

Nutrition after Spinal Cord Injury (SCI)

Daily Guide to a Healthy Low-Carb/High-Protein Diet



UAB HEERSINK
SCHOOL OF MEDICINE

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Why Nutrition is Important

People who eat healthy tend to live longer and have a lower risk of developing heart disease, type 2 diabetes, and obesity.

- Eating healthy can help people with spinal cord injury (SCI) manage or lower their risk of developing many medical complications.
- Eating healthy can help reduce fat storage as well as maintain bone and muscle health.



Why Nutrition is Important



Research shows that many people with SCI do not get proper nutrition.

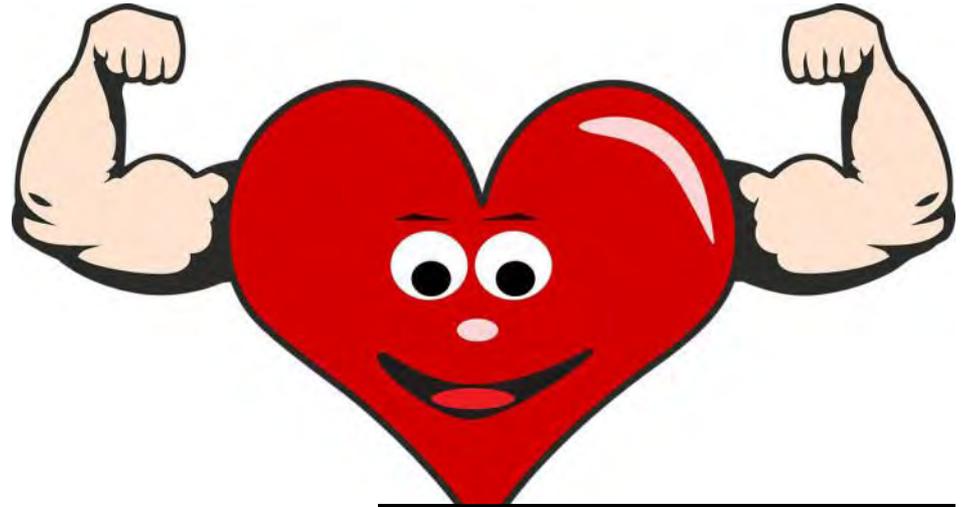
- Tend to have diets that lack enough fruits, vegetables, and whole grains that are rich in fiber, vitamins, and minerals.
- Tend to eat more processed foods, especially fast food, that are usually high in sodium, sugar, and fat.

Poor diets together with reduced physical activity due to paralysis tends to cause people with SCI to become overweight and carry extra weight in the belly and waist.

Metabolic Health is a Key to Good Health

Eating well-balanced meals, lower in simple carbohydrates, higher in protein, and adequate fat may improve your weight and metabolic health.

- Reduces risk for obesity, stroke, heart disease, insulin resistance, glucose intolerance, and type 2 diabetes (also known as metabolic syndrome).



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Markers of Metabolic Health



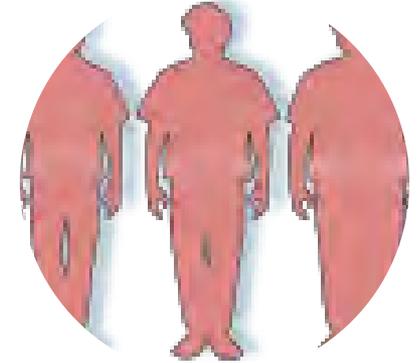
Weight



Blood Sugar
Triglycerides
High-density
lipoprotein (HDL)
cholesterol



Blood Pressure



Waist Size

Contents

Here is a guide to choosing the right amount and type of foods to improve your metabolic health.

- Suggestions
- Sample meal plans
- Recipes



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Low-carb, High-protein Meal Composition (30/40/30)



30%

600 CALORIES

HEALTHY FATS



40%

800 CALORIES

HEALTHY CARBOHYDRATES



30%

600 CALORIES

PROTEIN

These three nutrients make up a person's total daily calorie needs. Everyone's needs may differ based on various factors including your age, height, bodyweight, and physical activity level. Here we use 2000 calories as an example.

30% Healthy Fats (600 Daily Calories)

Healthy fats

- Nuts
- Seeds
- Olive oil, canola oil
- Avocado
- Fatty fish

Important note

- Aim for about 66g of healthy fats*
(*based on a 2000-calorie example)



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40% Healthy Carbohydrates (800 Daily Calories)



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Healthy carbohydrates

- Whole grains (brown rice, whole grain pasta, breads, oats)
- Vegetables (peas, corn)
- Beans and legumes (black beans, lentils, chickpeas)
- Whole fruits

Important note

- Aim for about 200g of healthy carbs*
(*based on a 2000-calorie example)

30% Healthy Proteins (600 Daily Calories)

Healthy proteins are lean, meaning low fat

- Poultry (turkey or chicken)
- Lean meats (beef or lean pork)
- Fish and seafood
- Low-fat dairy or soybean-based products
- Nuts or seeds
- Legumes and beans

Important note

- Aim for about 150g of healthy proteins*
(*based on a 2000-calorie example)



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Focus on Nutrient-dense Foods

Nutrient-dense foods and beverages provide vitamins, minerals, and other healthful components with little to no added sugars, saturated fats, and sodium.

Customize and enjoy nutrient-dense food and beverages to reflect personal food preferences, cultural traditions and budget.

Follow these three dietary principles:

- Meet nutritional needs primarily from nutrient-dense foods and beverages.
- Choose a variety of options from each food group.
- Be mindful of portion sizes.

Focus on Nutrient-dense Foods

Eggs and egg whites

Fish and shellfish

Lean meats and
poultry

Greek yogurt, cottage
cheese, low-fat milk
and cheese

Asparagus, broccoli,
cauliflower, leafy
greens, mushrooms,
onions, peppers, and
other non-starchy
vegetables

Almonds, peanuts and
peanut butters,
sunflower seeds, chia
seeds, cashews,
pistachios, etc.

Avocados, nut butters,
fatty fish, olive oil, etc.

Whole grains and
whole fruits

Foods to Limit

Refined, processed grains and starches

- White bread, rice, pasta, baked goods, sugary cereals, etc.

Sugary drinks

Juice, sweetened coffee and teas, soda, sports drinks, alcoholic beverages, etc.

Processed, high-carb foods

Prepackaged french fries, breaded chicken, chips, cakes, snacks, etc. (rest of the items from fact sheets)

Beverages to Consider

To spare you calories and limit sugar intake, choose zero calorie beverages such as water, zero calorie sparkling water, unsweetened tea and coffee.

If you need more flavor, consider adding berries or slices of lime, lemon, or cucumber to water.

When choosing beverages with calories, aim for drinks with important nutrients such as low fat or fat free milk, unsweetened or fortified milk alternative, or 100% fruit or vegetable juice



Sample Menus

Menus are based on 2000 calorie diet. Your calorie needs may vary.

UAB is not paid to endorse any brand items suggested in menus.

Sample Menu for Monday (Day 1)

Breakfast

- Vegetable omelet (two whole large eggs) filled with diced red pepper, spinach, and mushrooms, topped with ½ avocado
- ½ cup mixed melon cup

Lunch

- Turkey Burger with cheddar cheese on whole wheat bun
- 2 cups green salad topped with shredded carrots, grape tomatoes, and 2 tbsp. Italian dressing

Dinner

- Baked Tilapia served with ½ cup steam carrots and broccoli
- Whole wheat dinner roll
- 1 tsp margarine

Snacks

- 1 cup sliced cucumber and broccoli with roasted garlic hummus

Sample Menu for Tuesday (Day 2)

Breakfast

- 4 oz. Cottage Cheese topped with crushed almonds, 1 TBSP almond butter and ¼ cup frozen blueberries

Lunch

- Grilled Chicken wrap with whole wheat tortilla, mayo, mustard, shredded carrots, and cucumbers
- Cheese stick and ½ cup grapes

Dinner

- 3 oz. Meatballs over whole wheat spaghetti pasta and marinara pasta sauce
- Oven roasted asparagus, ½ bunch, tossed in olive oil and sprinkled with parmesan cheese

Snacks

- Protein Smoothie made with 8oz skim milk, 2 scoops of whey protein, ½ cup mixed berries, 1tbsp peanut butter

Sample Menu for Wednesday (Day 3)

Breakfast

- $\frac{3}{4}$ cup Special K protein plus cereal topped with $\frac{1}{2}$ banana slices
- 8 oz. low fat milk/ Dannon Light and Fit Yogurt
- Turkey sausage patty

Lunch

- Tuna salad on whole wheat bread
- Raw carrot sticks and sliced red peppers
- 2 tbsp. ranch dipping sauce

Dinner

- Oven baked chicken thighs with 1 cup green beans
- $\frac{1}{2}$ cup diced sweet potatoes

Snacks

- Mixed berry fruit up $\frac{1}{2}$ cup
- 5 oz. plain Greek yogurt
-

Sample Menu for Thursday (Day 4)

Breakfast

- Whole wheat toast, 1 slice
- Boiled egg
- Turkey sausage patty, 2 patties
- Canned pears, light
- Dannon light and fit yogurt

Lunch

- Progresso canned vegetable soup
- Hamburger with cheese, mustard and ketchup
- Canned pineapples, juice packed

Dinner

- Italian Herbed baked Chicken breast
- Green beans (canned or frozen)
- Lima beans (canned or frozen)
- Whole wheat dinner roll with margarine

Snacks

- Graham crackers, 2 squares, plain with 1 tbsp. peanut butter

Sample Menu for Friday (Day 5)

Breakfast

- Jimmy Deans Delights English muffin-Canadian bacon, egg white, and cheese
- Canned peaches no sugar added
- Skim milk or low fat yogurt

Lunch

- Lean Cuisine Herb Roasted Chicken
- Toss salad with bacon bits, sunflower seeds, grape tomatoes and Kraft Italian dressing
- Orange

Dinner

- Whole wheat tortilla
- Deli turkey
- Swiss cheese, mayo and mustard
- Sliced cucumbers, carrots, and tomatoes with ranch dressing cup

Snacks

- Greek yogurt and fresh apple

Sample Menu for Saturday (Day 6)

Breakfast

- 4 oz. Cottage Cheese with sliced bananas and walnuts

Lunch

- Lean Cuisine Roasted turkey and vegetables
- Broccoli
- Canned fruit cocktail

Dinner

- Amy's chili (canned)
- Grilled cheese on whole wheat and natural cheddar cheese
- Apple sauce, unsweetened

Snacks

- Frozen waffle and peanut butter

Sample Menu for Sunday (Day 7)

Breakfast

- Pillsbury Scrambles: Cheese egg & bacon
- Melon cup (honey dew and cantaloupe)
- Skim milk or low fat yogurt

Lunch

- Healthy Choice Greek-style chicken power bowl
- Toss salad with bacon bits, sunflower seeds, grape tomatoes and Kraft Italian dressing
- Canned pears, light

Dinner

- Taco salad with shredded chicken, lettuce, tomatoes, and cheese
- Black beans. ½ cup, canned
- Guacamole (see recipe for fresh or mini cup)

Snacks

- Special K protein bar

Shopping

UAB is not paid to endorse any suggested brand items.

Easy to Prepare Foods and Snacks

Easy to prepare foods can be an option for those with limited mobility or other challenges. Here are healthier options for low carb/high protein foods that are

- Hard boiled eggs
- Special K protein cereal with skim milk
- 2% Cottage Cheese with fruit
- Hummus and baby carrots
- Low-fat Greek yogurt
- 2 Squares graham crackers and 1 oz. of peanut butter
- Canned Tuna or chicken

Shop for Easy to Prepare Frozen Foods

- Healthy Choice Cajun-style Chicken & Sausage power bowl
- Healthy Choice Greek-style chicken power bowl
- Healthy Choice Simply Steamers Chicken & Veggie stir fry
- Healthy Choice Unwrapped Burrito Bowl
- Lean Cuisine Chicken Fettuccini Roasted Turkey and Vegetables
- Lean Cuisine Herb Roasted Chicken
- Life Cuisine: Beef and Chorizo Taco Bowl
- Life Cuisine: Chicken Enchilada Bowl
- Smart One's Cheesy Potatoes and Broccoli
- Smart One's Meatloaf
- Smart One's Turkey Breast
- Smart Ones Home-style Beef Pot Roast

Shop for Easy to Prepare Frozen Foods

- Pillsbury Scrambles: Cheese egg & bacon
- Jimmy Deans Delights Breakfast Bowl: Farmhouse
- Jimmy Deans Delights Breakfast Bowl: Turkey Sausage
- Jimmy Deans Delights Croissant: Turkey sausage, egg white, and cheese
- Jimmy Deans Delights Egg'wich
- Jimmy Deans Delights Wheat English Muffin: Canadian bacon, egg white, and cheese
- Jimmy Deans Delights Wheat English Muffin: Turkey sausage, egg white, and cheese

Snack Food Shopping

- Fresh veggies and hummus
- Greek Yogurt and mixed nuts
- Guacamole and tortilla chips
- Kind Protein Bar: Crunchy Peanut butter
- Kind Protein Bar: Peanut butter Dark Chocolate
- Low sodium deli turkey and cheese wrap
- Luna Protein Bar
- Medium Apple and reduced fat string cheese
- Mixed nuts and dried cranberry
- Protein shake/smoothie
- Quest Bar: double chocolate chunk
- Quest Bar: Oatmeal
- Quest Bar: S'more's
- Skinny POPcorn (4 cups)
- Turkey and cheese wraps
- Wholly guacamole Cups (mini)

Meat

- Bacon
- Beef
- Chicken
- Ground beef
- Hamburger
- Low sodium deli ham
- Low sodium deli turkey
- Pork
- Pork rinds
- Sausage
- Steak
- Turkey

Seafood

- Cod
- Lobster
- Salmon
- Shrimp
- Tilapia
- Tuna
- Whiting

Breads & Grains

- Bread, Whole wheat
- Brown rice
- Corn
- English muffin, Whole wheat
- Graham crackers
- Hamburger bun, whole wheat
- Pasta, Whole wheat
- Popcorn
- Tortilla chips
- Tortilla, whole wheat
- Waffles, whole wheat
- Wheat thins
- Whole grain cereal (Special K protein, All bran)

Vegetables & Starches

- Asparagus
- Broccoli
- Cabbage
- Carrots
- Celery
- Cucumber
- Green beans
- Kale
- Lettuce
- Multicolored bell pepper
- Mushrooms
- Peas
- Salad mix
- Spaghetti squash
- Spinach
- Squash
- Sweet potatoes
- Tomatoes
- Zucchini

Fruits

- Apples
- Avocado
- Bananas
- Mixed berries (strawberries, blueberries, blackberries)
- Oranges
- Pears
- Water packed canned fruit

Dairy

- Skim or low-fat milk
- Cottage cheese
- Cheese (cheddar, Swiss, string, mozzarella, parmesan)
- Greek yogurt
- Cream cheese
- Butter/margarine

Condiments/Other

- Bacon bits
- Herbs & spices
- Mayonnaise
- Mustard
- Pepper
- Salad dressing
- Salt
- Vinegar
- Olive oil
- Whey protein powder



Recipe Samples

Oven Roasted Asparagus

- 1 bunch thin asparagus spears, washed and trimmed
- 3 tablespoons olive oil
- 1 ½ tablespoons grated parmesan cheese
- 1 clove garlic, minced
- 1 teaspoon salt
- ½ teaspoon ground black pepper
- 1 tablespoon lemon juice

1. Preheat an oven to 425 degrees F (220 degrees C).
2. Place the asparagus into a mixing bowl, and drizzle with the olive oil. Toss to coat the spears, then sprinkle with Parmesan cheese, garlic, salt, and pepper. Arrange the asparagus onto a baking sheet in a single layer.
3. Bake in the preheated oven until just tender, 12 to 15 minutes depending on thickness. Sprinkle with lemon juice just before serving.

Summer Veggie Pasta

- 1 cup cooked Spaghetti Noodles, whole wheat
 - 3.5 oz. chopped zucchini
 - 4 oz. chopped squash
 - 1 cup grape tomatoes
 - ½ tablespoons Extra virgin olive oil
 - 3 tablespoons grated parmesan cheese
 - 2 teaspoons garlic powder
 - ½ teaspoon salt
 - ½ teaspoon ground black pepper
1. Slice and chop squash and zucchini length wise into ½ “pieces
 2. Slice Tomatoes in half-length wise
 - 3 Add water to boiling water (8-10 min) and set aside
 - 4 Heat oil on med-high heat in skillet until shimmering
 5. Sauté squash and zucchini (7 min)
 - 6 Add tomatoes and cook for 2 min
 7. Season with salt and garlic powder
 - 8 Add ½ cup pasta water
 - 9 Toss in 2 parts parmesan cheese and mix