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# HEALTH NEWS

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## Keto Kudos

Though based on research and experience, please note that the following is not medical advice.



*Have you ever tried or planned to fast? Why? How did it affect your health and mind? If you are lucky, perhaps you tried to fast for fitness and wellness. Or perhaps you or someone you love is one of the 50 million people worldwide with epilepsy, a brain condition of vulnerability and tendency to have seizures. Seizures can entail a loss of consciousness and physical control and can be scary to witness. Whether for health or medical treatment, what do fasting and epilepsy have to do with each other? As recently as 1920, ketogenic therapy has been noted to be effective for preventing seizures. To put it simply, ketogenic therapy mimics a mild state*

*“Why should the source of the energy make a difference in seizure threshold?”*

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*of fasting by shifting the body and brain's source of energy from glucose (via carbohydrates) to ketones á la fat. Thus the adapted Keto approach is based on high fat, no/low carbs (<10g/day), and adequate protein caloric intake.*

*My daughter unfortunately had a recent accident at school and then had subsequent tonic-clonic seizures, which were diagnosed as epilepsy. She is a dancer. Ballet is her passion. So she decided to do the Keto therapy as primary treatment for both health and medical reasons. Despite recommendations to take pharmaceuticals, and given that the current medications have various "side effects," we opted for Keto as a natural preventive primary holistic treatment - and have been delighted with its efficacy, in terms of sustaining both health and fitness. Thank goodness! :)*



*The question has been: why does ketogenic therapy work so well?*

**“...adenosine exerts a tonic modulatory influence on neuronal activity.”**

**- MA ROGAWSKI, EPILEPSY RES.**

*energy for normal brain function? If so it should it be possible to study the metabolic differences between the two and develop a biochemistry of epilepsy, which is differentiated from the biochemistry of normal cognition and function.” (Adv Pediatr. 1997;44:297-329. The ketogenic diet: 1997. Swink TD1, Vining EP, Freeman JM.)*

*“Why should the source of the energy make a difference in seizure threshold? The change in seizure threshold appears to occur without affecting the brain's ability to carry out its normal complex functions. Could the brain's utilization of an energy substrate for seizure control be different from its utilization of*

**The Keto approach is a natural, preventive, holistic systems approach to sustaining a healthy energy source.**

*“Brain cells are metabolically flexible because they can derive energy from*

*both glucose and ketone bodies (acetoacetate and beta-hydroxybutyrate)...Epilepsy...may ultimately involve disruptions of brain energy homeostasis...potentially manageable through principles of metabolic control theory." (Pediatr Neurol. 2007 May;36(5):281-92. The neuropharmacology of the ketogenic diet. Hartman AL1, Gasior M, Vining EP, Rogawski MA.)*

“Unlike the point-to-point and activity-dependent changes in synaptic transmission effected by classical neurotransmitters, adenosine exerts a tonic modulatory influence on neuronal activity. Thus the anticonvulsant effects of adenosine are dissimilar mechanistically to classical actions of glutamate and GABA, the neurotransmitters targeted most often for the treatment of epilepsy....”

(Rogawski MA. Epilepsy Res. 2006 Jun; 69(3):273-94.)

“Multiple lines of evidence suggest that adenosine, ATP, and general cellular energy are upregulated by ketogenic metabolism....During conditions of limited glucose the liver maintains energy homeostasis by converting fatty acids and some amino acids to ketone bodies (β-hydroxybutyrate, acetoacetate, acetone)....”

(Curr Neuropharmacol. 2009 Sep; 7(3): 257–268. Adenosine, Ketogenic Diet and Epilepsy: The Emerging Therapeutic Relationship Between Metabolism and Brain Activity. S.A Masino, M Kawamura, Jr, C.D. Wasser, L.T Pomeroy, D.N Ruskin)\*

Furthermore, “not only can ketone bodies substitute for glucose, metabolism of ketone bodies is more efficient than that of glucose, leading to more available energy for ATP synthesis.”\*

So the amazing news of the day is not only that the Keto approach can be highly effective in treating various metabolic and brain conditions, such as epilepsy, (not to mention potentially diabetes and forms of cancer which rely on glucose metabolism), but that the key to its effectiveness may have been found: ketosis may impact the brain's energy homeostasis by increasing adenosine, thereby shifting the neural electrochemical threshold to prevent seizures. Not only does this approach bypass the negative side effects of other specific chemical treatments, but it may even have positive effects, potentially increasing and enhancing energy utilisation in the hippocampus, the centre of learning and memory.

Wow. Bon appetit! ;)

~ Amy Lim, 2billionmoms  
(for Grace, Mom and Dad)