites for sweet, salty and
#8 Keep Snacks Close By

• Pack snacks in the car to reduce the urge to stop at fast food restaurants

• Some satisfying examples:
  o Trail mix
  o String cheese
  o Air popped popcorn
#9 Consider a Fasting Regimen

Options

- 2 days / week at 500 cal (often called a 5:2 plan)
- Overnight
- Once a Month
Can changing your meal schedule be effective in fighting body fat?

"Eating only during a much smaller window of time than people are typically used to may help with weight loss,"
— Courtney Peterson, Ph.D.

For the first time in humans, it has been reported that eTRF lessens daily swings in hunger and changes the 24-hour pattern of fat oxidation and energy metabolism. It may therefore positively impact body composition.
Benefits of Intermittent Fasting Approach

**Weight**
- Reduced Hunger
- Reduced Cravings
- “Re-Wiring” of food preferences
- Better blood sugar control

**Health**
- Decreased Risk of SEVERAL chronic conditions
- Increased energy
- Reduction of certain cancers
- Lengthening of telomeres
Never forget the benefit

- Never forget that reducing a sugar addiction has benefits beyond a perfect body
- Shift focus to what sugar does to the body
- Remain focused
Connect with me!

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www.kristinkirkpatrick.com
www.skinnyliver.net

Tune in This December to the New Rules of Food on PBS!