

Kreatin-Supplementation und Nierenfunktion: Ist Kreatin schädlich für die Nieren?

Literatur / Références

1. Jonas H, Ruprecht C, Schorn R. "Dosenfutter". Schweiz Med Forum 2013; 13(13–14):275.
2. Velema MS, de Ronde W. Elevated plasma creatinine due to creatine ethyl ester use. Neth J Med. 2001; 69(2):79–81.
3. Wallimann T, Hemmer W. Creatine kinase in non-muscle tissues and cells. Mol Cell Biochem. 1994; 133–134:193–220.
4. Wyss M, Kaddurah-Daouk R. Creatine and creatinine metabolism. Physiol Rev. 2000; 80(3):1107–213.
5. Wallimann T, Wyss M, Brdiczka D, Nicolay K, Eppenberger HM. Intracellular compartmentation, structure and function of creatine kinase isoenzymes in tissues with high and fluctuating energy demands: the 'phosphocreatine circuit' for cellular energy homeostasis. Biochem J. 1992; 281(Pt 1):21–40.
6. Wallimann T. Mehr Energie – mehr Leistung: Kreatin – warum, wann und für wen? Schweizer Zeitschrift für Ernährungsmedizin 2008; 5:1–16. http://www.rosenfluh.ch/images/stories/publikationen/sze/2008-05/11_Kreatin_5.08.pdf
7. Wallimann T, Tokarska-Schlattner M, Schlattner U. The creatine kinase system and pleiotropic effects of creatine. Amino Acids. 2011; 40(5):1271–96.
8. Tokarska-Schlattner M, Epand RF, Meiler F, Zandomeneghi G, Neumann D, Widmer HR, Meier BH, Epand RM, Saks V, Wallimann T, Schlattner U. Phosphocreatine interacts with phospholipids, affects membrane properties and exerts membrane-protective effects. PLoS One. 2012; 7(8):e43178.
9. Gualano B, Ugrinowitsch C, Novaes RB, Artioli GG, Shimizu MH, Seguro AC, Harris RC, Lancha AH Jr. Effects of creatine supplementation on renal function: a randomized, double-blind, placebo-controlled clinical trial. Eur J Appl Physiol. 2008; 103(1):33–40.
10. Poortmans JR, Francaux M. Long-term oral creatine supplementation does not impair renal function in healthy athletes. Med Sci Sports Exerc. 1999; 31(8):1108–10.
11. Mayhew DL, Mayhew JL, Ware JS. Effects of long-term creatine supplementation on liver and kidney functions in American college football players. Int J Sport Nutr Exerc Metab. 2002; 12(4):453–60.
12. Spillane M, Schoch R, Cooke M, Harvey T, Greenwood M, Kreider R, Willoughby DS. The effects of creatine ethyl ester supplementation combined with heavy resistance training on body composition, muscle performance, and serum and muscle creatine levels. J Int Soc Sports Nutr. 2009; 6:6–20.
13. Giese MW, Lecher CS. Non-enzymatic cyclization of creatine ethyl ester to creatinine. Biochem Biophys Res Commun. 2009a; 388(2):252–5.
14. Giese MW, Lecher CS. Qualitative in vitro NMR analysis of creatine ethyl ester pronutrient in human plasma. Int J Sports Med. 2009b; 30(10):766–70.
15. Guerrero ML, Beron J, Spindler B, Groscurth P, Wallimann T, Verrey F. Metabolic support of Na⁺ pump in apically permeabilized A6 kidney cell epithelia: role of creatine kinase. Am J Physiol. 1997; 272(2 Pt 1):C697–706.
16. Li H, Thali RF, Smolak C, Gong F, Alzamora R, Wallimann T, Scholz R, Pastor-Soler NM, Neumann D, Hallows KR. Regulation of the creatine transporter by AMP-activated protein kinase in kidney epithelial cells. Am J Physiol Renal Physiol. 2010; 299(1):F167–77.
17. Chang CT, Wu CH, Yang CW, Huang JY, Wu MS. Creatine monohydrate treatment alleviates muscle cramps associated with haemodialysis. Nephrol Dial Transplant. 2002; 17(11):1978–81.
18. Pritschard NR, Kaira PA. Renal dysfunction accompanying oral creatine supplements. Lancet 1998; 352: 252–253.
19. Koshy KM, Griswold E, Schneeberger EE. Interstitial Nephritis in a Patient taking Creatine N. Engl. J. Med. 1999; 340: 814–815.
20. Edmunds JW, Jayapalan S, DiMarco NM, Saboorian MH, Aukema HM. Creatine supplementation increases renal disease progression in Han:SPRD-cy rats. Am. J. Kidney Dis. 2001; 37(1): 73–78.
21. Garcia-Miranda P, Peral MJ, Ilundain AA. Effect of antidiuresis on renal creatine metabolism. J Physiol Pharmacol. 2010; 61(1):83–8.

22. Ellery SJ, Ireland Z, Kett MM, Snow R, Walker DW, Dickinson H. Creatine pretreatment prevents birth asphyxia-induced injury of the newborn spiny mouse kidney. *Pediatr Res.* 2013;73(2):201–8.
23. Wallimann T. Introduction--creatine: cheap ergogenic supplement with great potential for health and disease. *Subcell Biochem.* 2007; 46:1–16.
24. Rae C, Digney AL, McEwan SR, Bates TC. Oral creatine monohydrate supplementation improves brain performance: a double-blind, placebo-controlled, cross-over trial. *Proc Biol Sci.* 2003;270(1529):2147–50.
25. Souza MA, Magni DV, Guerra GP, Oliveira MS, Furian AF, Pereira L, Marquez SV, Ferreira J, Figuera MR, Royes LF. Involvement of hippocampal CAMKII/CREB signaling in the spatial memory retention induced by creatine. *Amino Acids.* 2012; 43(6):2491–503.
26. Wyss M, Braissant O, Pischel I, Salomons GS, Schulze A, Stockler S, Wallimann T. Creatine and creatine kinase in health and disease--a bright future ahead? *Subcell Biochem.* 2007; 46:309–34.
27. Schlattner U, Tokarska-Schlattner M, Wallimann T. Mitochondrial creatine kinase in human health and disease. *Biochim Biophys Acta.* 2006; 1762(2):164–80.
28. Kley RA, Tarnopolsky MA, Vorgerd M. Creatine for treating muscle disorders. *Cochrane Database Syst Rev.* 2011;16;(2):CD004760.
29. Adihetty PJ, Beal MF. Creatine and its potential therapeutic value for targeting cellular energy impairment in neurodegenerative diseases. *Neuromolecular Med.* 2008;10(4):275–90.
30. Lin YS, Cheng TH, Chang CP, Chen HM, Chern Y (2013) Enhancement of brain-type creatine kinase activity ameliorates neuronal deficits in Huntington's disease. *Biochim Biophys Acta.* 2013;1832(6):742–53.
31. Andres RH, Ducray AD, Schlattner U, Wallimann T, Widmer HR. Functions and effects of creatine in the central nervous system. *Brain Res Bull.* 2008;76(4):329–43.
32. Beal MF. Neuroprotective effects of creatine. *Amino Acids.* 2011; 40(5):1305–13.
33. Bürklen TS, Schlattner U, Homayouni R, Gough K, Rak M, Szeghalmi A, Wallimann T. The creatine kinase/creatine connection to Alzheimer's disease: CK-inactivation, APP-CK complexes and focal creatine deposits. *J Biomed Biotechnol.* 2006; 2006(3): ID35936, pp 1–11.