

Webinar 9 Handout:
THE KETOGENIC DIET

For nearly 100 years the ketogenic diet (keto) has been clinically used to treat epilepsy and seizures in children. Now that keto has broken into the mainstream as a diet for weight loss, you're likely to see clients with questions about this eating pattern. As a health professional, it's your job to educate clients on what keto (or any diet) would mean for them, discuss the potential pros and cons, and guide clients towards healthy and sustainable results.

The Science Behind Keto

Keto involves eating a very high fat, very low carbohydrate and moderate protein diet, with a 4:1 ratio of fat to protein and carbohydrates combined. When originally designed to treat children with epilepsy, the daily diet was meant to provide 1 gram of protein per kilogram of body weight, 10–15 grams of carbohydrates, and the remainder of calories from fat (about 75% fat, 2-4% carbohydrates, and the rest protein). As a weight loss diet for adults, percentages can vary, but are typically about 60% fat, 25% protein and 15% carbohydrates--that's about 20 grams to a maximum 50 grams carbohydrates per day.

Through carbohydrate restriction, the goal is for the body to enter and maintain a state of ketosis. Ketosis is a metabolic process in which the body turns stored fats into compounds called ketone bodies (ketones) to be used for energy when there is a shortage of glucose (the body's preferred energy source from carbohydrates). Ketones are unique among fats because they can cross the blood-brain barrier and provide fuel for the brain--something other fats can't do. Under circumstances of starvation, ketosis is like the body's emergency response system to ensure the brain can still function. It takes about 3 days of fasting or eating less than 20 grams carbohydrates per day to initiate ketosis.

Research and Potential Benefits

Though the mechanism of why this diet helps treat seizures is unclear, the benefits for weight loss are pretty obvious: the body starts breaking down stored fat. There's also evidence that during ketosis, the body is able to retain basal metabolic rate, meaning your metabolism won't slow down as it typically does on other restrictive diets. Studies also suggest ketosis may be able to suppress appetite even during periods of calorie restriction and weight loss by increasing the satiety hormone cholecystokinin (CCK) and preventing a rise in the hunger hormone ghrelin.

A 2013 meta-analysis of randomised controlled trials found people following a ketogenic diet saw greater reductions in body weight than those eating a low fat diet over a 12 month period. Research demonstrates weight loss is from a reduction in fat mass, not muscle or strength. Keto has also been shown to normalize sleeping patterns, reduce inflammation and improve memory and brain function. Keto's also been linked to longevity in animal models and may have be particularly beneficial to people with type 2 diabetes.

Possible Side Effects and Considerations

Initiating and maintaining ketosis is intense. The diet isn't always palatable due to its extremely high fat content, and it can be tough to follow in the real world (social settings, travel, etc.) Unlike most diet plans, there isn't much room for flexibility here, because just one day of eating too many carbohydrates can take your body out of ketosis. Even conscious indulgences need to fit within the restricted plan. And it goes without saying, this is an alcohol-free diet. There's also potential for the unpleasant side effect of "fruity breath" caused by a buildup of the ketone body acetone. Discuss the impact to lifestyle with clients who are interested.

As for safety and health-related side effects, there are a few concerns. Animal research suggests ketogenic diets may cause dyslipidemia, fatty liver, elevated inflammation and glucose intolerance. Though animal results don't translate exactly to humans, these results still raise a few red flags. Some studies also find these diets might not necessarily result in weight loss.

Keto isn't for everyone, but if a client understands what it takes and still wants to give it a try, make sure the meal plan is nutritionally complete. Many healthy foods like grains, beans, most fruits and starchy vegetables need to be restricted due to carbohydrate content, so a sugar-free multivitamin is often recommended to ensure all nutrient needs are being met. Make sure clients have the tools they need to transition back to a generally healthy diet when the ketogenic diet is discontinued once weight loss goals are met. Though everyone is different, this generally isn't a diet meant for the long term and is typically recommended for about 3 months and a maximum of one year.

A client may be interested in keto, but there are obviously other options for weight loss if this diet sounds too extreme. A 2014 meta-analysis that compared different weight loss diets concluded there was no significant difference in effectiveness among diets, including keto, and that the best diet is one a client will adhere to.

Sample Ketogenic Menu

Carbohydrate counts are noted in the examples as ketosis requires about 20 grams to a maximum 50 grams carbohydrates per day.

Breakfast

Two-egg omelet with spinach cooked in butter (1g)
1/4 avocado, sliced (3g)
Coffee with MCT oil

Snack

1 ounce pecans (4g)
1/2 cup raspberries (7g)

Lunch

Romaine lettuce dressed in olive oil
1/4 cup feta cheese (1g)
Grilled wild salmon

Snack

Tuna salad made with organic mayo
1/2 cup sliced peeled cucumber (1g)

Dinner

Grass fed sirloin steak
1 cup roasted broccoli drizzled with olive oil (6g)
1 ounce goat cheese (1g)

Nutritious Life Tip: Foods that contain any amount of carbohydrates need to be strictly portioned to ensure the body stays in ketosis. If a client still feels hungry after a meal, guide them towards an additional portion of fat. This diet is generally very difficult for the first few days but tends to get easier once the body enters and adjusts to ketosis.