

PREVIEW 1_ Dr. Angela Poff –

Exploiting Cancer Metabolism with Ketosis (SD 2016)

Dr. Poff: So I'm sure you're all thinking, glucose really fuels cancer, obvious answer to this crowd especially is to start looking at dietary carbohydrate intake. And we do see that dietary carbohydrate intake is correlated and associated with an increased risk of developing many different types of cancer.

We see that patients who have hyperglycemia or high blood glucose, when they are being treated for cancer, have a poorer prognosis than those who don't have bouts of hyperglycemia during their treatment.

In animal models we see that blood glucose directly correlates to tumor growth. So in this study, we were the authors, we're mapping the tumor size to the blood glucose and that's a very linear correlation.

As glucose, the higher the animal's glucose, the larger the tumors were. And this has been shown in different tumor models, it's a pretty consistent phenotype. So, cancers thrive on glucose. They are obviously vulnerable to energy stress, especially if we consider the metabolic deficiencies of tumors.

And so, that leads us to the idea of the ketogenic diet, which of course, you guys know, induces a state of ketosis. And so you have an elevation in blood ketones, a lowering of glucose and a lowering of insulin.

And what's interesting is the ketogenic diet, which I'll tell you in a second, has really been shown to have some nice effects in animal models. Many of things that elevate ketones or induce ketosis have the same affect, calorie restriction has been shown to inhibit tumor growth in animal models, fasting, the ketogenic diet, exercise, all of these things that induce ketosis seemed to have anticancer effects.