

Is Low Carb Enough?

A Look at Food Quality
and Ancestral Principles

Erynn Kay, PA-C

Low Carb Breckenridge, 2018

Disclosures

I have no financial interest or affiliation concerning material discussed in this presentation.



Weston A. Price, DDS



“Racial Stock”



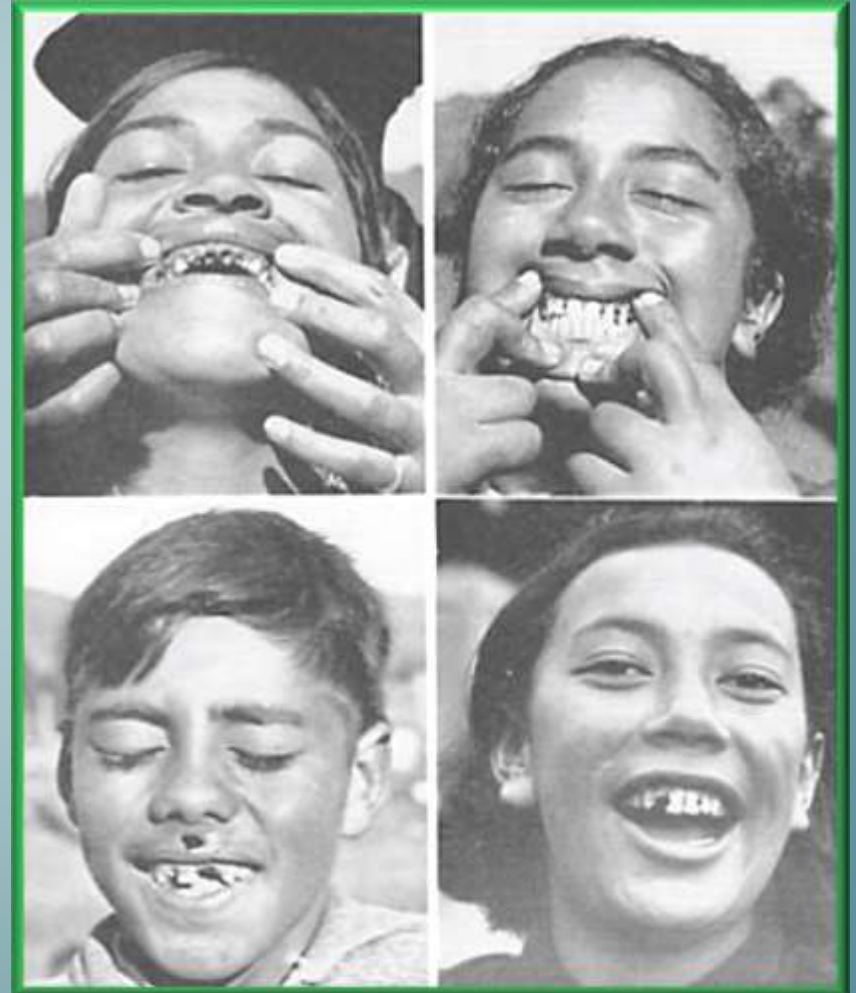
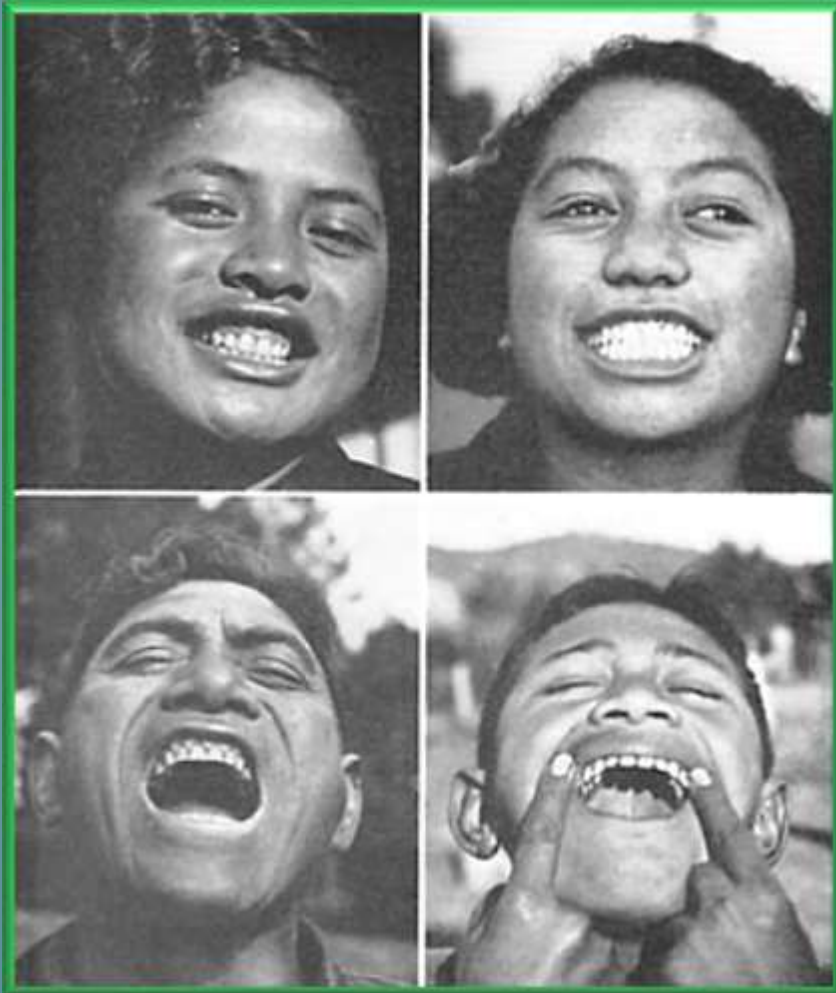
Modernized

...y, culture, and
...uch as latitude,
...limate

Maori: Isolated vs. Modernized

“In my studies...I find that it is not accident but accumulated wisdom regarding food that lies behind their physical excellence and freedom from our modern degenerative processes.”

-Weston A. Price, DDS

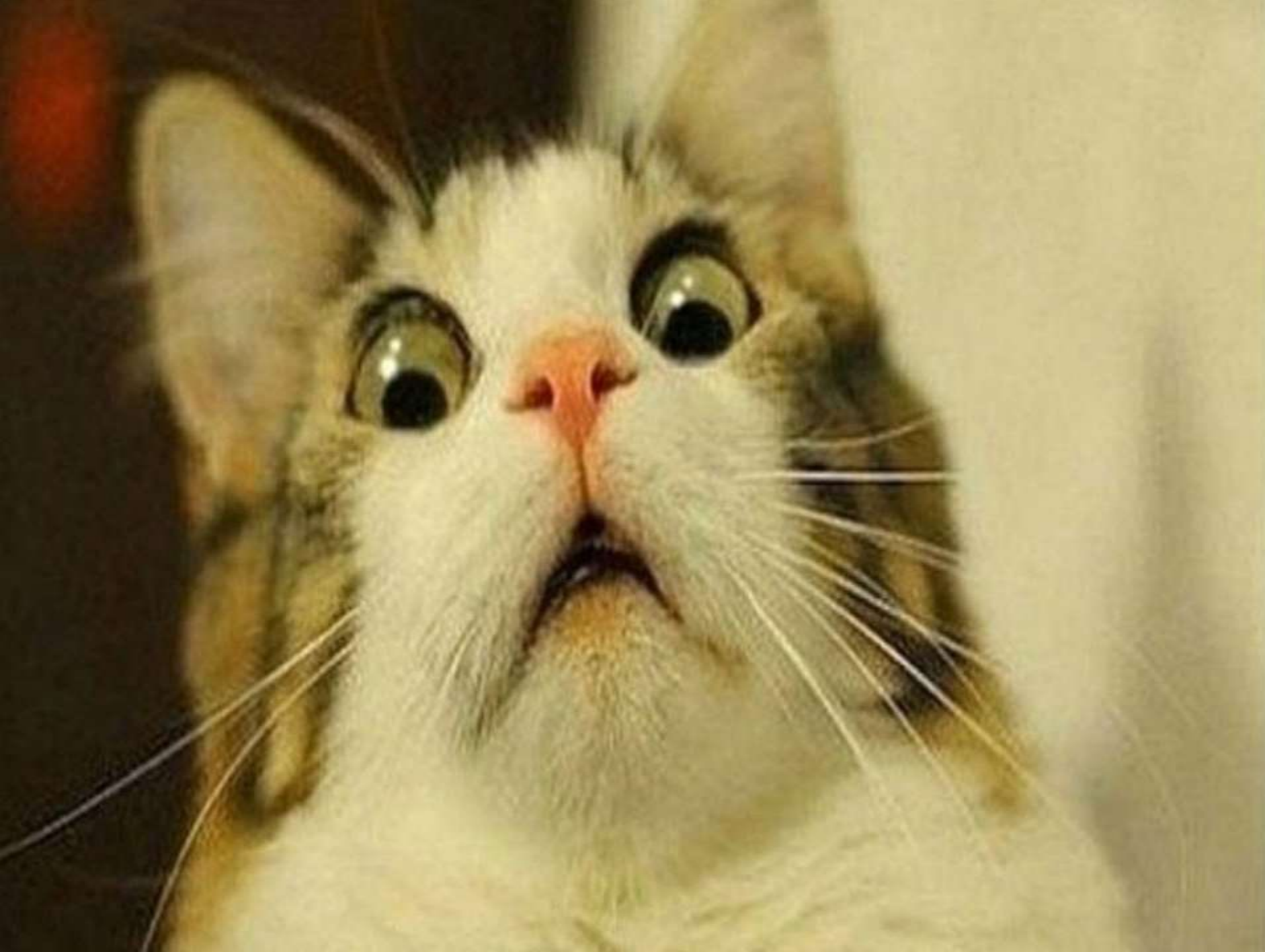


Characteristics of Traditional Diets

- NO refined or denatured foods
- Contained animal foods; whole animal consumed
- Some of animal foods raw
- 4x minerals and water soluble vitamins; 10x fat soluble vitamins
- High content of enzymes and probiotics
- Nuts, seeds, and grains were soaked/sprouted/fermented/leavened
- Fat content varied (30-80% of diet) but only 4% or less from polyunsaturated oils
- Omega 6 = Omega 3 (1:1)
- Salt used
- Provisions made for future generations

Percentage of Dental Caries

| <u>Group</u> | <u>Isolated</u> | <u>Modern</u> |
|-----------------------|-----------------|---------------|
| Swiss | 4.60 | 29.8 |
| Gaelics | 1.20 | 30.0 |
| Eskimos | 0.09 | 13.0 |
| Northern Indians | 0.16 | 21.5 |
| Seminole Indians | 4.00 | 40.0 |
| Melanesians | 0.38 | 29.0 |
| Polynesians | 0.32 | 21.9 |
| Africans | 0.20 | 6.8 |
| Australian aborigines | 0.00 | 70.9 |
| New Zealand Maori | 0.01 | 55.3 |



Ways we alter our food:

Pasteurize

Partially Hydrogenate

Feed our animal proteins grains, antibiotics, and hormones

REFINE

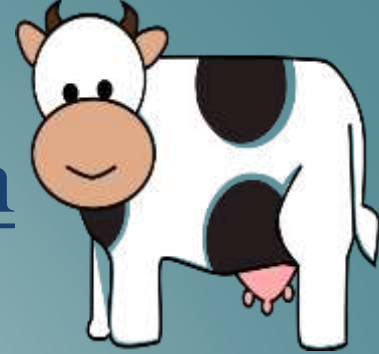
Homogenize

Spray with pesticides/herbicides

Genetically modify

Chemically alter

Problems with Pasteurization



- Kills bacteria, including those that are beneficial (probiotics)
- Denatures live enzymes that are present to aid in digestion of the raw milk= digestive distress
- Denatures immune complex proteins
- Vitamins and minerals less available for absorption, especially C, B6, B12, fat soluble vitamins.
- Increases risk of diseases: heart disease, osteoporosis, asthma, allergies, arthritis

Destruction of Built-In Safety Systems by Pasteurization

| Component | Breast Milk | Raw Milk | Pasteurized Milk | UHT Milk | Infant Formula |
|---------------------------------------|-------------|----------|------------------|-------------|----------------|
| B-lymphocytes | active | active | inactivated | inactivated | inactivated |
| Macrophages | active | active | inactivated | inactivated | inactivated |
| Neutrophils | active | active | inactivated | inactivated | inactivated |
| Lymphocytes | active | active | inactivated | inactivated | inactivated |
| IgA/IgG Antibodies | active | active | inactivated | inactivated | inactivated |
| B₁₂ Binding Protein | active | active | inactivated | inactivated | inactivated |
| Bifidus Factor | active | active | inactivated | inactivated | inactivated |
| Medium-Chain Fatty Acids | active | active | reduced | reduced | reduced |
| Fibronectin | active | active | inactivated | inactivated | inactivated |
| Gamma-Interferon | active | active | inactivated | inactivated | inactivated |
| Lactoferrin | active | active | reduced | inactivated | inactivated |
| Lactoperoxidase | active | active | reduced | inactivated | inactivated |
| Lysozyme | active | active | reduced | Inactivated | inactivated |
| Mucin A/Oligosaccharides | active | active | reduced | reduced | inactivated |
| Hormones & Growth Factors | active | active | reduced | reduced | Inactivated |

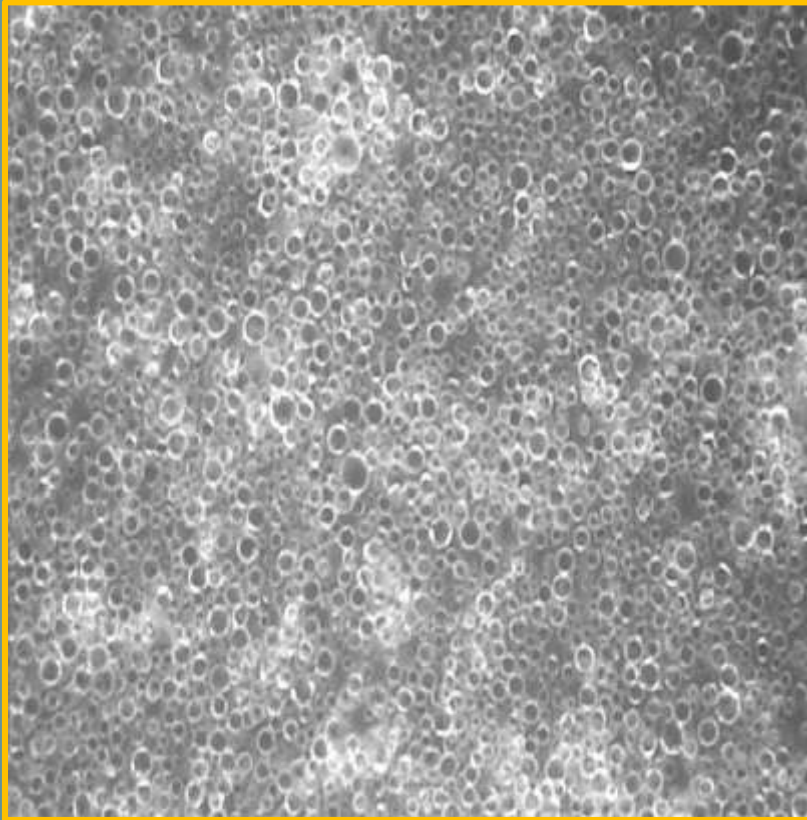
1. *Scientific American*, December 1995.
2. *The Lancet*, 17 NOV 1984;2(8412):1111-1113.

Lowered Nutrient Availability in Pasteurized Milk

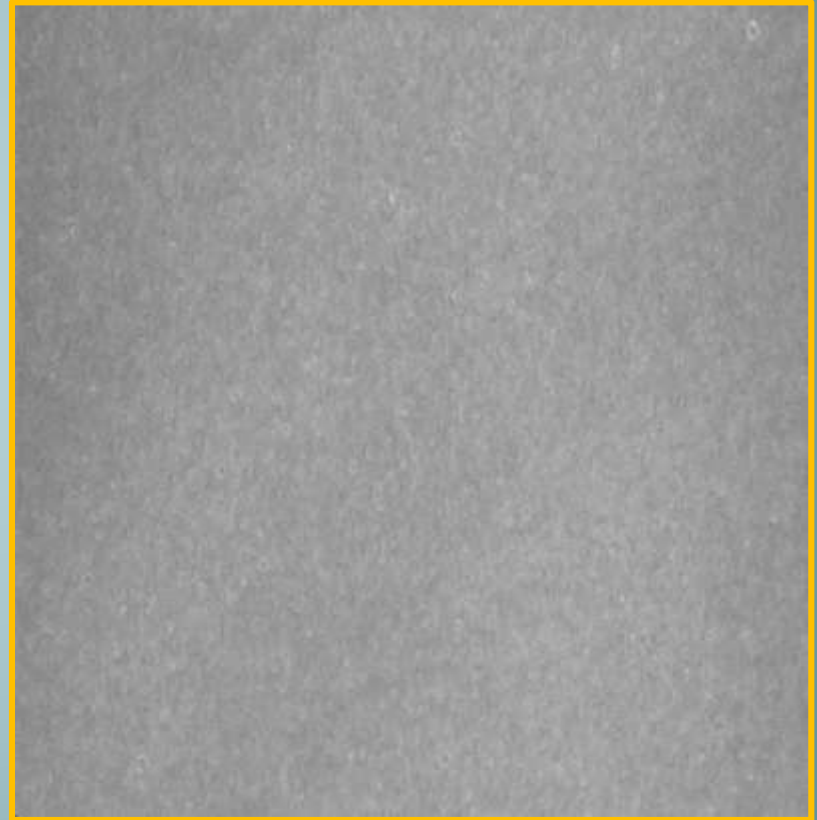
| | |
|------------------------|--|
| Vitamin C | Raw milk but not pasteurized can resolve scurvy. “. . . Without doubt. . . the explosive increase in infantile scurvy during the latter part of the 19 th century coincided with the advent of use of heated milks. . .” Rajakumar , <i>Pediatrics</i> . 2001;108(4):E76 |
| Calcium | Longer and denser bones on raw milk. Studies from Randleigh Farms . |
| Folate | Carrier protein inactivated during pasteurization. Gregory . <i>J. Nutr.</i> 1982, 1329-1338. |
| Vitamin B12 | Binding protein inactivated by pasteurization. |
| Vitamin B6 | Animal studies indicate B6 poorly absorbed from pasteurized milk. Studies from Randleigh Farms . |
| Vitamin A | Beta-lactoglobulin , a heat-sensitive protein in milk, increases intestinal absorption of vitamin A. Heat degrades vitamin A. Said and others . <i>Am J Clin Nutr.</i> 1989;49:690-694. Runge and Heger . <i>J Agric Food Chem</i> . 2000 Jan;48(1):47-55. |
| Vitamin D | Present in milk bound to lactoglobulins , pasteurization cuts assimilation in half. Hollis and others . <i>J Nutr.</i> 1981;111:1240-1248; <i>FEBS Journal</i> 2009 2251-2265. |
| Iron | Lactoferrin , which contributes to iron assimilation, destroyed during pasteurization. |
| Iodine | Lower in pasteurized milk. Wheeler and others . <i>J Dairy Sci</i> . 1983;66(2):187-95. |
| Minerals | Bound to proteins, inactivated by pasteurization; Lactobacilli , destroyed by pasteurization, enhance mineral absorption. <i>BJN</i> 2000 84:S91-S98; MacDonald and others . 1985. |

Homogenization

Raw milk magnified 800x



Pasteurized, homogenized milk magnified 800x



Hydrogenating/Refining Oils

Partially hydrogenated “trans” fats:

- Turns liquid fat into solid
- Chemically altered product that body incorporates into it's own cell membranes
- Raises LDL, lowers HDL
- Recognized as unsafe
- Label must indicate if $>0.5\text{g}$ trans fat per serving



“Vegetable” oils

- Not made from vegetables!
 - Soy, canola, cottonseed, corn- often GMO
- Significant processing required to produce
- Poor omega 6:3 ratio (20:1)
- Can be used as a liquid cooking oil, creating dangerous byproducts like aldehydes

Issues with Animal Proteins

Does an animal's natural diet matter?

- Grass fed vs. Grain fed
- Pasture-raised chickens vs. other
- Hormones
- Antibiotics
- Herbicides/Pesticides on feed



The Four Pillars



| Common deficiency | Why we need it | Foods highest in nutrient |
|---------------------|---|---|
| Vitamin A | Eye health | Organ meat, fish, meat, dairy; beta carotene in produce |
| Vitamin D | Skin, mental health, metabolism, immune health, bone health, gut health | Organ meat, fish, eggs, sunshine |
| Vitamin E | Antioxidant, brain health, normalizes cholesterol | Green leafy veg, broccoli, nuts/seeds |
| Vitamin K1 | Blood clotting | Green veg, fish, eggs |
| Vitamin K2 | Bone health, heart health | Ferments, liver, eggs, dairy |
| B vitamins | Metabolism, energy, immune health, mood | Leafy greens, nuts, meat/chicken, fish, eggs, avocado |
| Calcium | Bone health, nervous system | Leafy greens, sardines, bone broth, dairy |
| Choline | Cell membranes, nervous system, brain health | Organ meat, fish, dairy, eggs |
| Iodine | Thyroid health | Sea vegetables, yogurt, cheese |
| Magnesium | Involved in >300 enzymatic reactions in body | Green leafy veg, nuts/seeds, avocados, fish, chocolate |
| Omega 3 fatty acids | Heart, brain, and eye health, helps balance cholesterol | Fish, flaxseeds, walnuts, grass fed beef |
| Selenium | Thyroid health, antioxidant | Brazil nuts, seafood, turkey, eggs |
| Zinc | Multiple reactions in body | Oysters, lamb, grass fed beef, chocolate |

Nutritional deficiencies = disease!

- Heart disease
- Osteoporosis
- Anemia
- Depression
- Anxiety
- Osteoarthritis
- Cancer (nutrition = positive epigenetic change!)
- Metabolic disease
- Autoimmune disease
- Skin disorders (eczema, acne, psoriasis)
- Hypothyroidism



We need good nutrition for **BASIC CELLULAR FUNCTION!**

Become a nutrient seeker!

Organic

Pasture-raised

Raw

Grass-fed

Sprouted

Fermented

Broth

Organ meat



References

- Asprey, Dave. Grass-Fed Meat vs. Grain-Fed Meat Part I. <https://blog.bulletproof.com/grass-fed-meat-part-1/>. Accessed October, 2017.
- Asprey, Dave. Why Getting Your Nutrition Only from Food is a Bad Idea. <https://blog.bulletproof.com/why-you-need-supplements/>. Accessed October, 2017.
- A Campaign for Real Milk brochure. The Weston A. Price Foundation. <http://www.realmilk.com/brochures/real-milk-brochure/>. March 26, 2017. Accessed October, 2017.
- Grace Communications Foundation. rGBH. <http://www.sustainabletable.org/797/rbgh>. Accessed October, 2017.
- Hoffman, Matthew M.D. Safer Food for a Healthier You. WebMD. <https://www.webmd.com/diet/features/safer-food-healthier-you#1>. Accessed October, 2017.
- Kay, Erynn PA-C. Should I Supplement?: When Diet Isn't Enough. Posh Paleo Magazine, Oct 2017 issue.
- Kremer, Jason, CD, CCSP, CSCS. Deficiencies and Supplements. Paleo Magazine, Oct/Nov 2017 Issue; pgs. 54-56.
- Kresser, Chris. Grass-Fed vs. Conventional Meat: It's Not Black or White. <https://chriskresser.com/grass-fed-vs-conventional-meat-its-not-black-or-white/>. January 4, 2011. Accessed October, 2017.
- Kresser, Chris. How too much omega-6 and not enough omega-3 is making us sick. <https://chriskresser.com/how-too-much-omega-6-and-not-enough-omega-3-is-making-us-sick/>. May 8, 2010. Accessed October, 2017.
- Kresser, Chris. Raw Milk Reality: Benefits of Raw Milk. <https://chriskresser.com/raw-milk-reality-benefits-of-raw-milk/>. May 18, 2012. Accessed October, 2017.
- Kresser, Chris. Raw Milk Reality: Is Raw Milk Dangerous? <https://chriskresser.com/raw-milk-reality-is-raw-milk-dangerous/>. May 9, 2012. Accessed October, 2017.
- Kresser, Chris. Raw Milk Reality: Is Raw Milk Worth the Risk? <https://chriskresser.com/raw-milk-reality-is-raw-milk-worth-the-risk/>. May 25, 2012. Accessed October, 2017.
- Kresser, Chris. Why Grass-Fed is Best- part I. <https://chriskresser.com/why-grass-fed-is-best/>. April 20, 2008. Accessed October 2017.

References cont.

- McAfee, AJ, et al. Red meat from animals offered a grass diet increases plasma and platelet n-3 PUFA in healthy consumers. *British Journal of Nutrition*. 2011; 105: 80–89.
- Price, Weston A. DDS. *Nutrition and Physical Degeneration*. 6th edition. New Canaan, CT: Keats Publishing Inc; 1998.
- Scientific American. *Dirt Poor: Have Fruits and Vegetables Become Less Nutritious?*
<https://www.scientificamerican.com/article/soil-depletion-and-nutrition-loss/>. Accessed October, 2017.
- Shanahan, Catherine, M.D. *Deep Nutrition*. 1st edition. New York, NY: Flatiron Books; 2017.
- Spiegel, Alison. *Pasteurized vs. Homogenized Milk: What's the Difference?* Huffington Post.
https://www.huffingtonpost.com/2014/07/22/pasteurized-homogenized-milk_n_5606168.html. July 22, 2014. Accessed October, 2017.
- Teicholz, Nina. *The Big Fat Surprise*. 1st edition. New York, NY: Simon and Schuster; 2014.
- UT News. *Study suggest nutrient decline in garden crops over past 50 years*. The University of Texas at Austin. https://news.utexas.edu/2004/12/01/nr_chemistry. December 1, 2004. Accessed October, 2017.
- The Weston A. Price Foundation. <https://www.westonaprice.org/>. Accessed October, 2017.
- The Weston A. Price Foundation. *A Campaign for Real Milk*. Powerpoint presentation. 2011.
- Wolfe, Liz NTP. *Eat the Yolks*. 1st edition. Las Vegas, NV: Victory Belt Publishing Inc; 2013.



Dr. Price's Tribal Food AND Cavity Chart



10 YEARS, 14 TRIBES

COLOR KEY:

- Isolated Diet
- Modernized Diet
- Fermented
- Dried
- Frozen & Dried
- Cultured or Clabbered



| Tribe | Fish/Meat/Poultry | Organ Meats | Fats | Dairy | Eggs | Bones & Broth | Nuts & Seeds | Fruit | Vegetables | Grains | Other Foods | % of Cavities |
|---------------------------|--|--|-------------------------------------|---|------------|---------------------------|-----------------------------------|--|---|---|---|---------------|
| African Tribes | Cattle, Goat, Large winged Arbs & Isolated Arbs, Ant Pie, Isolated Pigeons, Fish, Fish, Elephant, Isolated Insects and Fresh Water Fish Isolated | Fish Eggs, Insect Eggs, Ant Eggs, Liver, Sex glands of Male Animals eaten by man | | Cattle, Goat, & Camel Milk and Isolated Dairy Products | | | | Various, including many varieties of Saffron | Sweet Potatoes, Beans, Corn, Isolated Root (Banana) | Fresh Ground Beans, Roasted Corn Indian Millet, Millet, Maize, Unga Unga (quinoa), Locust flour | Blood (cow), Flax (protein component of blood), Salt from vitriol, Clay for digestion | 0.2% |
| | | | | | | | | Canned | Canned | Polished Rice | White Flour Products, Sugar | 6.8% |
| Amazon Jungle Indians | Rat, Other Animal Life from Swamps and Bush, Birds, Water Fowl | | | | Eggs | | Various | Tropical, including Bananas | Vegetables, Wild Plants, Yucca (Not the North American plant) | | | 0% |
| | Fermented Animal Foods | | | | | | | Canned | Canned | Polished Rice | Fermented Flour Products, Sugar, Sweetened Goods | 40%+ |
| Australia Aborigines | Marsupials, Kangaroos & Wallabies, Wild Animal Life, Insects, Rodents, Grubs, Water Birds, Sea Foods: Fish, Dagon (sea cow), Shellfish | All edible parts of Animals, including the walls of the viscera and internal organs. | | | Birds Eggs | | Seeds, Grass Seeds | Bananas | Sea Plants, Plant Life (Rocks, Spores, Berries, Red & Pink) | | Clay, for digestion | 0% |
| | | | | | | | | | | | Not specified | 70.8% |
| Coastal Peruvians | Sea Foods, Anguilla Fish, Land Animals | Isolated Fish Blood (eaten by the young), Fish Eggs | | | Eggs | | Fern Plants, Vegetables, and Teas | Various | Various including Corn, Beans, Squash | | | 0.04% |
| | | | | | | | | | | | | 40%+ |
| Eskimos | Seal Meat, Isolated Salmon, Other Fish, and Porcupine Fish, Caribou | Whole Skin, Fish Organs, Caribou Organs, Isolated Salmon & other Fish Eggs | Seal Oil | | | | Ground Nuts Seeds | Berries, including Cranberries | Greens, Kelp, Flower Blossoms & Small Grass preserved in Seal Oil Water Grapes, Plants, and Bulbs | | | 0.08% |
| | | | | | | | | | | | Not specified | 13% |
| Gaelics (Gaelts) | Lobster, Crabs, Oysters, Clams, Cod and other Fish | Heads, Livers, Eggs, and other organs of Fish | | Dairy, limited | | | | | Vegetables, limited in season, Marine Plants | Dots as oatmeal and oatcake, and a little Barley | | 1.20% |
| | Fish w/o livers | Fish eggs | | | Eggs | | | Canned Marmalades, Sweetened Jellies, Jams | Canned | Dots, White Flour | Angel Food Cake, White Flour Products, Confections, Cakes, Chocolate | 30% |
| High Andes Peruvians | Llama, Alpaca, Vicuna, Deer, Birds, Land Animals, Guinea Pigs, Pigs, Cow, Horse, Pigs, Fresh water Clams, Small Animals | Fish Eggs, Isolated Eggs | | | | Guinea Pig Stew | | Fruits, including Bananas | Isolated Beans, Isolated Milk (Cheese) | Guinea Corn, roasted | Clay, for digestion | 0% |
| | | | | | | | | Canned | Canned | Polished Rice | Fermented Flour Products, Sugar, Sweetened Foods | 40%+ |
| Melanesians | Coconut Crabs, Spider Crab, Lobster Crabs, Fish, Other Sea Animal, Wild Pig, Fresh Water Fish | | Coconut Cream, Coconut Oil (smelly) | | | | Coconut, Isolated | Various Fruits | Taro Root, Taro Leaves | | | 0.38% |
| | | | | | | | | Canned | Canned | Polished Rice | White Flour Products, Sugar | 20% |
| New Zealand Maori | Sea Foods: Lobster, Shellfish, Sea and Fresh Water Game, Marine Birds (sea birds) Land Birds, Atakapa, Makaki, Grubs | | | Isolated Products | Birds Eggs | | Fern Plants, Vegetables, and Teas | Various, in abundance | Kelp, Fern Root, Sea Weeds, and others in abundance | | | 0.08% |
| | | | | | | | | Canned | Canned | | White Flour Products, Sweetened Goods, Syrup | 20.6% |
| Northern Indians | Caribou, Moose, Deer, Wild Game, Bear, Mountain goat, Caribou, Salmon, Isolated Fish, Fish | Isolated & Moose Organs, Isolated Liver, Fish Eggs, Fish Eggs, Milk | Dolichen Fish Oil | Cow Milk | | Bones, cracked for marrow | Limited | Cranberries | Vegetables, some, Sweetened, Kelp | Wheat Cornal | Tree bark and buds, Spruce Tree shoots tea, Clay for digestion | 0.16% |
| | | | Commercial Vegetable Fat | Commercial Vegetable Fat | | | | Jams, Marmalades | Potatoes and Other Various Canned or stewed | White Bread | White Flour Products, Syrup, Sugar, Sweetened Goods, Confections, Pastries | 21.5% |
| Polynesians | Hard & Soft-shelled Sea Foods, Octopus, Sea Crab, Back-a-de-Mess (sea cucumber) | | Coconut Cream | | | | Coconut, Isolated | Various, including Breadfruit | Variety, Taro Leaves, Isolated Root, Isolated Root | | | 0.32% |
| | | | | | | | | Canned | Canned | White Flour, Polished Rice | White Flour Products, Sugar, Syrup Products, Syrup | 21.8% |
| Seminole Indians | | | | | | | | | | | Not specified | 4% |
| | | | | | | | | | | | Not specified | 40% |
| Swiss | Sheep, Goat, Cow | | Butter Cream | Cow Milk, Goat Milk, Isolated | | Usually Sheep | | Isolated (European) (very big masses of fermentation) | Potatoes, Beans, limited | Rye, freshly ground (extra healthy) and as roasted cereal, oatmeal/porridge | Sea Salt, Imported | 4.68% |
| | | | | Unrefined Dairy, Sweetened chocolate milk | | | | Sweetened jams & jellies | | White flour | White Flour Products, Sugar, Syrup, Chocolate | 20.80% |
| Torres Straight Islanders | Large and Small Fish, Dagon (sea cow), Shell Fish | | | | | Fish Head Soup | Coconut, Isolated | Bananas, Papayas, Pineapples, Plantain, and others | Plant Roots, Grapes, Taro Root, Taro Leaves, Pumpkin | | | 0.01% |
| | | | | | | | | Canned | Canned | Polished Rice | White Flour Products, Sugar | 55.3% |

For more information, visit price-pottenger.org

Paleo/Ancstral Diet

- No grains, legumes, refined seed oils, or refined sugars
- Incorporate fermented foods and bone broth
- Unprocessed, unrefined foods
- Eat organic, pasture-raised, grass-fed, local
- “Macronutrient agnostic”
- Sometimes dairy

- No high carb foods: grains, legumes, fruit, starchy vegetables
- Dairy used often as a fat source
- Approximately 70% calories from fat
- Less emphasis on organic, pasture-raised, grass-fed

LCHF/Ketogenic Diet

Objectives

- To compare and contrast diets of primitive groups to our modern diets
- To review the various ways food can be processed/modified, often lowering nutritional value
- To review ancestral food preparation techniques and explain why they are beneficial for health
- To discuss why ANY modern dietary plan, including low carb, may leave us nutrient deficient and susceptible to modern illness

Refined foods

- Usually refers to carbohydrates- improves shelf life and improve palatability
- Removes vitamins, minerals, fiber
- May be “enriched” with synthetic nutrients
- Can low-carb products be refined?

INGREDIENTS

WATER, CELLULOSE FIBER, ENRICHED WHEAT FLOUR

(UNBLEACHED WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMIN

MONONITRATE, RIBOFLAVIN, FOLIC ACID, MALTED BARLEY

FLOUR), WHEAT GLUTEN, PALM FRUIT OIL, CONTAINS 2% OR

LESS OF EACH OF: CELLULOSE GUM, CITRIC ACID, GUAR GUM,

HONEY, NON-ALUMINUM BAKING POWDER (SODIUM ACID

PYROPHOSPHATE, SODIUM BICARBONATE, CORN STARCH,

MONOCALCIUM PHOSPHATE), SEA SALT, SUNFLOWER LECITHIN,

WHEAT PROTEIN ISOLATE (WHEAT GLUTEN, LACTIC ACID), YEAST,

TO MAINTAIN FRESHNESS (CALCIUM PROPIONATE, SORBIC ACID).

KETO AT Chick-fil-A

**GRILLED NUGGETS WITH
BUFFALO AND RANCH SAUCE**



470 CALORIES, 25.5G FAT, 50G PROTEIN, 6G NET CARBS

@ketohackershon

KETO AT Wendy's

**BACONATOR WITHOUT
BUN AND KETCHUP**



760 CALORIES, 60G FAT, 53G PROTEIN, 2G NET CARBS

@ketohackershon

KETO AT McDonald's

**2 ROUND EGGS, 2 SAUSAGE
PATTIES, 2 SLICES CHEESE**



633 CALORIES, 55G FAT, 4G CARBS, 32G PROTEIN

@ketohackershop

KETO AT Pizza Hut

**8 PC. GARLIC PARMESAN
BONE IN WINGS**



1140 CALORIES, 89G FAT, 77G PROTEIN, 5G NET CARBS

@ketohackershop