

ENGLISH 312 AUDIENCE STATEMENT AND ENTHYMEME COVER SHEET

Audience Statement

My audience is CON Ketogenic dieting

Who is your audience? Why do they find your claim initially unacceptable?

College students who are majoring in a science field and care a lot about their grades. They are interested in different dieting techniques, and they are aware of eating habits of America and how eating fat has been bad for the heart. They are also interested in exercising, and they participate in different long-distance races.

They think eating a ketogenic diet hinders feeling well.

What does your audience value the most?

Balance in life and in diet, exercise, taking care of your body

What does your audience fear the most?

Heart disease, not taking care of your body, decreased life expectancy.

Audience Counterarguments:

But . . . it creates too much cholesterol that leads to heart disease

But . . . when I eat fatty foods I don't feel well.

But . . . the brain needs glucose, so limiting the glucose supply will lower cognitive responses and negatively affect memory.

But . . . I need to carbo-load to prepare for long-distance races.

Enthymeme

What Are the Consequences of ketogenic dieting on feeling well?

Claim: Ketogenic dieting facilitates feeling well.

Because eating high quantities of fat and low quantities of carbohydrates enhances overall physical health

Implicit Assumption: Whatever enhances overall physical health also facilitates feeling well.

Contract Question: Does ketogenic dieting facilitate or hinder feeling well?

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Ketogenic Dieting

At a young age, every American is exposed to what is known as the “food pyramid,” or the recommended portions and variety of food we are supposed to eat to live a healthy lifestyle. In the time since I was first exposed to the food pyramid, the recommendations coming from the federal government have changed three times. Since 1980, obesity rates have also changed in America; the rates for obesity have doubled since that date, and now almost one third of the population is considered obese (Melnick and Siddiqui). This shows that the changes made to the food pyramid are either the wrong portions, or Americans are following the guidelines less. With the rise in obesity, cardiovascular disease, diabetes, and other health related diseases have also increased. According to Huffpost Healthy Living, an online magazine that specializes in how to live healthily, one in every four deaths comes from cardiovascular disease. Since diet determines the majority of peoples’ weight, obesity rates are a direct reflection of the change in Americans’ diets.

Dietitians and scientists alike have researched ways to reduce the rate of obesity in America. Some say that the traditional thought, increasing fruit and vegetable consumption and decreasing consumption of foods with a lot of fat, is the best way to improve health. Others say that to improve the health crisis in America, Americans have to eat fewer carbohydrates in their diet and more fat. Some physiologists claim that fat does not create the problems scientists thought it did in the past decades, but eating too many carbohydrates are to blame for the obesity crisis. This thought process leads to ketogenic dieting, or eating very low carbohydrate and high fat foods. Although there are varying views, does ketogenic dieting facilitate or hinder feeling well?

Usually when we eat foods with high fat content we feel lethargic, greasy, and gross. When I eat a lot of junk food, or foods with a lot of saturated fats, I do not perform as well in my daily

activities. While it is true that “healthy” foods make us feel physically better, the definition of healthy is left up to debate. Although dietitians tell us to avoid fat because it will make our diet healthier, eating foods with high fat and low carbohydrate content actually puts the body in a state of ketosis. When our body goes into ketosis, it uses fat as its energy source rather than sugar. If carbohydrate intake stays low, the body will continue burning fat (Paoli et al, 789). When the body stays in ketosis many positive outcomes can occur, including weight loss, memory improvement, sustained energy, and loss of appetite. The combination of all the positive outcomes leads to a feeling of improved physical health. The key to staying in ketosis, however, is to not just eat foods with a lot of fat, but foods with few carbohydrates. So although eating junk food does have all of the mentioned negative effects, this is because of the combination of fat and carbohydrates and not the effect of fat alone.

Other causes to the characteristic negative effects of unhealthy eating can be attributed to overconsumption of carbohydrates. When the body receives more carbohydrates than it can process, the remaining sugar from the carbohydrates gets converted to storage, or body fat. In contrast, when the body is in ketosis, there is a reduction in lipogenesis, or fat creating, and an increase in lipolysis, or fat breaking (Paoli et al, 790). This provides the body with long-lasting energy. Anthony, an ultra-runner experimenting with ketogenic dieting said, “With a couple 50 milers behind me and a few 100’s to come this summer, and with the addition of a ketogenic diet, I’m ready to move up in distance and prove myself as one of the best ultrarunners in the US.” Anthony later states, on the blog that he writes for, that he has noticed an increase in sustained energy as he continues to be in ketosis. Therefore, by staying in ketosis, the body not only does not feel greasy and lethargic, but it receives an increase in energy. This makes people that are on a ketogenic diet feel better than people on low-fat diets, or what is known today as high carbohydrate diets.

The testament of a few ultra runners on ketogenic diets, however, does not prove that ketogenic dieting will bring the same results as carbo-loading. As distance athletes, we like to make sure our bodies are prepared to exert itself for extended amounts of time. Carbo-loading has been the traditional way of doing this because it provides lots of available energy to the muscles. However, recent studies have shown that a high fat, low carbohydrate diet can replace carbo-loading and be more effective during moderate exercise. According to a study on endurance athletes, the research subjects on a ketogenic diet had more resistance to fatigue during moderate exercise than those that ate a high carbohydrate diet (Lambert et al, 287). This difference was attributed to a more efficient cardiovascular system and oxygen consumption. Because long distance exercise requires a moderate pace, a ketogenic diet is perfect for our needs as long-distance athletes.

We may still be tempted to carbo-load during exercise because of a psychological feeling of energy need. However, from the same study, research shows that as long as an athlete has been exposed to a ketogenic diet for longer than 2 weeks, they do not need any carbohydrates during exercise to continue racing (Lambert et at, 288). Furthermore, the longer an athlete has to adapt to the new diet, the better his or her oxygen consumption is, and their endurance will continue to improve (288). Thus, it is no longer necessary to carbo-load before a big race, or eat carbohydrates during a race. Carbo-loading only brings about the possibility of eating too much and gaining weight during exercise. Because if an athlete overestimates how many carbohydrates he or she needs, the extra consumption gets converted into adipose tissue, or fat storage. Ketogenic diets maintain energy in athletes during moderate exercise, and it does not require high consumption rates. Thus, ketogenic diets give us our intended results from exercise.

Like many of you, I love exercise and I compete in long-distance triathlons. I started a ketogenic diet about 4 months ago to see if I felt a difference while exercising. During the first few weeks I felt flu-like symptoms, and I didn't have enough energy to get off the couch. But after the

second week, all of the bad side effects to a ketogenic diet disappeared and I felt amazing. I have especially felt a difference while swimming. Before, I wasn't able to get enough oxygen while swimming, so I wasn't able to swim continuously for a long period of time. Now, however, I have more than doubled my distance, and I feel less tired post-exercise. I have seen the same results during cycling and running, but the difference has not been as dramatic. From personal experience, I know that ketogenic dieting has helped me feel sustained energy.

Although high fat, low carbohydrate diets can increase energy, some concerns have been brought up concerning memory loss. As college students, our ability to quickly memorize endless amounts of material is essential to getting good grades. In order to sustain our memory, our brain needs glucose. Glucose is the food that feeds the brain, and it allows the brain to continue in a normal manner. Since carbohydrates provide the majority of the glucose the brain needs, without carbohydrates the brain runs the risk of not working to the speed a college student needs. Although low carbohydrate diets do impair memory, if we replace the missing glucose with fat, our liver can make up for the glucose deficiency (Westman et al., 477). The process of the liver producing glucose from fat is called gluconeogenesis, and when a person is in ketosis, the liver works more efficiently. During ketosis, 20% of the fat supply of gluconeogenesis is coming from adipose tissue, and 80% comes from food we eat (477). Therefore, if we replace carbohydrates with foods with high fat content, gluconeogenesis can make sufficient glucose levels for the brain to maintain memory.

Not only can a ketogenic diet maintain memory, but it can also improve memory. In a recent study on older adults with potential Alzheimer's disease, researchers found that there was an improvement in memory function in both long-term and short-term memory in people on a ketogenic diet (Krikorian et al). This is mostly attributed to the better insulin response in a person in ketosis. Insulin is the enzyme that the pancreas produces to metabolize glucose. When a lot of

glucose (or carbohydrates) is produced, the pancreas releases insulin, and the insulin converts the excess glucose into fat storage. In diabetics, the pancreas cannot keep up with the glucose consumption, and glucose appears in the urine. However, during times of fasting, the brain does not receive enough glucose because insulin is being produced at the same rate. In a person on a ketogenic diet, insulin is produced in normal amounts, allowing the needed glucose to reach the brain. This means that because an individual in ketosis more efficiently metabolizes food through insulin response, they can produce more glucose than an individual who only consumes glucose. Therefore, the brain receives more food, stimulating a higher memory function.

Furthermore, a ketogenic diet can improve memory through other means. The researchers also predicted that the outcome of the improved memory in research subjects on ketogenic diets can come from enhanced energy metabolism (Krikorian et al). Cellular metabolism, or energy metabolism, improves when the blood can transfer oxygen more efficiently. When the body is in ketosis, cellular metabolism is referred as ketone metabolism. According to the research, “Ketone metabolism has been shown to protect hippocampal neurons from Abeta toxicity, glutamate toxicity, and apoptosis, as well as other insults such as kainic acid and hypoxia,” (Krikorian et al). This means that during ketosis, cells are able to metabolize more quickly in the brain, and they are better able to avoid programmed cell death. This allows the brain to function at higher speeds, which will improve memory. The combination of a better insulin response and enhanced energy metabolism allows the brain of a person in ketosis to work more efficiently than a brain of a person not in ketosis. Also, the efficiency of the brain correlates with memory, so in order to improve both short-term and long-term memory, a student should start a ketogenic diet today.

Another potential risk to eating foods with high fat content is the potential damage it can cause to the heart. Cardiovascular disease is a main cause of death in America, and it is attributed to triacylglycerols (TAGs) and cholesterol. For years dietitians have claimed that eating foods with a

lot of fat will raise TAG and cholesterol levels in the blood, and this is an indicator of a persons' risk for cardiovascular disease. While it is true that fatty foods high in carbohydrates raise cholesterol levels, fatty foods that keep the body in ketosis do not raise cholesterol or TAG levels in the same manner. According to a group of physiologists at the University of Ohio, "[Very low carbohydrate diets] consistently improve postabsorptive and postprandial triacylglycerols (TAGs), HDL cholesterol (HDL-C), and the distribution of LDL-C subfractions to a greater extent than low-fat diets" (Volek, Sharman, and Forsythe). This means that TAG levels in the blood are consistently reduced on a ketogenic diet because the body burns fat more efficiently. Cholesterol is a little more confusing because there are many types of cholesterol and not all are considered dangerous. However, this research shows that we are mistaken when we say that all fatty foods lead to risk of cardiovascular disease.

When we go to the doctor's office and the doctor tells us we have high levels of cholesterol in our blood, our immediate reaction is to fear for our cardiovascular health. Cholesterol is scary because it can collect in arteries and block the blood's access to the heart, leading to cardiovascular disease: blood clots and heart attacks. However, there are two types of cholesterol: high-density lipoproteins (HDLs) and low-density lipoproteins (LDLs). HDLs are big, fluffy molecules that do not line up in arteries, but they can actually benefit a persons' heart health. HDLs help carry cholesterol away from the heart and to the liver where it is digested, making the heart healthier (Kamp). However, LDLs do clog arteries because of their small size and high composition of cholesterol. Although high fat, low carbohydrate diets do raise LDL levels, they raise HDL levels in bigger quantities (Volek, Sharman, and Forsythe). The ratio of HDL to LDL cholesterol can show the health of a patient. Because the ratio increases in people on ketogenic diets, this manner of eating actually does more good than harm.

Furthermore, research has shown that there is a difference in the structure of LDL cholesterol in people on ketogenic diets. According to the same group of physiologists at the University of Ohio, “A [very low carbohydrate diet] shifts the particle distribution to a larger size, resulting in significant increases in peak and mean LDL diameter and decreases in the proportion of small, dense LDL particles” (Volek, Sharman, and Forsythe). Thus, a ketogenic diet changes LDL particles so that they have a larger diameter and a less dense composition. This makes the cholesterol less dangerous because it is less likely to build up in arteries. So the combination of significantly raising HDL levels and making LDL levels less dangerous allows people on a ketogenic diet to improve their cardiovascular strength, which improves overall health.

Because ketogenic dieting improves cardiovascular health, cognitive functions, and raises energy levels, it enhances overall health. Ketogenic dieting contradicts most dietitians’ recommendations, but the research repeatedly shows the benefit from this way of eating. For an average adult the recommended proportions to be considered a ketogenic diet are about 20g of carbohydrates per day and moderate protein consumption. The rest of the food intake should be consisted of fat. It takes a few weeks for the body to accommodate to the new diet and to get into a ketosis state, so in order to test out the benefits of ketogenic dieting you have to diet for more than one month. Start by going to the grocery store and seeing all the wonderful foods you can now eat guilt-free: bacon, eggs, sausage, heavy whipping cream, cheese, etc. Now you have the motivation to improve your health, so do it. You may be cutting out sugary desserts, but you’re gaining fulfilling, delicious meals. From personal experience I know that after a while, those sugary desserts will not even be tempting to eat if you remember the overall health benefits to ketogenic dieting.

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