Faster & Farther

Nutrition Handbook

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ROCKit!
nutrition coaching

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For endurance training: running, cycling, swimming, and any other way you can **Rock It**!

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In his amateur days, Lightning McQueen would forego pit stops to get ahead of his competitors. Early in the race his strategy seemed to work, but in the last lap of one race his tire blew and his fuel tank hit empty. Forgoing pit stops essentially cost him the victory and made his recovery time longer. Okay, so I may have added the recovery time part to the story, but if we were to compare Lightning McQueen to an endurance athlete, the same would be true. Nutrition is often a limiting factor in physical performance as glycogen depletion and/or dehydration can cause even the best-trained athletes to fall short. Whether it's running, swimming, or cycling, athletes who reach their full potential know that nutrition and exercise are equally important and for the best results they have to take their nutrition as seriously as their training.

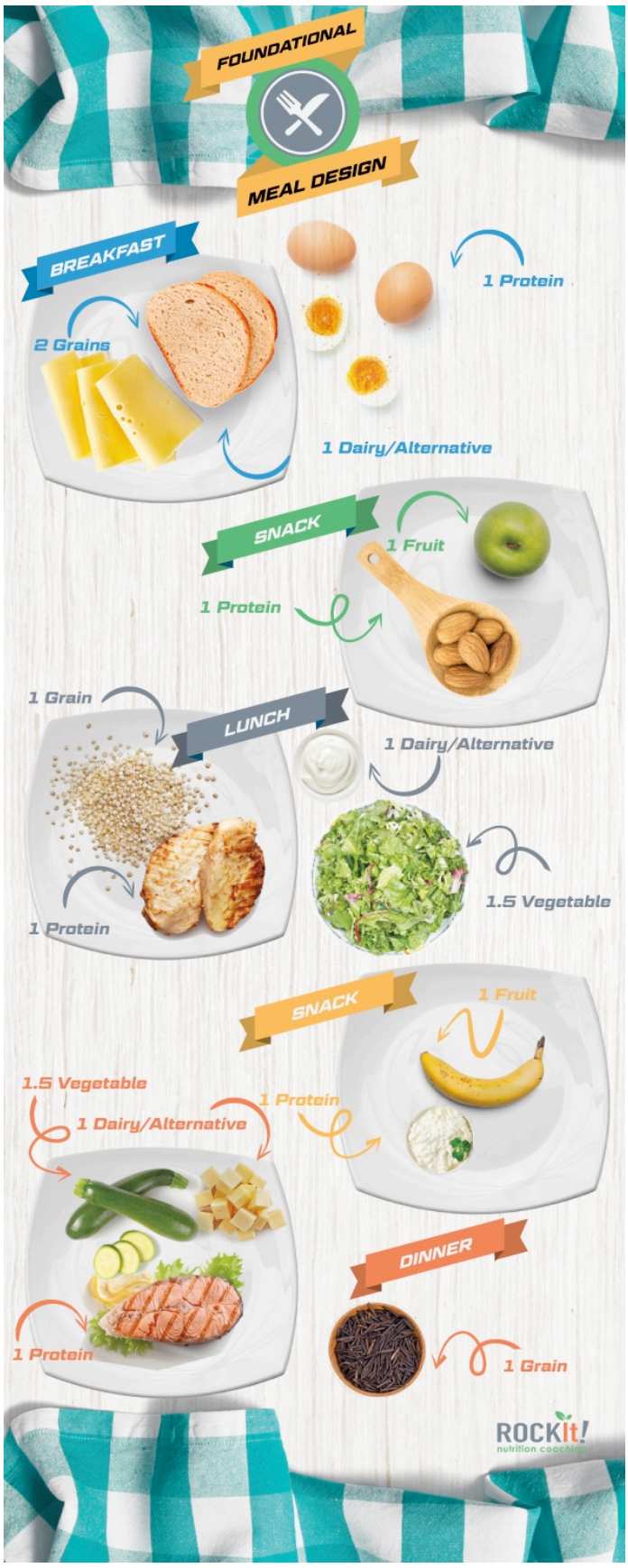
This handbook contains nutrition recommendations for endurance athletes. If you have a health condition like heart disease, diabetes, kidney disease, or food allergies or sensitivities, discuss changes to your diet, supplements, and exercise with your doctor before implementing. Use the online chat feature of your Rock It Nutrition Coaching membership to further customize the Faster & Farther Meal Design.

STRATEGIZING

To create your nutrition strategy, we start with the foundation - what you eat during each meal of the day (your meal design). Then we decide what adjustments to make for training days. We consider which supplements, if any, need to be added. We do our research and take time to reflect on your nutrition strategy and make adjustments. Just like physical training, your nutrition strategy will take practice and adjustment.

By now you have heard "meal design" a few times. What does it mean? Our bodies run best when fueled by optimal nutrition at the optimal time. Each meal should be designed with the proper amount of carbs, fats, and protein to ensure that your body has the available energy and building blocks it needs when it need them. While there is a focus on macronutrients (carbs, fats, and proteins), the Foundational Meal Design carefully considers the source of macros to ensure a balance of the micronutrients (vitamins and minerals), phytochemicals, and antioxidants.

Your fueling strategy will consist of two or three types of meal designs based on your physical activity. The Foundational Meal Design is for a typical non-training day. Carb loading is for more strenuous endurance events and training or event days. Eat every meal with your next workout in mind. Even on non-training days, your nutrient intake will effect your next workout. The more nourished your body is, the more likely it will be able to perform at its peak.



This *Foundational Meal Design* infograph is an example of how foods can be paired together at specific times of the day to meet both macro and micro-nutrient needs. Customize your meal design using the *Reference Food List* at the end of this e-book.

The Foundational Meal Design is a framework that can be adjusted to suit your calorie and specific nutrient needs. It is a plan for both non-training and event days. For endurance athletes, non-training days usually mean fewer carbohydrates because you don't need the additional glucose and glycogen stores for energy.

What to Eat

The Foundational Meal Design for non-training or event days includes getting 40 percent of your calories from carbs, 30 percent from protein, and 30 percent from fat. For example, in a 2,000 calorie diet, this means 200 grams (g) of carbs, 150 grams of protein, and 67 grams of fat per day.

The following is a snapshot of the macronutrient break down for each meal:

	CARBS-grams	FAT-grams	PROTEIN-grams
Breakfast	50	16	37
Snack #1	20	9	20
Lunch	50	16	37
Snack #2/Recovery	30	9	20
Dinner	50	16	37

In order to get optimal micro-nutrition (vitamins and minerals), we must include the proper proportion of each food group throughout the day. The following food group proportions best meet both macronutrient and micronutrient needs.

As a starting point, aim for the following on each non-training non-carb-loading day:

- ✓ **4-6 ounces (oz) of grains.** If you are training for a shorter endurance event, such as a 5k or 10k, stick to the lower end of the range. If you are training for a longer endurance event and have a training day coming up, aim for the higher end. The majority of your grains should be whole grains. If you are sensitive to wheat or gluten, choose gluten-free grains or starchy vegetables.

- ✓ **At least 5 cups (c) of fruits and vegetables.** Variety is important.

- ✓ **3 cups of dairy or non-dairy alternative.** Many people are intolerant, sensitive or allergic to dairy. If you are one of these people, leave dairy out of your meal design, but be sure you add a little more protein from other sources, and be sure you are getting enough calcium.

- ✓ **7 ounces of high-protein foods like meat and beans.** If you are a vegetarian or vegan, look for vegan options in the *Meal Design Reference Food List*.

The calorie level of your meal design will depend on the products you choose and how you prepare your food. Unprocessed, whole foods will yield fewer calories. It might be necessary to alter listed portion sizes according to your needs. If you are unsure how many calories you need, see the *Rock It Calorie Estimator Tool*.

KNOW YOUR FUEL SOURCES

Protein and Endurance

Protein is as important to endurance athletes as it is to weight lifters. Didn't see that coming did you? As an endurance athlete, you are probably well-versed in aches, pains, strains, and maybe even the sniffles. Adequate protein allows for positive muscle protein synthesis, which makes you stronger, helps you go faster and farther, and helps prevent injuries and illnesses.

Each day, aim for at least: 1.2-1.4 g of protein per kg of body weight.

For example, a 150-pound endurance athlete needs 82-95 grams of protein every day. Athletes training and competing in ultra-endurance events need even more protein, but they also need extra calories. As long as you are meeting your calorie needs, your protein needs should also be met.

Estimating protein needs:

Step #1	Weight in pounds / 2.2 = weight in kg
Step #2	1.2 (or 1.4) x weight in kg = grams of protein needed per day

Rock It Coaching recommends including 30 grams of protein in each meal based on the "leucine trigger" hypothesis, which shows that consumption of approximately 30 grams of leucine (which is found in protein) at one time activates muscle protein synthesis. Muscle protein turnover happens throughout the day regardless of what we do, so it is important to continue rebuilding muscle by being in a positive muscle-building state three times a day. The Foundational Meal Design includes three meals of at least 30 grams of protein for this very reason. Many people find that their breakfasts lack protein, so if you need a place to start, focus on increasing your protein intake during breakfast.

The Case for Carbs

Carbs get a bad rap these days, but as an endurance athlete you are more likely to have a kindred friendship with them. Endurance athletes need a full glycogen store and adequate blood glucose for fuel during their training and events. Glycogen and blood glucose both come from carbohydrates; in other words, carbs make fuel. Carbohydrate needs vary considerably depending on the intensity and duration of exercise. Start with the Foundational Meal Design and add carbs as discussed in the *Prepare, Fuel and Recover* sections below. Use your unlimited chat sessions with the nutrition coach for further planning.

Friendly Fat

Carbs have a bad rap and fat is often considered to be a foe, but thanks to new research we're learning more about the importance of good, healthy fats. The problem is that the fat we eat has become associated with the excess fat in the body, but often *eating* excess fat is not the cause of excess weight. Fat has many more roles in the body than accumulation and insulation. Fats work with protein to act as messengers, fat helps control growth and hormone functions, immune function, balance inflammation, and much more. Fats are concentrated energy sources and backup fuel sources for endurance athletes competing in events that last longer than two hours when glycogen is usually depleted. Keep in mind that certain fats are harmful, but healthy fats are helpful (learn more about this in our *Clean Eating Boot Camp*). We also recommend Dr. Mark Hyman's resources on fat: http://www.eatfatgetthin.com/challenge.html or DrHyman.com.

LOVE THE MICROS TOO

Vitamins and minerals are micronutrients. Each plays a unique role in the body as a structural component, messenger, carrier, and much more. It is important to have a nutrient-dense diet that includes plenty of protein, healthy fat, and fruits and vegetables to ensure that micronutrient needs are met. Suboptimal nutrient levels can result in injury, illness, and fatigue.

Iron Deficiency

Possibly the most common micronutrient deficiency in endurance athletes is iron. It is estimated that 30-50 percent of female endurance athletes are deficient in iron and even a one-percent drop in hemoglobin (a type of iron) can result in a two-percent decrease in work capacity. Low iron is often the result of inadequate dietary intake as well as the loss of iron through sweat, small amounts of bleeding in the stomach and intestines, muscle stress, and menstruation in women.

If you are worried about your iron levels, try avoiding tea and coffee during meals (tannins in tea and coffee prevent iron absorption). Pair foods high in vitamin C (like oranges) with good sources of iron (for example: red meat, legumes, eggs, and spinach) to increase iron absorption. Symptoms of low iron (anemia) include fatigue, feeling cold, lightheadedness, shortness of skin, and pale skin. If your iron is low, you will most likely need to take a supplement until an adequate level is reached. If you suspect you have anemia, talk to your doctor about testing and supplements. Iron supplementation is not recommended for "just in case" situations as iron toxicity is dangerous.

You may also need:

Research shows that endurance athletes need more than the recommended daily allowance of vitamins C and E. Athletes who consistently exercise in hot conditions may need more calcium, magnesium, potassium, and chloride than the average person. Eating a diet rich in all the food groups will help you meet your micronutrient needs. Individualized testing and assessment can help identify if you need a supplement.

IT'S TIME TO ROCK IT: BUILDING ON THE FOUNDATIONAL MEAL DESIGN

Prepare - Before Workouts & Events

During preparation, focus on:

1. Being well hydrated.
2. Having available energy.

Hydration:

- Stay hydrated by sipping water and other fluids that contain small amounts of sodium throughout the day.
- Two to three hours before exercise drink at least 17-20 ounces of water or fluid containing electrolytes (sodium, chloride, and potassium).
- Ten to twenty minutes before a workout or event drink another 7-10 ounces of fluid.

Energy for training and events lasting less than one hour:

- Include 30-60 grams of carbohydrates in your pre-event dinner. Studies show there is not much of an advantage of carbohydrate loading for shorter events. It is more advantageous to focus on familiar foods and portions.
- You probably won't need much more than sips of water, or fluid with electrolytes if it is hot or you sweat heavily.

Energy for workouts or events lasting 60 to 90 minutes:

- Two hours before a training or event, eat a meal or snack with one grain, fruit, or dairy choice for a good serving of carbohydrates and one-half or one protein choice from the *Foundational Meal Design Food Reference List*.
- Approximately one hour before your training session or event eat 0.3-0.5 g of carbs per pound of body weight. For a 150-pound athlete this would be 20-34 grams of carbs. The amount and timing depend on your personal tolerance. Many athletes find liquids like shakes and smoothies are tolerated better closer to the event time.
- Experiment with different pre-event foods during training. Event day is not the time to try something new.
- Gels can be consumed before or during a training or event. If you choose gels, be sure to drink 4-6 ounces of water with them to prevent stomach cramps and diarrhea.

Carbohydrate loading for events longer than 90 minutes:

While studies show that carb loading can be accomplished in as little as one day, some athletes prefer a three-day carb loading regimen that involves tapered training. It might look like:

Day 1	Tapered Training + Carb loading
Day 2	Tapered Training + Carb Loading
Day 3	Rest + Carb Loading
Day 4	Event Day

Carb loading can be accomplished with 10-12 grams of carbohydrates per kilogram of body weight each day (680-818 g of carbs for a 150-pound athlete).

You may gain a few pounds or feel bloated when carb loading; this is most likely from water being stored with muscle glycogen. The extra fluid will help you stay hydrated during the event.

Have a meal or snack about 2 hours before your training or event. Include 2 grams of carbohydrates for every pound of body weight (136 g of carbs for 150-pound athlete) and one-half or one whole protein choice from the *Foundational Meal Design Food Reference List*. The amount you need to eat and the specific timing depends on your tolerance. Many athletes find that liquids like smoothies and shakes are tolerated best.

Again, experiment with pre-event foods only on training days.

Gels can be consumed before or during a training or event. But remember if you choose gels, be sure to drink 4-6 ounces of water with them to prevent stomach cramps and diarrhea.
A note about runner's diarrhea:

It is not uncommon for runners to experience diarrhea and cramping during and after running. If you know what I mean, here are a few things to think about:

1. Rule out medications and supplements as possible causes (including salt tablets).
2. Be sure you are well hydrated.
3. Avoid fiber-rich foods before or during exercise (nothing over 4 grams of fiber per serving).
4. Eliminate artificial sweeteners such as sorbitol and aspartame.
5. Caffeine may lead to diarrhea in sensitive individuals.
6. Experiment with different foods to find which are best for you. Start with low-fat, low-fiber options like fruit, low-fat dairy, and low-fiber grains.

Fuel - During Workouts and Events

General Hydration Tips:

- Weight loss during exercise comes from fluid (not fat) and must be replaced, but be careful not to over-hydrate. You should not weigh more after your event than before.
- Healthy, active athletes should not restrict salt intake when training or competing in consistently hot or humid weather. While calcium, magnesium, and potassium are lost in sweat, sodium and chloride are lost at a greater rate. Many muscle cramps blamed on low potassium levels are most likely due to sodium and chloride deficiency.

Workouts and events lasting less than one hour:

- During short periods of exertion, you probably don't need much other than a few sips of water or a hydration drink with electrolytes.
- If the workout or event lasts more than 30 minutes, you may need to drink 7-10 oz of fluid every 10 to 20 minutes. Those who sweat heavily will need to drink electrolytes more often. To more accurately estimate your fluid and sodium needs, see the *Rock It Sweat Rate Worksheet*.
- For workouts or events lasting 45 minutes to one hour, hydration drinks with small amounts of carbohydrates and electrolytes are beneficial. Individuals who sweat heavily need as much as one gram of sodium per hour. Hydration drinks are not all the same. Most of those currently on the market do not have enough sodium for exercise and contain unwanted dyes and additives. For Rock It recommended hydration drinks, see the *Rock It Top DIY Sports Food Recipes* or *Top Grab & Go Sports Products* web pages on the Rock It Coaching website.

Workouts and events lasting longer than one hour:

- You may need to drink 11 to 34 ounces of fluid every 20 minutes from various sources (water, hydration drinks, juice, etc.). Don't rely solely on water unless you are getting carbs and sodium from other sources. See our *Sweat Rate Worksheet* to better estimate your specific fluid and sodium needs.
- Consuming carbohydrates during exercise that lasts more than 90 minutes helps preserve glycogen stores and extends the length of time you can exercise. For a training or event that is 2-3 hours long, consume 25 to 60 grams of carbohydrates per hour. For longer exercise sessions, consume as much as 90 grams of carbohydrates per hour. Use different types of carbohydrates, like glucose and fructose, for maximum absorption.
- If you consume gels, do so right before a water station.
- Alternate carbohydrate sources, using more solid foods like salted pretzels earlier in your event when they are better tolerated, and liquids later. Consume a variety of foods that are savory, salty, or sweet. For Rock It recommended endurance energy foods, see the *Rock It Top DIY Sports Food Recipes* or *Top Grab & Go Sports Products* webpages on the Rock It Nutrition Coaching website.

Recover - After Workouts and Events

Recovery nutrition means resupplying your body with the nutrition it needs to recover and be prepared to properly Rock It on your next workout.

Recovery nutrition is needed to:

1. Replace fluid and electrolytes lost through sweat.
2. Replace muscle fuel (glycogen) used during exercise.
3. Provide protein to help repair damaged muscle tissue and stimulate new growth.
4. Prevent injury and illness.

How to recover:

- After a training or event, rehydrate with water or a hydration drink. For every pound of weight lost during the event, drink 24 ounces (3 cups) of fluid (this requires weighing yourself directly before and after the race). Also, pay attention to the color of your urine (it should be pale yellow). Weight loss of more than 2 percent of body weight can affect performance and lead to dehydration.

> The Recovery Nutrition Formula is:
>
> **30 grams of carbs + 20 grams of protein within 45 minutes of exercise**

- Recovery nutrition can be consumed as a snack or during your regular meal. Getting enough calories will ensure that dietary protein is used not for energy, but to repair and build muscle.
- Cold beverages are often tolerated better than solid foods after an event. Start with fruit juice, shakes, chocolate milk, lemonade, or a hydration drink. Be sure to follow up with protein when tolerated.

SAMPLE MENUS

The sample menus provided here should be personalized according to your needs. These menus are gluten and dairy free to accommodate those with sensitivity.

Every day Foundational Meal Design

I recommend the Clean Eating, Paleo, and Gluten Free meal plans from EMeals.com. Be sure each meal has a good protein source and a grain or starchy vegetable for carbohydrate. Refer to the *Food Reference List* for protein and carb sources.

Breakfast: ½ cup oatmeal + 1 oz raw nuts + 3 free-range eggs

Snack: 1 oz pumpkin seeds + 1 orange

Lunch: salad: ½ cup quinoa + 3 oz cooked chicken breast + 2 cups leafy greens + ½ cup veggies + 2 TBS salad dressing

Snack/Recovery shake: 1 cup frozen fruit + 4 oz non-dairy milk + 20 grams protein powder (See *Rock It Protein Primer* webpage on the Rock It Coaching website).

Dinner: 3 oz pork chop + 1 cup roasted mushrooms and tomatoes + 1 medium sweet potato

Carbohydrate Loading (680 g)

Breakfast (113 g carb per meal/snack): 3 six-inch pancakes (63 g carbs) + 1 TBS honey (17 g carbs) + 1 cup fruit juice (30 g) + 2 eggs

Snack: 1 cup cereal with non-dairy milk (30 g) + ¼ cup dried fruit (30 g) + 1 cup fresh fruit (30 g) + ½ cup nuts (15 g)

Lunch: 1 sweet potato (41 g) with cinnamon, 1 TBS butter (made from the milk of a grass fed cow) + 1 TBS honey (17 g) + 12 gluten-free crackers (30 g) + 2 oz chicken breast + 1/2 cup brown rice (15 g)

Dinner: 2 cups pasta (90 g) + marinara + 2 oz ground beef + 1 cup winter squash

Snack: 3 oz pretzels (68 g) + 1 cup fruit juice (30 g) + 1 small apple (15) + 2 TBS nut butter

Bedtime Snack: 1 cup oatmeal (30 g) + ¼ cup dried fruit (30 g) + 1 TBS honey (15 g) + 1 cup fruit juice (30 g)

Morning of Event Meal

2 hours before: 2 eggs + 3 six-inch pancakes + 2 TBS honey + coffee + 1 cup fruit juice

5 minutes before: sports gel + 4-6 ounces of water

During Event

	First Hour	Second Hour	Third Hour
20 minutes	2-8 oz water	2-8 oz water	2-8 oz water
40 minutes	2-8 oz sports drink	2-8 oz sports drink	2-8 oz sports drink
60 minutes	1 gel + 2-8 oz water	1 oz pretzels + 2-8 oz water	1 gel + 2-8 oz water

TIPS FROM THE SEASONED

“Timing is crucial. Wait too late to fuel in an event and it is hard to recover.” – Adrienne Rustin, Running Coach & Endurance Athlete

“Do NOT wait until race day to try your fueling stuff out.” – Ally Chapmond, Fitness Coach & Endurance Athlete

“Don’t try to cram in thousands of carbs two hours before the event. Instead, carbo-load the week before the event.” – Daniel Bunn, Endurance Athlete

“Fueling was my biggest challenge for many years and I just finished my first full a few weeks back. I am intolerant of many gels, blocks, and gu. I had to master it while training for over ten

halfs. There were MANY failures, but I recommend asking questions and trying new things." – Cari Denson, Endurance Athlete

NOW…GO ROCK IT!

After more experience, Lightning McQueen realized his rookie mistakes. He developed a better fueling and maintenance strategy and went on to win the Piston Cup. With the help of the Foundational Meal Design and these fueling strategies you are on your way to Rock It, just like Lightning McQueen. For an even bigger boost, utilize your unlimited free chats with the nutrition coach for any questions that come up when you implement these strategies, or to help further personalize your plan. Check out the Rock It Coaching blog and forum, tools and e-books created to enhance your training and fueling strategy! Be sure to tell us how you Rocked It on our Facebook page!

REFERENCES

Edwards S., *Fuel Your Sport Quick Reference: Half Marathon Competitors E-Book.*

Rosenbloom C., and E. Coleman, *Sports Nutrition: A Practice Manual for Professionals, 5th Edition.* Academy of Nutrition and Dietetics; 2012.

FOUNDATIONAL MEAL DESIGN FOOD REFERENCE LIST

The following is a list of food sources to use in the Foundational Meal Design. It is not an all-inclusive list.

Protein (1 Choice = 20 grams):		Vegetarian Protein Sources:	
Beef	3 oz	Cottage Cheese	½ c = 13 g
Chicken	3 oz	Greek Yogurt	½ c = 10 g
Eggs	3 whole or whites only	Vegan Protein Sources:	
Fish	3 oz	Chia Seeds	1 oz = 5 g
Lamb	3 oz	Chickpeas	½ c = 7 g
Legume-type Beans	1¼ c	Nut Butter (Peanut Butter, Almond Butter, Cashew Butter)	2 TBS = 7 g
Pork	3 oz	Nuts (Almonds, Cashews, Pecans)	1 oz = 6 g

Dairy Choices: 1 Choice = 12 g Carb + 8 g protein		Non-Dairy Sources	
Cheese	2 oz	Almond Milk	1 c (lower in carbs and protein)
Cottage Cheese	1 c (higher in protein)	Cashew Milk	1 c
Yogurt	½ cup	Pecan Milk	1 c

Grain Choices: 1 Choice = 15 g Carb + 3 g Protein (If you are sensitive to gluten, look for versions of these foods that are certified gluten free).			
Bread	1 slice	Crackers	6 each (saltine type)
Brown Rice	$\frac{1}{3}$ cup	Oats	½ cup
Cereal	¾ cup	Pasta	$\frac{1}{3}$ cup
Corn Chips	1 oz or 13 chips	Quinoa	½ cup

Fruits: 1 Choice = 30 grams of carbohydrates Any fruit is a good choice.		Examples of Fruit
Dried Fruit	½ cup	Raisins, cherries, cranberries
Fresh or Frozen	1 cup	Pineapple, Bananas, Mangos
100% Fruit Juice	1 cup	Apple, Orange, Grapes

Non-Starchy Vegetables: 1 cup cooked or 2 cups raw = 10 grams of carbohydrates		
Artichoke	Celery	Peppers
Asparagus	Cucumber	Radishes
Green Beans	Eggplant	Salad Greens
Broccoli	Greens	Sauerkraut
Brussels Sprouts	Leeks	Spinach
Cabbage	Mushrooms	Summer Squash
Carrots	Okra	Tomato
Cauliflower	Onions	Zucchini

Starchy Vegetables: 1 choice = 1 cup cooked, 30 grams of carbohydrates		
Corn	Mixed vegetables with corn and peas	Yam
Green Peas	Potato	Sweet Potatoes
Legume type beans (black, pinto, kidney, etc.) – ¾ cup = 30g carb	Winter Squash (Acorn, Butternut, or Pumpkin)	Lentils

Portion Size Examples:

3 ounces of protein = the size of a deck of cards or the palm of your hand
1 cup of fruit or vegetables = the size of a tennis ball
2 ounces of cheese = the size of two dominos
2 TBS = the size of a ping pong ball