



Cancer and Developments in the Ketogenic Diet

Dr. Charles Shaffer

As many of you know, Terri and I are on sabbatical at Saba and are teaching medical students at the Saba University School of Medicine. It has given us a chance to guide younger physicians on the best methods and treatments in the disease of obesity. This time has also allowed me to catch up on additional reading I admittedly have been putting off. There have been many interesting articles that show the importance of weight management. Losing weight can correct high blood pressure and diabetes, thyroid disease, and have cancer-related improvements.

Cancer cells (CCs) predominantly use aerobic glycolysis (Warburg effect) for their metabolism. This important characteristic of CCs represents a potential metabolic pathway to be targeted in the context of tumor treatment. As this mechanism is related to nutrient oxidation, dietary manipulation has been hypothesized as an essential strategy during tumor treatment.

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The ketogenic diet (KD) dietary pattern is characterized by high fat intake, moderate-to-low protein consumption, and very-low-carbohydrate intake (<50g). All of these combined may target CCs metabolism, potentially influencing both tumor treatment and prognosis. Several mechanisms, far beyond the initially proposed inhibition of glucose/insulin signaling can underpin the effectiveness of KD in cancer management. This ranges from oxidative stress, mitochondrial metabolism, and inflammation. The role of a qualified Nutritionist is essential to reduce and manage the short and long-term complication of this dietary therapy.

The ketogenic diet must be personalized to the individual patient and their needs. There is never a 'one size fits all' when it comes to health and wellness. Additionally, this is true for cancer patients and their diet must be tailored to their needs. To summarize the proposed antitumor mechanisms of the KD, the application of the KD in cancer patients with obesity and cachexia show remarkable clinical evidence. Ultimately, the ketogenic diet can play a therapy role in cancer.

As you can see, the benefits of a ketogenic diet amount to much more than just weight loss. Blood pressure responses, glucose reduction, and changes in cholesterol and triglycerides can all be linked to the KD.

Dr. Montana can fill you in on other aspects and outcomes of following our program. I always encourage others to do their own independent research and outside reading. However, if you are wanting to make a change, be sure the text aligns with our program and discuss with us beforehand. The Weigh Station has been helping individuals for the last 16 years, so I like to think I know what I am talking about. There is no magic pill other than self-determination and accountability.

We will be back to see you all soon. Meanwhile, if you would like to talk with us please feel free to schedule a telemedicine visit with our office staff. Lori, Judy, Pam, and Dr. Montana are all extremely helpful and would be more than happy to answer any questions and help aid you on your journey. If we have referred you to other physicians, or large medical centers such as Wake Forest and UVA, please be patient as many physician offices have become backlogged due to the COVID-19 pandemic. We are all trying our best to get you seen by the appropriate physician.

Please continue to pray for us as we are away. We are on this journey because we feel that this is a step in the right direction for those who need it.

Blessings to you all,
Chuck Shaffer MD

The Recipe of the Month

No Noodle Lasagna

Makes 18 servings (1.5 ounces of protein/serving without meat and 1 vegetable serving)

Ingredients

- 3 large zucchini (thinly sliced)
- 4 large summer squash (thinly sliced)
- 1 large onion (thinly sliced)
- 1 large green bell pepper (thinly sliced)
- 1 large red bell pepper (thinly sliced)
- 1 tbsp olive oil
- garlic powder
- 1 container low fat cottage cheese
- 1 large glass container of marinated red peppers
- 1/4 cup parmesan cheese
- 1/4 cup fresh basil leaf
- 1 bag 2% mozzarella cheese

Directions

Preheat oven to 365 degrees. Puree red peppers in a blender or food processor until sauce is at desired consistency. Next, add 1 tablespoon of olive oil to the bottom of the baking pan and add a layer of squash or zucchini on top.

Add pepper sauce, basil, 1/4 cup mozzarella cheese, 1/4 cup cottage cheese, 1 tablespoon parmesan, 1/2 teaspoon garlic powder, sliced peppers, and onions. Repeat this layer and process 4 times, but alternate the squash and zucchini.

After building up the four layers, top the dish with parmesan and basil. Bake for 50-60 minutes until the cheese is golden brown. The edges may have extra juice from the vegetables and olive oil. Lightly tip the pan into the sink and drain the extra liquid. Ground meat may be added to this dish if desired.



**Hearty, Healthy,
Mouthwatering.**