

FEEDING YOUR CELLS

Nutrient density and optimal formulation of a LCHF diet

EVERYONE HAS AN OPINION

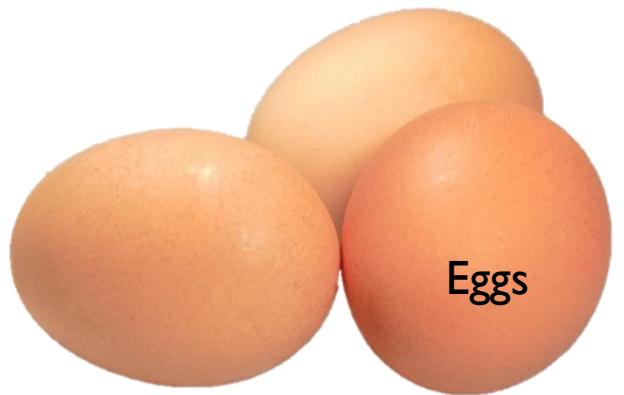
... but very few have a clue





What do most doctors think, a LCHF diet looks like?





Low-Carb Protein Bars



Bacon



Meat



CRITIQUE

„Unreasonable, with severe side effects“

„A ketogenic diet is unbalanced and leads to nutrient deficiencies“

„A low carb diet makes you tired and is low in fiber“



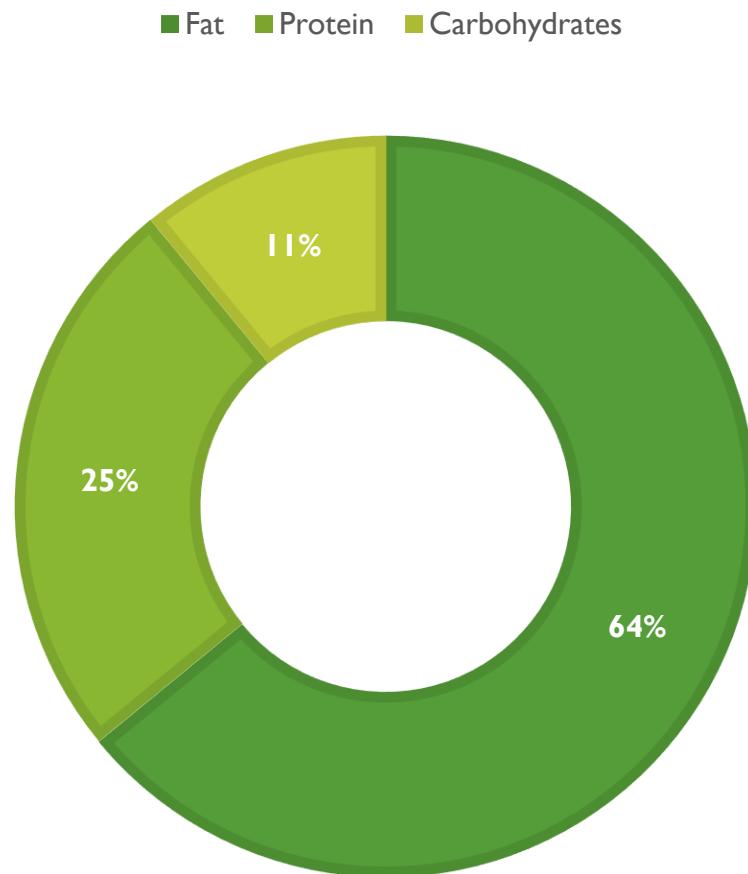


**KNOW THE BASICS,
THEN TAILOR IT TO YOUR NEEDS**

WHAT IS LCHF?

Low Carb High Fat

- fat 64% - 90%
- protein 25% - 5%
- carbs 11% - 5%



CARB SPECTRUM

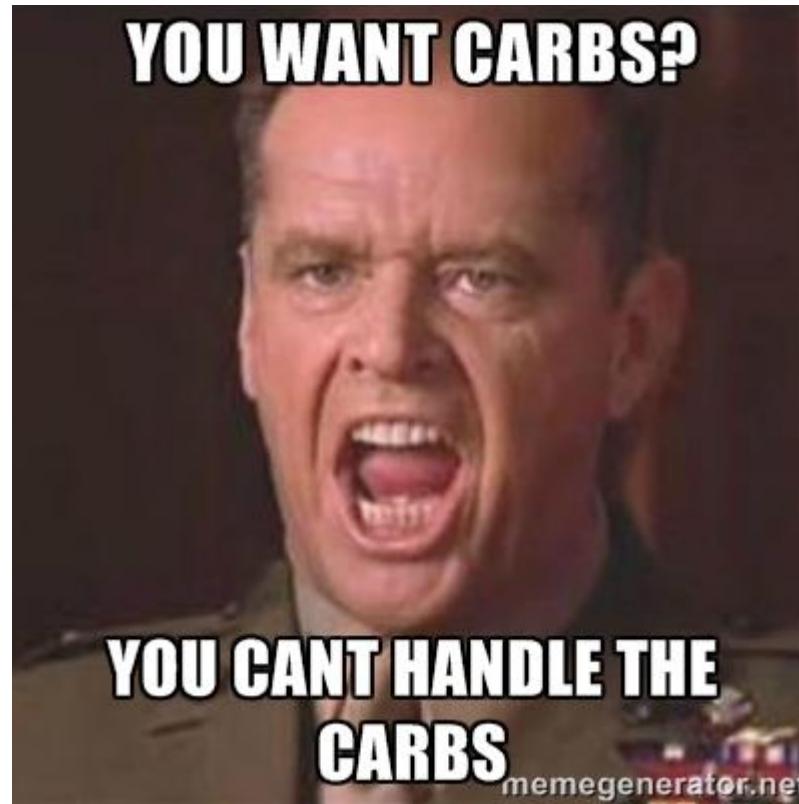
moderate
LCHF

modified
Atkins

4:1
ketogenic
diet



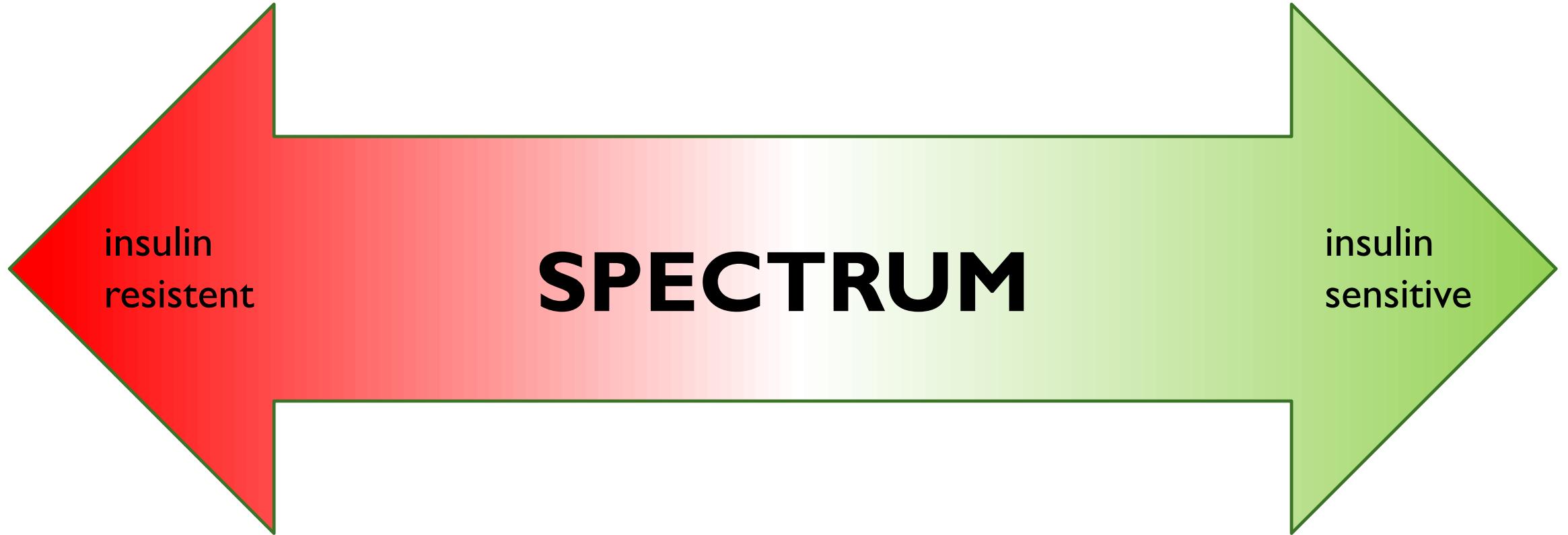
INDIVIDUAL CARB TOLERANCE



„A Few Good Men”
- Columbia Pictures, Castle Rock Entertainment



CARB-TOLERANCE



STATUS QUO



DGE-Ernährungskreis®
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AUSTRIAN NUTRITIONAL SURVEY 2012

- ▶ only 10% of the elderly have sufficient Vitamin A
- ▶ vitamin D: 20% deficient and 44% suboptimal status
- ▶ iron, iodine, zinc, selenium und calcium deficiencies
- ▶ same for children and teenagers



**OFFICIAL DIETARY GUIDELINES DO NOT PROTECT FROM
MALNUTRITION AND NUTRIENT DEFICIENCIES.**



WHAT IS AN OPTIMAL DIET?



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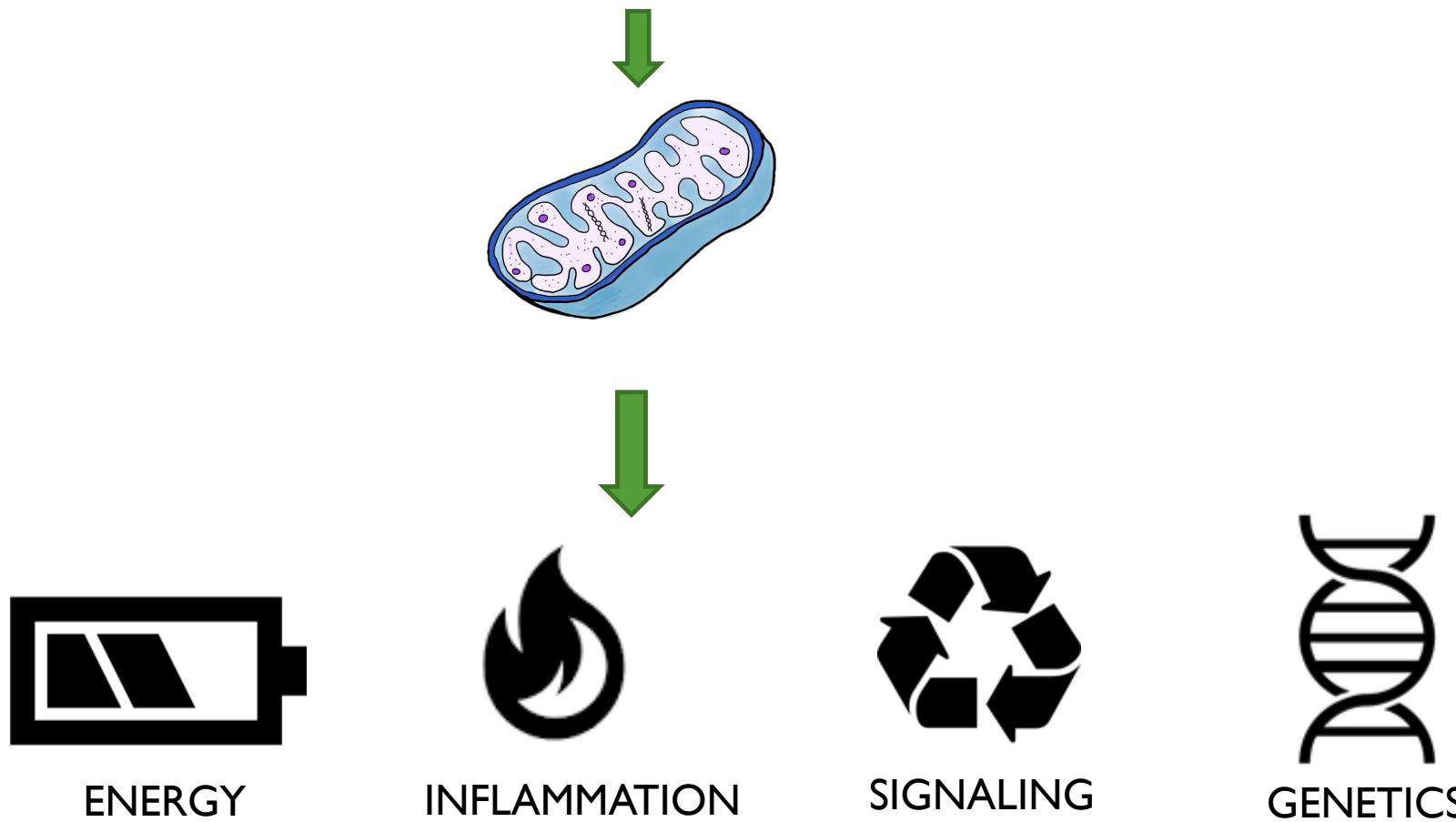


OPTIMAL DIET

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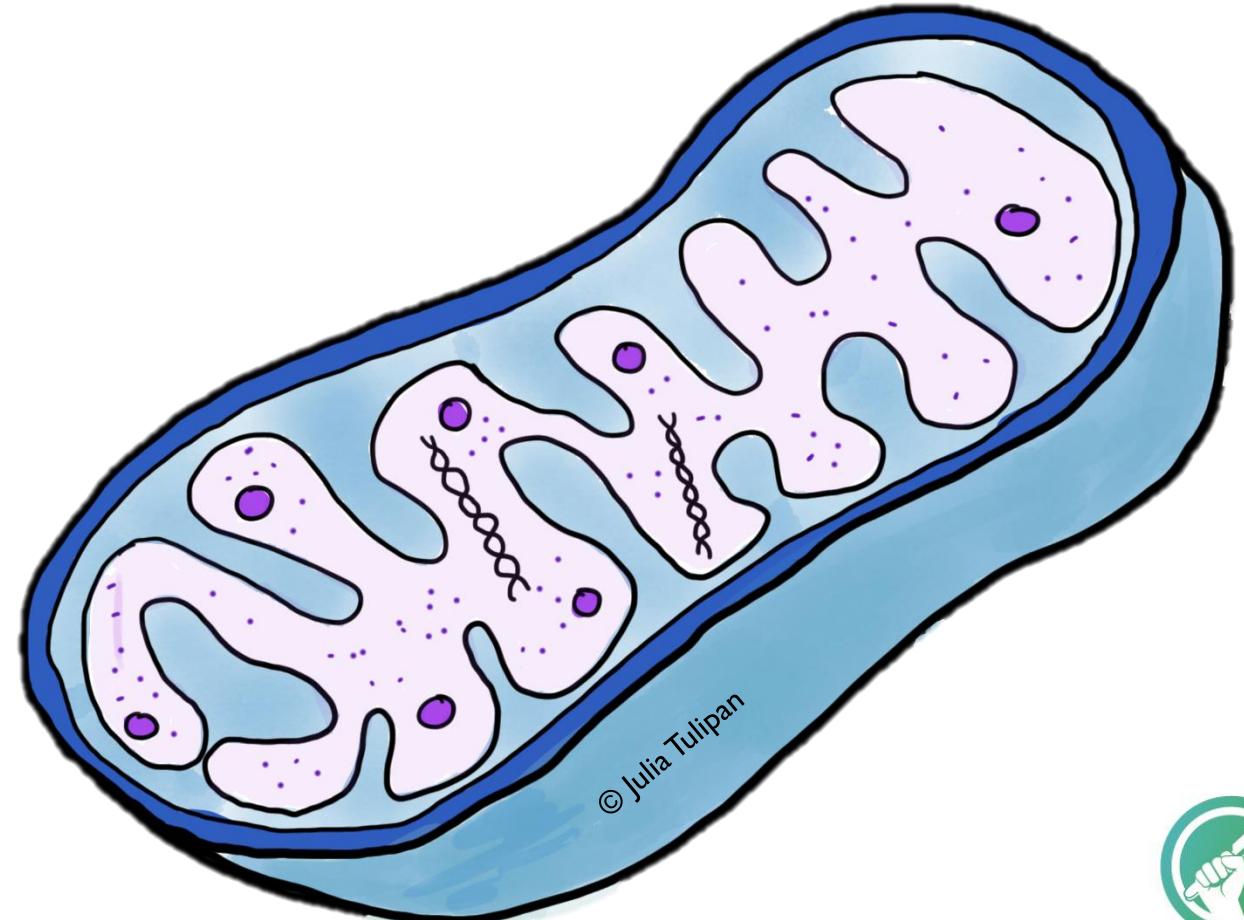
SUPPORTS OPTIMAL CELLULAR FUNCTION

Nutrient density/ bioavailability/ hormonal effects



HEALTHY MITOCHONDRIA

Mitochondrial dysfunction is a key element in many diseases



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STANDARD EUROPEAN DIET VS. LCHF DIET

Total Energy: 2.307 kcal

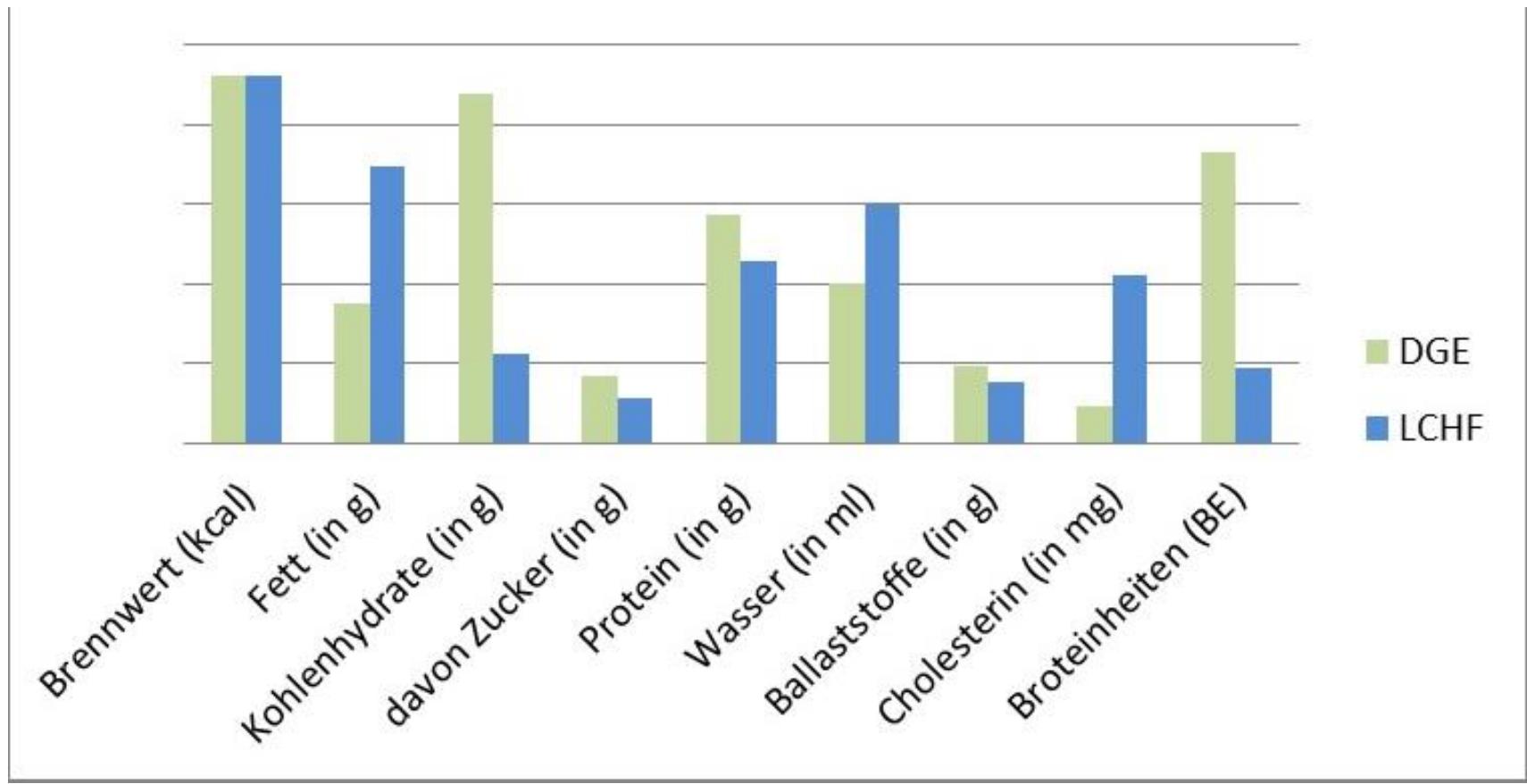
30 g Butter, Durchschnittswert
15 ml Raps Vitalöl
30 g Ei, vom Huhn
10 g Lachs-Filets
22 g Polar-Dorsch, Filet
86 g Hühnerbrust, natur
200 g Gouda leicht
250 g Jogurt mild 1,5%, Natur
250 g Apfel, frisch
400 g Brokkoli, gekocht
300 g Vollkornbrot, Durchschnitt
250 g Vollkornnudeln, gekocht

Total Energy: 2.314 kcal

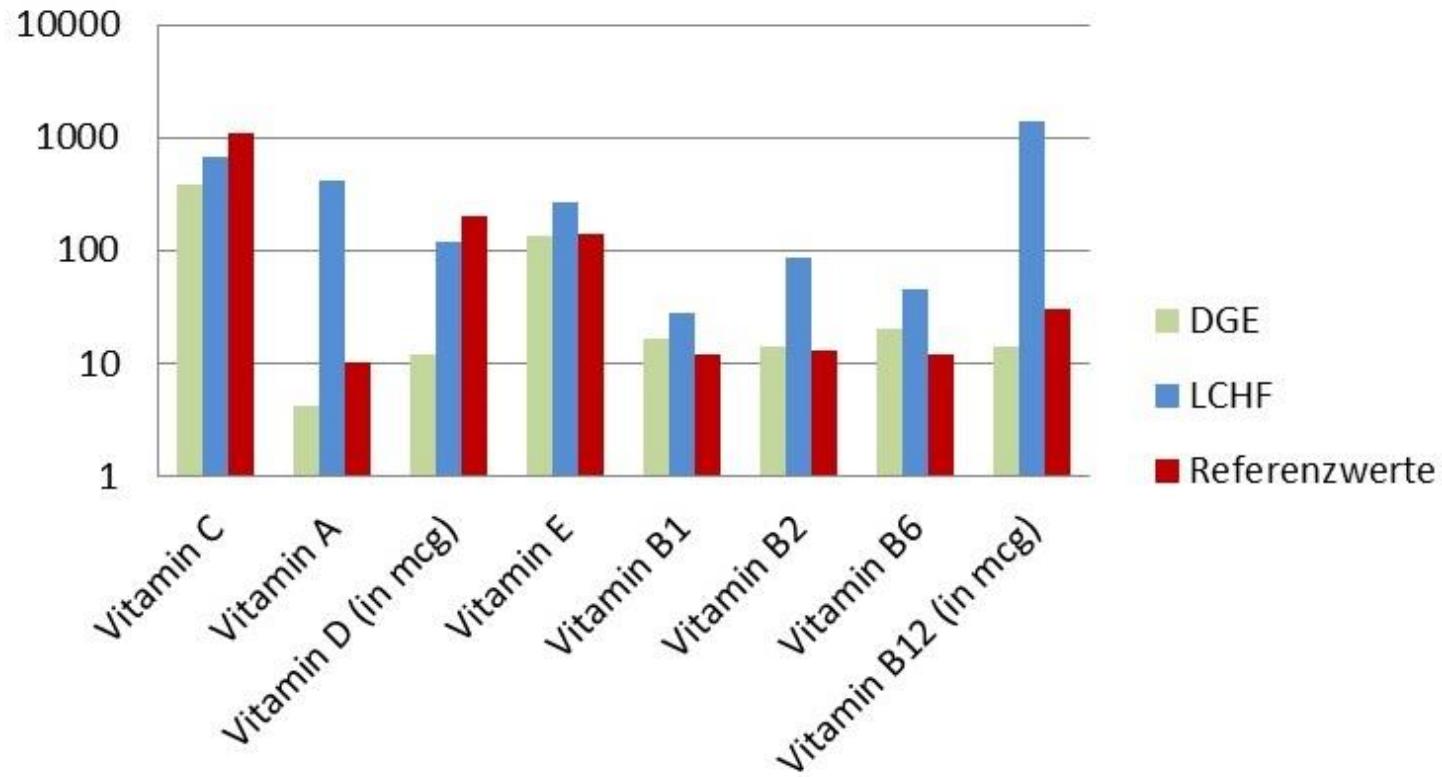
20 g Basilikum, frisch
5g Schnittlauch, frisch
30 ml Balsamico
1 Filet Makrele, geräuchert
1 Esslöffel Olivenöl
Halber Apfel, frisch
1 mittelgroße Karotten / Möhren, frisch
100 g Feldsalat, frisch
100 g Endivie, frisch
2 Stück Schokolade, 85% Kakao
25 g Original irische Butter
500 g Brokkoli, gekocht
200 g Rindfleisch, Leber
100 g Paranusskerne
400 g Spinat, gekocht
20 g Bio Kokosöl
2 Stück Ei, vom Huhn
20 g Basilikum, frisch



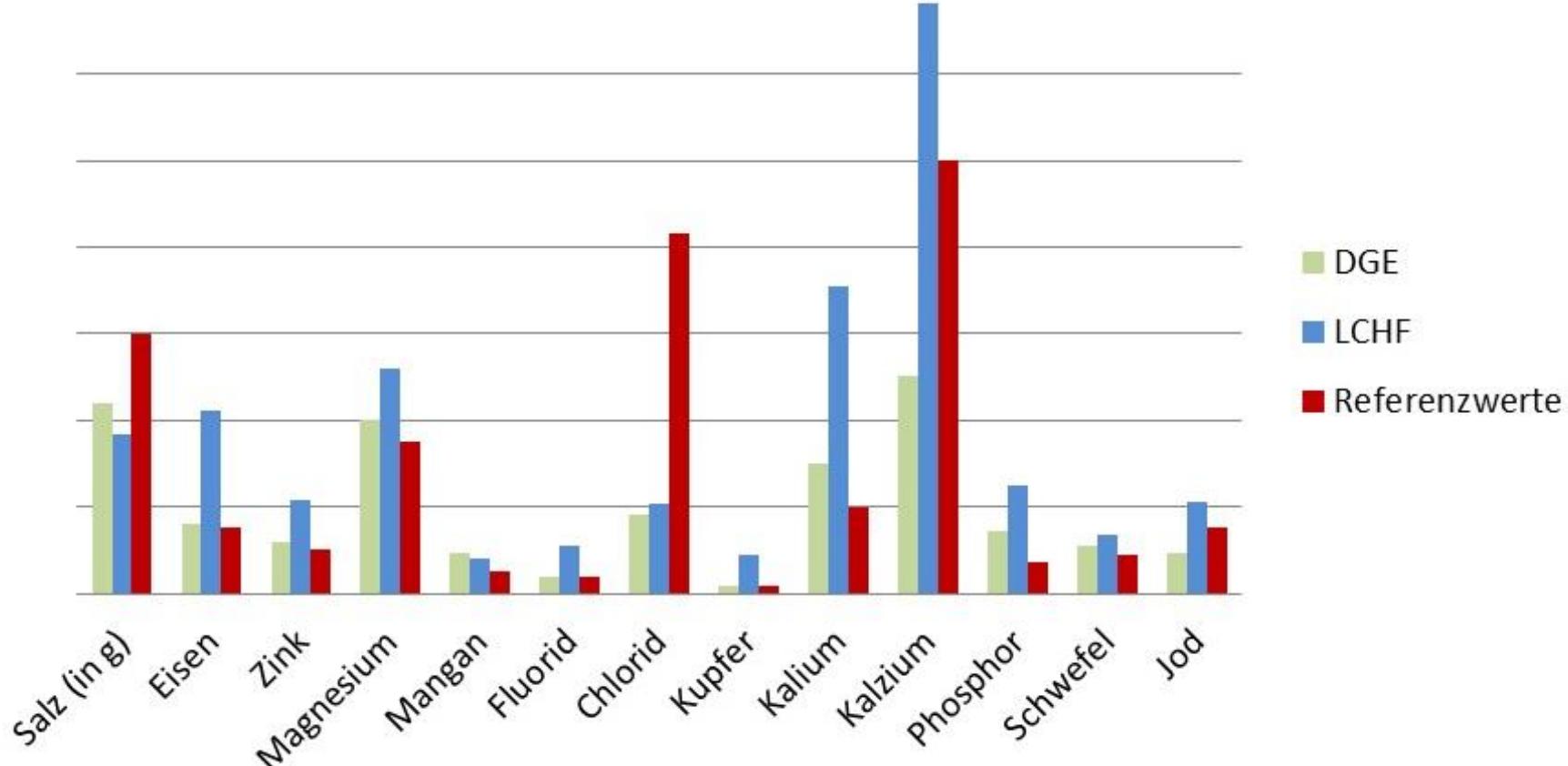
MACRONUTRIENTS



VITAMINS



MINERALS



BIOAVAILABILITY

food	bioavailability
milk	135
whey	104–110
egg	100
beef	92
tuna	92
edamer cheese	85
soy	84–86
quinoa	83 ^[2]
rice	81
potatos	76 ^[3]
rye	76–83
beans	72
corn	72
oat	60
wheat flour	56–59

Protein digestibility-corrected amino acid score (PDCAAS)



A WELL FORMULATED LCHF DIET

Personal and individual needs

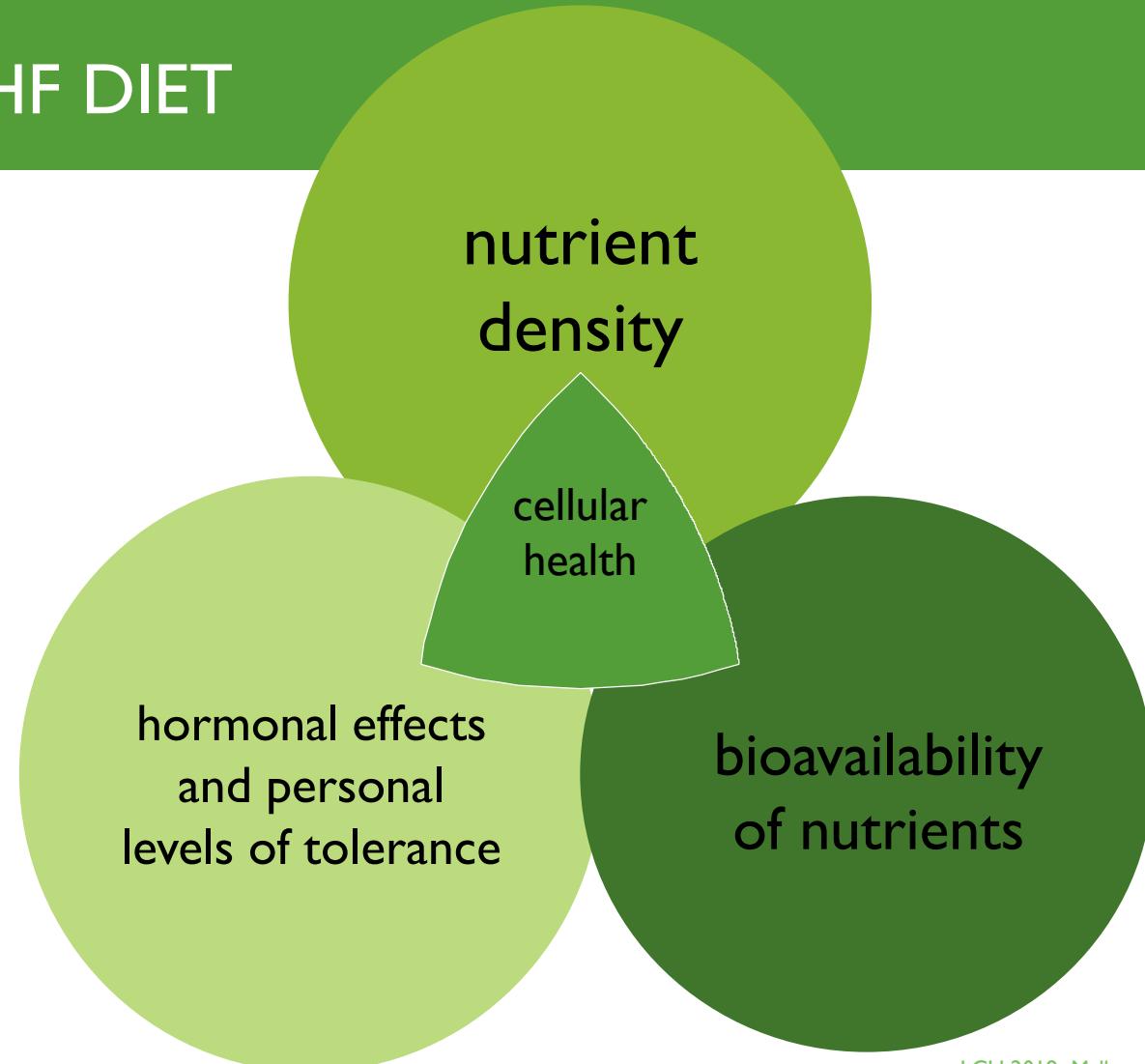
Illness

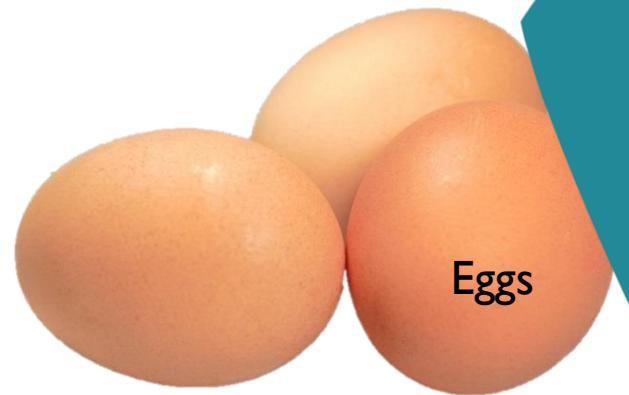
Level of activity

Age

Gender

...





Eggs



Low-Carb Protein Bars



Bacon



Meat



CARBOHYDRATES (VEGGIES)

- As little as necessary
- As much as possible



LEAFY GREEN VEGETABLES



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COLOURS

- Rich in antioxidants
- Anti-inflammatory
- Rich in vitamins
- Polyphenols



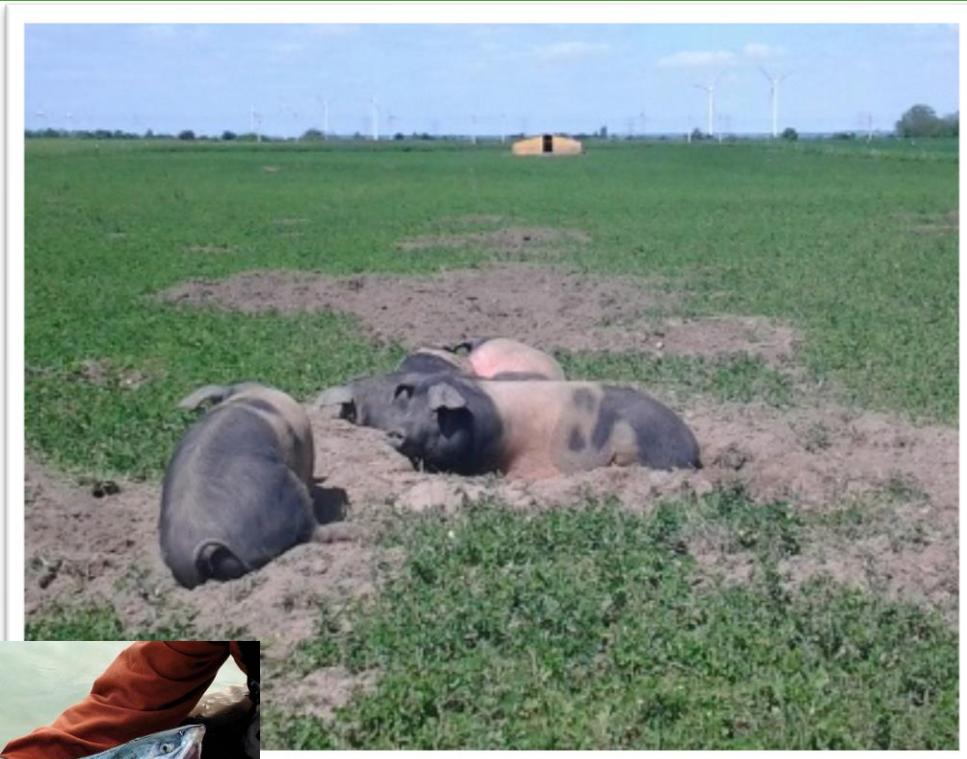
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ANIMAL PRODUCTS – FREE RANGE – WILD CAUGHT



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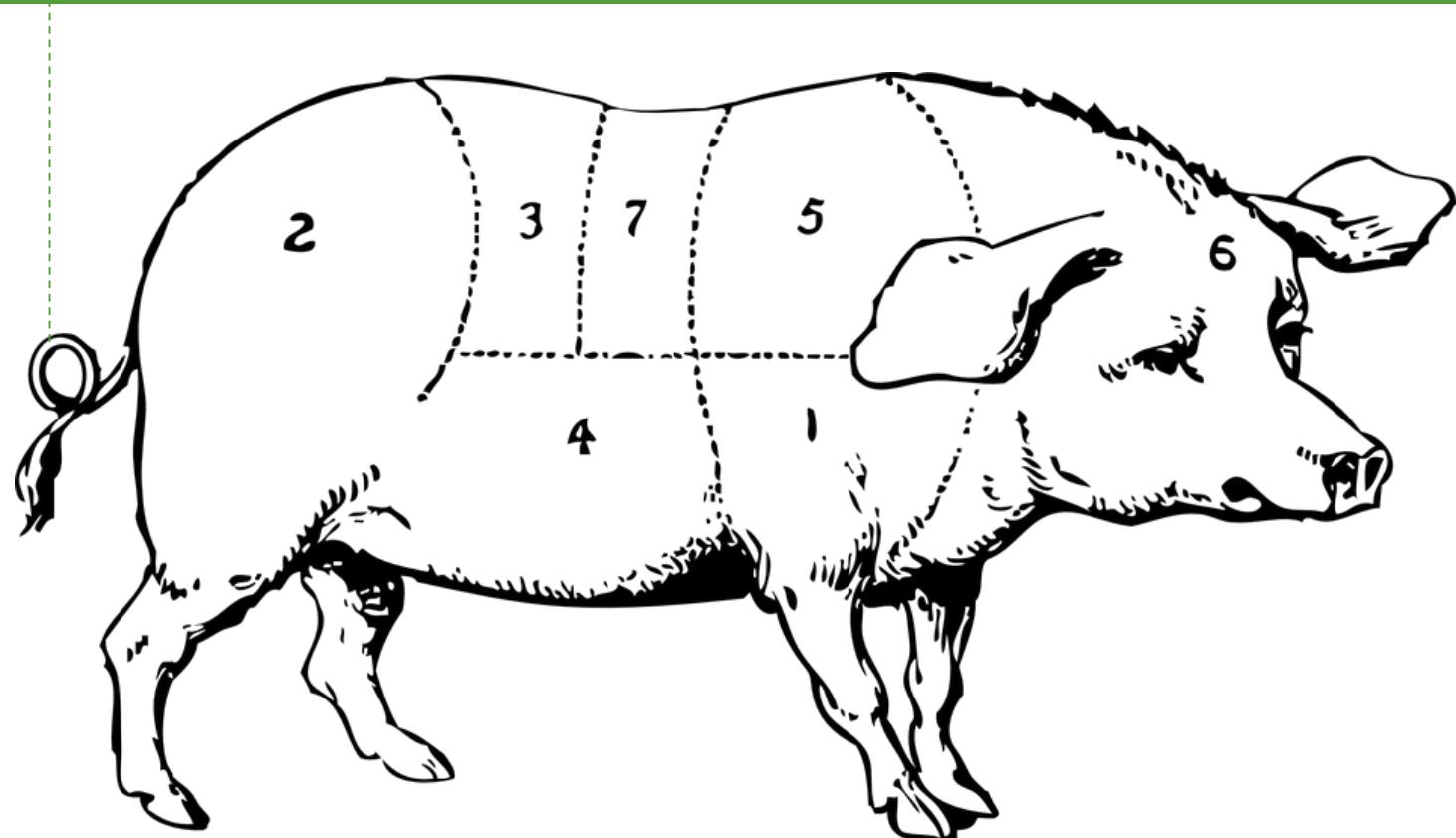


Wild Salmon by LoveToTakePhotos

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NOSE TO TAIL

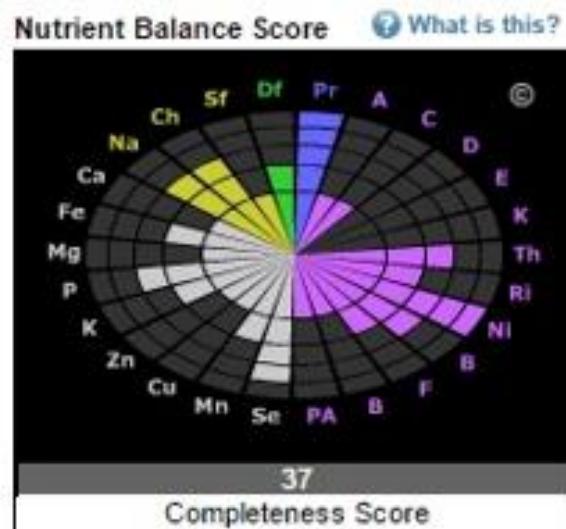


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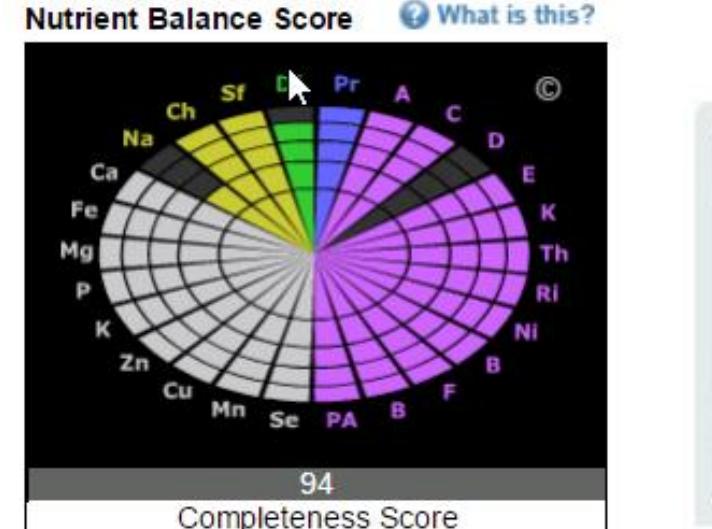
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ORGAN MEATS INCREASE NUTRIENT DENSITY



100 g pasta, 86 g chicken breast without skin
125 g tomato sauce
Energy: 427 kcal



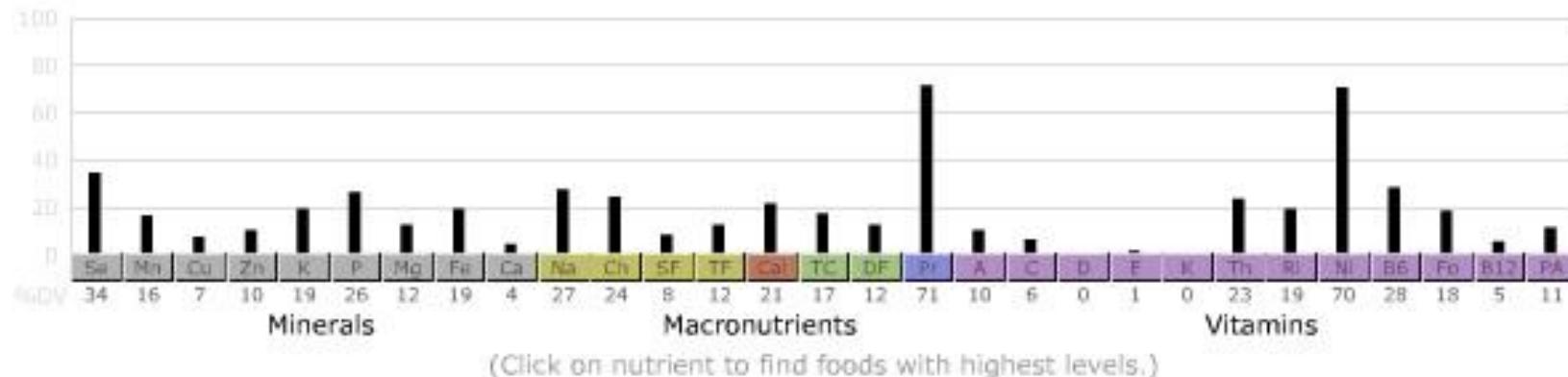
150 g beef liver, 14 g butter, 284 g spinach
Energy: 470 kcal



NUTRIENT DENSITY CHARTS

Daily Values Chart

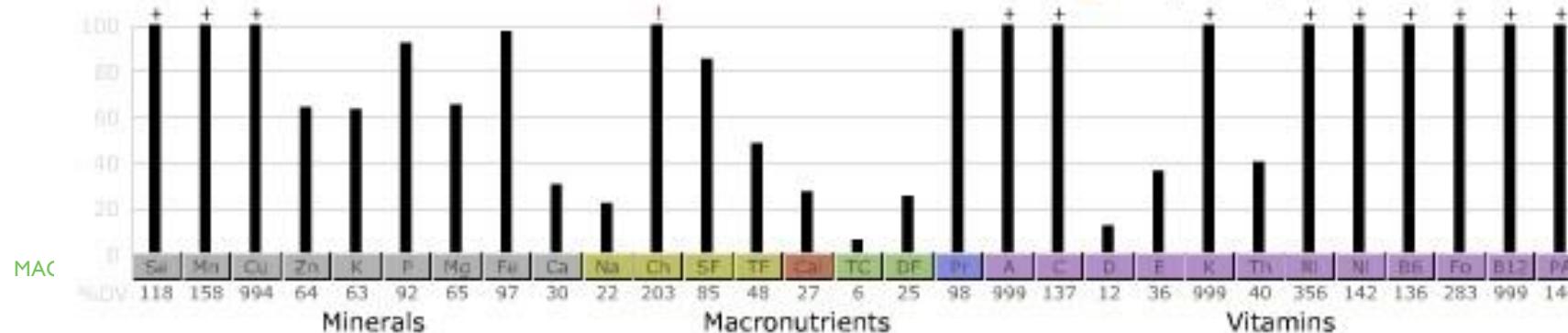
 Set your daily values  What is this?



DGE

Daily Values Chart

 Set your daily values  What is this?



LCHF



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FATS AND OILS OF HIGHEST QUALITY



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HOW TO FIND YOUR PERFECT DIET?

- Do you have food allergies or sensitivities?
- Find your carb tolerance – test your blood sugar
- Increase nutrient density by including organ meats
- Meet your protein needs – too little protein is a bigger problem than too much





THANK YOU

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NEURODEGENERATIVE ERKRANKUNGEN UND AUTOIMMUNERKRANKUNGEN

■ Mitochondriale Dysfunktion

- Swerdlow, Russell H., Jeffrey M. Burns, and Shaharyar M. Khan. "The Alzheimer's disease mitochondrial cascade hypothesis." *Journal of Alzheimer's Disease* 20 (2010): 265-279.
- Shabrokh, Elika, et al. "Mitochondrial Dysregulation in Skeletal Muscle from Patients Diagnosed with Alzheimer's Disease and Sporadic Inclusion Body Myositis." *Open Journal of Molecular and Integrative Physiology* 4.02 (2014): 11.
- Hroudová, Jana, Namrata Singh, and Zdeněk Fišar. "Mitochondrial Dysfunctions in Neurodegenerative Diseases: Relevance to Alzheimer's Disease." *BioMed research international* 2014 (2014).
- Morris, Jill K., et al. "Is Alzheimer's disease a systemic disease?." *Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease* (2014).
- Witte, Maarten E., et al. "Mitochondrial dysfunction contributes to neurodegeneration in multiple sclerosis." *Trends in molecular medicine* 20.3 (2014): 179-187.
- Haider, Lukas, et al. "Multiple sclerosis deep grey matter: the relation between demyelination, neurodegeneration, inflammation and iron." *Journal of Neurology, Neurosurgery & Psychiatry* (2014): jnnp-2014.
- Rygiel, Karolina A., et al. "Mitochondrial and inflammatory changes in sporadic Inclusion Body Myositis." *Neuropathology and applied neurobiology* (2014).



NUTRIENT DENSITY IN FOOD

- Einteilung der Lebensmittel nach Nährstoffdichte:
- Nutrient Density Score
- Drewnowski, Adam. "Concept of a nutritious food: toward a nutrient density score." *The American journal of clinical nutrition* 82.4 (2005): 721-732.





FÜGBARKEIT VON NÄHRSTOFFEN

- Nährstoffe in gekochten Lebensmitteln meist höhere Bioverfügbarkeit als in roher Form
- Tierische Lebensmittel haben eine höhere Bioverfügbarkeit als pflanzliche Lebensmittel
- Hemmung der Nährstoffaufnahme durch Anti-Nährstoffe wie Phytinsäure
- Anwesenheit von Anti-Nährstoffen wie Lektinen oder Gluten
- Ungünstiges/ günstiges Fettsäureverhältnis



HORMONELLE WIRKUNG VON LEBENSMITTELN

- Wirkung von Lebensmitteln auf Blutzucker und Insulin
- Wirkung auf die Hormone der Sättigungskontrolle

