

# Evolutionäre Ernährungswissenschaft und „steinzeitliche“ Ernährungsempfehlungen – Stein der alimentären Weisheit oder Stein des Anstoßes?

## Teil 1: Konzept, Begründung und paläoanthropologische Befunde

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Ernährungs-Umschau 53 (2006), S. 10 ff.

### Literatur:

- Aiello LC, Wheeler P*: The expensive tissue hypothesis. *Curr Anthropol* 36: 199-222, 1995
- Audette R*: Neanderthin. St. Martin's Paperbacks, New York 2000
- Bayertz K*: Evolution und Ethik. Größe und Grenzen eines philosophischen Forschungsprogramms. In: *Bayertz K (Hrsg.): Evolution und Ethik*. Reclam, Stuttgart 1993, S. 7-36
- Broadhurst CL, Wang Y, Crawford MA, Cunnane SC, Parkinson JE, Schmidt WF*: Brain-specific lipids from marine, lacustrine, or terrestrial food resources: potential impact on early African Homo sapiens. *Comp Biochem Physiol B Biochem Mol Biol* 131:653-73, 2002
- Broadhurst CL, Cunnane SC, Crawford MA*: Rift Valley Lake fish and shellfish provided brain-specific nutrition for early Homo. *Br J Nutr* 79:3-21, 1998
- Buss DM*: Evolutionäre Psychologie. Pearson Studium, München 2004
- Carroll SB*: Genetics and the making of Homo sapiens. *Nature* 422:849-57, 2003
- Cordain L, Eaton SB, Sebastian A, Mann N, Lindeberg S, Watkins BA, O'Keefe JH, Brand-Miller J*: Origins and evolution of the Western diet: health implications for the 21st century. *Am J Clin Nutr* 81: 341-54, 2005
- Cordain L, Miller JB, Eaton SB, Mann N*: Reply to SC Cunnane. *Am J Clin Nutr* 72: 1585-6, 2000
- Cordain L, Miller JB, Eaton SB, Mann N, Holt SH, Speth JD*: Plant-animal subsistence ratios and macronutrient energy estimations in worldwide hunter-gatherer diets. *Am J Clin Nutr* 71:682-92, 2000
- Cordain L*: Cereal grains: humanity's double-edged sword. *World Rev Nutr Diet* 84: 19-73, 1999
- Cordain L*: The paleo diet: Lose weight and get healthy by eating the food you were designed to eat. John Wiley & Sons Inc., New York 2002
- Cordain L*: The nutritional characteristics of a contemporary diet based upon paleolithic food groups. *JANA* 5: 15-24, 2002
- Darwin C*: Die Entstehung der Arten durch natürliche Zuchtwahl. Reclam, Stuttgart 1963 [engl. Orig. 1859]
- Dobzhansky T*: Nothing makes sense in biology except in the light of evolution. *American Biology Teacher* 35: 125-9, 1973
- Eades MR, Eades MD*: The protein power life-plan. Warner Books, New York 2000
- Eaton SB, Cordain L, Lindeberg S*: Evolutionary health promotion: a consideration of common counterarguments. *Prev Med* 34: 119-23, 2002
- Eaton SB, Eaton SB 3rd, Konner MJ, Shostak M*: An evolutionary perspective enhances understanding of human nutritional requirements. *J Nutr* 126:1732-40, 1996
- Eaton SB, Eaton SB 3rd, Konner MJ*: Paleolithic nutrition revisited: a twelve-year retrospective on its nature and implications. *Eur J Clin Nutr* 51:207-16, 1997
- Eaton SB, Eaton SB 3rd*: Paleolithic vs. modern diets – selected pathophysiological implications. *Eur J Nutr* 39:67-70, 2000
- Eaton SB, Konner M, Shostak M*: Stone agers in the fast lane: chronic degenerative diseases in evolutionary perspective. *Am J Med* 84: 739-49, 1988
- Eaton SB, Konner M*: Paleolithic nutrition. A consideration of its nature and current implications. *N Engl J Med* 312:283-9, 1985
- Eaton SB*: Primitive health. *J Med Assoc Ga* 80:137-40, 1991
- Finch CE, Stanford CB*: Meat-adaptive genes and the evolution of slower aging in humans. *Q Rev Biol* 79:3-50, 2004
- Garn SM, Leonard WR*: Reply to Eaton SB: What did our late paleolithic (preagricultural) ancestors eat? *Nutr Rev* 48:229-30, 1990
- Gould SJ, Vrba E*: Exaptation – a missing term in the science of form. *Paleobiology* 8: 4-15, 1982
- Gould SJ*: Exaptation: A crucial tool for an evolutionary psychology. *J Soc Iss* 47: 43-65, 1991
- Gould SJ*: Selbstbezogene Gene. In (ders.): *Wie das Zebra zu seinen Streifen kommt. Essays zur Naturgeschichte*. Suhrkamp, Frankfurt am Main 1991 [dtisch. Orig 1986; engl. Orig. 1983]
- Gould SJ*: The exaptive excellence of spandrels as a term and prototype. *Proc Natl Acad Sci U S A* 94: 10750-55, 1997
- Gould SJ*: The Structure of Evolutionary Theory. Belknap Press of Harvard University Press, Cambridge/Massachusetts/London, 2002
- Groeneveld M*: Brauchen wir eine neue Ernährungspyramide? *Ernährungs-Umschau* 51:308-12, 2004
- Hahn A, Ströhle A, Wolters M*: Ernährung. Physiologische Grundlagen, Prävention, Therapie. Wissenschaftliche Verlagsgesellschaft, Stuttgart 2005
- Hahn A, Ströhle A*: Die Steinzeiternährung: ein (un)zeitgemäßes Ernährungsprogramm? In: *Heseker H, Stehle P, Oberritter H (Hrsg.): Tagungsband zur Arbeitstagung der DGE 2005. Aktuelle Aspekte in der Ernährungsbildung und -beratung*. Bonn, 2005
- Hill K*: Hunting and human evolution. *J Hum Evol* 11: 521-44, 1982
- Hoffmann I*: Transcending reductionism in nutrition research. *Am J Clin Nutr* 78: 514S-6S, 2003
- Keil G, Schnädelbach H*: Naturalismus. In: *Keil G, Schnädelbach H (Hrsg.): Naturalismus*. Suhrkamp, Frankfurt am Main 2000
- Kenrick DT, Li NP, Butner J*: Dynamical evolutionary psychology: individual decision rules and emergent social norms. *Psychol Rev* 110: 3-28, 2003
- Kutschera U*: Streitpunkt Evolution. Darwinismus und Intelligentes Design. Naturwissenschaft und Glaube Bd. 2. Lit Verlag, Münster 2004
- Laden G, Wrangham R*: The rise of the hominids as an adaptive shift in fallback foods: Plant underground storage organs (USOs) and australopit origins. *J Hum Evol* 49: 482-98, 2005
- Leitzmann C, Keller M, Hahn A*: Alternative Ernährungsformen. Hippokrates, Stuttgart 2005 [Orig. 1999]
- Leonard WR*: Food for thought. Dietary change was a driving force in human evolution. *Sci Am* 287: 106-15, 2002
- Lindeberg S, Cordain L, Eaton SB*: Biological and clinical potential of a paleolithic diet. *J Nutr Environ Med* 13: 149-60, 2003
- Mahner M, Bunge M*: Philosophische Grundlagen der Biologie. Springer, Berlin/Heidelberg/New York 2000
- Mann N*: Dietary lean red meat and human evolution. *Eur J Nutr* 39: 71-9, 2000
- Milner JA*: Functional foods: the US perspective. *Am J Clin Nutr* 71:1654S-9S, 2000
- Milton K*: A hypothesis to explain the role of meat-eating in human evolution. *Evol Anthropol* 8: 11-21, 1999

47. *Milton K*: Nutritional characteristics of wild primate foods: do the diets of our closest living relatives have lessons for us? *Nutrition* 15: 488-98, 1999
48. *Milton K*: The critical role played by animal source foods in human (Homo) evolution. *J Nutr* 133: 3886S-92S, 2003
49. *Mitchell PCV*: On the intestinal tract of mammals. *Trans Zool Soc Lond* XVII: 437-536, 1905
50. *O'Keefe JH Jr, Cordain L*: Cardiovascular disease resulting from a diet and lifestyle at odds with our Paleolithic genome: how to become a 21st-century hunter-gatherer. *Mayo Clin Proc* 79: 101-8, 2004
51. *Resnik D*: Adaptationism: hypothesis or heuristic? *Biology and Philosophy* 12: 39-50, 1997
52. *Richards MP*: A brief review of the archaeological evidence for Palaeolithic and Neolithic subsistence. *Eur J Clin Nutr* 56: 1270-8, 2002
53. *Richards MP, Pettitt PB, Stiner MC, Trinkaus E*: Stable isotope evidence for increasing dietary breadth in the European mid-Upper Palaeolithic. *Proc Natl Acad Sci U S A* 98: 6528-32, 2001
54. *Richards MP, Jacobi R, Cook J, Pettitt PB, Stringer CB*: Isotope evidence for the intensive use of marine foods by Late Upper Palaeolithic humans. *J Hum Evol* 49: 390-4, 2005
55. *Sober E*: *Philosophy of Biology*. Westview Press, Boulder 2000 [Orig. 1993]
56. *Sommer E*: *The Origin Diet: How eating in tune with your evolutionary roots can prevent disease, boost vitality and help you stay lean and fit*. Henry Holt, New York 2001
57. *Sorensen MV, Leonard WR*: Neandertal energetics and foraging efficiency. *J Hum Evol* 40: 483-95, 2001
58. *Spaeth JD*: Early hominid hunting and scavenging: The role of meat as an energy source. *J Hum Evol* 18: 329-43, 1989
59. *Spaeth JD*: Energy source, protein metabolism, and hunter-gatherer subsistence strategies. *J Anthropol Archeol* 2: 1-31, 1983
60. *Stegmüller W*: Das Problem der Induktion: Humes Herausforderung und moderne Antworten. In: *Lenk (Hrsg.): Neue Aspekte der Wissenschaftstheorie*. Vieweg, Braunschweig 1971, S. 13-74
61. *Ströhle A, Hahn A*: Unwissenschaftliche Nachschrift oder die endlose und dabei doch beendbare Ernährungsdebatte. *Ernährungs-Umschau* 52: 180-86, 2005
62. *Ströhle A, Hahn A*: Was Evolution nicht erklärt. *Ernährungs-Umschau* 50: 481-2, 2003
63. *Ströhle A*: Was die Evolution (nicht) lehrt oder: Paläolithische Nahrung für paläolithische Gene!? In: *Schwarz M (Hrsg.): Fleisch oder Nudeln. Ernährungsempfehlungen auf Schlingerkurs?* Kassel University Press, Kassel 2005, S. 30-45
64. *Voland E*: *Grundriss der Soziobiologie*. Spektrum Akademischer Verlag, Heidelberg/Berlin 2000 [Orig. 1993]
65. *Vollmer G*: Der Evolutionsbegriff als Mittel zur Synthese. Leistung und Grenzen. In: *Vollmer G*: *Biophilosophie*. Reclam, Stuttgart 1995, S. 59-91
66. *Weissburger JH*: Worldwide optimal nutrition, disease prevention, and health promotion. *Nutrition* 15: 949-50, 1999
67. *Wilson EO*: *Sociobiology – the new synthesis*. Harvard University Press, Cambridge, MA 1975
68. *Wood B*: Hominid revelations from Chad. *Nature* 418: 133-5, 2002
69. *Worm N*: Syndrom X oder ein Mammot auf den Teller. Mit Steinzeit-Diät aus der Wohlstandsfalle. Hallwag, München und Bern 2000
70. *Wrangham R, Conklin-Brittain N*: Cooking as a biological trait. *Comp Biochem Physiol A Mol Integr Physiol* 136: 35-46, 2003
71. *Wrangham RW, Jones JH, Laden G, Pilbeam D, Conklin-Brittain N*: The Raw and the Stolen. Cooking and the Ecology of Human Origins. *Curr Anthropol* 40: 567-94, 1999
72. *Wuketits M*: *Soziobiologie. Die Macht der Gene und die Evolution sozialen Verhaltens*. Spektrum Akademischer Verlag, Heidelberg/Berlin/Oxford 1997
73. *Yesner DR*: Maritime hunter-gatherers: ecology and prehistory. *Curr Anthropol* 21: 727-50, 1980