

THE NUTRITIOUS EGG

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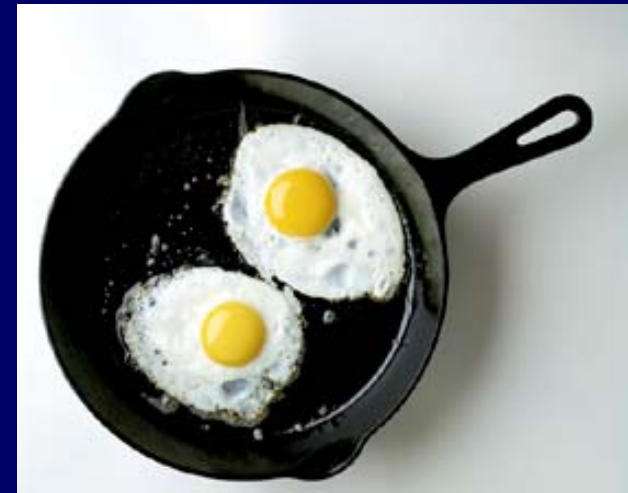
Celebrating 25 years of nutrition research and health
education (1979-2004).



THE PURPOSE OF AN EGG



Humans



Nature

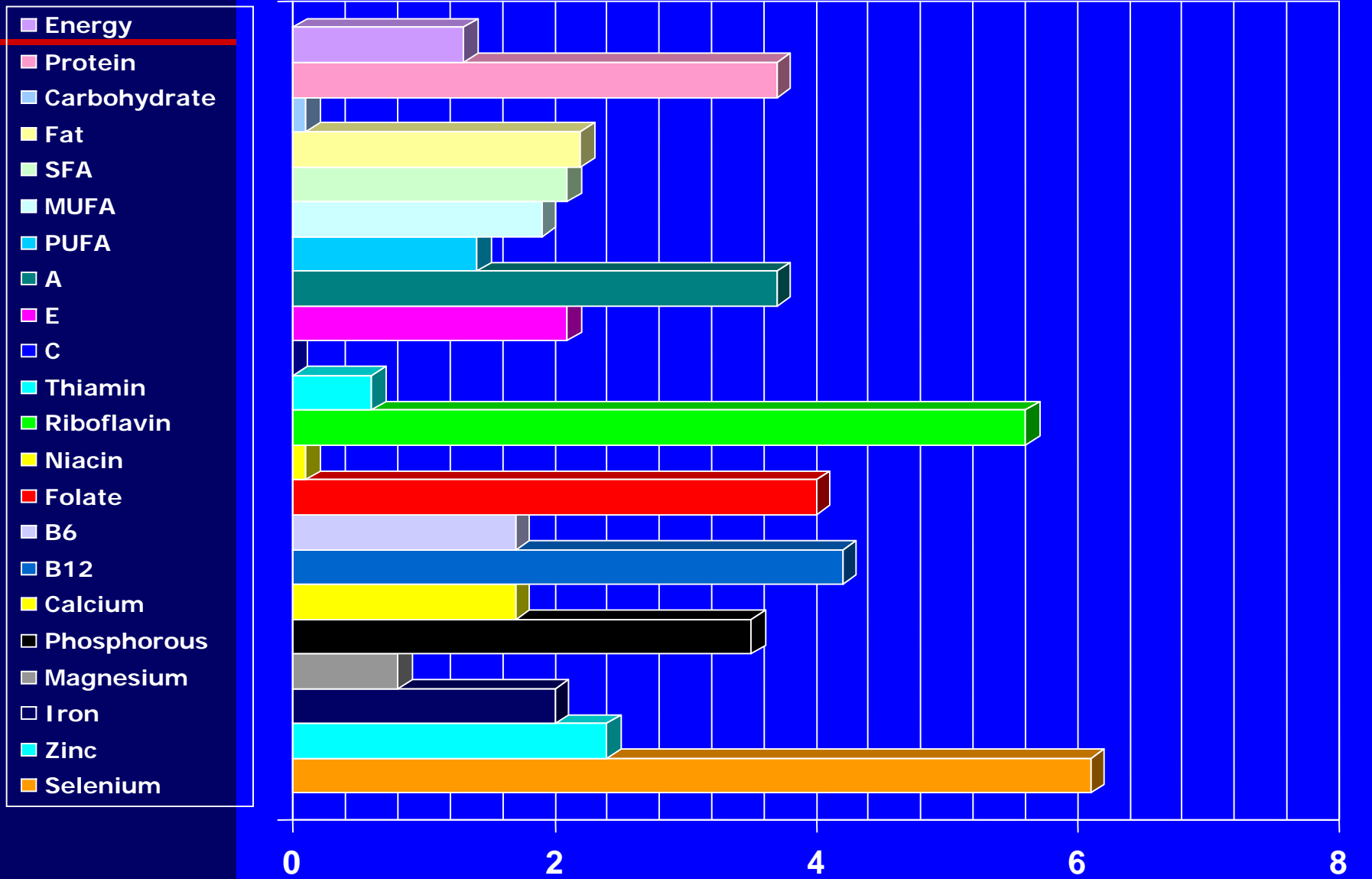


Nature sets the rules.

ANIMAL AGRICULTURE PRODUCTS

- Cause cancer
- Cause heart disease
- Cause diabetes
- Cause pollution
- Cause food-borne illnesses
- Cause environmental damage
- Cause the longest life expectancy ever known

EGGS: NUTRITION & VALUE



EGG PROTEINS

- ❑ The major proteins found in egg yolk include 65% low density lipoprotein (LDL), high density lipoprotein (HDL), phosphovitin and livetin. Proteins exist in a homogeneously emulsified fluid.
- ❑ Egg white is made up of some 40 different kinds of proteins. Ovalbumin is the major protein (54%) along with ovotransferrin (12%) and ovomucoid (11%). Other proteins include flavoprotein which binds riboflavin, avidin which can bind and inactivate biotin, and lysozyme which has lytic action against bacteria.

EGG PROTEIN

- ❑ **Chemical Score** (essential amino acid level in a protein food divided by the level found in an “ideal” protein food) = 100.
- ❑ **Biological Value** (a measure of how efficiently dietary protein is turned into body tissue) = 94.
- ❑ **Protein Efficiency Ratio** (PER: ratio of grams of weight gain to grams of protein ingested in young rats) highest of any dietary protein.

BIOLOGICAL VALUES

Biological Values of Proteins in Different Foods:

Whole egg	93.7
Milk	84.5
Fish	76.0
Beef	74.3
Soybeans	72.8
Rice, polished	64.0
Wheat, whole	64.0
Corn	60.0
Beans, dry	58.0

HIGH QUALITY PROTEIN



ESSENTIAL AMINO ACIDS

Why_are_essential_amino_acids_essential?

Why_are_essential_amino_acids_essential?

Why_

Either stop protein synthesis or use essential amino acids from proteins in system.

Mississippi [4/11]

California [8/10]

Macronutrient Composition of Raw Eggs (per 100 g)

	<i>Fowl Species</i>				
	<u>Quail</u>	<u>Chicken</u>	<u>Duck</u>	<u>Turkey</u>	<u>Goose</u>
Average Wt	9 g	50 g	70 g	79 g	144 g
Water (g)	74.35	75.84	70.83	72.50	70.43
Energy					
- kJ	663	617	776	716	775
- kcal	158	147	185	171	185
Protein (g)	13.05	12.58	12.81	13.68	13.87
Lipid (g)	11.09	9.94	13.77	11.88	13.27
Cholesterol (mg)	844	423	884	933	852

Macronutrient Distribution in Raw Chicken Egg (per 50 g)

	<i>Whole Egg</i>	<i>Egg Albumin</i>	<i>Egg Yolk</i>
Weight (%)	100	66	34
Water (g)	37.9	28.9	8.9
Energy			
- kJ	308.5	71.3	228.8
- kcal	73.5	17.2	54.7
Protein (g)	6.29	3.60	2.70
Lipid (g)	4.97	0.06	4.51
Sugars (g)	0.39	0.24	0.10

EGG YOLK LIPIDS

A large egg yolk contains 4.5 g of lipid:

Triacylglycerides = 65%

Phospholipids = 31%

Cholesterol = 4%

Small amounts of xanthophylls and carotenoids

Yolk Lipids per 50 g Egg

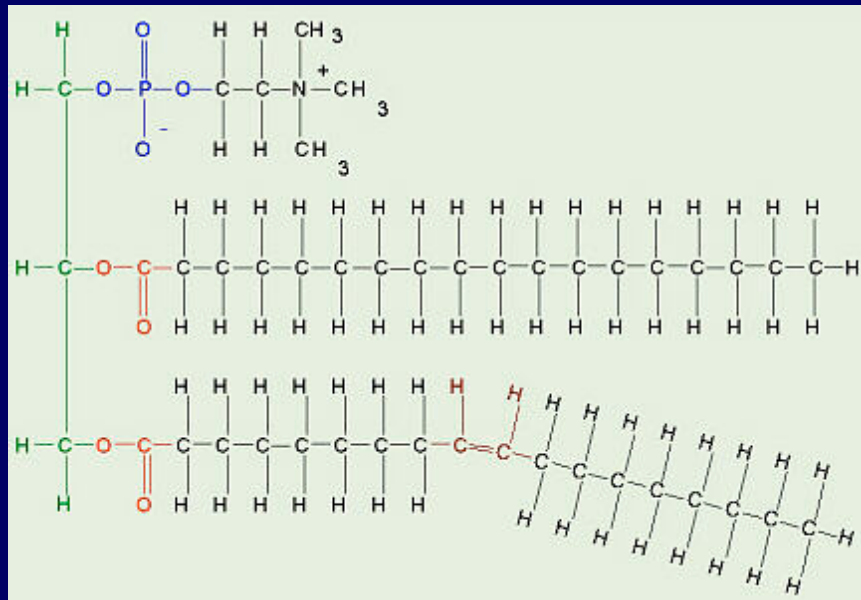
Lipids	Amount
Fatty Acids	
-- Saturated	1.55 g
-- Monounsaturated	1.99 g
-- Polyunsaturated	0.72 g
<i>Trans</i> -Fatty Acids	<0.05 g
Cholesterol	211 mg
Lutein + zeaxanthin	150-250 µg

Vitamin Content per 50g Large Egg

Vitamin	Whole	Albumin	Yolk
Niacin	0.04 mg	<i>0.04</i>	<0.01 mg
Riboflavin	0.24 mg	<i>0.15</i>	0.09 mg
Thiamin	0.04 mg	<0.01	0.03 mg
Vitamin B6	0.07 mg	<0.01	0.06 mg
Folate	23.5 µg	0	24.8 µg
Vitamin B12	0.65 µg	0.03	0.33 µg
Vitamin A	243.5 IU	0	245.1 IU
Choline	125.5 mg	0	125.5 mg
Retinol	70 µg	0	63.1 µg
Vitamin E	0.49 mg	0	0.44 mg
Vitamin D	17.3 IU	0	18.3 IU
Vitamin K	0.15 µg	0	0.12 µg



EGG LECITHIN



A yellow phospholipid essential for the metabolism of fats; found in egg yolk and in many plant and animal cells; used commercially as an emulsifier

EGG CHOLINE

- Egg lecithin
- Essential nutrient (AI)
- Pregnancy/lactation
- 50 g egg has 180 mg
- 2 Large eggs 80% AI
- Excellent source

Mineral Content per 50 g Large Egg

<i>Mineral</i>	<i>Whole</i>	<i>Albumen</i>	<i>Yolk</i>
Calcium, Ca (mg)	26.5	2.3	21.9
Iron, Fe (mg)	0.92	0.03	0.46
Phosphorous, P (mg)	95.5	4.95	66.3
Zinc, Zn (mg)	0.56	0.01	0.39
Selenium, Se (µg)	15.8	6.6	9.5
Magnesium, Mg (mg)	6.0	3.63	0.85
Potassium, K (mg)	67.0	53.79	18.53
Sodium, Na (mg)	70.0	54.78	8.16
Copper, Cu (mg)	0.05	0.01	0.01
Manganese, Mn (mg)	0.02	<0.01	0.01

NUTRIENT RICH EGGS

Two Large Eggs = 155 calories

20% protein

53% essential aa

80% choline

30% riboflavin

16% vitamin B₁₂

12% folate

12% vitamin A

12% vitamin D

8% vitamin B₆

6% vitamin E

34% selenium

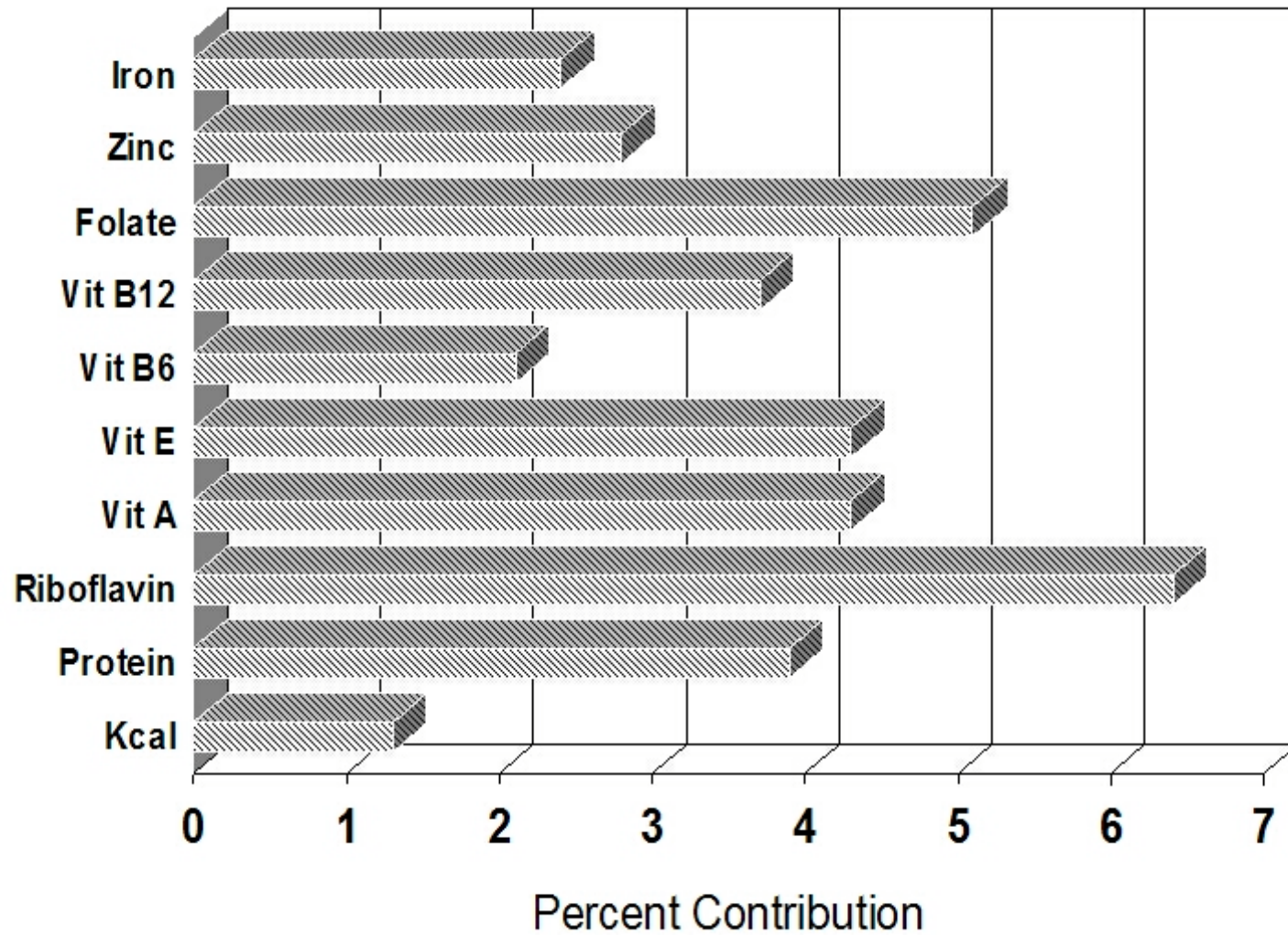
16% phosphorous

8% iron

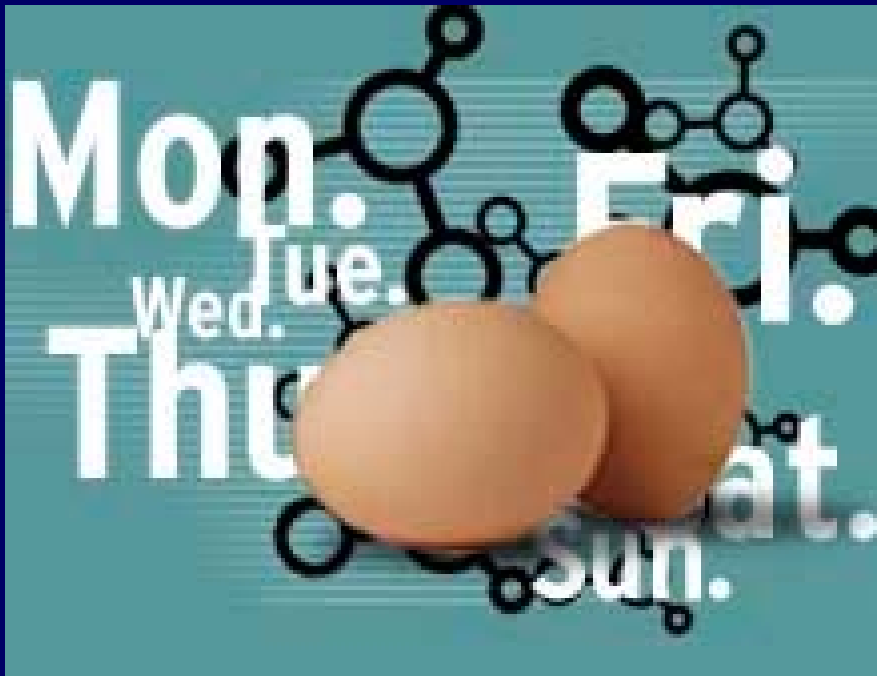
8% zinc

6% food energy

EGGS TODAY



ALL YOU REALY NEED



Almost the perfect food!

Why don't eggs have Vitamin C?



THE LAST WORDS

- ❑ Eggs have the highest quality protein at the lowest cost.
- ❑ Eggs contain every essential amino acid, fatty acid, vitamin and mineral (except Vitamin C) needed by humans.
- ❑ Eggs have cholesterol but with zero carbs and zero *trans*-fat.
- ❑ Eggs contain highly bioavailable functional nutrients like lutein and zeaxanthin.

A LIFETIME OF NUTRITION



EGGS IN 2005



*Eggs –
delicious,
nutritious,
affordable
fast food*