

Communicating Nutrition

Janet M. Riley

North American Meat Institute

Overview

- Challenge we face
- What are the benefits?
 - How much do you think you know?
- What are the facts surrounding the controversy?
- What resources are available?

The 'Meat Is Bad' Bandwagon

- Media
- Social media
- Peer pressure

Nutrient Density

- Foods that supply generous amounts of one or more **nutrients** compared to the calories they supply are called **nutrient dense**.

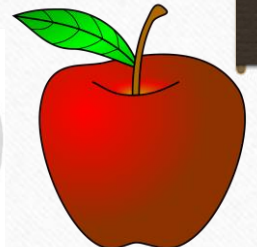
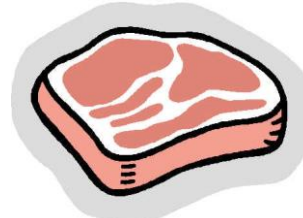
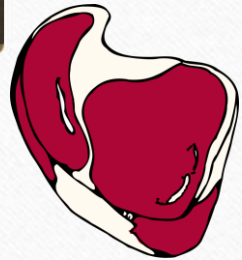


Table 1. Nutrient Density of Representative Foods for Key Nutrients
Amount Supplied Per 100 Calories of Food

Food	Protein (g)	Iron (mg)	Zinc (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg)	B6 (mg)	B12 (mcg)
Beef, composite (lean only)	13.7	1.4	3.2	0.04	0.12	1.89	0.17	1.21
Pork, composite (lean only)	11.6	0.5	1.5	0.30	0.15	2.18	0.18	0.36
Lamb, composite (lean only)	13.7	1.0	2.6	0.05	0.16	3.07	0.08	1.27
Veal, composite (lean only)	16.3	0.6	2.6	0.03	0.17	4.30	0.17	0.84
2% Low-fat Milk	6.7	0.1	0.8	0.08	0.33	0.17	0.09	0.73
Regular Soft Drink	0.1	0.1	0.0	---	---	---	---	---
Cinnamon Danish Pastry	1.8	0.5	0.2	0.07	0.07	0.71	---	---
Bagel, plain	3.8	1.3	0.3	0.19	0.11	1.66	0.02	---
Baked Potato, with skin	2.1	1.2	0.3	0.10	0.30	1.51	0.32	---
Apple, raw with skin	0.3	0.3	0.1	0.03	0.02	0.13	0.08	---
Popcorn, air-popped	3.1	0.7	0.9	0.05	0.07	0.51	0.06	---

Calculated from USDA Composition of Foods – Raw, Processed, Prepared. USDA Human Nutrition Information Service. Agriculture Handbook Series (8-1, 1976; 8-9, 1982; 8-10, 1992; 8-11, 1984; 8-13, 1990; 8-14, 1986; 8-17, 1989; 8-18, 1992; 8-19, 1991).

Key Nutrients We Need: Protein

- Protein essential for building, repairing muscles.
- “Macronutrient” = large quantity needed
- Animal proteins support better muscle protein synthesis than plant proteins.
- Meat provides more protein per serving (25 grams per 3 ounces) than
 - dairy (8 grams per cup),
 - eggs (6 grams each),
 - legumes (12 grams per $\frac{3}{4}$ cup),
 - vegetables or nuts (2 to 5 grams per serving).

To get 25 grams of protein, you can choose....

Lean beef 3 oz., 180 calories

Tofu 1 $\frac{1}{2}$ cups, 230 calories

Beans 3 $\frac{1}{2}$ c. black beans, 374 calories

Peanut butter 7 Tbsps., 670 calories

Protein – How much?

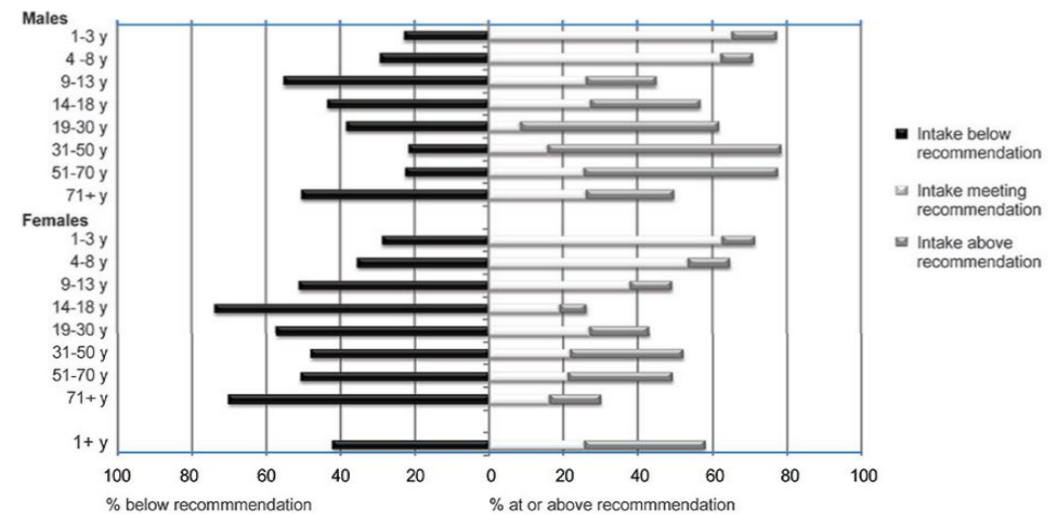
- Institute of Medicine, USDA: 10-35% of total calories should come from protein.
- As a point of reference, a three ounce serving of meat or poultry is size of a deck of cards.
- Health Canada recommends 1 to 3 servings of Meat and Alternatives depending upon age and gender, one serving equals 75 grams (about 2 1/2 ounces).
 - More active people may need more.
- For elderly, experts now recommend 25-30 grams of protein per meal to prevent age related muscle loss call sarcopenia.



Do We Eat Too Much Meat?

- On average, we eat the correct amount of meat and poultry.
- Dietary Guidelines report shows that followers of the widely touted Mediterranean diet eat twice as many processed meats as followers of the USDA recommended pattern.

Figure D1.20 Total Protein foods: Estimated percent of persons below, at, or above recommendation



Source: What We Eat in America, NHANES 2007-2010

Key Nutrients We Need: Zinc

- Adequate zinc intake critical for proper growth.
- Zinc helps body use carbohydrates, proteins, and fats; helps cell reproduction, tissue growth, and repair.
- Academy of Nutrition and Dietetics says zinc deficiency in childhood can impair growth.
- Deficiency in pregnancy can cause birth defects.
- Zinc important for elderly: Promotes wound healing, strengthens immune systems, maintains taste acuity.

Top Zinc Sources, In Milligrams Per Standard Serving

Oysters	28-67 mg.
Liver	3.4-9.6 mg
Beef	4.1-6..8 mg.
Crab	3.0-6.5 mg.
Lamb	4.1-4.9 mg.
Fortified cereal	3.8 mg.
Pork	1.9-4.4 mg.
Bran Cereal	3.8 mg.
Veal	2.7-3.8 mg.
Baked Beans	3.5 mg.
Turkey	1.5-3.0 mg.
Chicken	0.7-1.4 mg.

Key Nutrients We Need: Iron

- Iron is essential to every cell in your body because it:
 - Builds red blood cells
 - Helps cells work in the body
 - Carries oxygen from the lungs to cells in your body
 - Helps the brain work at its best
- If you don't get enough iron you may:
 - Feel tired
 - Look more pale than usual
 - Have trouble concentrating on your work
 - Feel out of breath
 - Not have enough energy to do the things you want

Rich Sources of Iron, In Milligrams, per Standard Servings

Liver (pork, chicken, lamb), cooked	7.0-15.2
Oysters	6.0-7.8
Cream of Wheat, fortified	4.7-6.0
Beef tenderloin	3.0
Beef cuts	2.5
Ground beef, 93% lean	2.4
Lamb	1.6
Beans and peas	1.3-3.3
Pork or chicken, various cuts	0.7-1.6
Spinach, raw	0.8
Ham, roasted	0.8
Turkey, various cuts	0.6-1.2

More About Iron

- Iron most important...
 - During periods of growth,
 - After blood loss,
 - If you do regular intense exercise,
 - Or if living with a certain chronic disease such as cancer.
- If you do not eat any meat, poultry or fish you need almost twice as much iron.
- U.S., Western Europe and Scandinavia are some of the regions with the lowest incidence of anemia
 - May be due, in part, to access to a plentiful and affordable meat supply.

Percent of Various Populations With Anemia

U.S. people over 65	10%
U.S. women overall	7%
U.S. African-American women	25%
U.S. Hispanic Women, 20-49.	9%
Canadian girls 12-19	13%
Canadian women 20-49	9%

1.62 billion people worldwide are affected, WHO says

Heme vs. Non-Heme Iron

- Heme found in animal products
- Non-heme found in non-animal products
- Body absorbs heme at higher rate
- Adding meat to vegetables boosts body's ability to absorb non-heme



If Popeye™ added BACON to his spinach, he might be even stronger.

Popeye knew he needed iron for energy – to be strong and to take oxygen to all parts of his body. And he knew that spinach is a source of iron, but not all iron is created equally. Meat sources such as beef, pork, chicken, lamb and fish have heme-iron, the most easily used by the body. Plant sources, such as spinach, beans, lentils, and some fruits and vegetables contain non-heme iron, which is not as well absorbed. And that is why vegetarians need almost twice as daily recommended amount of iron compared to non-vegetarians.

The good news is that eating meat with plant sources of iron actually helps the body absorb higher amounts of non-heme iron. Popeye knew what medical experts today can't stress enough: that iron deficiency anemia is the #1 nutrition deficiency in North America affecting seven percent of women, one in four African-American woman and ten percent of people over 65. In Canada, 12-18% of women ages 14-50 years have inadequate intakes of iron.

Globally, where meat is less accessible and affordable, the anemia problem is even bigger. The World Health Organization says 1.62 billion people worldwide are affected.

Follow Popeye's lead: enjoy spinach as part of your healthy balanced diet. Pair it with a steak or chicken breast and you'll get even more bang for your iron buck.

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meatpoultrynutrition.org

Naturally Nutritious Meat: The Sensible Choice.

Sources: 1. Dietitians of Canada <http://www.dietitians.ca/Your-Health/Nutrition-A-Z/Minerals/food-sources-of-iron.aspx>. Accessed August 2015.

Myth: Spinach and Other Vegetables are Equally Good Sources of Iron as Meat



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<http://www.meatmythcrushers.org/>

Key Nutrients We Need: B12

- B12 essential in brain development in children and in maintaining a healthy nervous system and red blood cells.
- Animal products are the only natural sources of B12.
 - Lacto-ovo vegetarians can obtain B12 through eggs and dairy
 - Vegans must use supplements or fortified foods.
 - B12 deficiencies are far more prevalent of vegetarians and especially vegans

Rich Sources of B12, in Milligrams, By Standard Serving

Liver	60.0-71.9
Oysters & mussels	11.0-24.5
Salmon, canned	4.2
Beef tenderloin, cooked	3.9
Ground beef, 93% lean	2.5
Tuna, light, in water	2.2-2.5
Hot dog, beef	1.4
Swiss cheese	1.4
Turkey, roasted, dark meat	1.4
Milk	0.9-1.1
Egg, cooked	0.9
Ham	0.24

More About B12

- Low blood levels of Vitamin B12 linked with neurological disorders and memory loss.
- Recent Study: B12 deficiency was more prevalent in elderly males (56.67%)
- Most commonly associated with increased severity of behavioral disturbances.
- Memory loss was present in 84.2% patients with severe Vitamin B12 deficiency.

If People Were Meant To Be Vegetarians, Why Is Critical B12 Only Found In Animal Foods?

Vitamin B12 is essential for healthy brain development and function. B12 deficiency is no joke — here's what the Mayo Clinic has to say:

"Studies have shown that a deficiency of vitamin B12 can lead to abnormal mental symptoms. These symptoms may include ataxia (shaky movements and unsteady gait), muscle weakness, spasticity (stiff or rigid muscles), incontinence (lack of bladder and/or bowel control), hypotension (low blood pressure), vision problems, dementia, psychoses (abnormal condition of the mind), and mood disturbances."

Make the smart choice — a balanced diet that includes naturally rich sources of B12 — and a whole lot more to keep you strong and healthy.

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Meat is a *Unique* Nutrient Source

- **Creatine:** Creatine is an important nutrient in muscle and brain that helps to supply energy. Vegetarians have lower levels of creatine in their muscles than meat eaters
- **Carnosine:** Carnosine is considered a potent antioxidant that may help treat neurocognitive disorders such as Alzheimer's Disease. Best sources are lean beef, yellowfin tuna and eel.
- **Vitamin D3:** Very foods contain D3 but beef liver and pork liver are best sources. Fatty fish, egg yolks and beef and pork cuts, also contain D3 but at lower levels than in the liver. at
 - Vegetables contain a D-cousin called D2, but body uses D3 in animal products a much higher rate.
- **DHA:** DHA or Docosahexaenoic acid is the most abundant Omega-3 fatty acid in the brain and it is critical for normal brain development. Women at a childbearing age need DHA because a woman's Omega-3 status could effect the brain of the offspring.
 - Fatty fish are the best source of DHA.
 - Beef also contains DHA.

Bioavailability

- Meat is “complete” protein
 - Contains all amino acids needed
- Not all nutrients are absorbed equally.
 - Heme iron
 - Zinc
- Meat helps the body absorb nutrients from non-meat sources

The screenshot shows the web page for an article in The American Journal of Clinical Nutrition. The article title is "Iron bioavailability and dietary reference values^{1,2,3,4}" by Richard Hurrell and Ines Egli. The page includes a navigation bar with links like HOME, CURRENT ISSUE, and ARCHIVES. On the right, there's a sidebar with "This Article" information, including publication dates and options to view the full text or PDF. The main content area shows the abstract, which discusses iron balance, absorption, and the influence of various dietary factors. Below the abstract is the introduction, which states that iron metabolism is unusual and differs from other metals. The page also features a "Rent or Purchase Article" section and a "Citing Articles" section with links to Google Scholar, PubMed, and Agricola.

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Iron bioavailability and dietary reference values^{1,2,3,4}

Richard Hurrell and Ines Egli

Author Affiliations
Author Notes

Abstract

Iron differs from other minerals because iron balance in the human body is regulated by absorption only because there is no physiologic mechanism for excretion. On the basis of intake data and isotope studies, iron bioavailability has been estimated to be in the range of 14–18% for mixed diets and 5–12% for vegetarian diets in subjects with no iron stores, and these values have been used to generate dietary reference values for all population groups. Dietary factors that influence iron absorption, such as phytate, polyphenols, calcium, ascorbic acid, and muscle tissue, have been shown repeatedly to influence iron absorption in single-meal isotope studies, whereas in multimeal studies with a varied diet and multiple inhibitors and enhancers, the effect of single components has been, as expected, more modest. The importance of fortification iron and food additives such as erythorbic acid on iron bioavailability from a mixed diet needs clarification. The influence of vitamin A, carotenoids, and nondigestible carbohydrates on iron absorption and the nature of the “meat factor” remain unresolved. The iron status of the individual and other host factors, such as obesity, play a key role in iron bioavailability, and iron status generally has a greater effect than diet composition. It would therefore be timely to develop a range of iron bioavailability factors based not only on diet composition but also on subject characteristics, such as iron status and prevalence of obesity.

INTRODUCTION

Iron metabolism is unusual; it differs from the metabolism of other metals in that there is no physiologic mechanism for iron excretion and close to 90% of daily iron needs are obtained from an endogenous source, namely the breakdown of

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This Article

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Classifications

Supplement: Micronutrient Bioavailability: Priorities and Challenges for Setting Dietary Reference Values

Services

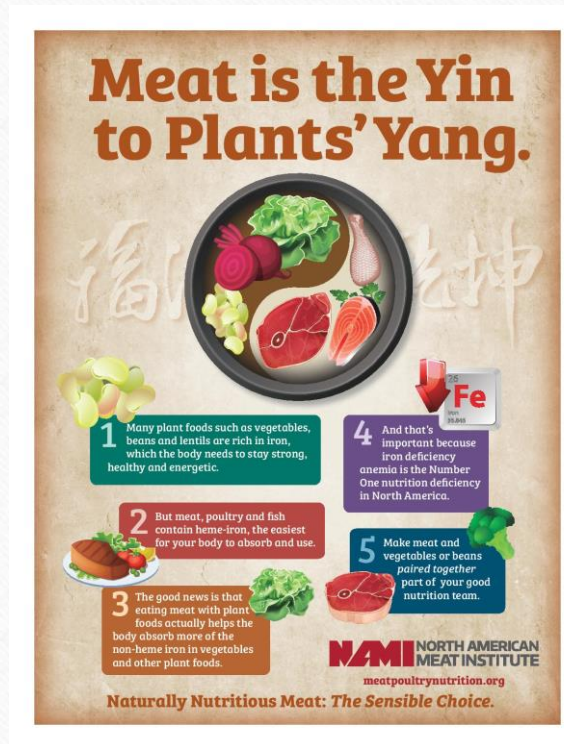
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More Bioavailability

- The phytates, tannins, and other compounds in plants reduce absorption of non-heme iron, they have no effect on heme iron from meat and poultry.
- **Emerging research** suggests that at least 50 g, or about 2 oz, of meat, poultry, or fish may improve iron absorption from a meal by about 45%.
- Power Plates concept



Muscle Development and Maintenance

- Age-related muscle loss (sarcopenia) affects an estimated 45 percent of the older U.S. population.
- Researchers suggest increasing protein consumption to 25 to 30 grams per meal for older adults to prevent muscle loss.
 - Researchers found that consuming the extra protein at meals rather than spreading it out in smaller increments during the day was most effective.
- The Academy of Nutrition and Dietetics position paper suggests that protein requirements may be higher for older adults; they also recommend 25 to 30 g of protein at each meal for older adults.)

Satiety and Weight Loss

- When we eat, the stomach expands and its nerve receptors detect food and pressure on the stomach walls.
 - Larger meal causes sense of fullness better than smaller meal , but certain foods also are more effective at communicating fullness than others.
- In the mid-1990s, scientists developed a satiety index – a measure of the feeling of fullness created by foods – and determined that meat had one of the highest satiety indexes among all foods.
 - It takes fewer “meat calories”. than “croissant calories” to feel full
- Research in recent years has shown the effectiveness of high protein, low fat diets in weight loss that could be maintained more effectively than other diets in the long term. Results highlighted that people reported more satiety in 3 out of 5 high protein diets studied.



What About the Fat?

- Fats are essential nutrients that give the body energy, and help the body absorb fat soluble vitamins like A, D, E and K.
- **Saturated fat** is solid at room temperature.
 - Mostly in animal foods as well as tropical oils, such as coconut oil, palm oil, and cocoa butter.
- **Trans fats** are naturally occurring unsaturated fats (conjugated linoleic acid, vaccenic acid) found animal foods and are considered safe
 - Artificial trans fats that are created by adding hydrogen to liquid vegetable oils to make them more solid.
 - In 2015, FDA concluded artificially hydrogenated oils are no longer safe in human food, need to be removed from processed foods in three years.

What About the Fat?

- **Monounsaturated fat** is found in avocado, nuts, and vegetable oils, such as canola, olive, and peanut oils.
- **Polyunsaturated fat** is found in vegetable oils such as safflower, sunflower, sesame, soybean, and corn oils, main fat in seafood.
 - **Omega-3 fatty acids** are found in soybean oil, canola oil, walnuts, and flaxseed. They are also found in fatty fish and shellfish as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Meat and poultry also contain Omega-3 fatty acids, but at lower levels than fish.
 - **Omega-6 fatty acids** are found mostly in liquid vegetable oils like soybean oil, corn oil, and safflower oil.
 - Meat and poultry also are rich sources of Omega-6 fatty acid. Pork, chicken and beef are among the top ten sources of Omega 6-fatty acids.

Big fat controversy: changing opinions about saturated fats

Laura Cassiday

- Nutritionists have long vilified saturated fat for its propensity to raise LDL ("bad") cholesterol levels in the blood.
- Although initial epidemiological studies associated saturated fat intake with heart disease risk, subsequent studies have failed to confirm the link.
- Saturated fat raises HDL ("good") cholesterol levels, perhaps ameliorating its effects on LDL cholesterol.
- An unintended consequence of a low-fat diet may be increased carbohydrate intake, which could actually raise heart disease risk compared with a higher-fat diet.

In the early hours of September 24, 1955, US President Dwight D. Eisenhower suffered a massive heart attack. The popular president and war hero was visiting in-laws in Denver, Colorado, where he had enjoyed 27 holes of golf before retiring early that evening with what he thought was indigestion. Although Eisenhower recovered and went on to win a second term in office, his sudden incapacitation heightened public awareness of the growing epidemic of cardiovascular disease. Once a rare ailment, by the 1950s heart disease had become the leading cause of death in the United States. What diet, lifestyle, or other factors were responsible for this dramatic change? People were looking for a scapegoat, and nutritional scientists were soon to provide one.

Researchers were already beginning to implicate dietary fats, particularly saturated fats, in cardiovascular disease. The logic went like this: Saturated fats such as those found in butter,

meat, cheese, and eggs raised serum cholesterol in laboratory animals and humans. Because cholesterol is a major component of atherosclerotic plaques, and early studies had linked high serum cholesterol levels to heart disease, then saturated fat must cause heart disease.

In 1970, well-known nutrition researcher Ancel Keys, who developed the US Army K-rations during World War II, published his famous Seven Countries Study (Keys, A., ed., *Circulation* 42[4 Suppl.]:1-300, 1970). Keys compared the health and diet of 12,700 middle-aged men in Italy, Greece, Yugoslavia, Finland, the Netherlands, Japan, and the United States. His conclusion: Populations that ate large amounts of saturated fats in meat and dairy had more deaths from heart disease than those that ate mostly grains, fish, nuts, and vegetables.

When the US Department of Agriculture (USDA) and the US Department of Health and Human Services jointly released the first Dietary Guidelines for Americans in 1980, saturated fat played a leading villainous role. The Guidelines, which are updated every five years by an expert committee and form the basis of US nutritional policy, advised citizens to "avoid too much fat, saturated fat, and cholesterol." The United Kingdom issued similar dietary guidelines in 1984. Both guidelines recommended reducing overall fat consumption to 30% of total calories, and saturated fat to no more than 10% of calories—values that have remained essentially unchanged in subsequent iterations.

Yet recent evidence, as well as reevaluation of older studies, has questioned whether dietary fat is really as bad as the experts have been saying for the past three decades. A paper published in the January 29, 2015, edition of the BMJ's *Open Heart* examined the data on fat and cardiovascular disease available to US and UK regulatory committees at the time the 1980 and 1984 guidelines were issued (Hartcombe, Z., et al., <http://dx.doi.org/10.1136/openhrt.2014.000196>, 2015). The analysis revealed that the six randomized controlled trials available back then did not provide sufficient evidence that cutting total fat or saturated fat intake reduces deaths from heart disease. The authors conclude that the "dietary advice not merely needs review; it should not have been introduced."

Now, 35 years since the first guidelines were issued, a continued lack of consistent evidence showing that dietary saturated fats cause heart disease, as well as an improved understanding of how fats affect different

CONTINUED ON NEXT PAGE



More On Saturated Fat

- Beginning in 70s, Americans were told to reduce their saturated fat consumption to prevent heart disease. Americans responded by reducing red meat consumption and increasing their carbohydrate consumption.
- Over time, more evidence emerged that saturated fat is not clearly linked to heart disease.
- In 2010, a meta-analysis of 21 studies concluded, “There is no significant evidence for concluding that dietary saturated fat is associated with an increased risk of CHD or CVD.”
- More recently, in 2014, British researchers concluded that when carbohydrates are substituted for fat, the shift can raise levels of a dangerous type of fat in the blood called triglycerides, and lower the “good type” of cholesterol.
 - “Current evidence does not clearly support cardiovascular guidelines that encourage high consumption of polyunsaturated fatty acids and low consumption of total saturated fats.”

The screenshot displays the homepage of the *Annals of Internal Medicine* journal website. At the top, the American College of Physicians (ACP) logo is visible, along with the journal's title and a search bar. A navigation menu includes links for Home, Current Issue, All Issues, Online First, Collections, In the Clinic, and Journal Club. The main content area features a large banner stating "The full content of Annals is available to subscribers" with a "Subscribe/Learn More" link. Below this, a section for "Reviews" dated 18 March 2014 highlights a systematic review and meta-analysis titled "Association of Dietary, Circulating, and Supplement Fatty Acids With Coronary Risk: A Systematic Review and Meta-analysis" by Rajiv Chowdhury et al. The article's abstract is partially visible, mentioning a 10% increase in coronary risk. On the left side of the page, a sidebar lists various categories such as Abstract, Am J Clin, Meta-analysis, Siri-Tarini, Auth, Abstract, BACKG, OBJECT, coronary, DESIGN, study, A, RESULT, increase, 0.96, 1.1, sex, and, CONCLU, saturate, the spec.

Meat and Your Heart



- In 2015, researchers published a systematic review of randomized control trials (RCTs) that looks at dietary fat, cholesterol and the development of coronary heart disease.
 - Analyzed science that could have supported the US and UK recommendations to eat low-fat diets to prevent heart disease.
- They concluded that the evidence showed no differences in all-cause mortality and non-significant differences in heart disease mortality resulting from the dietary interventions.
- “Government dietary fat recommendations were untested in any trial prior to being introduced. Dietary recommendations were introduced for 220 million US and 56 million UK citizens by 1983, in the absence of supporting evidence from Randomized Control Trials (RCTs).”
- In August 2015 McMasters researchers published a study in the *British Medical Journal*
 - No clear association between higher intake of saturated fats and death for any reason, coronary heart disease (CHD), cardiovascular disease (CVD) or ischemic stroke.

New Research Shows Heart Benefits

- “We aimed to determine whether partial substitution of carbohydrate intake with animal protein intake from lean red meat changes blood pressure and other markers of cardiovascular disease risk in hypertensive persons.”
- “These results suggest that modest substitution of carbohydrate-rich foods with protein-rich foods may lower blood pressure in hypertensive persons.”



What Happened to Cholesterol?

- 2015 Dietary Guidelines for Americans Committee said "cholesterol is not a nutrient of concern for overconsumption."
- Many experts say dietary cholesterol was mistakenly connected to heart disease.
 - A rise in coronary artery disease led up 1977 recommendation to reduce cholesterol intake.
 - More recent evidence indicates dietary cholesterol may not play a significant role for most healthy Americans and their risk of heart disease.
- Americans are eating less cholesterol, approximately 80-100 mg less a day compared with the 1970s.

Workblog

The U.S. government is poised to withdraw longstanding warnings about cholesterol

A 0 Save for Later Reading List

By Peter Whoriskey February 10, 2015 Follow @PeterWhoriskey



Time to put eggs back on the menu? (Deb Lindsey for The Washington Post)

The nation's top nutrition advisory panel has decided to drop its caution about eating cholesterol-laden food, a move that could undo almost 40 years of government warnings about its consumption.

The group's finding that cholesterol in the diet need no longer be considered a "nutrient of concern" stands in contrast to the committee's findings five years ago, the last time it convened. During those proceedings, as in previous years, the panel deemed the issue of excess cholesterol in the American diet a public



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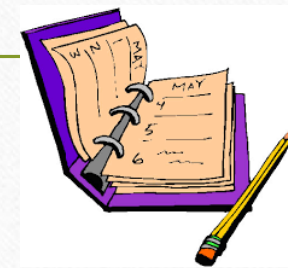
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Responding to Controversies

Keep calm and carry on

Studies of the Week

- **Epidemiology:** Researchers ask people to recall their diet and other habits in the past OR ask them keep a diary of diet and other habits going forward.
- **Bioassay:** Expose laboratory animals to agents and analyze health outcomes
- **Human trials:** Expose humans to agents and analyze health outcomes



Meat and Cancer

- IARC: Specialized cancer agency of WHO
- Objective is to promote international collaboration in cancer research
- Focus on causes and prevention
 - Elucidate the role of environmental and lifestyle risk factors and study their interplay with genetic background.
 - This emphasis reflects the understanding that most cancers are, directly or indirectly, linked to environmental factors and thus are preventable.

International Agency for Research on Cancer



-
- Coordinates research across countries and organizations
 - Monographs Program evaluates the evidence of the carcinogenicity of specific exposures.
 - Global reference for cancer information

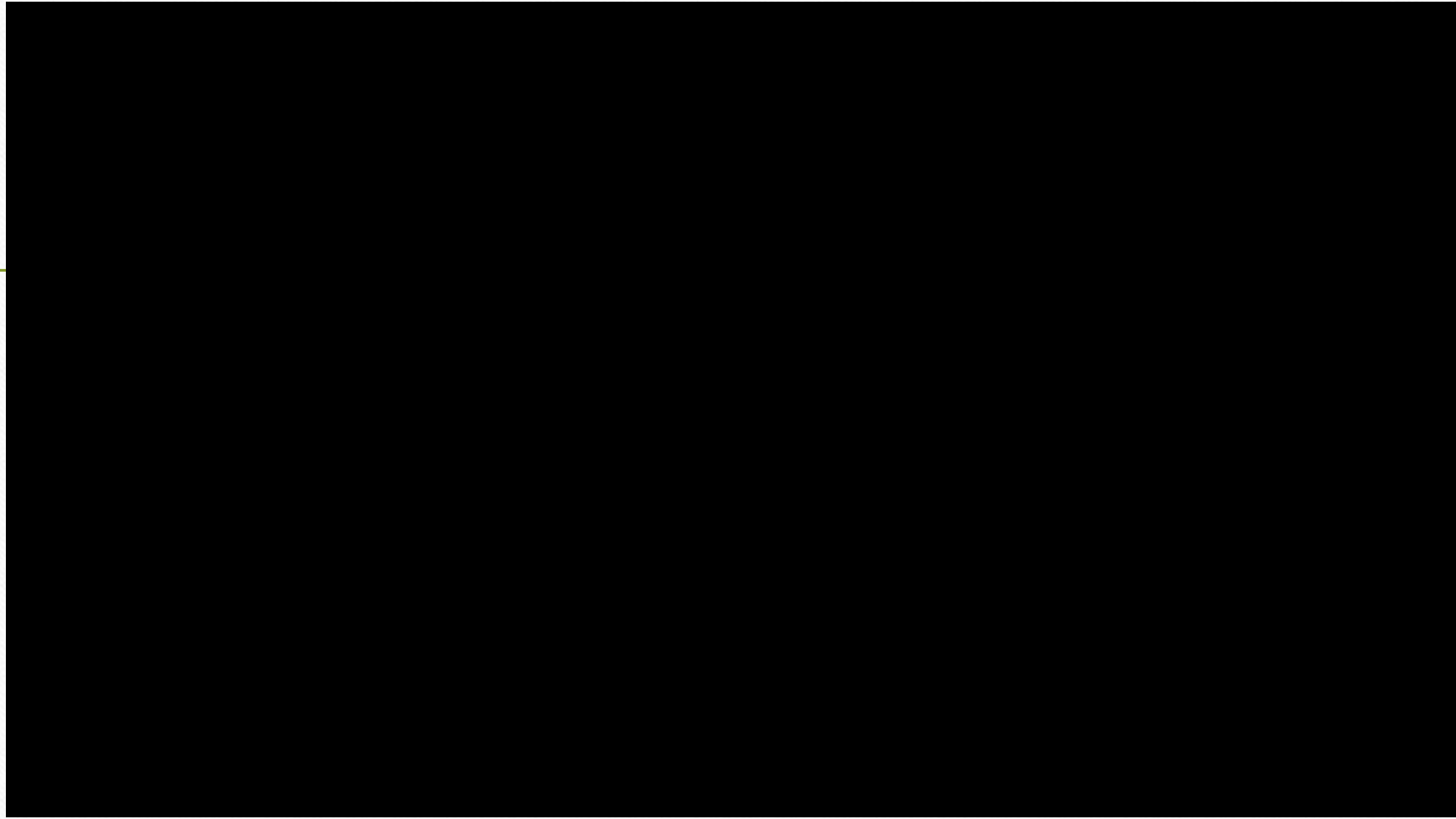
Hazard vs. Risk

- A meteor falling from the sky is a *hazard* – it *could* happen.
- But a measured risk (*a risk assessment*) tells us how *likely* it is to happen.

Examples of International Agency for Research on Cancer (IARC) Carcinogenic Classifications



¹ <http://www.24d.roveto/IARC-and-24D.php>
² <http://monographs.iarc.fr/ENG/Classification/ClassificationsAlphaOrder.pdf>
³ <http://www.epa.gov/tnaheo/hlthof/caprolac.html>



<https://www.youtube.com/watch?v=CbBkB81ySxQ>

Final Determination

- Red Meat is "probably carcinogenic to humans"
 - Group 2A
 - 100 g consumed per day increased risk of colorectal cancer by 17%
- Processed Meat is "carcinogenic to humans"
 - Group 1
 - 50 g consumed per day increased risk of colorectal cancer by 18%

Perspective: Lifetime Risk

- Lifetime risk of colon cancer is 4.4 percent for women and 4.7 percent for men
- 90 percent of cases occur in people over 50
- Theoretically...Eating a 3.5 oz.(100 gram serving) of red meat every day could take your risk from 4.4% to 5.15% or 4.7 to 5.5%
- Theoretically...eating about 2 oz. (50 gram serving) of processed meat every day could take your risk from 4.4% to 5.2% or 4.7 to 5.6

From the American Cancer Society

Writing About Carcinogen Lists

“The lists themselves say nothing about how likely it is that an agent will cause cancer. Carcinogens do not cause cancer at all times, under all circumstances. Some may only be carcinogenic if a person is exposed in a certain way (for example, swallowing it as opposed to touching it). Some may only cause cancer in people who have a certain genetic makeup. Some of these agents may lead to cancer after only a very small exposure, while others might require intense exposure over many years. Again, you should refer to the agencies’ reports for specifics.

Even if a substance or exposure is known or suspected to cause cancer, this does not necessarily mean that it can or should be avoided at all costs. For example, estrogen is a known carcinogen that occurs naturally in the body. Also, exposure to ionizing radiation is known to cause cancer, with increased risks even at low levels of exposure. Yet there is no way to completely prevent exposure to natural sources of radiation such as cosmic radiation from the sun or radon in soil. These lists also include many commonly used medicines, particularly some hormones and drugs used to treat cancer. For example, tamoxifen increases the risk of certain kinds of uterine cancer but can be very useful in treating some breast cancers, which may be more important for some women. If you have questions about a medicine that appears on one of these lists, be sure to ask your doctor.”

Media centre

Links between processed meat and colorectal cancer

WHO statement
29 October 2015

WHO has received a number of queries, expressions of concern and requests for clarification following the publication of a report from the International Agency for Research on Cancer (IARC) relating to processed meat and colorectal cancer.

IARC was established 50 years ago through a resolution of the World Health Assembly as a functionally independent cancer agency under the auspices of WHO. Its programme of work is approved and financed by its participating states.

IARC's review confirms the recommendation in WHO's 2002 "Diet, nutrition and the prevention of chronic diseases" report, which advised people to moderate consumption of preserved meat to reduce the risk of cancer. The latest IARC review does not ask people to stop eating processed meats but indicates that reducing consumption of these products can reduce the risk of colorectal cancer.

WHO has a standing group of experts who regularly evaluate the links between diet and disease. Early next year they will meet to begin looking at the public health implications of the latest science and the place of processed meat and red meat within the context of an overall healthy diet.

For more information, please contact:

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Email: hartlg@who.int

1,156 Photos and videos

1,700,000,000

WHO has received a number of queries, expressions of concern and requests for clarification following the publication of a report from the International Agency for Research on Cancer (IARC) relating to processed meat and colorectal cancer.



WHO @WHO · 16h
Early 2016, WHO experts will start looking at the place of processed meat & red meat within the context of an overall healthy diet

WHO @WHO · 17h
Meat provides a number of essential nutrients and, when consumed in moderation, has a place in a healthy diet
goo.gl/3TTJav

WHO @WHO · 17h
The health risk of processed meat are vastly different of those cigarettes & asbestos.
Cigarettes & asbestos has no safe level of exposure

WHO @WHO · 17h
The #cancer review on processed meat does not ask ppl to stop eating meat, but to reduce intake to lower cancer risk
goo.gl/3TTJav

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Do you have questions?

our experts on our Twitter chat!

chat@WHO

WHO - 12:00 CDT - 10:00 ET - 11:00 GMT

WHO

@WHO · 16h

Early 2016, WHO experts will start looking at the place of processed meat & red meat within the context of an overall healthy diet

75

35

View conversation

WHO

@WHO · 17h

Meat provides a number of essential nutrients and, when consumed in moderation, has a place in a healthy diet

goo.gl/3TTJav

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View conversation

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@WHO · 17h

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63

View conversation

WHO

@WHO · 17h

The [#cancer](#) review on processed meat does not ask ppl to stop eating meat, but to reduce intake to lower cancer risk

goo.gl/3TTJav

Meat Myths: Hormones

- Hormones not permitted in poultry or pork production.
- Hormones are permitted in beef production.
- All living things, plant and animal, have hormones.
- Cabbage, soy are far larger sources of estrogen than beef from implanted and non-implanted cattle.

Comparisons regarding the “level” of hormones in common foods, estrogenic activity:

Food	Estrogenic activity in nanograms/lb of food
Soybean oil	908,000
Cabbage	10,896
Eggs	15,890
Milk	59
Beef from pregnant cow	636
Beef from implanted cattle	10
Beef from non-implanted cattle	7

Adapted from Preston, 1997.

Estrogen produced, in nanograms per day:

Item	Estrogen produced, nanograms/day
Pregnant woman	90,000,000
Non-pregnant woman	5,000,000
Adult man	100,000
Pre-pubertal children	40,000
3 oz beef from implanted cow	1.9

Adapted from Preston, 1997.

And

Antibiotics: A Ball of Confusion

- Used to treat, prevent and control disease in livestock
- Use for growth promotion being eliminated under recent FDA guidance
- USDA monitors for antibiotic residues, which are rare in the U.S.
 - Meat is essentially “antibiotic free”
- Bacteria naturally have resistance to some antibiotics
 - Resistance to some antibiotics does not = SUPERBUG
- All bacteria, whether antibiotic resistant or not, are destroyed through cooking.
- CDC says biggest contributor to antibiotic resistance is use in people

Meat Myths: Nitrate and Nitrite

- Nitrate and nitrite are essential curing ingredients that prevent botulism
- Strictly regulated by FDA and USDA
- Since they've been used commercially, no botulism cases linked to commercially prepared processed meats
- Nitrate and nitrite do NOT cause cancer.
- National Toxicology Program bioassay in 2000 concluded they are not carcinogens at the levels used.

Nitrate and Ni

- 93 percent of nitrite comes from vegetables and human saliva, 5 percent from cured meats
- New research shows health benefits of nitrate and nitrite:
 - Regulates blood pressure
 - Prevents injury from heart attack
 - Prevents brain damage following a stroke
 - Prevents preeclampsia in pregnant women
 - Promotes wound healing
 - Promotes successful organ transplantation
 - Treats sickle cell anemia
 - Prevents stomach ulcers

Nitrite Safety ar

[Dietary inorganic nitrate: Fi](#)
[Sodium Nitrite Reduces Sy](#)
[Potential Therapeutic Effic](#)
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[Dietary nitrite supplementa](#)
[NO Generation From Nitrite](#)
[Cytoprotective effects of ni](#)
[The nitric oxide/cyclic GMP](#)

Hot dog preservative could be disease cure

WASHINGTON (AP) — Could the salt that preserves hot dogs also preserve your health? Scientists at the National Institutes of Health think so. They've begun infusing sodium nitrite into volunteers in hopes that it could prove a cheap but potent treatment for sickle cell anemia, heart attacks, brain aneurysms, even an illness that suffocates babies.



Health care providers check on a volunteer participating in a sodium nitrite study.

By Haraz Ghanbari, AP

Those ailments have something in common: They hinge on problems with low oxygen, problems the government's research suggests nitrite can ease.

Beyond repairing the reputation of this often maligned meat preservative, the work promises to rewrite scientific dogma about how blood flows, and how the body tries to protect itself when that flow is blocked. Indeed, nitrite seen heart, the lungs, the brain — against cellular death when th oxygen.

April 2015

Association White Paper, 2011

2007

Journal of Sciences, 1994

Food and Emotion



Persuading About Food

- Validate confusion
- Be respectful
- Ask questions to clarify concerns
 - Sometimes the process helps clarify what people DON'T know
- Simplify messages, offer more on request
 - Three messages ARE optimal
- Share materials, emphasize scientifically sourced information
- Encourage them to speak to their doctor
- Emphasize choice, convey openness

Negative Messages Penetrate Over Time

Equal and Opposite Messages Are Needed

- Don't expect to change ingrained views all at once
- Repeated exposure to information is needed
- Chances are, people want to consume our products
 - They are seeking permission and we must help give it.

Resources

- Meatpoultrynutrition.org
 - Infographics
 - Nutrition Brochure
 - MeatMythCrusher videos
- MyMeatUp.org
- International Food Information Council,
www.ific.org
- Academy of Nutrition and Dietetics
- Google Scholar

Nutrition and Health Myths:

NEW - Spinach and Other Vegetables are Equally Good Sources of Iron as Meat

NEW - Red Meat Consumption Is a Primary Contributor to Obesity in the U.S.

Americans Eat Too Much Meat And Its Saturated Fat Content Leads To Heart Disease

Americans Get The Most Nitrite From Cured Meats

Nitrite In Cured Meat Is Linked To Diseases Like Cancer

Grass-Fed Beef Is More Nutritious Than Beef From Cattle Finished On Corn And Grains

Processed Meat Is Unhealthy and Should Be Avoided

Simply Cutting Meat From Your Diet Will Make it Healthier

Sodium Reduction in Processed Meat Products is as Simple as Removing Salt from the Recipe

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Meat: A Key Player on Your Wellness Team

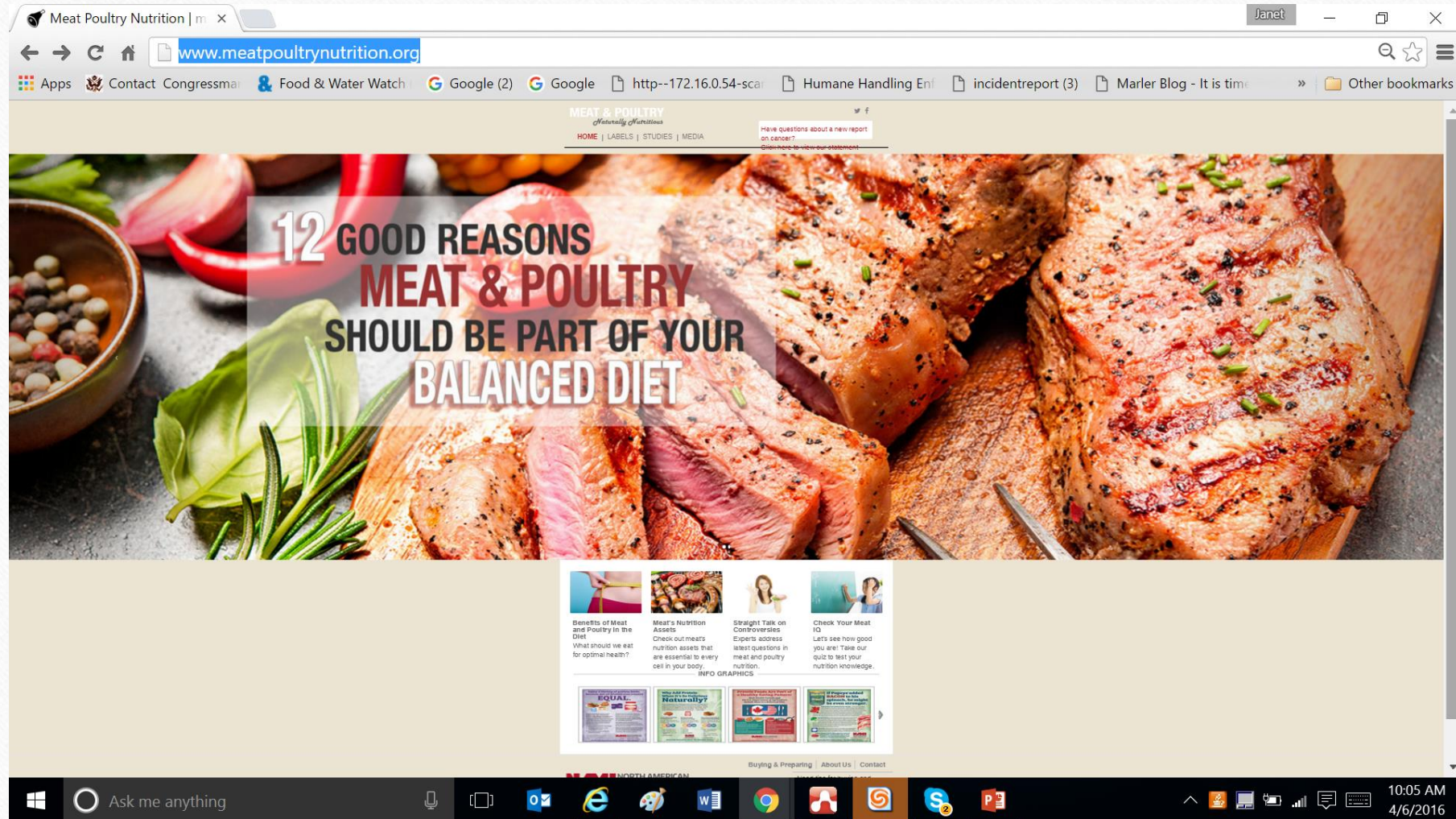
Who's on your wellness team?

Meat and poultry are part of a healthy, balanced eating plan that draws on various food groups like a sports team. The team functions best when all players fulfill their roles in a coordinated way.

The human body needs a wide range of foods, including a variety of foods from within each food group, including Protein Foods, Dairy, Vegetables, Fruits, and Grains. Each group is formed based on the unique nutrient profile it brings to MyPlate.



DOWNLOAD NOW



<http://www.meatpoultrynutrition.org/>

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