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# Macronutrients: Carbohydrate Clinical Applications

Dr. Ritamarie Loscalzo

**Medical Disclaimer:** The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional, and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, drritamarie.com, and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.

# How Does Cooking Affect Carbohydrates?

- ✓ Conversion of starch to sugar
- ✓ Increases glycemic index
- ✓ Increases available calories
- ✓ Decreases resistant starch content
- ✓ High heat creates acrylamide, a known carcinogen

# The Top 20 Foods By Average Acrylamide Intake In US

- ✓ French fries (made in restaurants)
- ✓ French fries (oven baked)
- ✓ Potato chips
- ✓ Breakfast cereals
- ✓ Cookies
- ✓ Brewed coffee
- ✓ Toast
- ✓ Pies and cakes
- ✓ Chile con carne
- ✓ Corn snacks
- ✓ Popcorn
- ✓ Pretzels
- ✓ Pizza
- ✓ Crackers
- ✓ Soft bread
- ✓ Coffee*
- ✓ Burrito / tostada
- ✓ Peanut butter
- ✓ Breaded chicken
- ✓ Bagels
- ✓ Soup mix

**http://drbenkim.com/articles/acrylamide-food.htm*

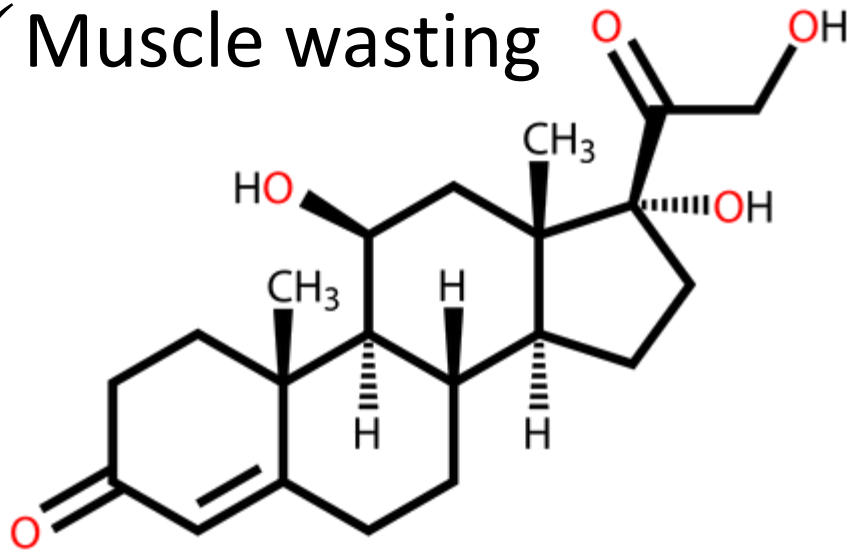
# When Are Higher Carbs Needed?

- ✓ Need to gain weight
- ✓ Competitive athletics
- ✓ High caloric need
- ✓ Growing children
- ✓ Pregnancy, unless insulin resistant

# Potential Impact of Too Low Carbohydrate Intake

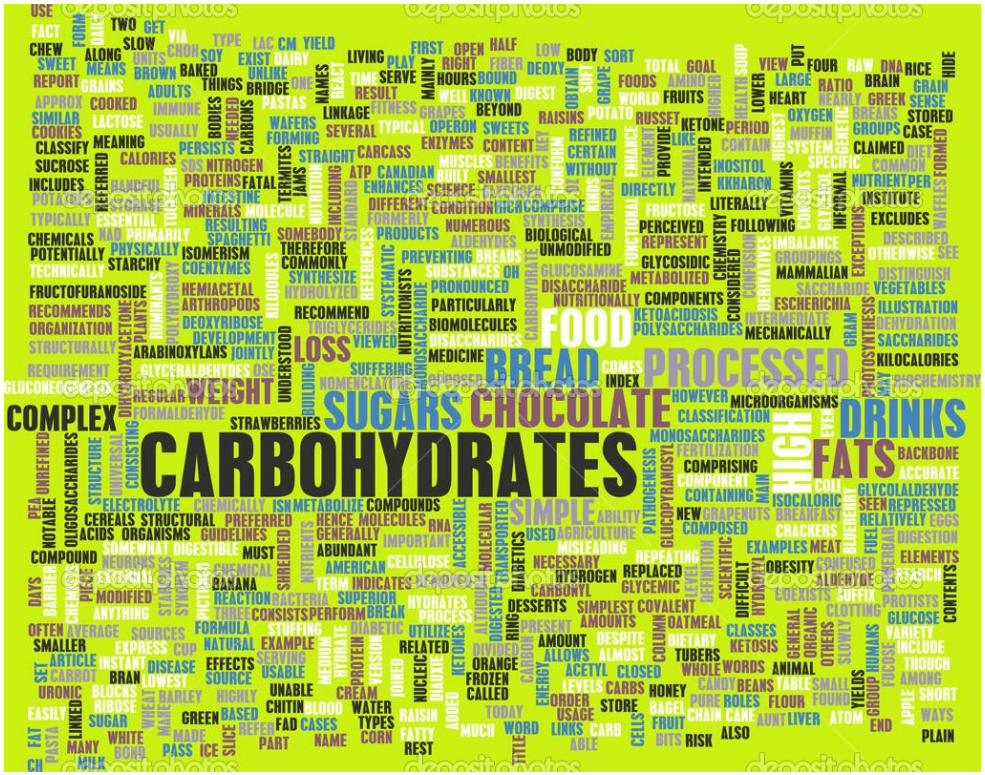
- ✓ Increases cortisol
- ✓ Decreases testosterone
- ✓ Decreases T3
- ✓ Low Energy
- ✓ Muscle wasting



# Types of Carbs

- ✓ Grains – whole vs processed
- ✓ Legumes
- ✓ Fruits
- ✓ Vegetables
- ✓ Fiber –
  soluble vs insoluble
- ✓ Sugar
- ✓ Sugar alcohols



# Assessment of Carbohydrate Status and Tolerances

- Fasting blood glucose
- Home testing: post-meal and exercise blood glucose
- Hemoglobin A1C
- Fructosamine
- Insulin

# Nutrition Facts

**Serving Size:** About (20g)
**Servings Per Container:** 16

| | Amount Per Serving | % Daily Value* |
|---|---|---|
| **Total Calories** | 60 | |
| Calories From Fat | 15 | |
| **Total Fat** | 2 g | 3% |
| Saturated Fat | 1 g | 4% |
| Trans Fat | 0 g | |
| **Cholesterol** | 0 mg | 0% |
| **Sodium** | 45 mg | 2% |
| **Total Carbohydrates** | 15 g | 5% |
| Dietary Fiber | 4 g | 17% |
| Sugars | 4 g | |
| Sugar Alcohols (Polyols) | 3 g | |
| **Protein** | 2 g | |
| Vitamin A | | 0% |
| Vitamin C | | 0% |
| Calcium | | 2% |
| Iron | | 2% |

*Percent Daily Values are based on a 2,000 calorie diet.

**Ingredients:** Wheat flour, unsweetened chocolate, erythritol, inulin, oat flour, cocoa powder, evaporated cane juice, whey protein concentrate, corn starch (low glycemic), natural flavors, salt, baking soda, wheat gluten, guar gum

# Carbohydrates in Foods

✓See 3 PDF documents included on website

| NDB_No | Description | Weight(g) | Measure | Carbohydrate, by difference(g) Per Measure | Fiber, total dietary(g) Per Measure | Sugars, total(g) Per Measur |
|---|---|---|---|---|---|---|
| 11356 | Potatoes, Russet, flesh and skin, baked | 299.0 | 1.0 potato large (3" to 4-1/4" dia. | 64.11 | 6.9 | 3.2 |
| 11647 | Sweet potato, canned, syrup pack, drained solids | 196.0 | 1.0 cup | 49.71 | 5.9 | 11.2 |
| 11378 | Potatoes, mashed, dehydrated, flakes without milk, dry form | 60.0 | 1.0 cup | 48.70 | 4.0 | 2.0 |
| 11215 | Garlic, raw | 136.0 | 1.0 cup | 44.96 | 2.9 | 1.3 |
| 11039 | Lima beans, immature seeds, frozen, baby, unprepared | 164.0 | 1.0 cup | 41.23 | 9.8 | - |
| 11176 | Corn, sweet, yellow, canned, vacuum pack, regular pack | 210.0 | 1.0 cup | 40.82 | 4.2 | 7.4 |
| 11196 | Cowpeas (blackeyes), immature seeds, frozen, cooked, boiled, drained, without salt | 170.0 | 1.0 cup | 40.39 | 10.9 | 7.5 |
| 11032 | Lima beans, immature seeds, cooked, boiled, drained, without salt | 170.0 | 1.0 cup | 40.19 | 9.0 | 2.7 |
| 11170 | Corn, sweet, yellow, canned, brine pack, regular pack, solids and liquids | 256.0 | 1.0 cup | 35.48 | 4.4 | 7.2 |
| 11040 | Lima beans, immature seeds, frozen, baby, cooked, boiled, drained, without salt | 180.0 | 1.0 cup | 35.01 | 10.8 | 2.4 |
| 11383 | Potatoes, mashed, dehydrated, prepared from granules with milk, water and margarine added | 210.0 | 1.0 cup | 33.87 | 2.7 | 3.6 |
| 11192 | Cowpeas (blackeyes), immature seeds, cooked, boiled, drained, without salt | 165.0 | 1.0 cup | 33.53 | 8.2 | 5.3 |
| 11316 | Peas, mature seeds, sprouted, raw | 120.0 | 1.0 cup | 32.53 | -- | - |
| 11179 | Corn, sweet, yellow, frozen, kernels cut off cob, boiled, drained, without salt | 165.0 | 1.0 cup | 31.84 | 4.0 | 5.0 |
| 11037 | Lima beans, immature seeds, frozen, fordhook, unprepared | 160.0 | 1.0 cup | 31.73 | 8.8 | 2.2 |
| 11048 | Beans, pinto, immature seeds, frozen, unprepared | 94.0 | 0.333 package (10 oz) | 30.55 | 5.4 | - |
| 11381 | Potatoes, mashed, dehydrated, prepared from granules without milk, whole milk and butter added | 210.0 | 1.0 cup | 30.16 | 4.6 | - |
| 11259 | Mountain yam, hawaii, cooked, steamed, without salt | 145.0 | 1.0 cup, cubes | 29.00 | -- | - |
| 11450 | Soybeans, green, raw | 256.0 | 1.0 cup | 28.29 | 10.8 | - |

# Daily Food Log Example

| NAME | AMOUNT | UNIT | CALS | FAT(G) | CARBS(G) | PROT(G) | |
|---|---|---|---|---|---|---|---|
| Seeds, chia seeds, dried | 1 | oz | 138 | 8.7 | 11.9 | 4.7 | |
| Nuts, coconut cream, raw (liquid expressed from grated meat) | 1 | oz | 94 | 9.8 | 1.9 | 1.0 | |
| Broccoli, cooked | 1 | lb | 225 | 9.8 | 31.5 | 10.4 | |
| Kale, raw | 4 | cup, chopped | 131 | 2.5 | 23.4 | 11.5 | |
| Avocado, raw | 1 | cup, sliced | 234 | 21.4 | 12.5 | 2.9 | |
| Lettuce, arugula, raw | 4 | cup | 20 | 0.5 | 2.9 | 2.1 | |
| Cauliflower, cooked | 2 | cup | 143 | 8.7 | 14.3 | 6.3 | |
| Cucumber, raw | 1 | cup, sliced | 14 | 0.2 | 2.6 | 0.7 | |
| Cabbage, green, cooked | 2 | cup | 120 | 5.9 | 16.5 | 3.8 | |
| Oil, flaxseed, contains added sliced flaxseed | 1 | tablespoon | 120 | 13.6 | 0.1 | 0.1 | |
| Celery, raw | 3 | medium stalk (7-1 | 19 | 0.2 | 3.6 | 0.8 | |
| Peppers, sweet, yellow, raw | 1 | pepper, large (3-3 | 50 | 0.4 | 11.8 | 1.9 | |
| Lettuce, raw | 4 | cup, shredded or | 31 | 0.3 | 6.5 | 2.0 | |
| Tomatoes, raw | 1 | cup | 32 | 0.4 | 7.0 | 1.6 | |
| Nuts, cashew nuts, raw | 2 | oz | 314 | 24.9 | 17.1 | 10.3 | |
| | | **Totals** | **1684** | **107.3** | **163.6** | **60.0** | |

# Carbohydrate Intolerance and Special Diets

- ✓ Lactose intolerance
- ✓ Low glycemic
- ✓ Gluten and grain free
- ✓ Specific Carbohydrate Diet (SCD) and GAPS - monosaccharides only are allowed
- ✓ FODMAPs: **F**ermentable **O**ligosaccharides, **D**isaccharides, **M**onosaccharides **A**nd **P**olyols

# Good Carbs, Bad Carbs

- ✓Personalized to the individual
- ✓Processed tend to be bad for everyone
- ✓Gut health may temporarily restrict some
- ✓Glucose tolerance plays a major role
- ✓Restriction of “good carbs” is generally temporary while healing