

## PREVIEW\_ Dr. Dominic D'Agostino –

### Nutritional Ketosis\_ Metabolic Regulation and Signaling (SD 2016)

**Dr. D'Agostino:** This is something that has been known sort of intuitively for a very long time. And if we go back even like 400 BC during the time of Hippocrates it was known that fasting was a cure for seizures. In this article dating back to the 1920s fasting was reported as a cure for epilepsy. But you can only do it so long right?

So no one really knows more about what fasting and starvation does to humans than professor George Cahill. And he published many articles, this was written in 2006, "Fuel metabolism in starvation", and I fortunately got a chance to talk to Dr. Cahill, I would be calling his office frequently and many of the... through the metabolic physiologists who are not really around today and they're kind of older in age, but they're really knowledgeable about ketones...

And when Dr. Cahill started his studies in the 50s, 60s and 70s, Ketones, beta hydroxybutyrate were thought of as metabolic poison. Because they're only observed during diabetic ketoacidosis.

And nobody did like nutritional ketosis, so it wasn't really understood what they were. So he did a number of elegant studies. The first author was Oliver Owen, I haven't been able to track him down, but when he did one of his landmark studies in 1967, prior to 1967 it was thought that the brain could only use glucose as its primary source of energy and they could use no other fuel, that was the thinking.

And that's the case in a fed state. If you're consuming a normal diet, roughly 100% of your energy comes from glucose. But after fasting at least 7 to 10 days your brain has the metabolic flexibility, as most of you know, to switch from using glucose to using ketones even as its primary energy source.