

***Nourishing
Traditional Diets
The Key to Vibrant Health***

**by Sally Fallon, President
The Weston A. Price Foundation**

What is a Healthy Diet?



Even Lisa is confused!

Atkins Diet?

Vegetarian/Vegan?

Zone Diet?

Macrobiotic?

South Beach Diet?

Juicing?

Food Combining?

Metabolic Typing?

All Raw?

Or is it the US Government Official Diet. . .



. . . designed to promote the products of
commodity agriculture?



50
ANNIVERSARY
EDITION

NUTRITION AND PHYSICAL DEGEN- ERATION

WESTON A. PRICE, D.D.S.

With introductions from the original editors by Clarence Albert Houston, Professor of Anthropology, Harvard University, Corvallis Frank Krogan, M.D., William A. Alvarez, Ph.D., Department of Soils, University of Missouri, and new introductions and remarks by specially invited for this Golden Anniversary Edition by Adam Hoffer, M.D., Ph.D., H. Ludo Abrams, Jr., Associate Professor of Anthropology, University System of Georgia, and Donald Dethlefs Fawcett.

Keats Publishing, Inc.



New Canaan, Connecticut

Photos from *Nutrition and Physical Degeneration* copyright and courtesy Price-Pottenger Nutrition Foundation











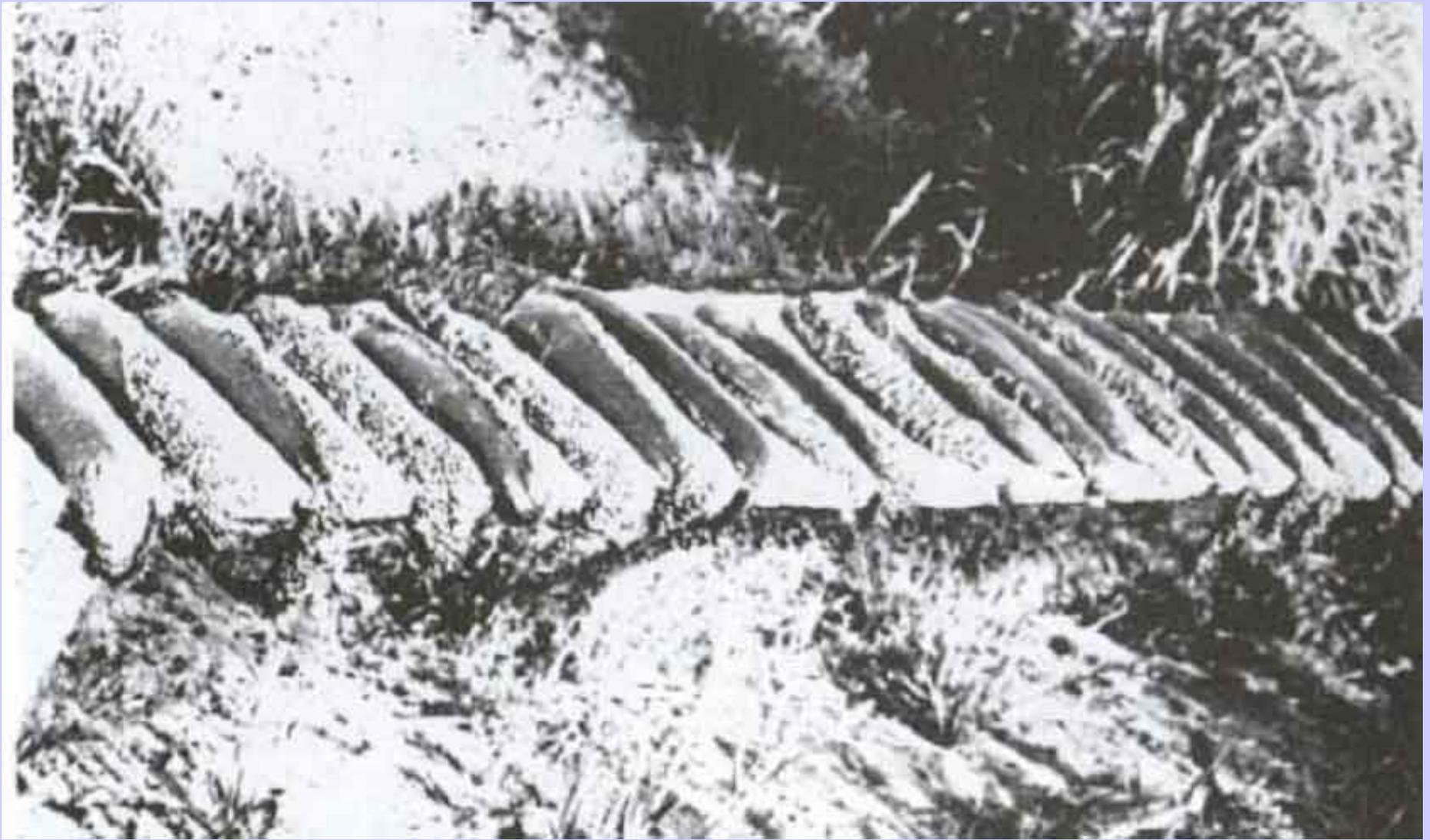


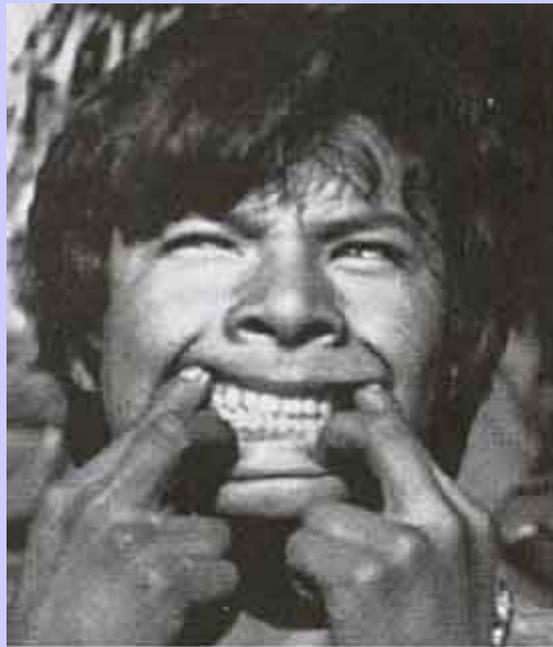












The Teeth Tell the Tale!

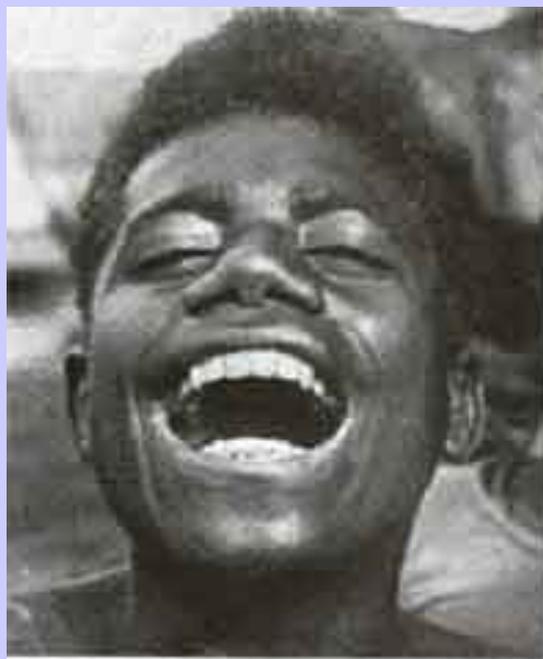
STRAIGHT TEETH	CROOKED, CROWDED TEETH
Plenty of room in head for pituitary, pineal, hypothalamus	Compromised space for master glands in the head
Good skeletal development, good muscles	Poor development, poor posture, easily injured
Keen eyesight and hearing	Poor eyesight and hearing
Optimal function of all organs	Compromised function of all organs
Optimistic outlook, learns easily	Depression, behavior problems, learning problems
Round pelvic opening, easy childbirth	Oval pelvic opening, difficult childbirth





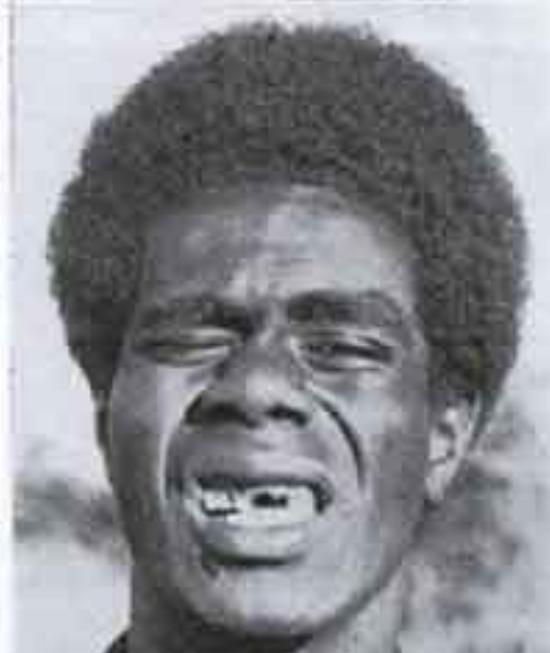
SOUTH SEA ISLANDERS

MELANESIAN 5 and 6 POLYNESIAN 1-2-3-4-7-8







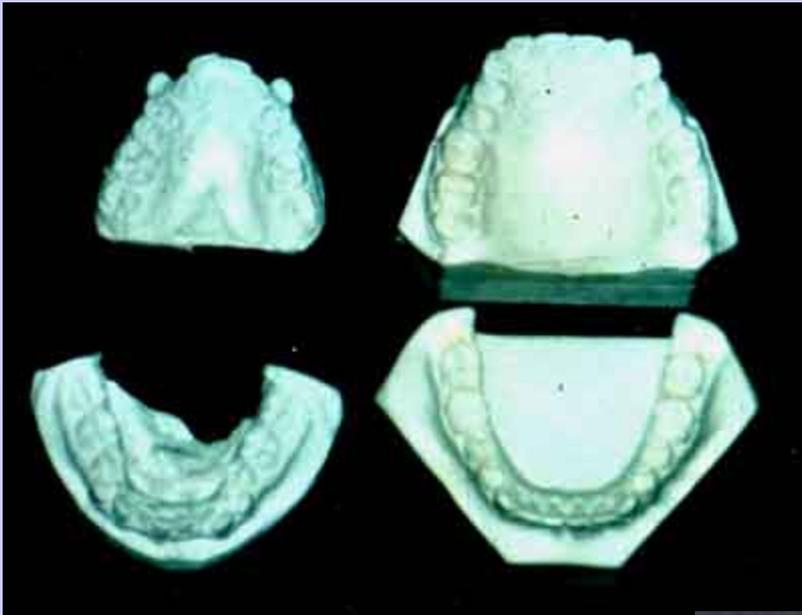




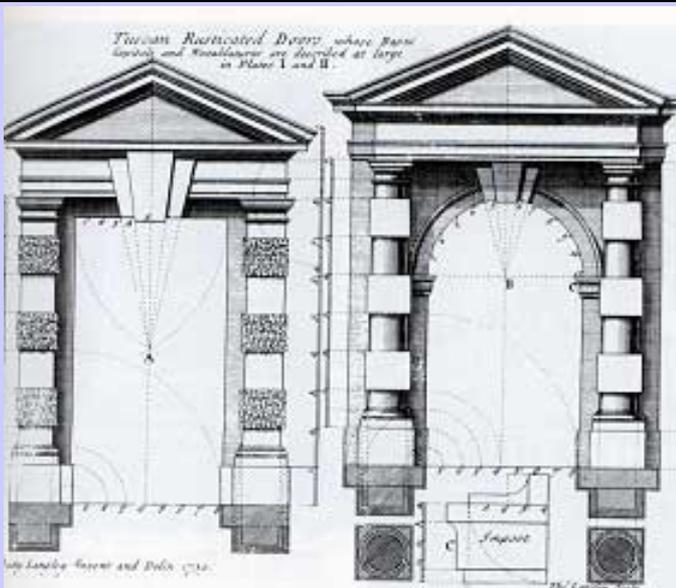


African Boys





Dental Casts of Modernized and Primitive Individuals



Dental Deformities



ANTERIOR CROSSBITE



POSTERIOR CROSSBITE



CROWDING



OPEN BITE

An open bite is usually due to an oral habit.



PROTRUSION



ECTOPIC ERUPTION

Ectopically erupting maxillary molars.



COMPLETE CLASS III



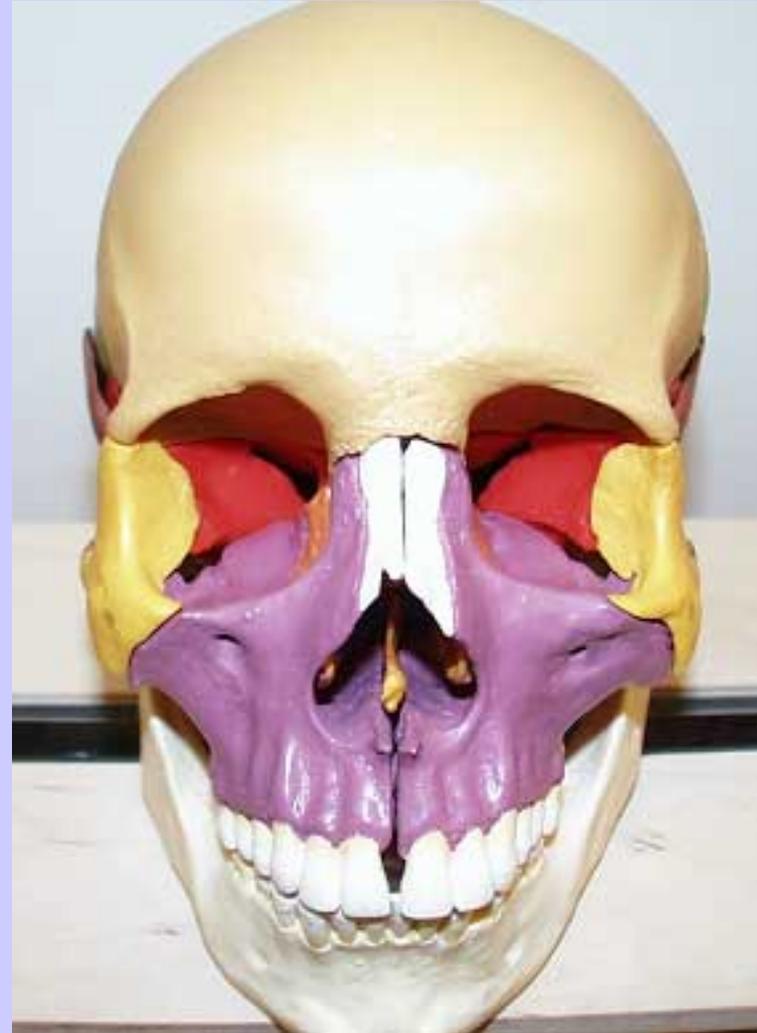
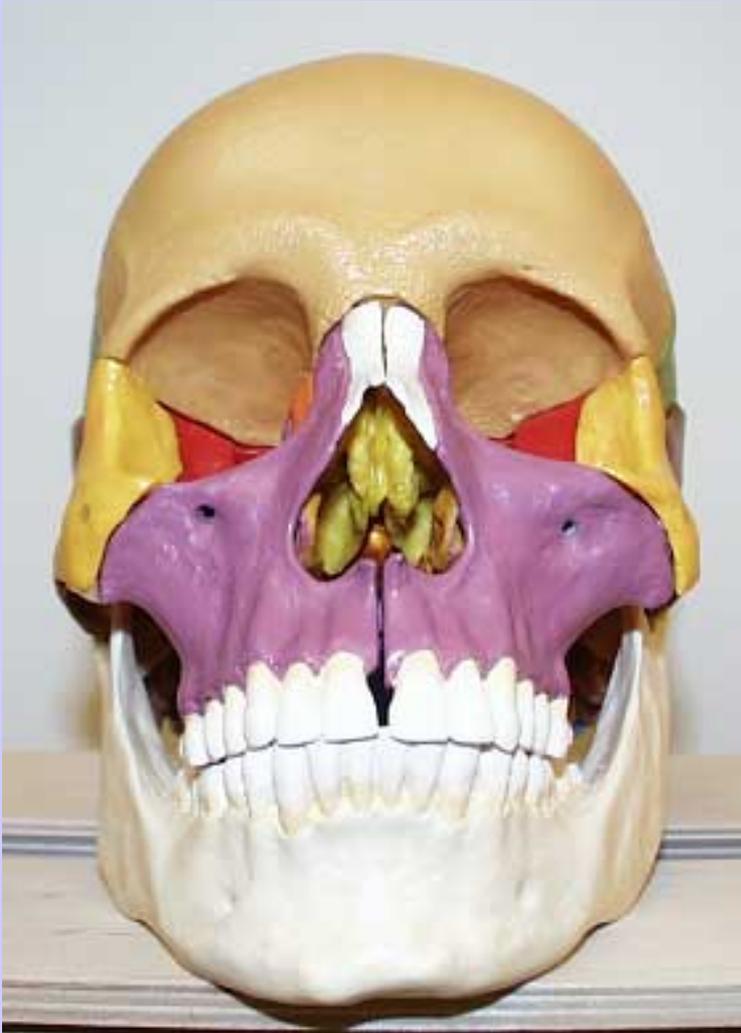
DIASTEMA



ORAL HABITS



The Facial Bones





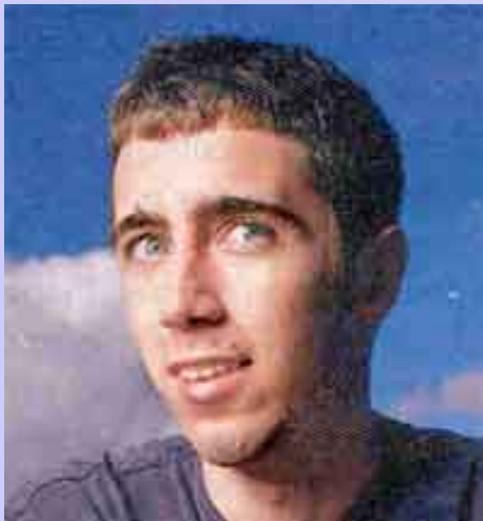






South American Children





Modern Children

Most modern children have thin faces and need braces to straighten their teeth







Great Variety in Traditional Diets

Some had no plant foods

Some had few animal foods

Some had mostly cooked foods

Some had large amounts of raw foods

Some had milk products; some did not

Some had grains; some did not

Some had fruits; some did not

What are the underlying characteristics
of these healthy diets?



1. No refined or denatured foods

Refined and Denatured Food Components 1930's

**Refined Sugar
White Flour
Vegetable Oils
Canned Foods
Condensed Milk**

Refined and Denatured Food Components Today

**Refined Sugar
High Fructose Corn Syrup
White Flour
Pasteurized Milk
Skim and Low Fat Milk
Hydrogenated Fats
Refined Vegetable Oils
Isolated Protein Powders
Additives**

“Life in its fullness is Mother Nature obeyed.”
Weston A. Price, DDS



Factory foods are not Mother Nature's foods!



2. Every diet contained animal products

FISH AND SHELLFISH: including organs, oil, bones, heads, etc. Weston Price found the best bone structure among those eating seafood

BIRDS: Chicken, ducks, geese, etc., including the organs, fat and skin.

RED MEAT: Beef, goat, sheep, game, etc., with ORGAN MEATS and FAT preferred.

MILK AND MILK PRODUCTS

EGGS

REPTILES

INSECTS



Animal Food Nutrients

THESE NUTRIENTS ARE
FOUND ONLY IN ANIMAL
PRODUCTS

Vitamin A

Vitamin D

Cholesterol

Vitamin B12

Very Long Chain,
Superunsaturated
fatty acids
(AA, EPA and DHA)

THESE NUTRIENTS ARE
MORE EASILY
ABSORBED FROM
ANIMAL PRODUCTS

Calcium

B6

Magnesium

Iron

Zinc

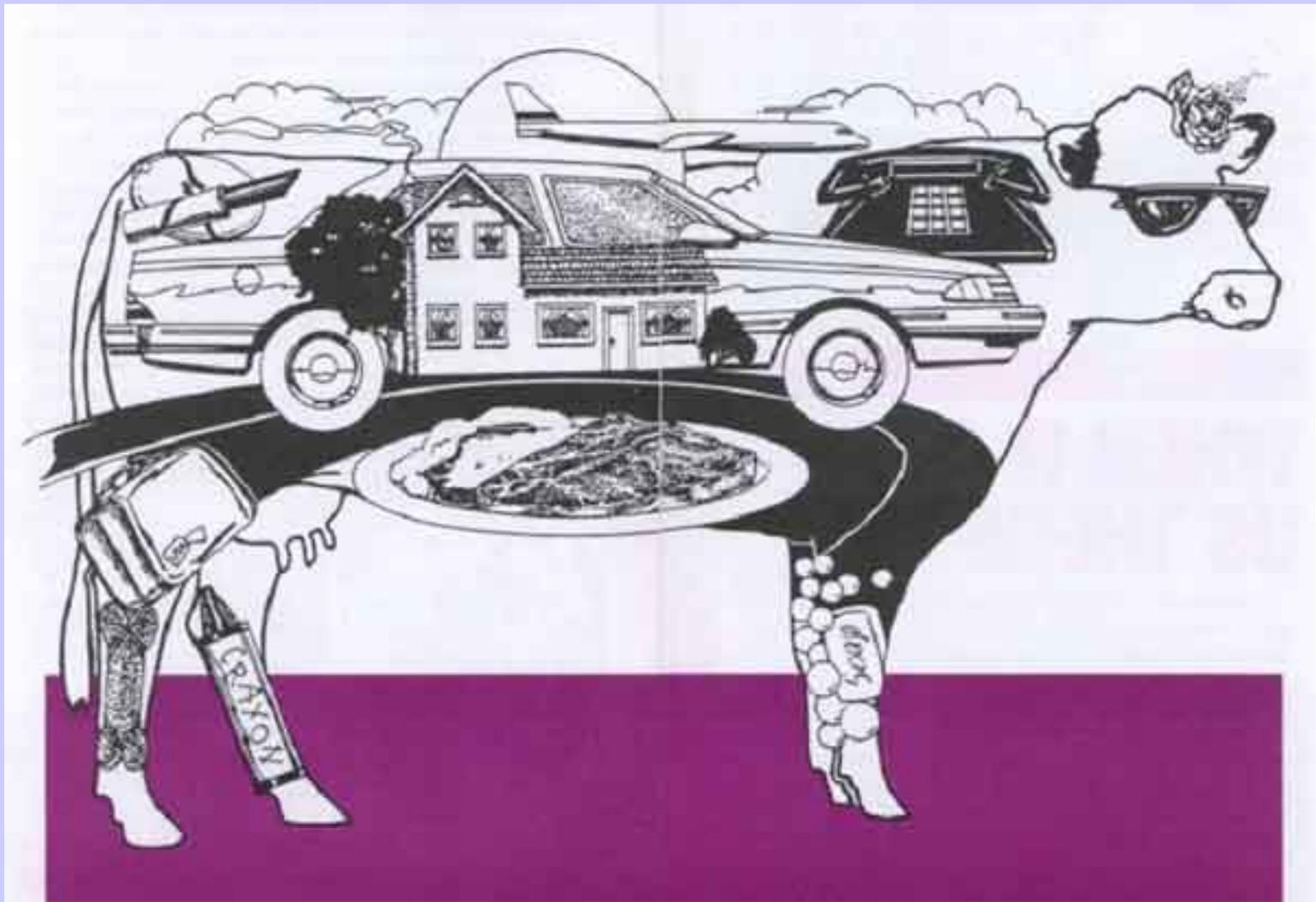
Copper



Vitamin B12 Deficiency

EARLY SIGNS	PSYCHIATRIC DISORDERS	CHRONIC DISEASE
Fatigue	Depression	Multiple sclerosis
Tingling in hands and feet	Obsessive-compulsion	Anemia
Sleep disorders	Manic-depression	Cancer
Irrational anger	Dementia/ Alzheimer's	Heart disease





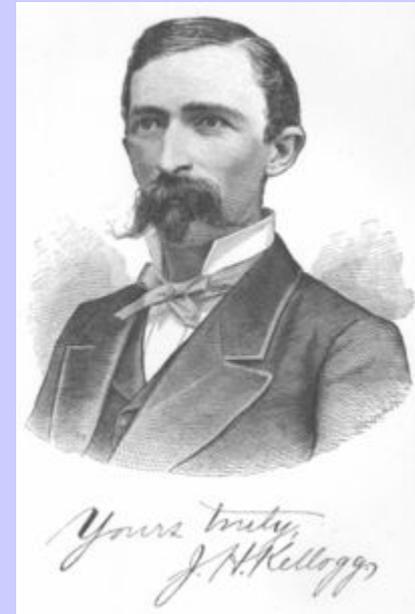
Products that come from cows

Even strict vegans cannot escape dependence on animal products.

The Origins of the Modern High-Fiber, Vegetarian Dietary Movement



SYLVESTER GRAHAM (1794-1851) advocated a whole grain, vegetarian diet to promote chastity and curb lust. Preached that excessive sexual desire caused disease.



The Food Puritans!

JOHN HARVEY KELLOGG (1852-1943), Seventh Day Adventist who promoted a high-fiber, vegetarian diet to combat the twin evils of constipation and “natural urges.” Preached against sexual activity, even in marriage!



3. Dr. Price's Key Finding

Primitive Diets contain 4 times the calcium and other minerals, and 10 times the fat-soluble vitamins as the modern American diet.

Sources of Vitamins A and D

SEAFOODS

Fish Eggs

Fish Livers

Fish Liver Oil

Fish Heads

Shell Fish

Oily Fish

Sea Mammals



LAND ANIMALS GRASS-FED!

Insects

Butter and Cream

Egg Yolks

Liver, Organ Meats

Animal Fat

(Especially mono-gastric
animals such as
(birds, pig, bear, Guinea pig)





The Fat-Soluble Activators A and D

A question arises as to the efficiency of the human body in removing all of the minerals from the ingested foods. Extensive laboratory determinations have shown that most people cannot absorb more than half of the calcium and phosphorus from the foods eaten. The amounts utilized depend directly on the presence of other substances, particularly fat-soluble vitamins.

It is at this point probably that the greatest breakdown in our modern diet takes place, namely, in the ingestion and utilization of adequate amount of the special activating substances, including the vitamins [A and D] **needed for rendering the minerals in the food available to the human system.**

It is possible to starve for minerals that are abundant in the foods eaten because they cannot be utilized without an adequate quantity of the fat-soluble activators.

Weston Price, DDS
Nutrition and Physical Degeneration



Bricks and Mortar



The body is like
a house or temple,
built of bricks and mortar

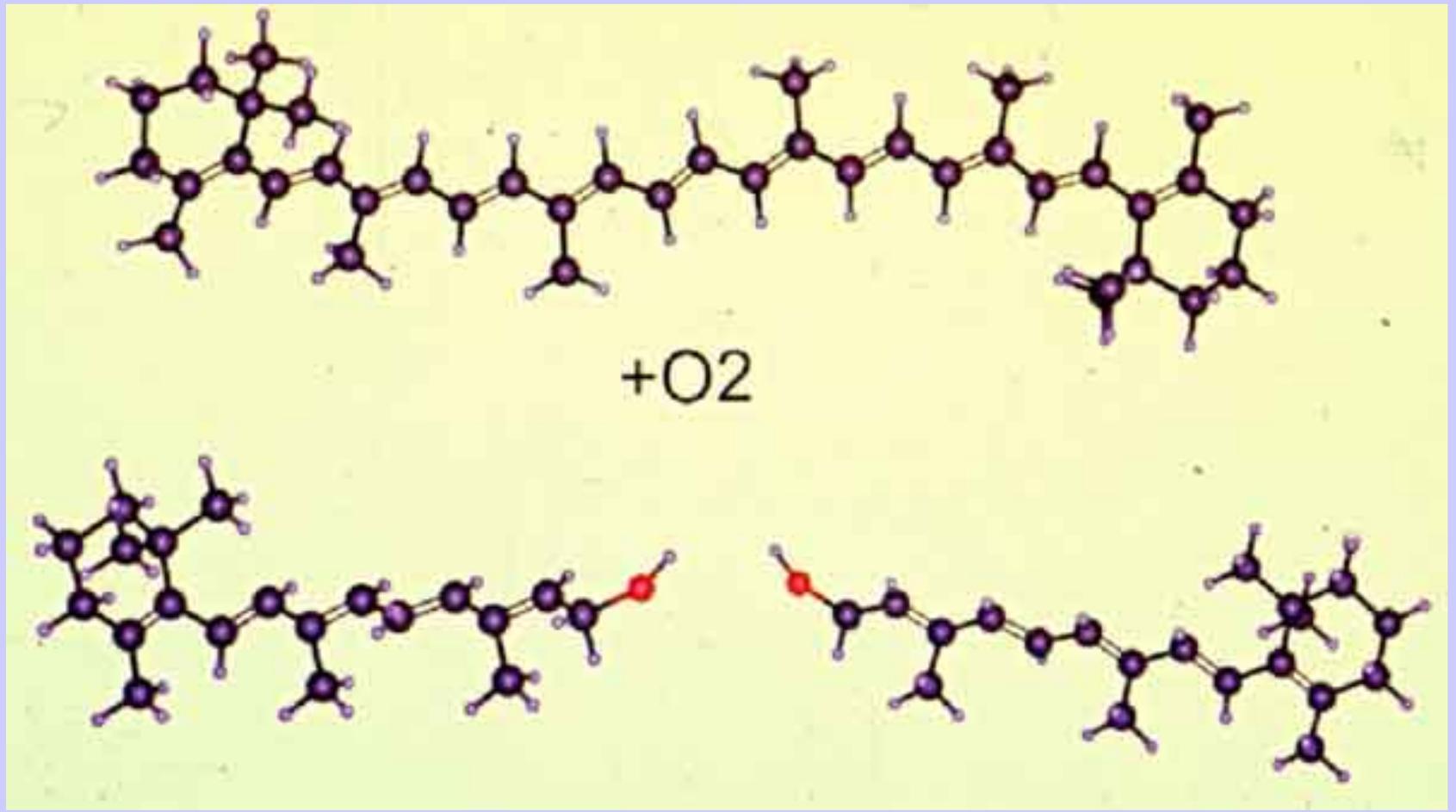
Bricks = Minerals

Mortar = Fat-Soluble Activators A and D





Conversion of Beta-Carotene to Vitamin A





Conversion Problems

Needed to Convert Carotene to Vitamin A

Fats in the diet

Thyroid Hormone

Enzymes (as yet unknown)

Vitamin E

Conversion & storage is difficult or impossible for

BABIES AND CHILDREN

DIABETICS

Individuals with poor thyroid function

Individuals with poor liver function

Individuals with poor intestinal absorption

Individuals with high intake of sodium nitrites and nitrates

Individuals exposed to pesticides and other toxins

Individuals who consume lots of carotene

Even under optimal conditions, plant sources of carotene cannot supply sufficient vitamin A for optimum health.



Vitamin A is Needed for

Protein assimilation

Calcium assimilation

Proper growth

Prevention of birth defects

Proper function of the glands

Thyroid function

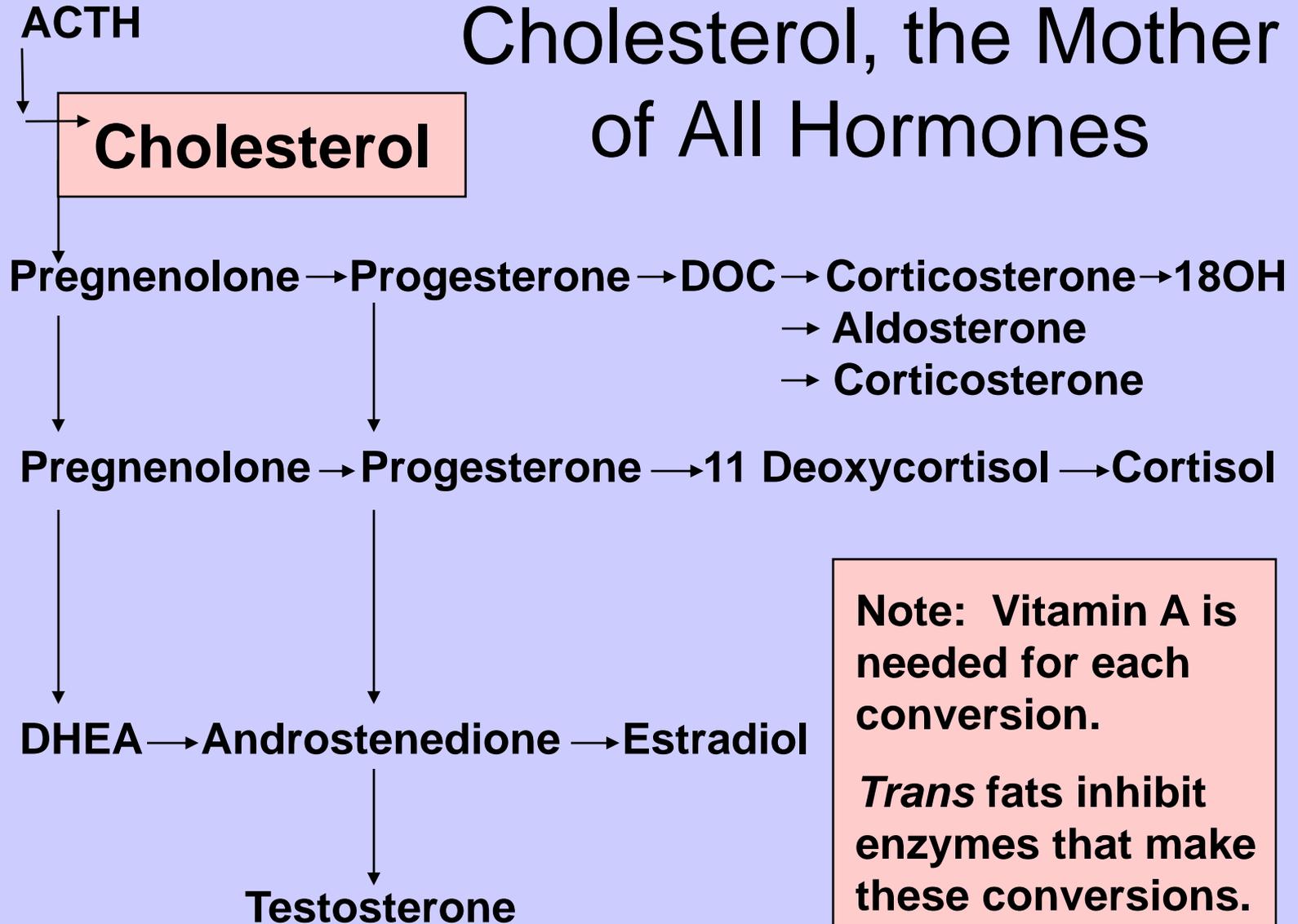
Immune system function

Production of stress and sex hormones

Eyes, skin, bones



Cholesterol, the Mother of All Hormones



Note: Vitamin A is needed for each conversion.

Trans fats inhibit enzymes that make these conversions.



Vitamin A Stores are Depleted by

Stress

Excess Dietary Protein

Cold Weather

Fever and Illness

Physical Exertion

Exposure to Toxins

Vitamin D Myth

MYTH - To get adequate vitamin D, just expose your face and hands to sunlight for 10 minutes every day.

TRUTH - The body makes one form of vitamin D out of cholesterol by the action of UV-B sunlight on the skin. However, except in the Tropics, UV-B is available only at MID-DAY during the SUMMER months.



Vitamin D Food Sources

All healthy primitive groups, including those living in the tropics, had rich dietary sources of vitamin D.

Fish liver oils

Shell fish

Insects

Butterfat

Egg yolks

Organ meats

Fat of birds

Fat of pigs



Roles of Vitamin D

Healthy bones

Proper growth

Mineral metabolism

Muscle tone

Reproduction

Healthy Skin

Insulin production

Immune system

Nervous system

Cell Function

Feel good chemicals

Longevity

Synthetic Vitamin D₂

MADE FROM VEGETARIAN SOURCES

OPPOSITE EFFECT TO ANIMAL SOURCE D₃

Causes softening of the hard tissues
(bones)

Hardening of the soft tissues
(organs, arteries).

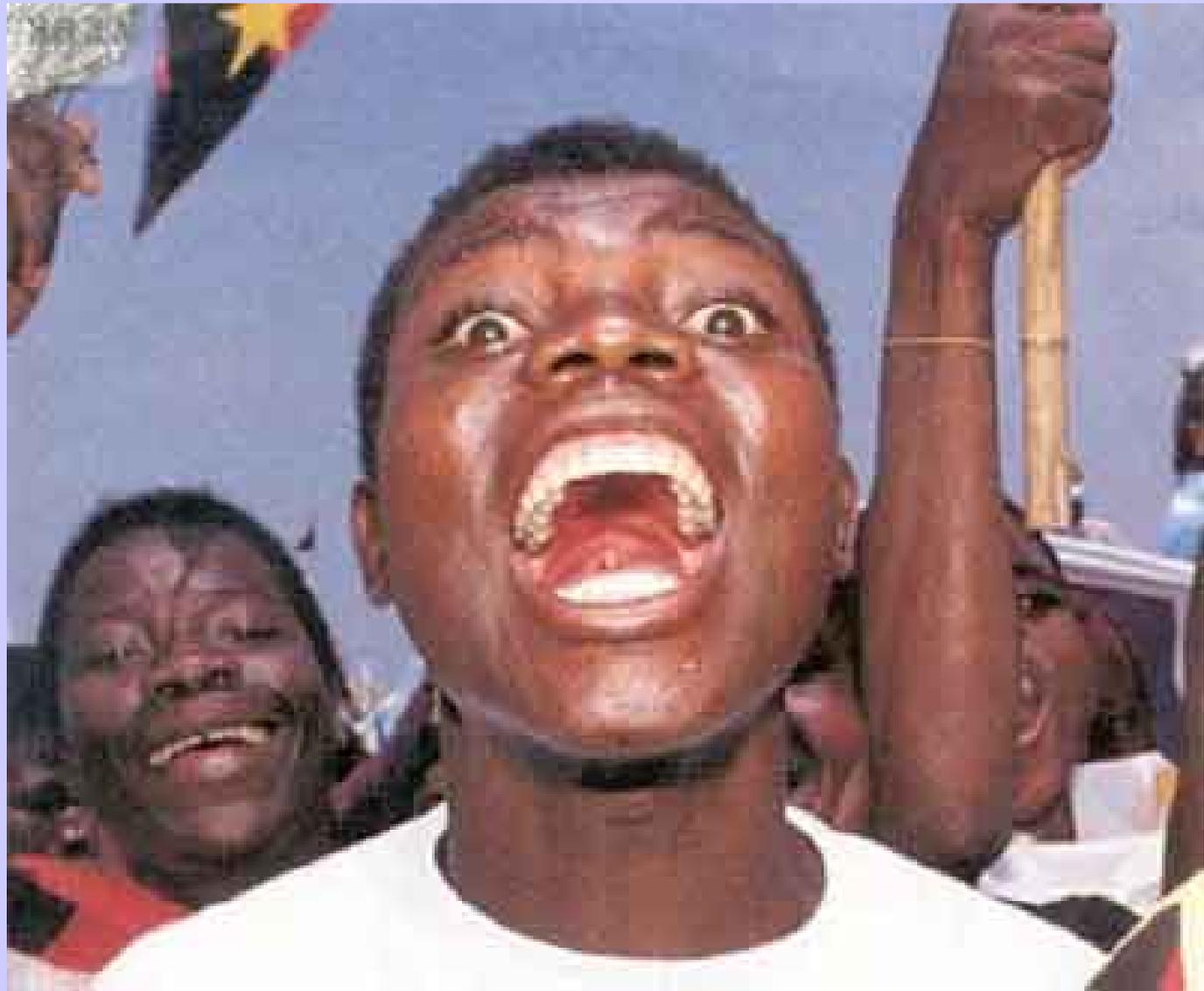
ADDED TO PROCESSED VEGETARIAN FOODS

Soy Milk

Rice Milk

Oat Milk

Almond Milk





Sources of Fat-Soluble Activators in the Traditional African Diet



Sources of Fat-Soluble Activators in the Traditional American Diet



Also:
Organ meats
such as liver,
and contained
in sausage,
scrapple,
liverwurst,
etc.



THEY'RE HAPPY
Because they eat
LARD



Issued by the Lard Information Council

Vitamin D in lard helps the body make neuro-chemicals that protect against depression.





Confinement
Butter

vs.

Grass-Fed
Butter



The Pastured Poultry Model



Key Nutrients for Brain Development

VITAMIN A: Cod Liver Oil, Liver, Butter and Egg Yolks from Grass-Fed Animals

VITAMIN D: Cod Liver Oil, Lard, Butter and Egg Yolks from Grass-Fed Animals

VITAMIN K: Butter, Egg Yolks and Organ Meats from Grass-Fed Animals

CHOLINE: Liver, Egg Yolks

DHA: Cod Liver Oil, Liver, Butter, Egg Yolks

ZINC: Red Meat, Shell Fish



Liver: No food higher in nutrients

Per 100 g	Apple	Carrots	Red Meat	Liver
Phosphorus	6 mg	31 mg	140 mg	476 mg
Iron	.1 mg	.6 mg	3.3 mg	8.8 mg
Zinc	.05 mg	.3 mg	4.4 mg	4.0 mg
Copper	.04 mg	.08 mg	.2 mg	12 mg
Vitamin B2	.02 mg	.05 mg	.2 mg	4.2 mg
Vitamin A	0	0	40 IU	53,400 IU
Vitamin C	7 mg	6 mg	0	27 mg
Vitamin B6	.03 mg	.1 mg	.07 mg	.73 mg
Vitamin B12	0	0	1.84 mg	111.3 mg

Eat liver fried, grilled, with bacon, in sausage, pate and liverwurst.



4. All cultures cooked some or most of their food...
but they always ate some of their animal foods raw.



Examples of Raw Animal Foods

Raw milk, butter and cream

Raw cheeses

Raw and marinated fish

Raw shellfish (oysters, etc.)

**Traditional ethnic raw meat dishes
(steak tartare, carpaccio, kibbeh, etc.)**



Vitamin B6 Deficiency Linked to

- **Diabetes**
- **Heart disease**
- **Nervous disorders**
- **Cancer**
- **Kidney failure**
- **Asthma**
- **PMS**
- **Morning sickness**
- **Toxemia of pregnancy**
- **Alcoholism**
- **Sickle cell anemia**
- **Carpel Tunnel Syndrome**



Raw Milk is Uniquely Safe

Consider the calf, born in the muck, which then suckles on its mother's manure-covered teat. How can that calf survive?



Because raw milk contains multiple, redundant systems of bioactive components that can reduce or eliminate populations of pathogenic bacteria.



Built-In Protective Systems in Raw Milk

LACTOPEROXIDASE

HYDROGEN PEROXIDE: Uses small amounts of H_2O_2 and free radicals to seek out and destroy pathogens

WIDESPREAD: In all mammalian secretions—breast milk, tears, etc.

HIGHER IN ANIMAL MILK: Lactoperoxidase levels *10 times higher* in goat milk than in breast milk

ALTERNATIVE TO PASTEURIZATION: Other countries are looking into using lactoperoxidase instead of pasteurization to ensure safety of commercial milk

British Journal of Nutrition (2000), 84, Suppl. 1. S19-S25.

Indian Journal Exp Biology Vol. 36, August 1998, pp 808-810.

1991 *J Dairy Sci* 74:783-787

Life Sciences, Vol 66, No 23, pp 2433-2439, 2000



Built-In Protective Systems in Raw Milk

LACTOFERRIN

PLENTIFUL in raw milk; effectiveness reduced by pasteurization¹

STEALS IRON away from pathogens and carries it through the gut wall into the blood stream; stimulates the immune system¹

TB: In a study involving mice bred to be susceptible to tuberculosis, treatment with lactoferrin significantly reduced the burden of tuberculosis organisms.²

CANDIDA: Mice injected with *Candida albicans*, another iron-loving organism, had increased survival time when treated with lactoferrin.³

WEIGHT LOSS: Believed to cut visceral fat levels up to 40%⁴

BENEFITS: Many other health benefits—is sold as a supplement!

1. *British J Nutrition*, 2000;84(Suppl. 1):S11-S17.
2. *J Experimental Med*, 2002 DEC 02;196(11):1507-1513.
3. *Infection and Immunity*, 2001 JUN;69(6):3883-3890.
4. *MSN-Mainichi Daily News*, 2007 APR 11.



Built-In Protective Systems in Raw Milk

Other Bioactive Components I

POLYSACCHARIDES—Encourage the growth of good bacteria in the gut; protect the gut wall.

MEDIUM-CHAIN FATTY ACIDS—Disrupt cell walls of bad bacteria; levels so high in goat milk that the test for the presence of antibiotics had to be changed.

ANTIBODIES—Bind to foreign microbes and prevent them from migrating outside the gut; initiate immune response.

LEUKOCYTES (White Blood Cells) — The basis of immunity. Eat all foreign bacteria, yeast and molds (phagocytosis). Destroyed at 56C and by pumping milk. Produce H_2O_2 to activate the lactoperoxidase system. Produce anaerobic CO_2 that blocks all aerobic microbes.



Built-In Protective Systems in Raw Milk

Other Bioactive Components II

WHITE BLOOD CELLS – Produce antibodies against specific bacteria

B-LYMPHOCYTES – Kill foreign bacteria; call in other parts of the immune system^{1,3}

MACROPHAGES – Engulf foreign proteins and bacteria⁴

NEUTROPHILS – Kill infected cells; mobilize other parts of the immune system¹

T-LYMPHOCYTES – Multiply if bad bacteria are present; produce immune-strengthening compounds¹

IMMUNOGLOBULINS (IgM, IgA, IgG1, IgG2)--Transfer of immunity from cow to calf/person in milk and especially colostrum^{2,3}

1. *Scientific American*, December 1995.
2.,3.,4 *British J of Nutrition*, 2000:84(Suppl. 1):S3-S10, S75-S80, S81-S89.



Built-In Protective Systems in Raw Milk

Other Bioactive Components III

ENZYMES, e.g. Complement & Lysozyme—Disrupt bacterial cell walls. Complement destroyed at 56C; Lysozyme at 90C.^{1,2}

HORMONES AND GROWTH FACTORS – Stimulate maturation of gut cells; prevent “leaky” gut.²

MUCINS – Adhere to bacteria and viruses, preventing those organisms from attaching to the mucosa and causing disease.^{1,2}

OLIGOSACCHARIDES – Protect other components from being destroyed by stomach acids and enzymes; bind to bacteria and prevent them from attaching to the gut lining; other functions just being discovered.^{1,2}

1. *British J Nutrition*, 2000:84(Suppl. 1):S3-S10.

2. *Scientific American*, December 1995.



Built-In Protective Systems in Raw Milk

Other Bioactive Components IV

B₁₂ BINDING PROTEIN – Reduces Vitamin B₁₂ in the colon, which harmful bacteria need for growth¹

BIFIDUS FACTOR– Promotes growth of *Lactobacillus bifidus*, a helpful bacteria in baby's gut, which helps crowd out dangerous germs^{1,2}

FIBRONECTIN – Increases anti-microbial activity of macrophages and helps to repair damaged tissues.¹

GLYCOMACROPEPTIDE – Inhibits bacterial/viral adhesion, suppresses gastric secretion, and promotes bifido-bacterial growth.³

1. *Scientific American*, December 1995.

2., 3. *British J Nutrition*, 2000:84(Suppl. 1):S3-S10, S39-S46.

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
B ₁₂ Binding Protein	active	active	inactivated	inactivated	inactivated
Bifidus Factor	active	active	inactivated	inactivated	inactivated
Medium-Chain FAs	active	active	reduced	reduced	reduced
Fibronectin	active	active	inactivated	inactivated	inactivated
Gamma-Interferon	active	active	inactivated	inactivated	inactivated
Lactoferrin	active	active	reduced	inactivated	inactivated
Lysozyme	active	active	active	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.

Food-borne Illnesses Associated with Milk: A Comparison with Other Foods - 1997

Food	No. of Outbreaks	%	No. of Cases	%
Milk	2	0.4	23	0.2
Salads	21	4.2	1104	9.2
Fruits and Vegetables	15	3.0	719	6.0
Eggs	3	0.6	91	0.8
Chicken	9	1.8	256	2.1

MMWR Mar 2, 2000;49(SS01):1-51



Some Outbreaks Due to Pasteurized Milk

- 1976**—1 outbreak *Y. enterocolitica* in **36** children, 16 of whom had appendectomies, due to pasteurized chocolate milk¹
- 1982**—Over **17,000** cases *Y. enterocolitica* in several states from milk produced in Memphis, TN²
- 1983**—1 outbreak, **49** cases, **14 deaths** from *L. monocytogenes* in MA²
- 1984-85**—3 outbreaks of antimicrobial-resistant *S. typhimurium*, at plant in Melrose Park IL. The third wave had **16,284** confirmed cases; surveys indicated as many as 197,581 persons may have been affected²
- 1985**—**1,500+** cases, *Salmonella* culture confirmed, in Northern IL²
- 1993-94**—1 outbreak, **2014** cases/**142** confirmed *S. enteritidis* due to pasteurized ice cream in MN, SD, WI⁶
- 1995**—Outbreak of *Yersinia enterocolitica* in **10 children**, 3 hospitalized due to post-pasteurization contamination⁷
- 2000**—1 outbreak, **98** cases/**38** confirmed *S. typhimurim* in PA and NJ⁷
- 2005**—1 outbreak, **200** cases *C. jejuni* in CO prison⁹
- 2006**—1 outbreak, **1592** cases/**52** confirmed *C. jejuni* infections in CA¹⁰



Breast Milk Contains Pathogens

MISCONCEPTION: Until recently, the medical profession claimed that breast milk was sterile.

PATHOGENS: We now know that breast milk contains pathogens, often at very high levels.

IMMUNITY FOR LIFE: The bioactive components in milk program the baby to have immunity for life to any pathogens he comes in contact with.

PASTEURIZE BREAST MILK? Should mothers be required to pasteurize their own milk before giving it to their babies?

DISCRIMINATION: Yet laws prevent mothers from obtaining raw milk to feed their babies should their own supply be inadequate.

J Appl Microbiol. 2003;95(3):471-8.

2. *Neonatal Netw.* 2000 Oct;19(7)21-5.

3.-11. various medical journals...

FDA Powerpoint Presentation Warning Against Raw Milk, Citing 15 Studies

No Valid Positive Milk Sample	12/15	80%
No Valid Statistical Association with Raw Milk	10/15	67%
Findings Misrepresented by FDA	7/15	47%
Alternatives Discovered, Not Pursued	5/15	33%
No Evidence Anyone Consumed Raw Milk Products	2/15	13%
Outbreak Did Not Even Exist	1/15	13%
Did Not Show that Pasteurization Would Have Prevented Outbreak	15/15	100%



Milk Safety in California

Since 1999:

40 MILLION SERVINGS of Organic Pastures raw milk, not one reported illness; in 1,300 tests, no human pathogens ever found in the milk, or even in the manure on the farm.

19 RECALLS of pasteurized milk products during the same period.

Proteins in Milk

MILK PROTEINS: Three dimensional, like tinker toys.

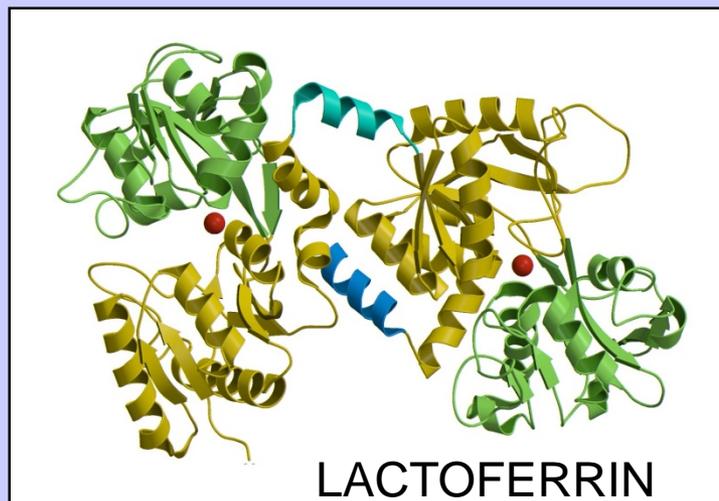
CARRIERS: Carry vitamins and minerals through the gut into the blood stream; enhance the immune system; protect against disease.

IMMUNE DEFENSE: Pasteurization and ultra-pasteurization flatten the three-dimensional proteins; the body thinks they are foreign proteins and mounts an immune defense.

DISEASES: Immune attacks lead to juvenile diabetes, asthma, allergies and other disorders later in life.

ALLERGIES: More and more people unable to tolerate pasteurized milk; one of the top eight allergies; some have violent reactions to it.

DECLINE: Consumption of fluid milk declining at 1 percent per year.



Raw Milk Digestibility

RAW MILK DIGESTS ITSELF!

Enzymes in raw milk are activated in the digestive tract

Enzymes and carrier proteins in raw milk ensure all nutrients are absorbed

Friendly bacteria in milk aid in digestion

No energy required to digest raw milk; net energy gain

PASTEURIZED MILK IS VERY DIFFICULT TO DIGEST

The body must supply the enzymes needed to digest the milk

Proteins warped and distorted by pasteurization put additional strain on digestion

Much energy required to digest pasteurized milk; net energy loss

Studies on Raw vs. Pasteurized Milk at Randleigh Farm, 1935-1940

HISTORY OF RANDLEIGH FARM



Rat fed only raw milk from cows fed dry ice grass silage and grain. Notice absence of acrodynia.



Rats fed only pasteurized milk from cows fed dry ice grass silage. Hairless areas (acrodynia) are due to a deficiency of vitamin B₆.

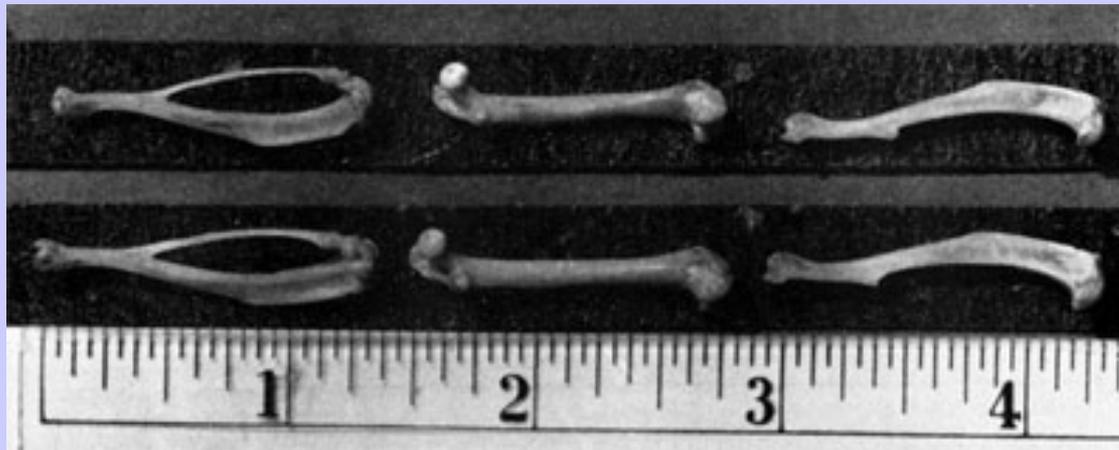
Above: Rat fed only raw milk. Good development, healthy fur.

Below: Rats fed only pasteurized milk. Poor development. Hairless areas (acrodynia) due to vitamin B-6 deficiency.



Bone Development Six-Month Study

PASTEURIZED Milk-Fed Rat, weighed 146 grams
Bones shorter and less dense



RAW Milk-Fed Rat, weighed 206 grams
Bones longer and more dense

One-to-One Exposure of Femur, Tibia and Fibia



Guinea Pig Studies of Wulzen and Bahrs

Department of Zoology,
Oregon State College, 1941



Whole Raw Milk	Excellent growth; no abnormalities
Whole Pasteurized Milk	Poor growth; muscle stiffness; emaciation and weakness; death within one year. Autopsy revealed atrophied muscles streaked with calcification; tricalcium deposits under skin, in joints, heart and other organs.

American Journal of Physiology 1941, 133, 500



Rat Studies of Scott & Erf

Ohio State University, 1931



Whole Raw Milk	Good growth; sleek coat; clear eyes; excellent dispositions; enjoyed being petted.
Whole Pasteurized Milk	Rough coat; slow growth; eyes lacked luster; anemia; loss of vitality and weight; very irritable, often showing a tendency to bite when handled.

Jersey Bulletin 1931 50:210-211;224-226, 237



Asthma & Raw Milk – 2007

RAW MILK STRONGEST FACTOR: In a study of 14,893 children aged 5-13, consumption of raw milk was the strongest factor in reducing the risk of asthma and allergy, whether the children lived on a farm or not.

FIRST YEAR OF LIFE: The benefits were greatest when consumption of farm milk began during the first year of life.

Clinical & Experimental Allergy. 2007 May; 35(5) 627-630.



5. High Levels of Enzymes and Beneficial Bacteria





Types of Enzymes

METABOLIC	DIGESTIVE	FOOD
(1,000s discovered)	(about 22)	(3 types)
Delta desaturase	Pancreatin	Amalyses
Superoxide dismutase	Pepsin	Lipases
Gluththione peroxidase	Trypsin	Proteases
Catalase	Lactase	
Lysyl oxidase	Galactase	
	Phosphatase	

When the diet contains food enzymes, the body is spared from making some digestive enzymes and therefore has more energy.

Food enzymes are destroyed at 118° F wet heat, 150° F dry heat.



Examples of Enzyme-Rich Foods

Raw dairy products

Raw meat and fish

Raw honey

Tropical fruits

Cold pressed oils (extra virgin olive oil)

Wine and unpasteurized beer

Lacto-fermented (enzyme enhanced)

vegetables

meats

dairy products

fruits

fish

beverages

Beneficial Bacteria

OLD PARADIGM: Healthy human body is sterile and microbes attack it, making us sick.

NEW PARADIGM: Healthy human body lives in symbiotic relationship with microorganisms.

SIX POUNDS of healthy bacteria in our digestive tract

- Digest our food

- Assist in assimilation

- Create nutrients

- Protect us against toxins

- Help us feel good

Without good bacteria, we are dead!

Legion of Little Helpers in the Gut Keeps Us Alive

By RICK WEISS
Washington Post Staff Writer

So you think you are the self-reliant type. A rugged individualist.

Well, give it up. You'd be nothing without the trillions of microbial minions toiling in your large intestine, performing crucial physiological functions that your highfalutin human cells wouldn't have a clue how to do.

That's one of the humbling truths emerging from the most thorough census yet of the bacterial tenants homesteading in our bodies. The new view, made possible by cutting-edge DNA screening methods, shows that the vaunted human genome — all the genes in our cells — is but a fraction of what it takes to make a human.

In fact, it's time to stop thinking of yourself as a single living thing at all, say the scientists behind the new work. Better to see yourself as a "super-organism," they say: a hybrid creature consisting of about 10 percent human cells and 90 percent bacterial cells.

"The numbers might strike fear into people, but the overall concept is one we have to understand and adjust to," said Steven Gill, a microbial geneticist who helped lead the study at the Institute for Genomic Research in Rockville.

A better understanding of the bacteria colonizing our bodies could have far-reaching medical implications. In the not-too-distant future, Gill and others predicted, doctors will test for subtle changes in the numbers and kinds of microbes in people's guts as early indicators of disease. Doctors may prescribe live bacterial supplements to bring certain physiological measures back into normal range. And drug companies will invent compounds that mimic or amplify the actions of helpful bacteria.

"These microbes are master physiological chemists," said Jeffrey I. Gordon of Washington University in St. Louis, another team member. "Understanding their biosynthetic capabilities and following the pathways by which they operate could be the starting point for a 21st-century pharmacopoeia."

Scientists have long recognized that the number of human cells in the body is dwarfed by the 100 trillion or so bacteria living in and on it. It's a daunting reality obscured by the fact that human cells are much bigger than bacterial cells. For all their numbers, bacteria account for only about three pounds of the average person's weight.

Just how important those three pounds

are, however, has been difficult to appreciate until now. Most bacteria are too finicky to grow in laboratory dishes. As a result, little was known about who these majority shareholders really are and what, exactly, they are doing to and for us.

The new study, described in last week's issue of the journal *Science*, took a novel approach. Rather than struggling to grow the body's myriad microbes and testing their ability to perform various biochemical reactions — the methods scientists traditionally use to classify bacteria — the team used tiny molecular probes resembling DNA Velcro to retrieve tens of thousands of snippets of bacterial DNA from smidgens of the intestinal output of two volunteers.

By comparing the DNA sequences of those snippets with those of previously studied bacteria, the team was able to sort many of the invisible bugs into known families.

Hundreds of others, it became clear, belong to microbial families unknown to science until now.

But the team members went further. By comparing the genetic puzzle pieces with similar sequences stored in databases, they were able to determine what biological functions many of these microbes are performing in the gut. And, as it turns out, no small number of those functions are crucial to human survival.

Some of the bacteria have the genetic machinery to make essential vitamins that are not found in the diet and that human cells can barely manufacture, including several B vitamins. Others make enzymes that can break the chemical bonds in plant fibers, or polysaccharides, where a plant's nutritional energy is stored.

"We have very few of those linkage-breaking enzymes encoded in our own genome, but these microbial genomes have a whole arsenal of gene products to degrade plant polysaccharides to energy," Gordon said.

Some bacteria in the gut break down flavonoids and other chemicals made by plants that could cause cancer or other illnesses if they were not neutralized in the intestines.

Others have the genetic capacity to scavenge hydrogen gas from the gut — a by-product of digestion that can kill helpful bacteria — and convert it into methane. That makes the intestines a more biologically friendly place, while contributing in sometimes embarrassing moments to Earth's accumulation of greenhouse gases.

And in one especially touching example, bacteria in the gut make generous quantities of an enzyme that facilitates the produc-

tion of butyryl coenzyme A, a fatty acid that is a favorite food of the cells that line the colon.

"We provide them a great place to live," study author David A. Relman of Stanford University said of the bacterial cells, "and they are feeding the lining of our gut."

The new work does not purport to be a complete survey of all microbes in the human gut. And it did not even take a stab at the body's other pockets of microbial diversity — primarily the nose and mouth, the vagina, and the skin. But it demonstrates that the DNA-based approach has the potential to reveal at last the metabolic details of our many mini-mes, said Claire M. Fraser-Liggett, president and director of the Institute for Genomic Research.

With the technology improving and getting cheaper, she said, it won't be long before it is easy to monitor a person's microbial changes from day to day — or compare bacterial population structures among individuals who have different diets or health histories.

"One question we need to tackle is: Is there such a thing as a core microbiome, a set of organisms or bacterial genes you find in most or all individuals?" Fraser-Liggett said. "It may be that microbes are very stable and diet doesn't play a huge role. Or it may be that this is a snapshot in time reflecting something they ate in their last meal."

With that kind of information in hand, doctors could think about prescribing particular "probiotic" foods or supplements to change a patient's microbiome in healthful ways, or adjusting a patient's diet to make a better fit with the bugs that the patient is saddled with.

"To ignore our microbial side would be to ignore an important contributor to our health and our biology," Gordon said. Edward DeLong, a professor at the Massachusetts Institute of Technology who has used similar techniques to study marine microbial diversity, said he was not completely comfortable with the idea that people are super-organisms. "I'm not sure where the super-organism ends and the environment begins," he said.

But he said he appreciated the focus on the positive side of bacteria.

"We typically think of microbes as being associated with human disease," DeLong said. "But they are always with us and are associated most of the time with human health."

Researcher Meg Smith contributed to this report.



ILLUSTRATION BY PATRICIA CLARKE — THE WASHINGTON POST; ISTOCK PHOTOS

Gut Bacteria: Our Essential Assistants

Five ways that intestinal microbes keep us alive, by doing what we can't:

- Vitamin synthesis, including several B vitamins.
- Breakdown of complex plant sugars to extract energy.
- Fermentation of dietary fiber.
- Conversion of hydrogen gas to methane.
- Breakdown of plant toxins that cause cancer and other diseases.

Lacto-Fermented Condiments provide enzymes and good bacteria



Beet relish

Ginger carrots

Cortido

(spicy So. American sauerkraut)

Pineapple chutney

Raspberry syrup

Apricot butter



Lacto-Fermented Beverages

Kombucha

Kvass

**Sour Grain
Drink**





6. Seeds, grains, legumes & nuts are soaked, sprouted, fermented or naturally leavened

Deactivates ENZYME INHIBITORS (block digestion)

Neutralizes PHYTIC ACID (blocks mineral absorption)

Neutralizes TANNINS and LECTINS (irritants)

Pre-digests COMPLEX STARCHES & SUGARS (hard to digest)

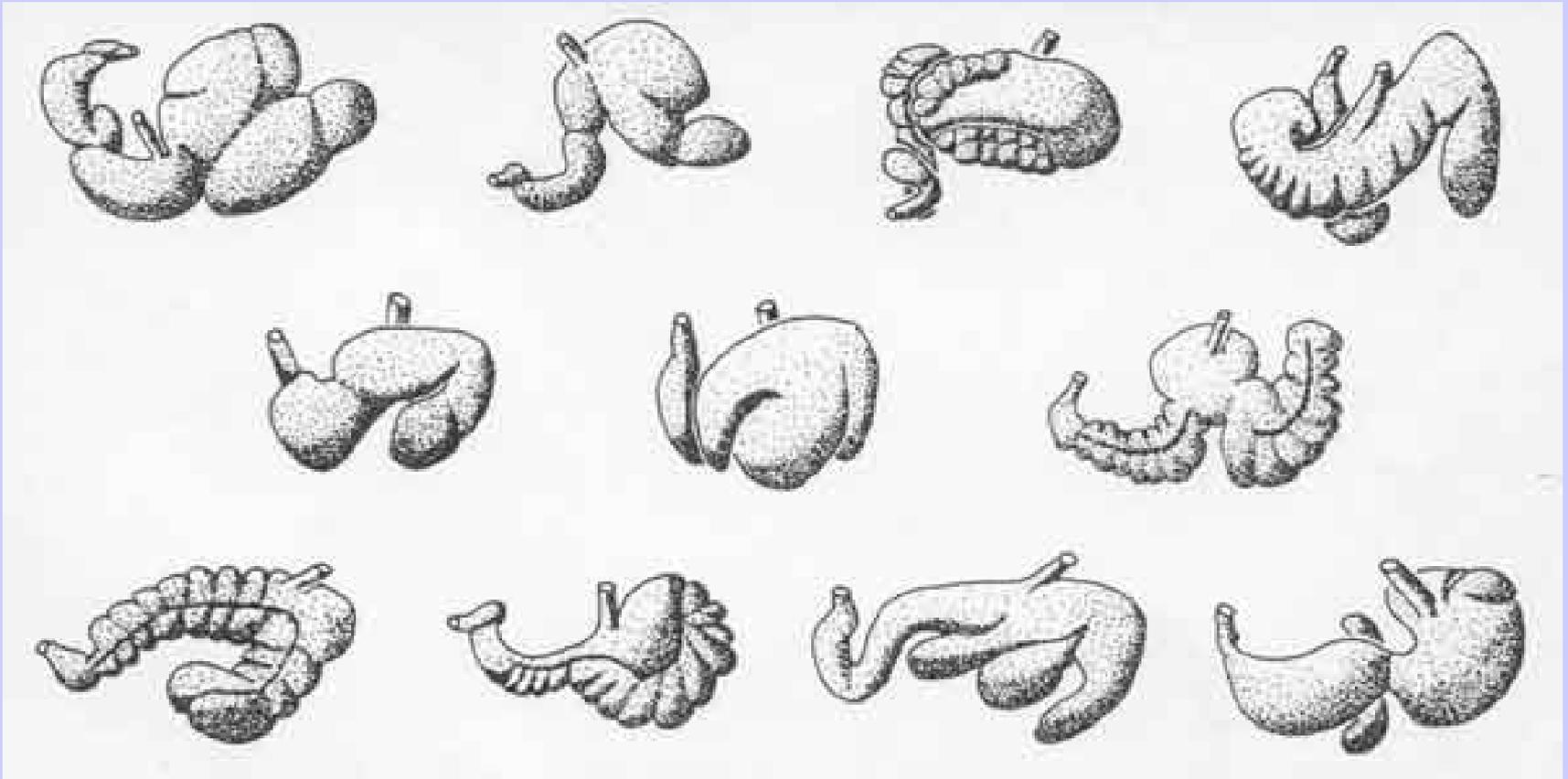
Begins breakdown of GLUTEN (hard to digest; can be toxic)

Begins breakdown of CELLULOSE (impossible to digest)

Proper preparation makes seed foods more digestible and their nutrients more available.

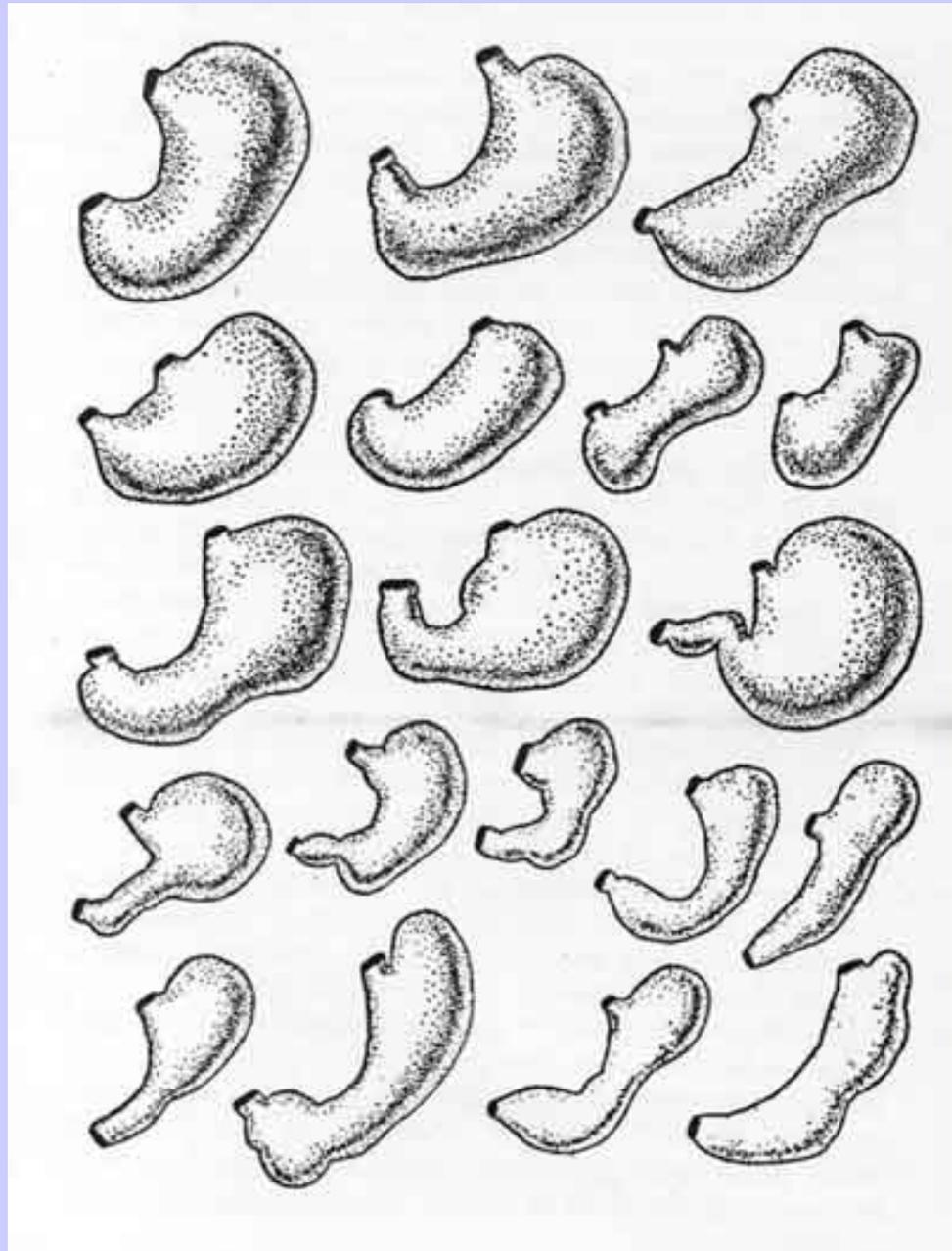


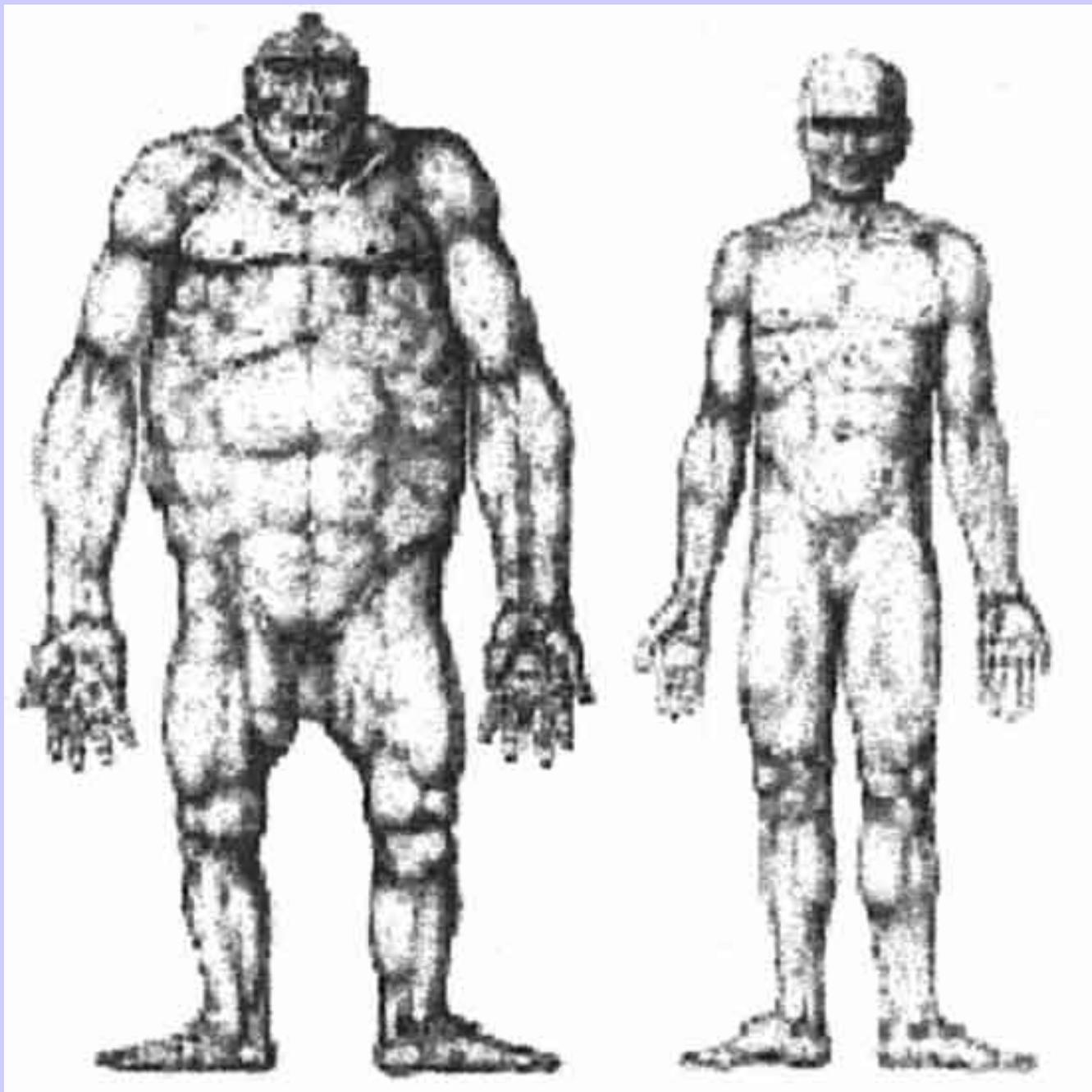
Herbivore Stomachs





Human Stomachs







Proper Preparation of Seed Foods

Imitates natural factors that neutralize
the seed's "preservatives"
and allow it to sprout:

Moisture

Warmth

Slight Acidity

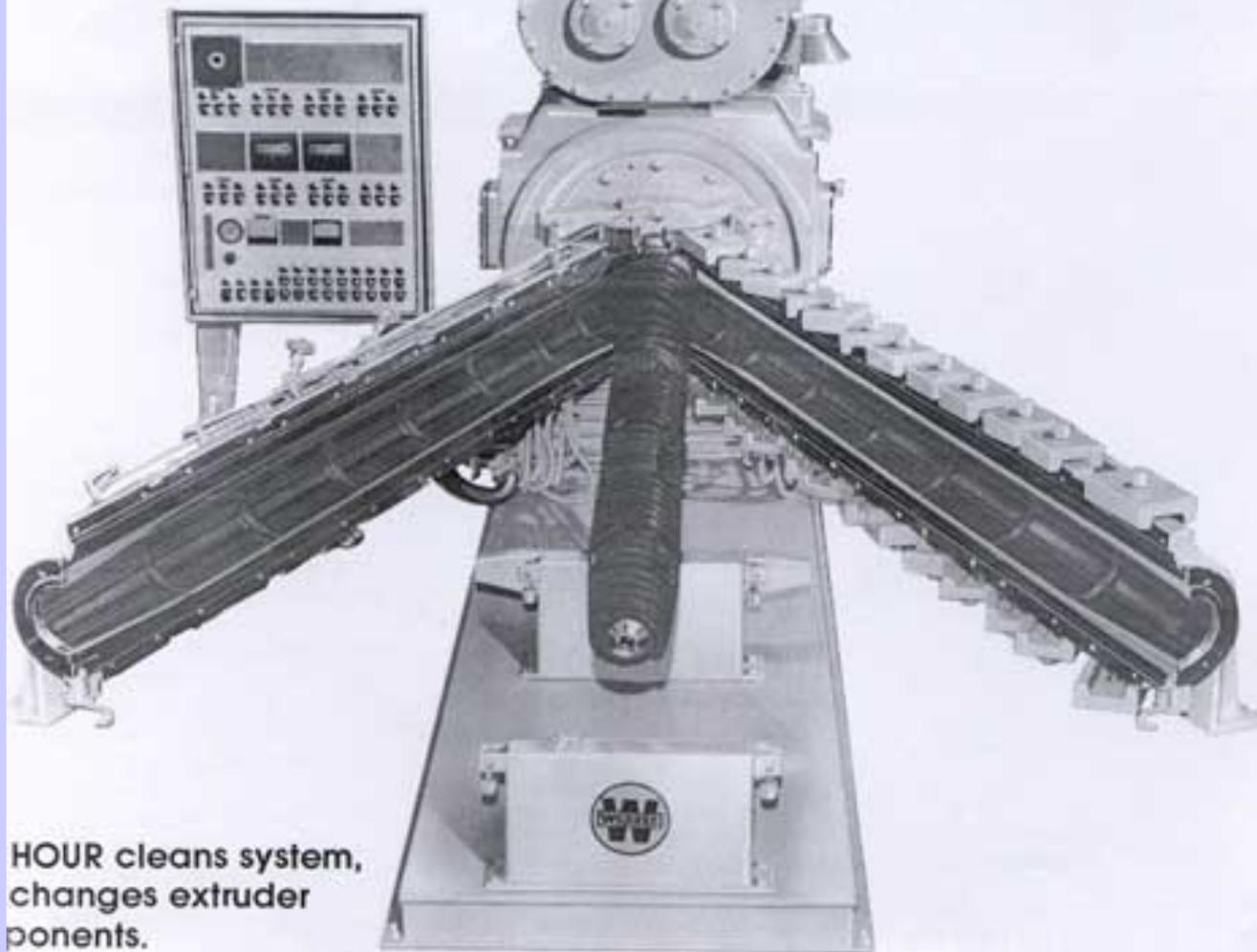
Time



QUICK-CHANGE!

from one Fabricated

Food to another



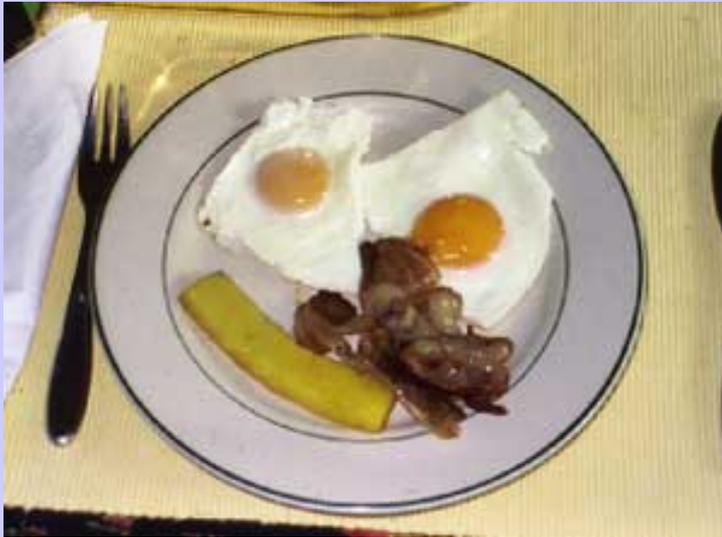
HOUR cleans system,
changes extruder
ponents.



Cruel Breakfast



Good Breakfasts



Fried eggs
with no-
nitrate
bacon and
fruit



Smoothie
made with
whole yoghurt,
egg yolks, fruit
and coconut oil

Scrambled
eggs with
sautéed
potatoes



Good Grain Breakfast



1. Soak rolled oats in warm water and 1 tablespoon of something acidic (whey, yoghurt, vinegar or lemon juice) overnight.





2. Next morning, bring water and salt to a boil.

3. Add soaked oatmeal, bring to a boil and cook, stirring, for one minute.

4. Cover and let sit several minutes.





5. Serve oatmeal with plenty of butter or cream and a natural sweetener. Sprinkle coconut and/or crispy nuts on top if desired.



Problems with Soy Foods

PHYTIC ACID: Blocks absorption of calcium, magnesium, iron, copper and especially zinc.

PROTEASE INHIBITORS: Block protein digestion, cause swelling of pancreas.

ISOFLAVONES: Block thyroid function and cause endocrine disruption. Lower cholesterol

LECTINS: Irritating to the gastrointestinal tract.

MANGANESE: High levels can cause brain damage in infants

OXALATES: High levels can cause kidney stones.



Traditional & Modern Soy Foods

TRADITIONAL

Miso

Soy Sauce

Tempeh

Natto

Tofu

Soy Milk

Consumed in small amounts

MODERN

Bac O Bits

Soy Milk

Soy Yogurt

Soy Burgers

Diet Drinks

Hamburgers

“Health” bars (Zone, Balance, Atkins)

Tofu in cheesecake, dips, etc.

Isoflavone supplements

Hamburger Helper

Soy Cheese

Soy Ice Cream

Soy Hot Dogs

Protein Drinks

Bread

Modern Soy Foods are Imitation Foods!





Soy Foods in Asian Diets

JAPAN: Average soy consumption is about 30 g per day (2 tablespoons). 65% of calories in the Japanese diet come from fish.

CHINA: Average soy consumption is about 10 g per day (2 teaspoons). 65% of calories in the Chinese diet come from pork (meat and fat).



Soy Problems in Animals

Reproductive problems, infertility, thyroid disease and liver disease due to dietary intake of isoflavones (plant types of estrogens) have been observed for several species of animals including:

mice

rats

quail

cheetah

sturgeon

sheep

pigs

marmoset monkeys

Soy Milk or Real Milk?



Synthetic Vitamin D

Emulsifiers

Refined Sweeteners

Phytoestrogens in Soy Milk:

45 mg per cup - a toxic dose!

Twice daily average of Japanese

Other Anti-Nutrients in Soy Milk:

Phytic acid and enzyme inhibitors

Soy-Based Infant Formula

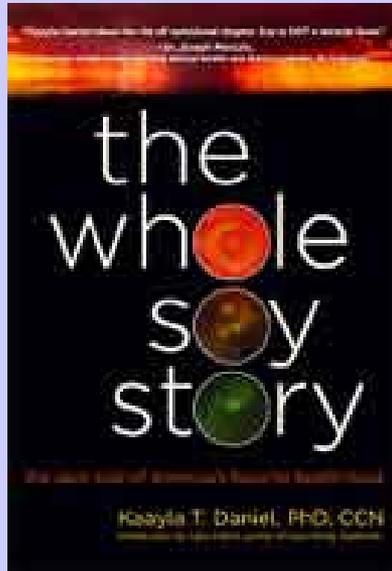


A recipe for disaster!

Baby receives daily dose of estrogens TEN times greater (as a function of body weight) than the level found in Asian diets. . .

. . . plus anti-nutrients and high levels of manganese, aluminum and fluoride.

Soy Danger Sources



The Whole Soy Story by
Kaayla Daniel, PhD, CCN

Soy Alert! Section of
westonaprice.org

Soy Alert! Flyer from the
Weston A. Price Foundation



7. Total fat content of traditional diets varies from 30% to 80% of calories, but only about 4% of calories come from polyunsaturated fatty acids.

Three Main Types of Fat

Saturated Fats

(Butter, meat fat and coconut oil)

Solid at room temperature

Monounsaturated Oils

(Olive oil and canola oil)

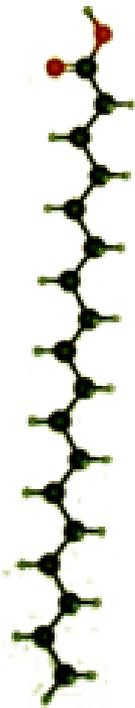
Liquid at room temperature but solid in refrigerator

Polyunsaturated Oils

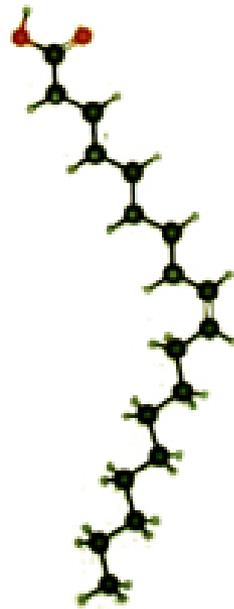
(Corn, safflower and soybean oils)

Liquid, even in the refrigerator

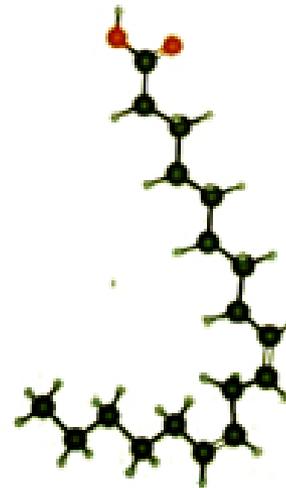
18 Carbon Fatty Acids



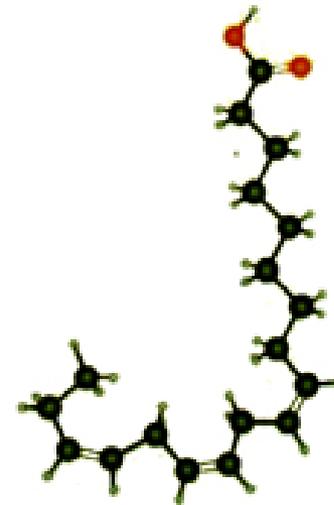
Stearic



Oleic



Linoleic



Linolenic



Who's Afraid of Saturated Fat?

Clogs arteries!

Causes Cancer!

Inflammation!



Makes you fat!

Bad for the liver!

Heart attack!

Don't worry, Lisa.
None of this is true!



The Many Roles of Saturated Fat

CELL MEMBRANES – should be 50% saturated fatty acids.

BONES – Saturated fats help the body put calcium in the bones.

HEART DISEASE – Lower Lp(a), a marker for heart disease.

HEART FUNCTION – Saturated fats are preferred food for the heart.

LIVER – Saturated fats protect the liver from alcohol & other poisons.

LUNGS – Can't function without saturated fats.

KIDNEYS – Can't function without saturated fats.

IMMUNE SYSTEM – Enhanced by saturated fats.

ESSENTIAL FATTY ACIDS – Work together with saturated fats.

DETOXIFICATION – Supports body's detox mechanisms

Recent Studies on Fats

LOWFAT = FATTER CHILDREN: Swedish study; Children on lowfat diets were fatter, consumed more sugar and had higher insulin resistance.

(www.ub.gu.se/sok/dissdatabas/detaljvy.xml?id=6979).

WHOLE FAT MILK = FERTILITY: Women drinking lowfat milk had fertility problems.

(*Human Reproduction*, online February 28, 2007).

WHOLE FAT MILK = LOWER WEIGHT GAIN: Swedish women using cheese and full fat dairy had lower weight gain as they grew older.

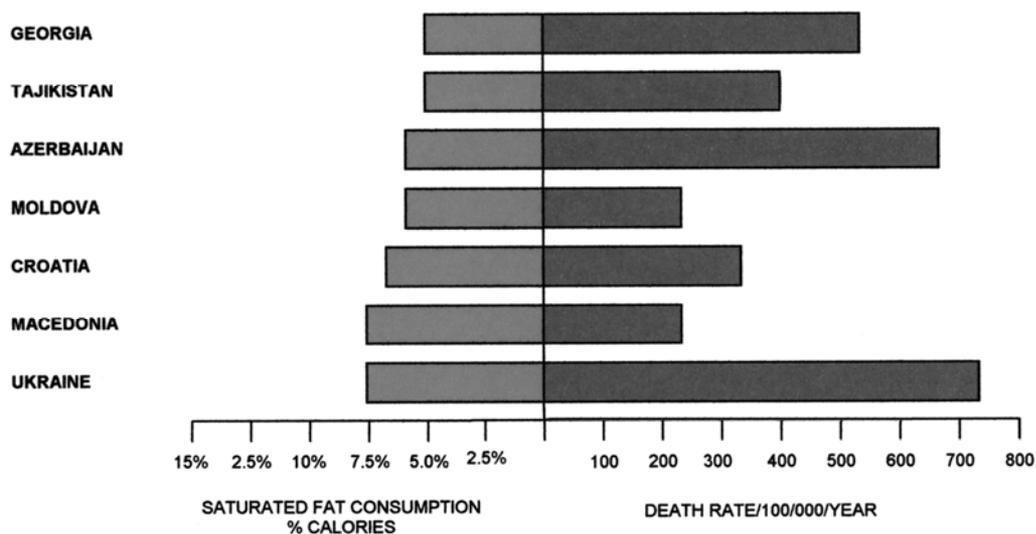
(*American Journal of Clinical Nutrition*, 2007;84(6):1481-1488).



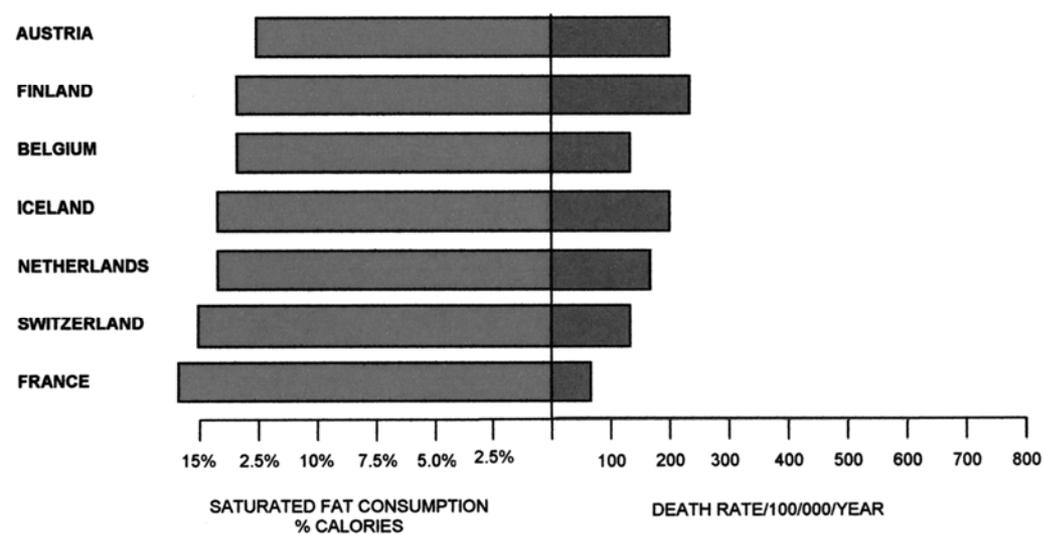
Saturated Fat and Heart Disease

Lower rates of heart disease are associated with higher levels of saturated fat in the diet.

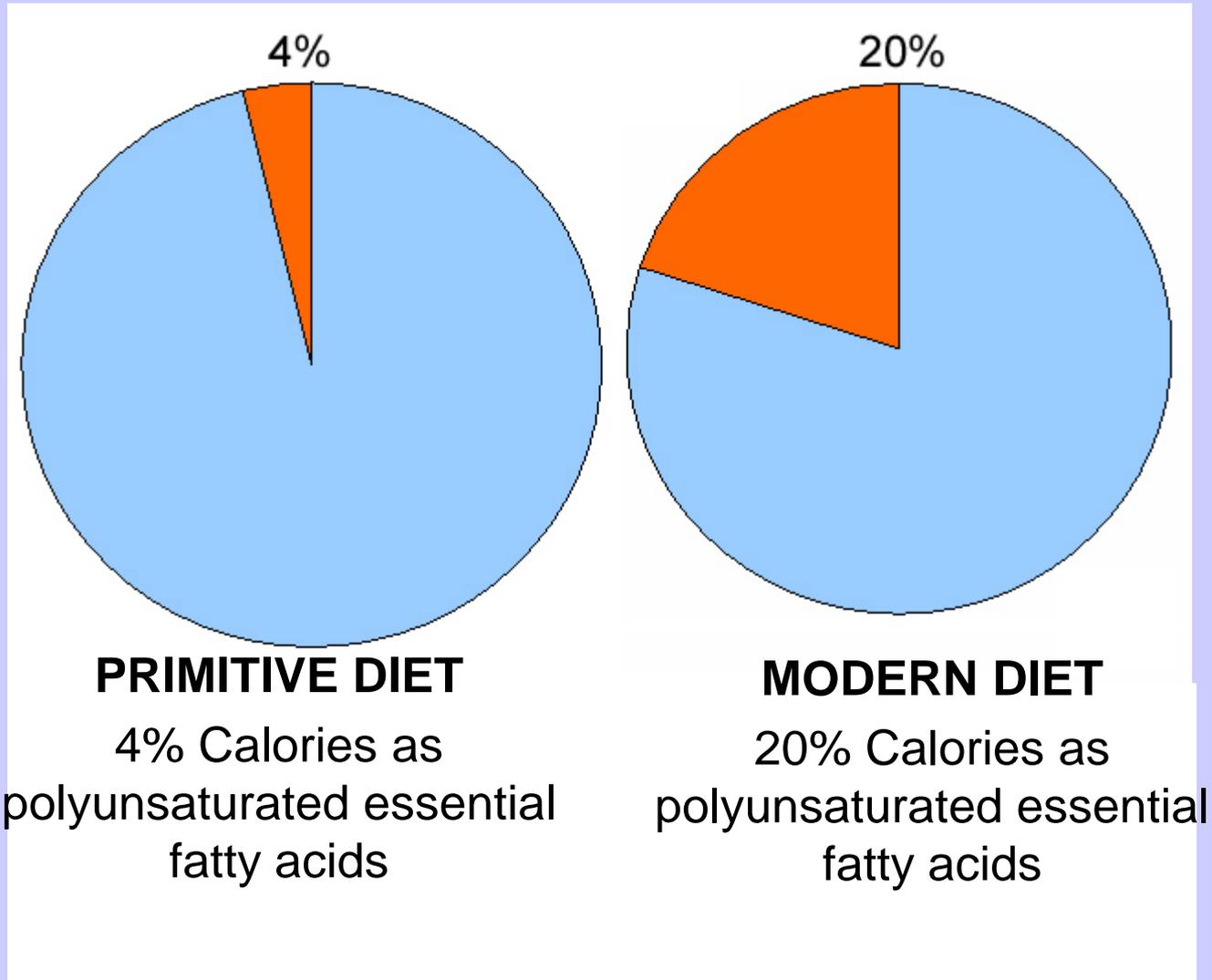
(FIG 1) COMPARISON OF HEART DISEASE DEATHS vs. CONSUMPTION OF SATURATED FAT % CALORIES (Countries with lowest saturated fat consumption)



(FIG 2) COMPARISON OF HEART DISEASE DEATHS vs. CONSUMPTION OF SATURATED FAT % CALORIES (Countries with highest saturated fat consumption)

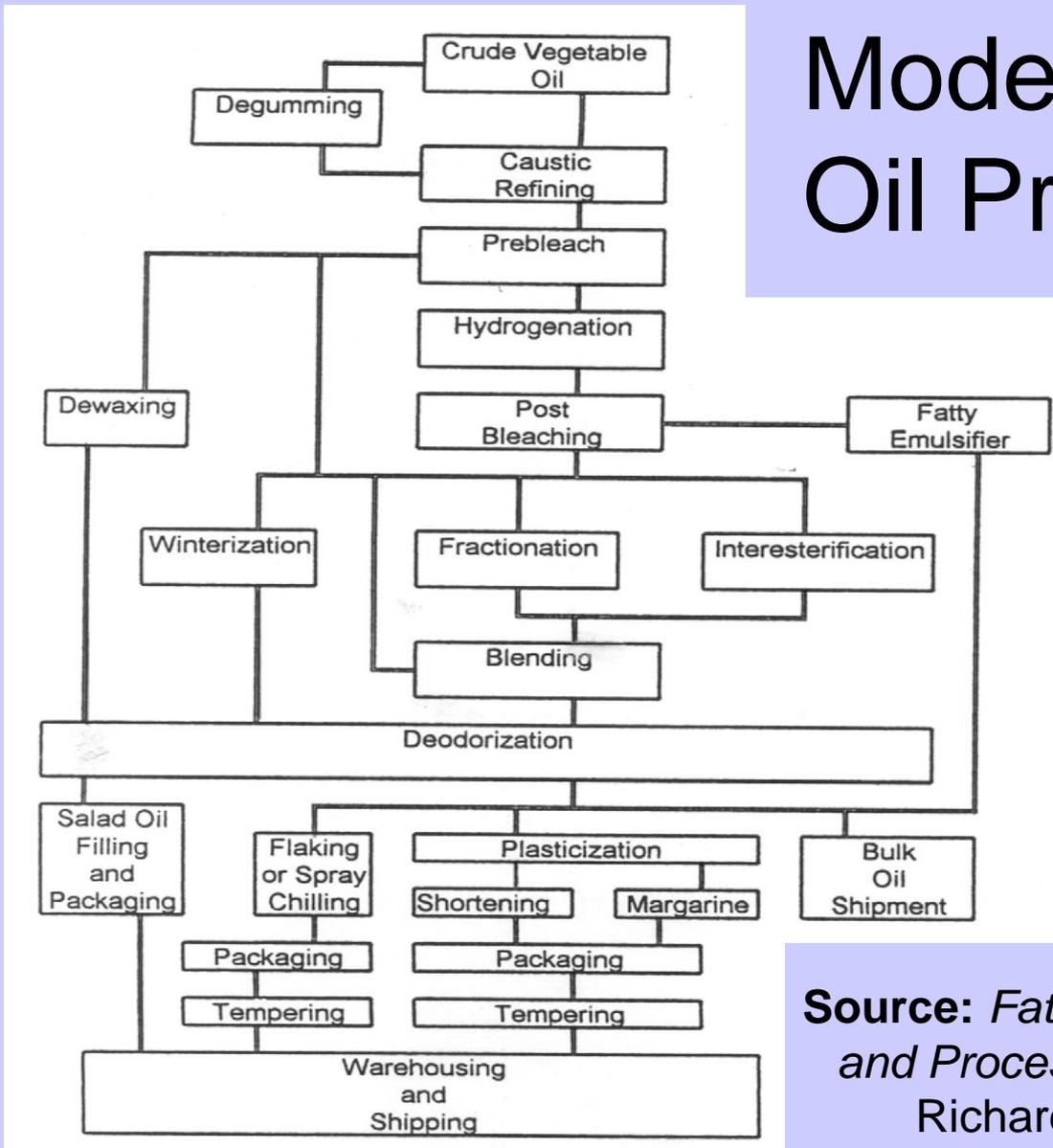


Essential Fatty Acid Content of Primitive and Modern Diets





Modern Edible Oil Processing



Source: *Fats and Oils: Formulating and Processing for Applications*, Richard D. O'Brien 1998

Problems Associated with Consumption of Polyunsaturated Oils

Increased cancer

Increased heart disease

Increased wrinkles and premature aging

Immune system dysfunction

Disruption of prostaglandin production

Depressed learning ability

Liver damage

Ceroid storage disease

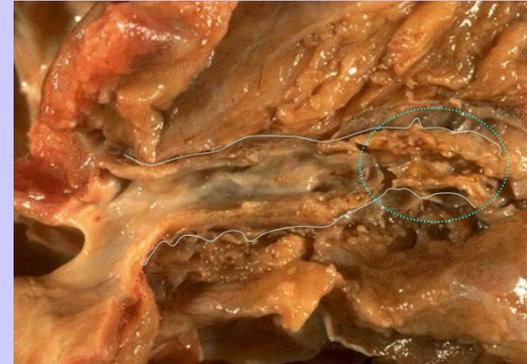
Damage to reproductive organs and the lungs

Digestive disorders due to polymerization

Increased levels of uric acid

Impaired growth

Lowered cholesterol



Source:

Pinckney, *The Cholesterol Controversy*



Natural Sources of Essential Fatty Acids

GRAINS

LEGUMES

NUTS

FISH

ANIMAL FATS

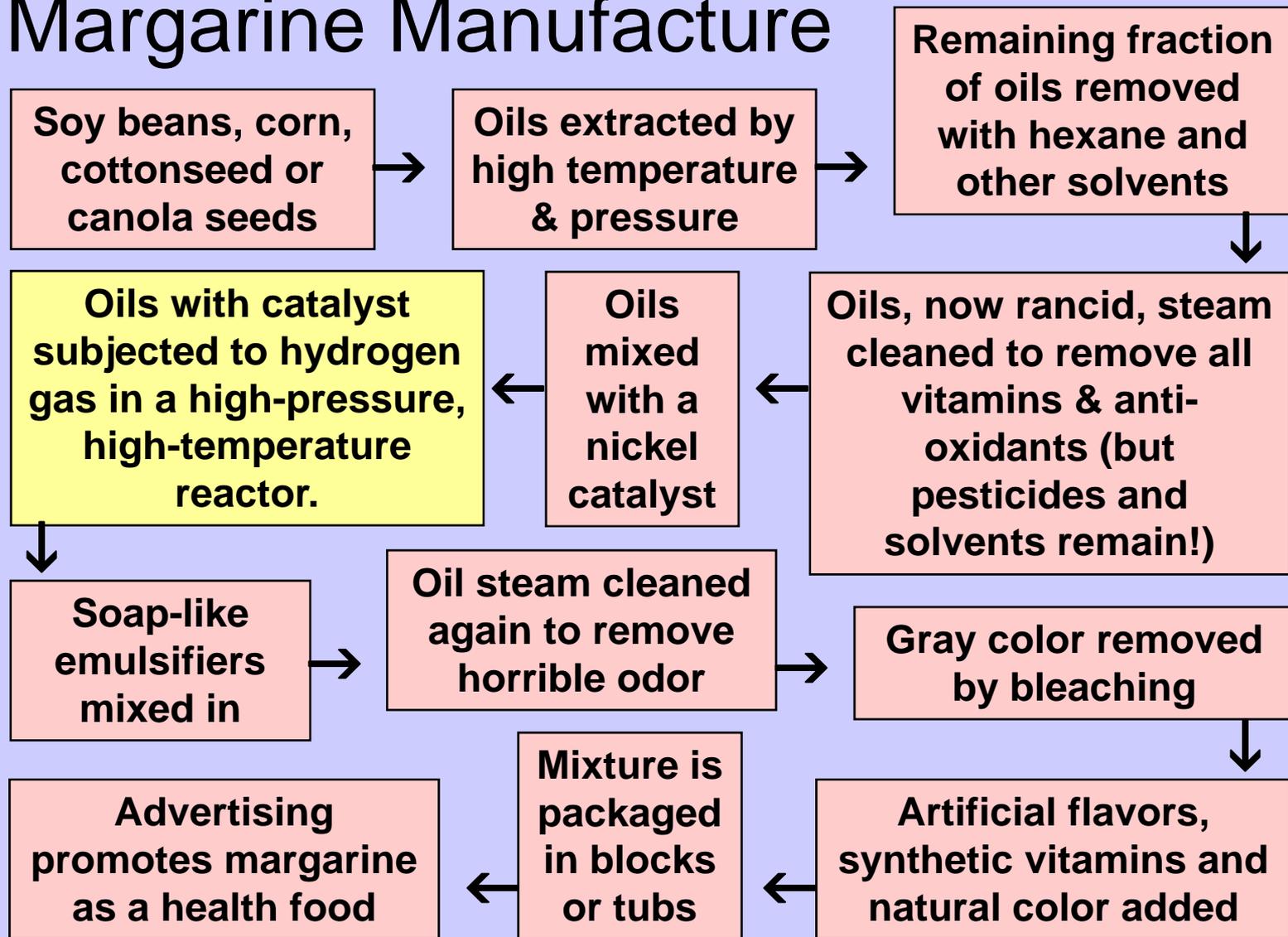
EGGS

VEGETABLES

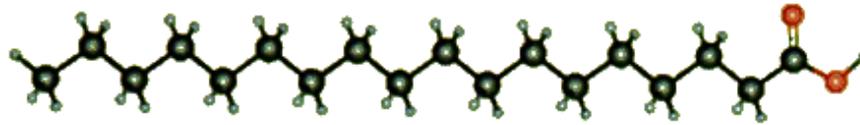
FRUITS

Polyunsaturated fatty acids are protected from damage when they are in whole foods.

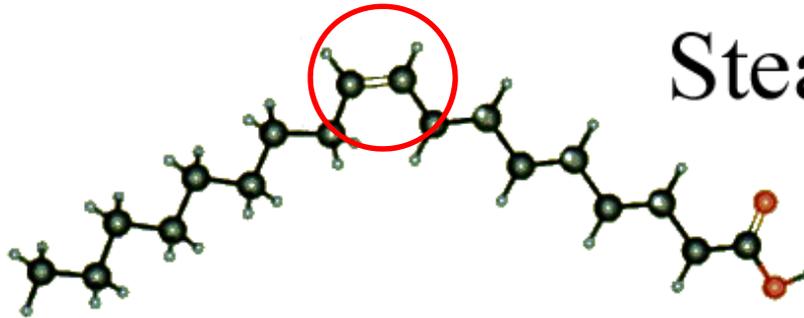
Margarine Manufacture



Trans Fatty Acid



Stearic Acid



(Cis) Oleic Acid



(Trans) Elaidic Acid



Diseases Caused or Exacerbated by Hydrogenated (*trans*) Fats

Atherosclerosis

Heart Disease

Cancer

Degeneration of Joints and Tendons

Osteoporosis

Diabetes

Autoimmune Diseases

Eczema

Psoriasis

PMS

Lowered testosterone, lowered sperm count

Failure to Grow

Learning Disabilities

Low Birth Weight Babies

Reduced Visual Acuity

Reduced Fat Content in Mothers' Milk

Saturated Fats vs. Trans Fats

	Saturated Fats	Trans Fats
Cell Membranes	Essential for healthy function	Interfere with healthy function
Hormones	Enhance hormone production	Interfere with hormone production
Inflammation	Suppress	Encourage
Heart Disease	Lower Lp(a). Raise "good" cholesterol	Raise Lp(a). Lower "good" cholesterol
Omega-3	Put in tissues and conserve	Reduce levels in tissues
Diabetes	Help insulin receptors	Inhibit insulin receptors
Immune System	Enhance	Depress
Prostaglandins	Encourage production and balance	Depress production; cause imbalances









**Kwickie
MART**

★ NEWS ★
**TRANS FAT
LABELS NOW
REQUIRED ON
FOOD - FDA**

DON'T YOU SELL
ANYTHING WITHOUT
THE DREADED
TRANS FATTY
ACIDS ?



SURE... WE SELL
CIGARETTES !



ROJAS Good Through
10-1-07



Good Things in Butter

HIGH LEVELS IN GRASS-FED BUTTER

Vitamin A

Vitamin D

Vitamin E

Vitamin K

Copper

Zinc

Chromium

Selenium

Iodine

Conjugated Linoleic Acid (CLA)

IN ALL BUTTER

Shorter Chain Fatty Acids

Essential Fatty Acids

(perfect balance)

Lecithin

Cholesterol

Glycosphingolipids

Wulzen Factor*

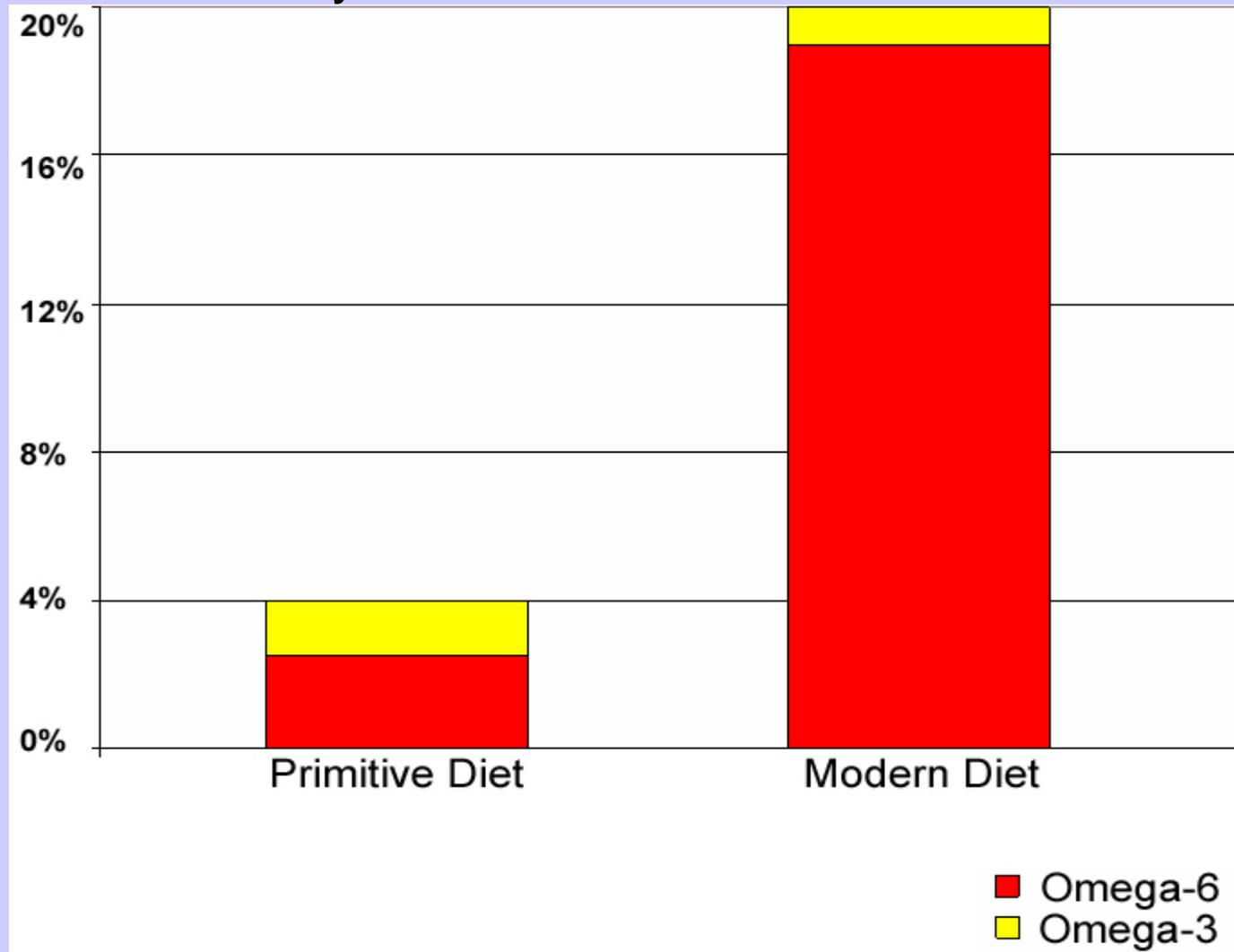
*Destroyed by Pasteurization



8. Nearly Equal Amounts of Omega-6 and Omega-3 Fatty Acids

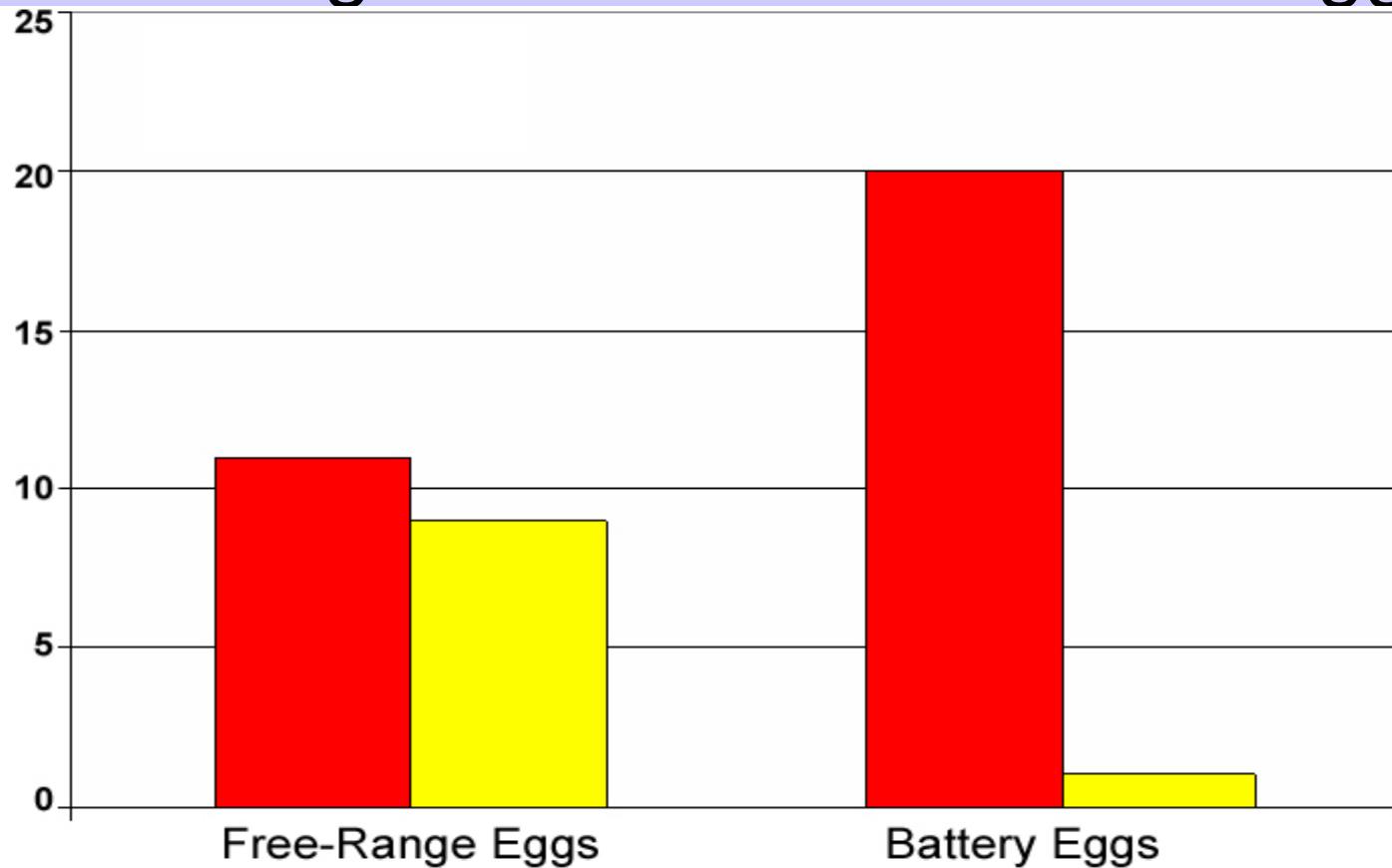


Essential Fatty Acids in Primitive and Modern Diets





Free-Range* versus Confinement Eggs



* Greek chickens on fish-based feed
Source: Simopauls and Salem, AJCN

■ Omega-6
■ Omega-3



Redressing the Omega-6/Omega-3 Balance

ELIMINATE all commercial vegetable oils from the diet.

USE FLAX OIL, a source of omega-3 fatty acids, in **SMALL** amounts in salad dressing (about ½ teaspoon per day).

CHOOSE ORGANIC AND PASTURE FED animal and plant foods for a good source of omega-3 fatty acids.



9. All diets contained some salt

Sea salt

Salt flats and mined salt

Ashes of marsh grasses

Meat and milk products

Blood and urine

More salt needed with cooked foods



Salt is needed for

Protein digestion

Carbohydrate digestion

Development of brain

Adrenal function

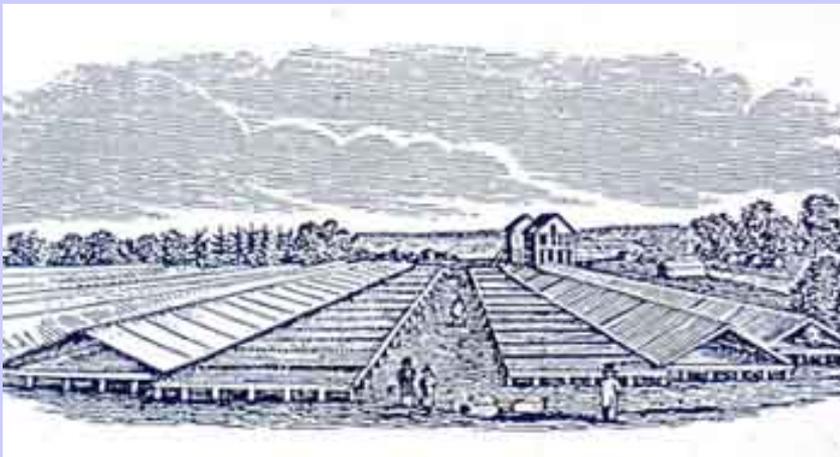
Cellular metabolism

Traditional Salt Production



Traditional salt production involved the simple evaporation of sea water. The salt was rich in magnesium and trace minerals.

Modern salt has all the magnesium and trace minerals removed and contains aluminum-based additives.





Sea Salt



Salt should be gray, beige or pink (not white), indicating the presence of minerals.



10. All traditional cultures made use of bones, usually as bone broth

1. Supplies calcium and other minerals in a form easy to assimilate
2. Supplies nutrients that help build healthy cartilage
3. Supplies amino acids that help the body detoxify
4. Supplies gelatin to help digestion



Hydrophilic

RAW FOODS are HYDROPHILIC - they attract liquids, including digestive juices

COOKED FOODS are HYDROPHOBIC - they repel liquids, including digestive juices

GELATIN is HYDROPHILIC - it attracts liquids, including digestive juices

Gelatin-rich broth added to a meal containing cooked foods promotes full digestion and complete assimilation.



Gelatin is useful in the treatment of

malnutrition

tuberculosis

dysentery

diabetes

infectious diseases

muscular dystrophy

poor digestion/assimilation

fatigue

irritation of digestive tract

jaundice

Crohn's disease

allergies

Colitis

infant feeding

ulcers



Chicken Stock I



Whole chicken (including feet) or chicken backs and necks

Vegetables (onions, carrots, celery)

Vinegar

Filtered Water

Chicken Stock II



Good broth
resurrects the dead.

South American Proverb





Fish broth
will cure anything!

South American Proverb



Foods that contain high levels of MSG



MSG has been linked to: Diabetes, Migraines and Headaches, Obesity, Autism, ADHA and Alzheimer's



Ingredients that Contain MSG

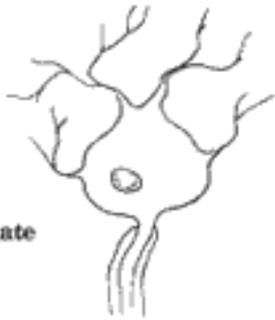
Monosodium glutamate
Hydrolyzed Vegetable Protein
Hydrolyzed Protein
Hydrolyzed Plant Protein
Plant Protein Extract
Sodium Caseinate
Calcium Caseinate
Yeast Extract
Textured Vegetable Protein (TVP)
Autolyzed Yeast
Hydrolyzed Oat Flour
Corn Oil
Soy Protein Isolate



High Concentration MSG

Lower Concentration MSG

Immediate



One hour



Two hours



From
Excitotoxins
By
Russell Blaylock,
MD



The Solution to Fatigue: Easy Digestion

Raw Dairy, not pasteurized

Proper Preparation of Grains

Lacto-Fermented foods, rich in enzymes and
beneficial bacteria

Gelatin-rich bone broths

Less energy required for digestion =
More energy for you!



11. Traditional cultures made provisions for future generations

**Special foods for parents-to-be,
pregnant women, nursing women
& growing children**

Spacing of children

**Principles of proper diet taught
to the young**

This woman from Fiji has walked many miles to obtain a special food for the baby growing in her womb.





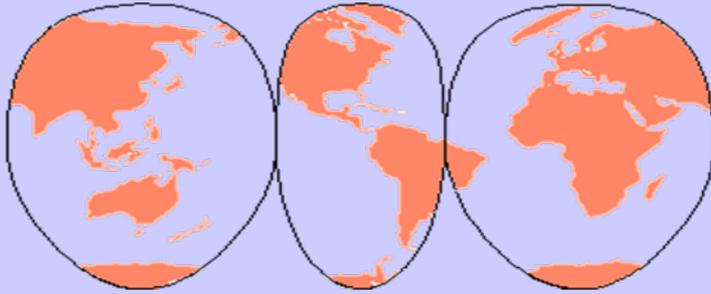




Resources

The Weston A. Price Foundation

www.westonaprice.org



Quarterly Magazine

Informational Brochures

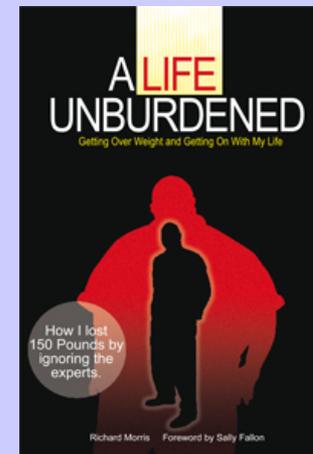
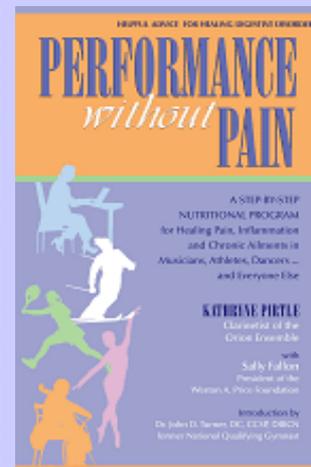
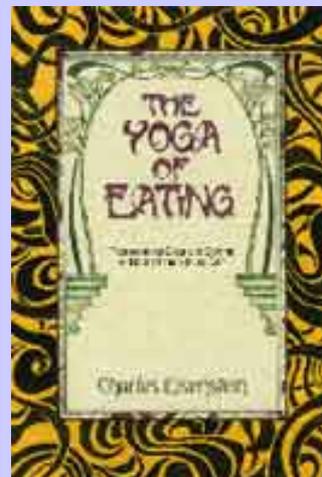
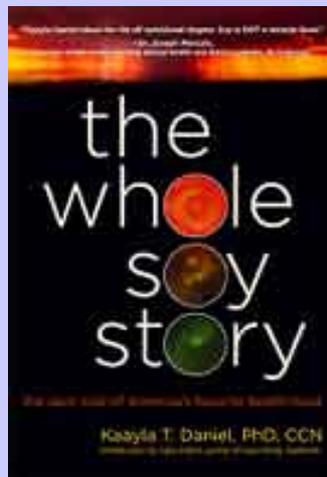
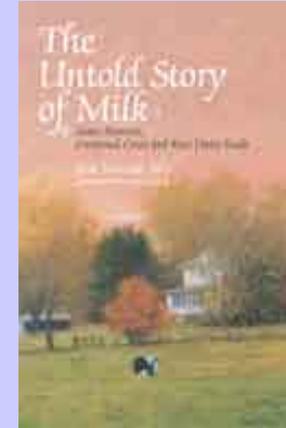
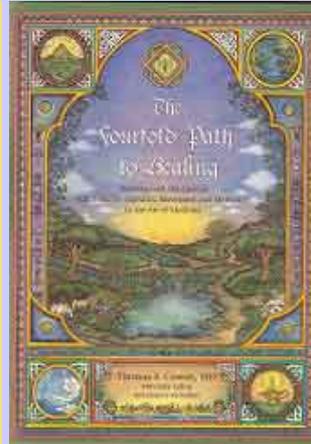
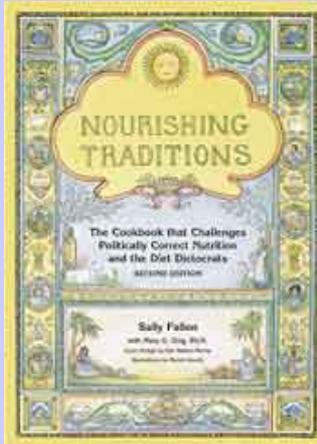
Yearly Shopping Guide

Annual Conference

Local Chapters

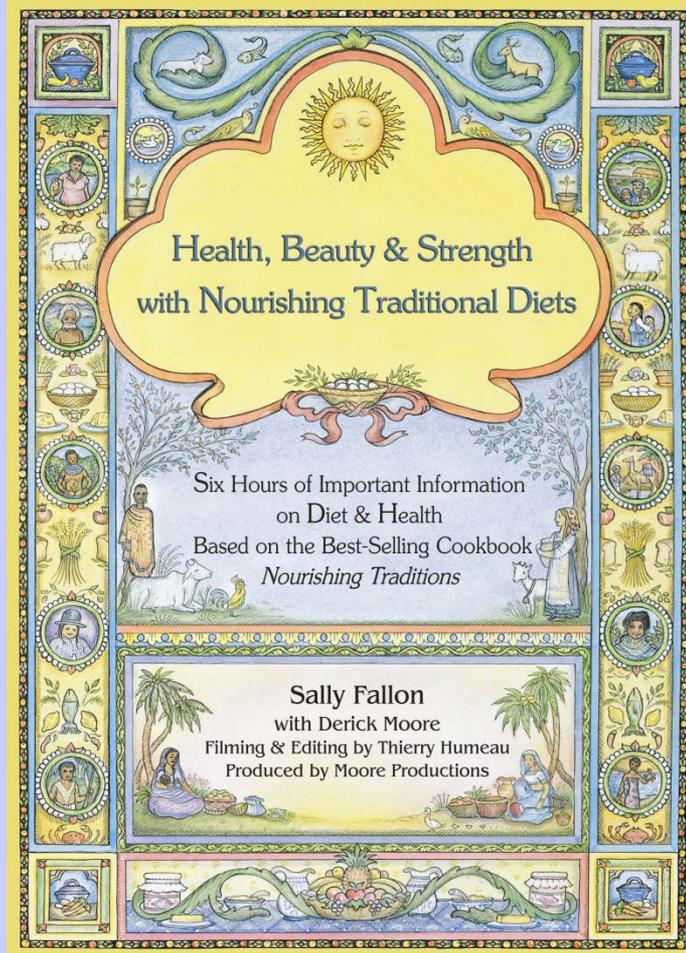
Books from NewTrends Publishing

www.newtrendspublishing.com, (877) 707-1776



Full Seminar on DVD

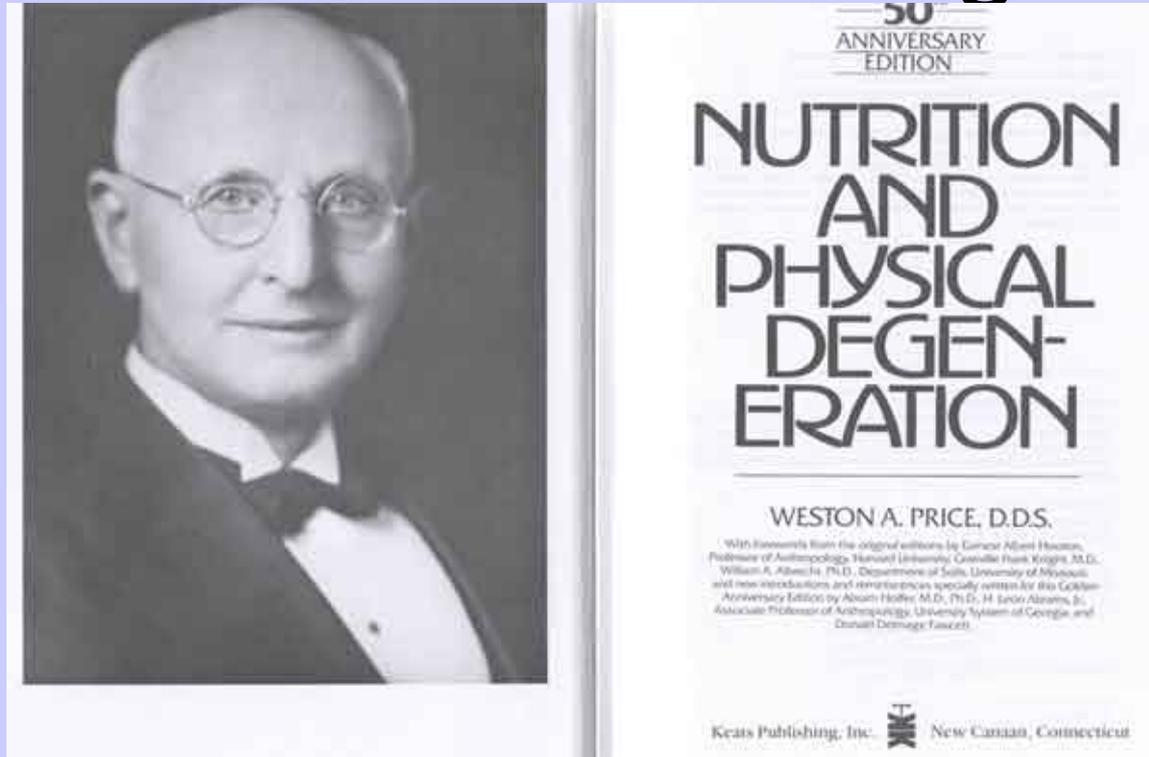
www.NewTrendsPublishing.com



Five-Hour Seminar
on Nourishing
Traditional Diets

3-DVD Set
\$69.95

Dr. Price's Pioneering Work



The Price-Pottenger Nutrition Foundation

www.price-pottenger.org

(619) 462-7600



Summary

Traditional diets *maximized* nutrients while
modern diets *minimize* nutrients

TRADITIONAL DIETS

Foods from fertile soil
Organ meats over muscle meats
Animal fats
Animals on pasture
Dairy products raw and/or fermented
Grains and legumes soaked/fermented
Bone broths
Unrefined sweeteners (honey, maple syrup)
Lacto-fermented vegetables
Lacto-fermented beverages
Unrefined salt
Natural vitamins in foods
Traditional Cooking
Traditional seeds/Open pollination

MODERN DIETS

Foods from depleted soil
Muscle meats, few organs
Vegetable oils
Animals in confinement
Dairy products pasteurized
Grains refined, extruded
MSG, artificial flavorings
Refined sweeteners
Canned vegetables
Modern soft drinks
Refined salt
Synthetic vitamins added
Microwave, Irradiation
Hybrid seeds, GMO seeds



Institute for Integrative Nutrition