

Webinar 8 Handout:

**THE SCIENCE BEHIND LOW CARB DIETS:
WHAT WORKS & WHAT DOESN'T**

There are a lot of myths orbiting around about low carbohydrate diets. There are also a lot of versions and interpretations as to what low carb means. There's the group of low carb dieters who count every single carb they put in their mouth. They wouldn't dare eat a piece fruit or starchy vegetable. The second group of low carb eaters put a nix on bread and pastas, but don't realize these are not the only foods that contain carbohydrates. The problem is that both of these kinds of dieters miss the key message -- carbohydrates are essential! Your body needs this healthful macronutrient in the form of fruit, vegetables, dairy and whole grains. Let's explore the science behind low carb diets a little deeper.

Why Low-Carb Diets Do Indeed Work for Weight Loss. A typical Atkins-style (aka low-carb) diet provides a moderate amount of protein with a scarce amount of carbs and a load of fats. Following this diet prescription can lead to a considerable amount of weight loss; after all, cutting out all carbohydrates means cutting out a lot of junk. The problem is, you cut out a lot of good stuff too, and the aftermath is what makes this diet pattern a big no-no. The underlying reason many people are able to lose weight when following a low-carb diet is because your body begins to burn glycogen stores (that's the energy stored in the liver and muscles) since there is no glucose readily available for energy. Once glycogen stores have been depleted, the body begins to burn fat (but not without detrimental repercussions; more on this below). As soon as you return to eating as you normally do, the weight usually comes right back on. No one could possibly maintain such a restrictive diet for life. More critical, there is an increasing amount of evidence that shows this type of diet pattern has serious health risks.

Why We Need Carbs. When you eat carbohydrates, your body breaks them down into glucose, which is the main fuel your body needs to give you energy and to carry out normal cellular processes. Your body is able to use carbohydrates for immediate use, but it can also store it in your muscles and liver to draw upon when in need (that's the glycogen).

When you don't have enough carbohydrates, your body begins to break down stored fat. You might be thinking "hello, weight loss!" but it's not as simple as that. Your brain cannot use fat directly for energy. Instead, fat is turned into ketone bodies, a sort of "backup" energy source. Ketones are made in the liver and sent out into the blood so that the brain and other organs can use them for

energy. This process is called ketosis (this is where the name Ketogenic or “Keto” Diet comes from, which has gained popularity). Yes, you will probably lose weight by breaking down fat, but it’s not a totally safe or sustainable way to eat. Ketone bodies can disturb the normal acid-base balance of your blood. The side effects of ketosis can include nausea, headache, mental fatigue and bad breath. During pregnancy, ketosis can cause irreversible brain damage to the fetus resulting in mental retardation.

Carbohydrates are important for providing energy to all cells of our bodies, and they are our brain’s number one fuel source. Our brains manufacture the neurotransmitter serotonin, which has an impact on approximately 40 million brain cells. This neurotransmitter, affects mood, sexual desire, sexual function, appetite, sleep, memory and even some social behaviors. In fact, researchers at the Massachusetts Institute of Technology have proven that when we eat too few carbohydrates, our brain actually stops making serotonin (scary!). While glucose can always be converted into body fat, the reverse is impossible. We simply need to eat carbs to keep our brains running!

Additionally, carbohydrates are super important in sparing your protein reserves. Insufficient carbohydrate intake promotes the burning of protein for energy, which prevents protein from fulfilling its many duties throughout the body such as muscle and tissue repair, hormone synthesis and enzyme formation.

The Best Carbs to Eat. I recommend that people eat roughly a third of their daily calories from healthy carbs. You’ll probably be surprised to learn that carbohydrates not only offer a lot of fiber, but also a heavy load of nutrients. There is a wide variety of healthy carbs so let’s take a look at what we’ve got.

- **Whole Grains:** Whole grains are incredibly important. They give us the nutritional benefits of the entire grain including vitamins, minerals, dietary fiber and other natural plant compounds called phytochemicals. Phytochemicals are all involved in protecting your body against cancer, heart disease, diabetes and effects of aging. Whole grains are made up of all the grain parts: the bran (fiber-rich outer layer), the endosperm (the middle part), and the germ (nutrient-rich inner part). In the highly regarded Harvard Nurse’s Health Study, researchers found that the more high fiber, whole grain foods women consumed, the less likely they were to be overweight. Make sure to carefully read labels when buying whole grain products. In order to be certain that a particular product is whole grain, it must be labeled 100% whole grain.

Nutritious Life Tip: Whole wheat flour is considered a whole grain, but wheat flour is not. Wheat flour is actually just a synonym for “flour”. Savvy marketers can trick you into thinking you’re buying a whole grain bread by using this type of language. While packaged breads made with 100% whole grains (read the ingredients!) and whole grain pastas are okay, the least processed grains such as farro are your best bet.

- **Sugar From Fruits & Dairy:** Sugar occurs naturally in both milk and fruit--making them both a healthy source of carbohydrates. Dairy products contain lactose sugar and can also provide you with a rich serving of calcium and protein. You may want to include full fat milk, Greek yogurt (plain; no fruit at the bottom), and cottage cheese in your diet. If you prefer or require dairy alternatives, look for the least processed versions. In addition to the natural sugar fructose, fruits are a great source of fiber, which can help you feel full without added calories. The high water content in fruits can also help you feel full for longer.
- **Starches:** “Good” starch selections can provide fiber, B vitamins and even a little protein. Starches include cereal, breads/crackers, vegetables and legumes. Healthy sources of starches include popcorn, oatmeal, whole grain bread, high fiber crackers, sweet potato with skin, corn, butternut squash, peas, black beans, lentils, chickpeas, brown rice, bulgur, millet, quinoa, whole wheat pasta and wild rice.

Carbs to Avoid. When grains are milled or refined, the bran and germ portions are removed, leaving only the endosperm. Ultimately you have gotten rid of all the healthful parts of the grain -- both the fiber-rich bran and nutrient-rich germ. The Harvard Nurse’s Health Study found that the more refined grains people ate, the heavier they were. Refined grains include the typical white foods--white pasta, white bread--as well as sugary baked goods and desserts.

Speaking of sugar, that’s a big carb to avoid. When we talk about the detrimental effects of sugar, we’re talking about added sugars, not the natural sugars found in fruits, vegetables and dairy. As a society we eat way too much added sugar. Teach your clients to be aware of the added sugars present in processed foods and beverages.

Many people are misguided when it comes to fruit juices. They think it’s a healthy way to diet and lose weight. Though juice contains some nutrients, it’s not always as healthful as you would think. First, it lacks fiber, since the guts and skin (for those fruits that have edible skins) of the fruit are removed. Second, juice is a concentrate of the sugary part of the fruit without the bulk that keeps you feeling full. In other words, fruit juices contain a lot of sugar without the nutrient dense perks of

a fruit. There are certainly low sugar vegetable juices available that are fine to consume, but the sugar content in many commercial juices outweighs any possible benefits of the fruit.

Don't skimp out on carbs! They are an essential macronutrient that support good health. Do remember to choose wisely, as there are uber healthful versions and versions that are nothing more than empty sugar calories. Help your clients understand the role carbohydrates play in a healthy diet and teach them how to decipher between the good-for-you carbs and the junk.