

# Nutrition for Sport Performance

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# Importance of Nutrition

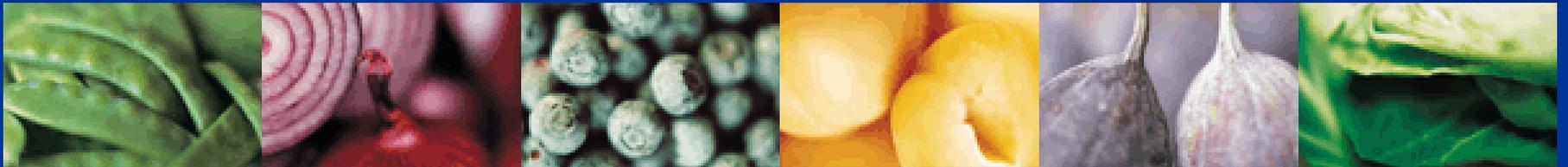
- Contributes to good health
- Provides energy
- Improves recovery

# Nutrition and Performance

- Dietary Recommendations
  - same as general recommendations
  - need more protein, but most Americans already consume enough protein to cover physical activity
  
- No “magic pill”

# Nutrient-Dense Foods

- High amounts of nutrients compared to calories



# Empty-Calorie Foods

- High amount of calories compared to nutrients



**\*No “Good” or “Bad” Foods**



# The New Food Guide Pyramid

- <http://mypyramid.gov/>





Search MyPyramid.gov



Subjects

- ▶ My Pyramid Plan
- ▶ Inside the Pyramid
- ▶ Tips & Resources
- ▶ Dietary Guidelines
- ▶ For Professionals
- ▶ Related Links
- ▶ My Pyramid Tracker

## Steps to a Healthier You



**One size doesn't fit all.** MyPyramid Plan can help you choose the foods and amounts that are right for you. For a quick estimate of what and how much you need to eat, enter your age, sex, and activity level in the MyPyramid Plan box.

For a detailed assessment of your food intake and physical activity level, click on MyPyramid Tracker.

Use the advice "Inside MyPyramid" to help you

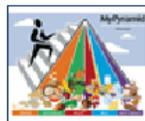
- Make smart choices from every food group,
- Find your balance between food and physical activity, and
- Get the most nutrition out of your calories.

### Spotlights



**Tour MyPyramid**

Take a tour of the new pyramid in this animated feature.



**Mini-Poster Download**

View and download the MyPyramid mini-poster to learn the basics about eating healthy and physical activity.

[PDF - You will need the free [Adobe Acrobat Reader plug-in](#) to view and print the above PDF

### My Pyramid Plan

Age:  Sex:

**Physical Activity:**  
Amount of moderate or vigorous activity (such as brisk walking, jogging, biking, aerobics, or yard work) you do in addition to your normal daily routine, most days.

### My Pyramid Tracker

**Go here** for an in-depth assessment of your diet quality and physical activity status.

### Tip of the Week

Stop in at a Farmer's Market. Buy fresh vegetables in-season.

### For Professionals

Resources and information for use in developing education materials and to assist in understanding Federal food guidance.



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You are here: [Home](#) / [My Pyramid Plan](#)

## My Pyramid Plan

Based on the information you provided and the average needs for your age, gender and physical activity [[Age: 27](#), [Sex: female](#), [Physical Activity: 30 to 60 Minutes](#)] your results indicate that you should eat these amounts from the following food groups daily.

Your results are based on a 2000 calorie pattern\*.

▶ <b>Grains</b> <sup>1</sup>	6 ounces	tips
▶ <b>Vegetables</b> <sup>2</sup>	2.5 cups	tips
▶ <b>Fruits</b>	2 cups	tips
▶ <b>Milk</b>	3 cups	tips
▶ <b>Meat &amp; Beans</b>	5.5 ounces	tips

Click the food groups above to learn more.

### <sup>1</sup> Make Half Your Grains Whole

Aim for at least 3 whole grains a day

### <sup>2</sup> Vary Your Veggies

Aim for this much every week:

- Dark Green Vegetables = 3 cups weekly
- Orange Vegetables = 2 cups weekly
- Dry Beans & Peas = 3 cups weekly
- Starchy Vegetables = 3 cups weekly
- Other Vegetables = 6 1/2 cups weekly

### Oils & Discretionary Calories

Aim for 6 teaspoons of oils a day

Limit your extras (extra fats & sugars) to 265 Calories



### View, Print & Learn More:

- ▶ [Click here to view and print a PDF version of your results.](#)
- ▶ [Click here to view and print a PDF of a helpful Meal Tracking Worksheet.](#)
- ▶ [For a more detailed assessment of your diet quality and physical activity go to the My Pyramid Tracker.](#)

You will need the free [Adobe Acrobat Reader](#) plug-in to view and print the above PDF files.

# MyPyramid

STEPS TO A HEALTHIER YOU



Based on the information you provided, this is your daily recommended amount from each food group.

<p><b>GRAINS</b> 6 ounces</p>	<p><b>VEGETABLES</b> 2 1/2 cups</p>	<p><b>FRUITS</b> 2 cups</p>	<p><b>MILK</b> 3 cups</p>	<p><b>MEAT &amp; BEANS</b> 5 1/2 ounces</p>
<p><b>Make half your grains whole</b></p> <p>Aim for at least <b>3 ounces</b> of whole grains a day</p>	<p><b>Vary your veggies</b> Aim for these amounts <b>each week:</b></p> <p><b>Dark green veggies</b> = 3 cups</p> <p><b>Orange veggies</b> = 2 cups</p> <p><b>Dry beans &amp; peas</b> = 3 cups</p> <p><b>Starchy veggies</b> = 3 cups</p> <p><b>Other veggies</b> = 6 1/2 cups</p>	<p><b>Focus on fruits</b></p> <p>Eat a variety of fruit</p> <p>Go easy on fruit juices</p>	<p><b>Get your calcium-rich foods</b></p> <p>Go low-fat or fat-free when you choose milk, yogurt, or cheese</p>	<p><b>Go lean with protein</b></p> <p>Choose low-fat or lean meats and poultry</p> <p>Vary your protein routine—choose more fish, beans, peas, nuts, and seeds</p>

**Find your balance between food and physical activity**

Be physically active for at least **30 minutes** most days of the week.

**Know your limits on fats, sugars, and sodium**

Your allowance for oils is **6 teaspoons a day.**

Limit extras—solid fats and sugars—to **265 calories a day.**

**Your results are based on a 2000 calorie pattern.**

**Name:** \_\_\_\_\_

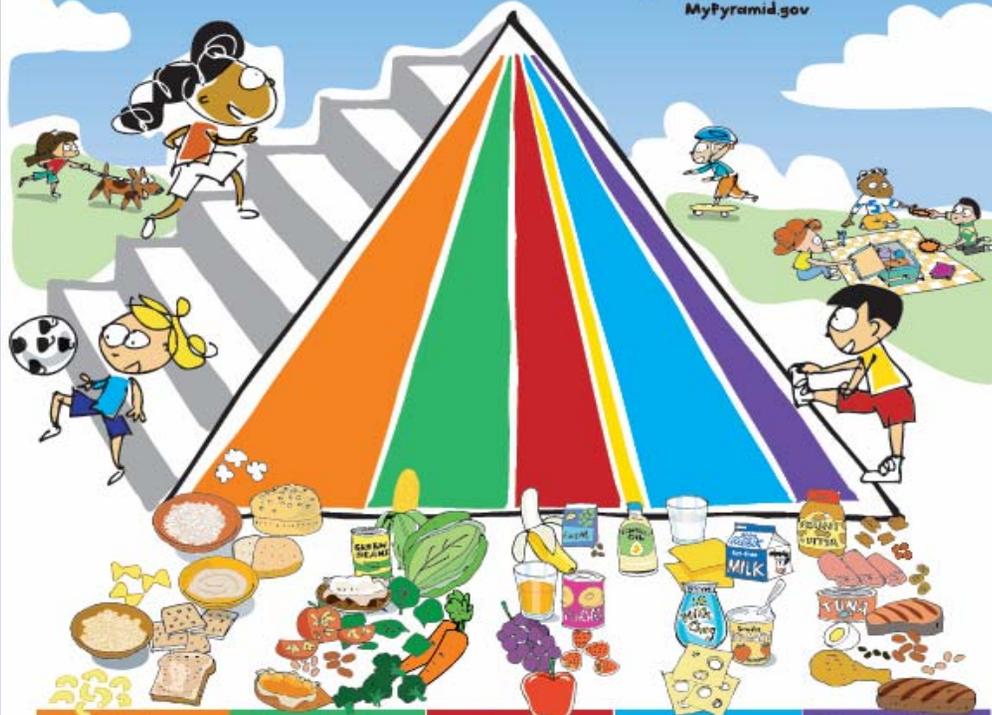
This calorie level is only an estimate of your needs. Monitor your body weight to see if you need to adjust your calorie intake.

# MyPyramid

For Kids

Eat Right. Exercise. Have Fun.

MyPyramid.gov



<b>Grains</b> Make half your grains whole	<b>Vegetables</b> Vary your veggies	<b>Fruits</b> Focus on fruits	<b>Milk</b> Get your calcium-rich foods	<b>Meat &amp; Beans</b> Go lean with protein
Start smart with breakfast. Look for whole-grain cereals.  Just because bread is brown doesn't mean it's whole-grain. Search the ingredients list to make sure the first word is "whole" like "whole wheat".	Color your plate with all kinds of great-tasting veggies.  What's green and orange and tastes good? Veggies! Go dark green with broccoli and spinach, or try orange ones like carrots and sweet potatoes.	Fruits are nature's treats—sweet and delicious.  Go easy on juice and make sure it's 100%.	Move to the milk group to get your calcium. Calcium builds strong bones.  Look at the carton or container to make sure your milk, yogurt, or cheese is lowfat or fat-free.	Eat lean or lowfat meat, chicken, turkey, and fish. Ask for it baked, broiled, or grilled—not fried.  It's nutty, but true. Nuts, seeds, peas, and beans are all great sources of protein, too.

For an 1,600-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to [MyPyramid.gov](http://MyPyramid.gov).

<b>Eat 6 oz. every day:</b> <small>at least half should be whole</small>	<b>Eat 2 1/2 cups every day</b>	<b>Eat 1 1/2 cups every day</b>	<b>Get 3 cups every day:</b> <small>for kids ages 2 to 4, it's 2 cups</small>	<b>Eat 5 oz. every day</b>
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**Oils** Oils are not a food group, but you need some for good health. Get your oils from fish, nuts, and liquid oils such as corn oil, soybean oil, and canola oil.

**Find your balance between food and fun**

- Move more. Aim for at least 60 minutes everyday, or most days.
- Walk, dance, bike, rollerskate – it all counts. How great is that!

**Fats and sugars – know your limits**

- Get your fat facts and sugar smarts from the Nutrition Facts label.
- Limit solid fats as well as foods that contain them.
- Choose food and beverages low in added sugars and other caloric sweeteners.



USDA is an equal opportunity provider and employer.

# Carbohydrates

- Simple sugars
- Complex carbohydrates

# Simple Sugars

- Require little or no digestion
- Give energy for a short period of time

# Examples of Simple Sugars

100% of Calories

- Table Sugar
- Syrup
- Honey
- Soft Drinks
- Fruit Drinks
- Hard Candy

5-90% of Calories

- Fruit & some Vegetables

25-55% of Calories

- Milk

# Complex Carbohydrates

- Starch
- Glycogen
- Fiber

# Starch

- Provides energy for a sustained period of time

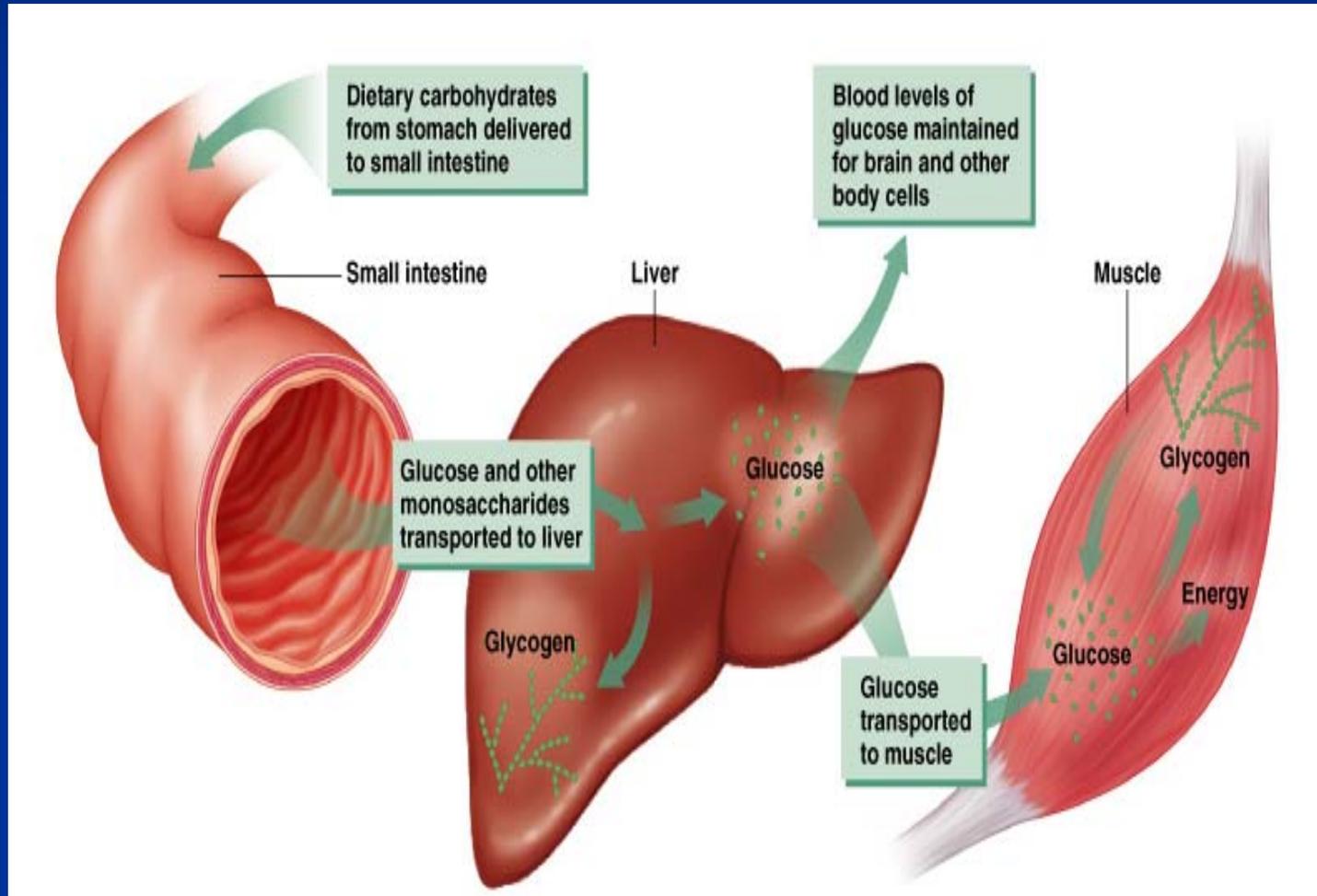
# Foods High in Starch

- Breads & cereals
- Rice
- Pasta
- Beans
- Vegetables

# Glycogen

- Storage form of carbohydrate
- At risk for depletion in endurance athletes

# Liver and Muscle Glycogen



# Glycogen

- 300-600 g glycogen in muscles
- 80-110 g glycogen in liver
  - <20 g in the morning (eat a high carb breakfast)
  - 0.1 g/min at rest
  - 1 g/min at >75% max HR

# Carbohydrate Loading

- Typical U.S. diet: 50% of calories from Carbs
  - 1-2 hours of intense exercise
- Carbohydrate Loading
  - High Carb diet: 60-70% of calories from Carbs
  - 3 hours of intense exercise
  - ↑ Carbs and ↓ exercise 3 days prior to an event
  - rest the day before the event

# Dietary Fiber

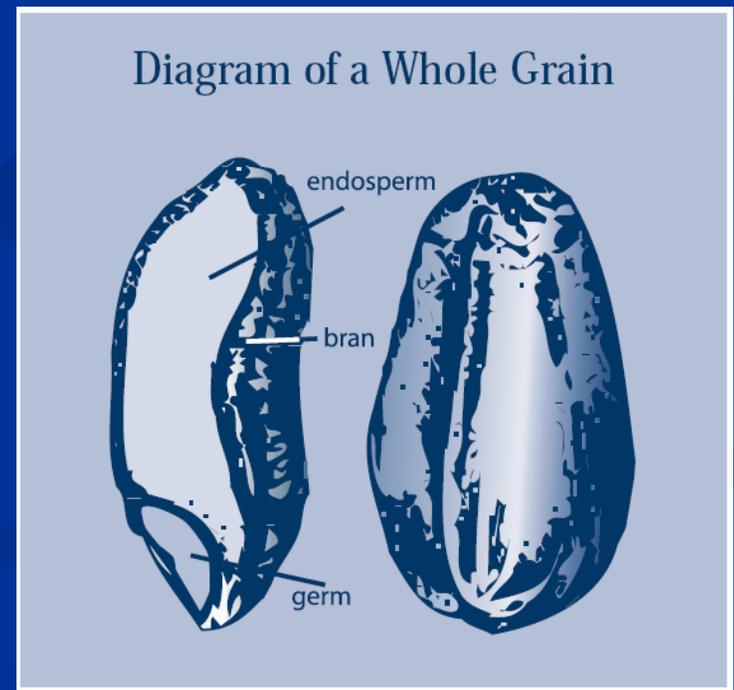
- No calories
- Helps with weight control
- Helps maintain health of digestive tract
- Helps control blood cholesterol

# Dietary Fiber



# Refined vs. Whole Grains

- Refined Grains
  - Husk, bran, and germ are removed
- Whole Grains
  - Only the husk is removed

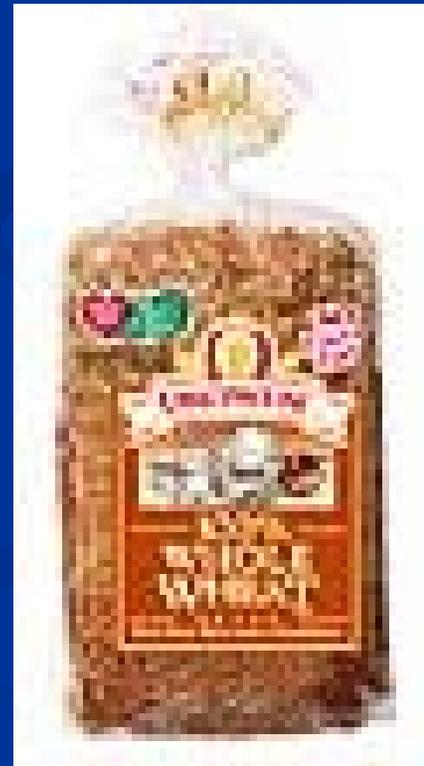
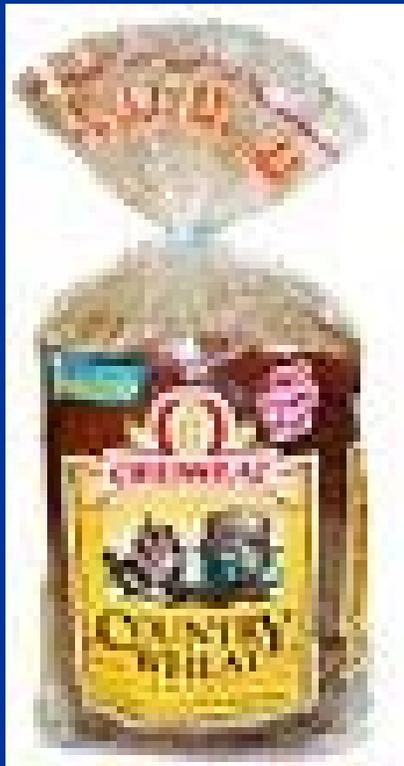


# Which ones are whole grains?

- Country Wheat Bread
- Multigrain Bread
- 100% Whole Wheat Bread
- Triscuits
- Wheat Thins
- Cream of Wheat
- Cheerios
- Oatmeal

# Wheat vs. Whole Wheat Bread

- Enriched flour
- 1 gram fiber
- **Whole** wheat flour
- 3 grams fiber



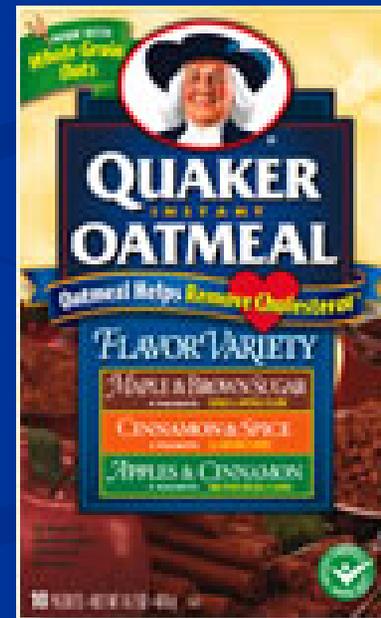
# Wheat vs. Whole Wheat Cracker

- Enriched flour
- 1 gram fiber
- **Whole** wheat flour
- 3 grams fiber



# Refined vs. Whole Grain Cereal

- Wheat farina
- 1 grams fiber
- **Whole** grain oats
- 3 grams fiber



# Protein

# Protein Requirements

- $RDA = 0.8 \text{ g/kg}$
- $\frac{\text{weight in pounds}}{2.2} = \text{weight in kg}$
- $\text{weight in kg} \times 0.8 \text{ g/kg} = \text{g protein}$

# Protein Recommendations

- RDA 0.8 g/kg
- Recreational exerciser, adult 0.8-1.5 g/kg
- Endurance athlete, adult 1.2-1.6 g/kg
- Growing teenage athlete 1.5-2.0 g/kg
- Adult building muscle mass 1.5-1.7 g/kg
- Athlete restricting calories 1.8-2.0 g/kg
- Estimated upper requirement for adults 2.0 g/kg
- Average protein intake of male endurance 1.2-2.0 g/kg
- Average protein intake of female athletes 1.1-1.7 g/kg

# Protein for a Swimmer

- Protein Recommendation: 1.2-1.6 g/kg
- Weight: 154 lbs

- $\frac{154 \text{ lbs}}{2.2} = 70 \text{ kg}$

$$70 \text{ kg} \times 1.2 \text{ g/kg} = 84 \text{ g protein}$$

$$70 \text{ kg} \times 1.6 \text{ g/kg} = 112 \text{ g protein}$$



# Food Sources of Protein

- 1 egg or 2 egg whites 6 g
- 4 oz chicken breast 35 g
- 4 oz beef roast 30 g
- 1 cup milk or yogurt 8 g
- ½ cup beans 7 g
- 2 Tbsp peanut butter 9 g
- 1 cup cooked rice 4 g
- 1 cup cooked pasta 8 g
- ½ cup cooked vegetables 2 g

# Trends in Protein Intake

- Increasing in the U.S. and other developed countries
- Accompanied by more fat intake, less fiber intake, and elevated rates of chronic disease

# Adequate Protein w/out Excess Fat

- Recommendations
  - Lean Meats
  - Low Fat Dairy
  - Beans
  - Grains

# Fast, Healthy Meals / Mini Meals

- Thick crust veggie pizza (Round Table) and OJ
- Chicken w/ veggies and steamed rice (Chinese take-out)
- Chicken burrito w/ rice, cheese, and salsa
- BRC from El Pollo Loco
- Grilled chicken or veggie burger (no mayo or special sauce)
- Turkey sandwich on whole wheat bread
- Whole wheat bagel w/ peanut butter and a yogurt
- Whole grain crackers, string cheese and a V-8
- Trail mix w/ nuts and dried fruit
- Granola w/ low fat milk and a banana

# Fast, Healthy Snacks

- Fruit (fresh or dried)
- Low fat yogurt
- Pretzels
- Whole grain dry cereal, crackers, or bagels
- Nuts or seeds
- Fruit & Nut Bar
- Low fat granola bars or breakfast bars

# Event Nutrition

- Always choose familiar foods!
- Don't forget about fluids

# Hydration

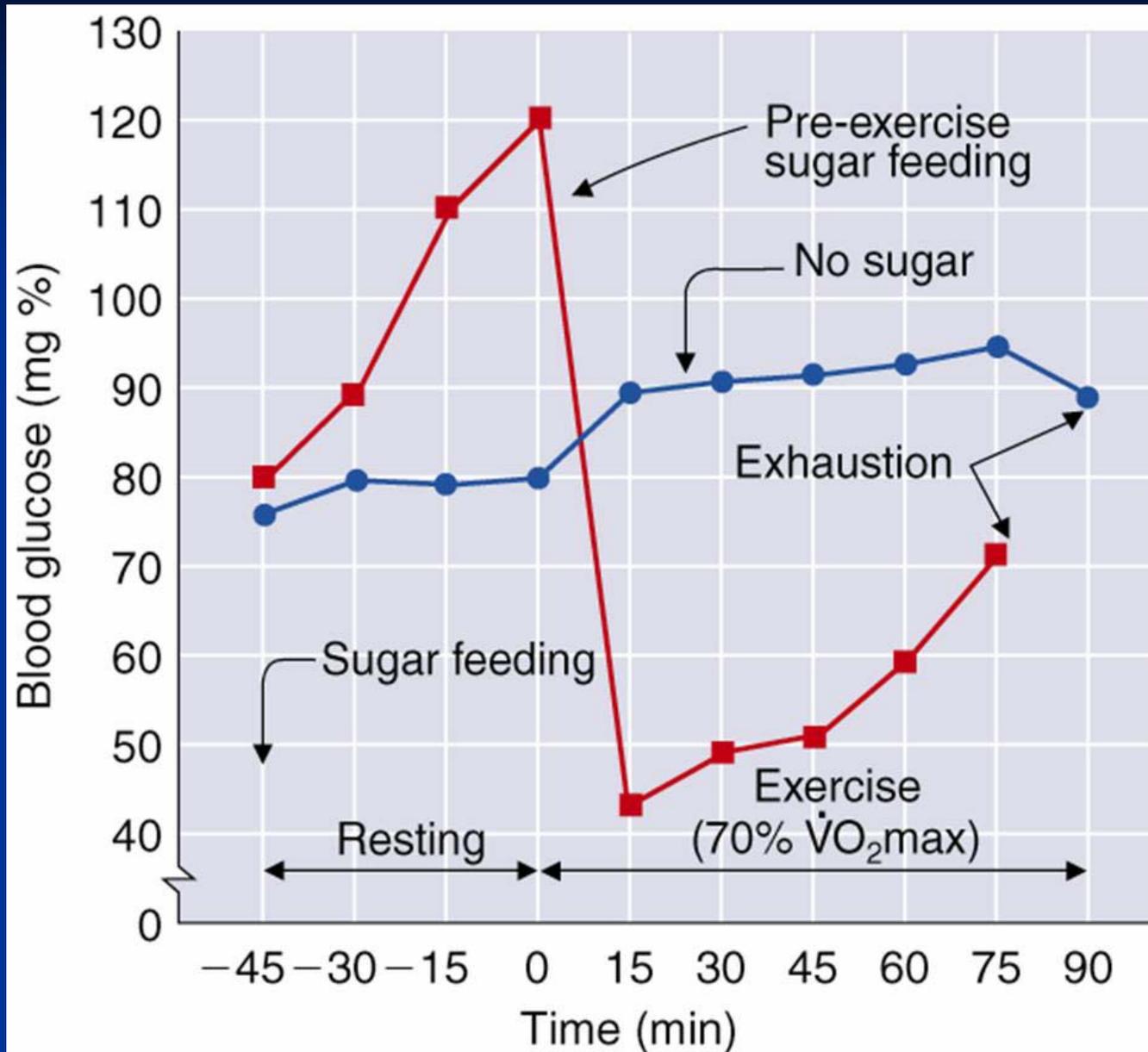
- Calculate Your Sweat Rate
  - Keep track of your fluid intake during a workout
  - Weigh yourself before and after the workout
  - $SR = \text{fluid consumed} + 16 \text{ oz for every lb. of wt lost}$
- Typical sweat rate is 1-4 lbs/hr (16-64 oz/hr)
- Swimmers tend to be toward the lower end due to the cooling effect of the water

# Hydration

- Starting Point for Fluid & Electrolytes
  - events  $\leq 45$  min: 16 oz, 2 hrs before  
8 oz, 10-20 min before  
8 oz water every 15 min during
  - events  $> 45$  min: same as above  
alternate between water and sports drink
  - drink at least 16 oz of fluid for every pound of wt lost

# Before an Event

- Ideal timing is over 2 hrs before or 5 min before
- Worst timing is 45 min before



# Before an Event

- 8am event
  - 200-400 calorie meal at 6 or 6:30am
  - yogurt and a banana or cereal with low fat milk
- 2pm event
  - high carb breakfast and mid-morning snack
  - light lunch at 12 or 12:30
  - drink plenty of fluids during the day

# During an Event

- Eat carb-based foods during an event if it is longer than 1.5-2 hours
  - Sports drinks, bars, gels, or shots
  - Fruit, bagels, and fig newtons
- Consume 30-60g/hour
- Minimize fiber intake
- Practice, practice, practice!

# Recovery Nutrition

- Carbohydrates and protein to replenish glycogen stores and build/repair muscle
- 1.2-1.5 g carb/kg body wt/hr
- 0.3-0.4 g pro/kg body wt/hr
  
- 70 kg = 84-105 g carb/hr, 21-28 g pro/hr
- Clif Bar + PB & J = 85 g carb, 21 g pro
- Lean Ole' + Yogurt = 114 g carb, 28 g pro

# Bars

## ■ Pros

- Convenient
- Portable
- Lighter weight

## ■ Cons

- Expensive
- Low water content
- Lacking phytochemicals



# Event Bars

- $>60\%$  carbs
- $<20\%$  protein
- $<20\%$  fat
- $<10\%$  saturated fat
- Limit fiber intake

# Recovery Bars

- 60-70% carbs
- 15-20% protein
- <30% fat
- <10% saturated fat
- At least 3 g fiber

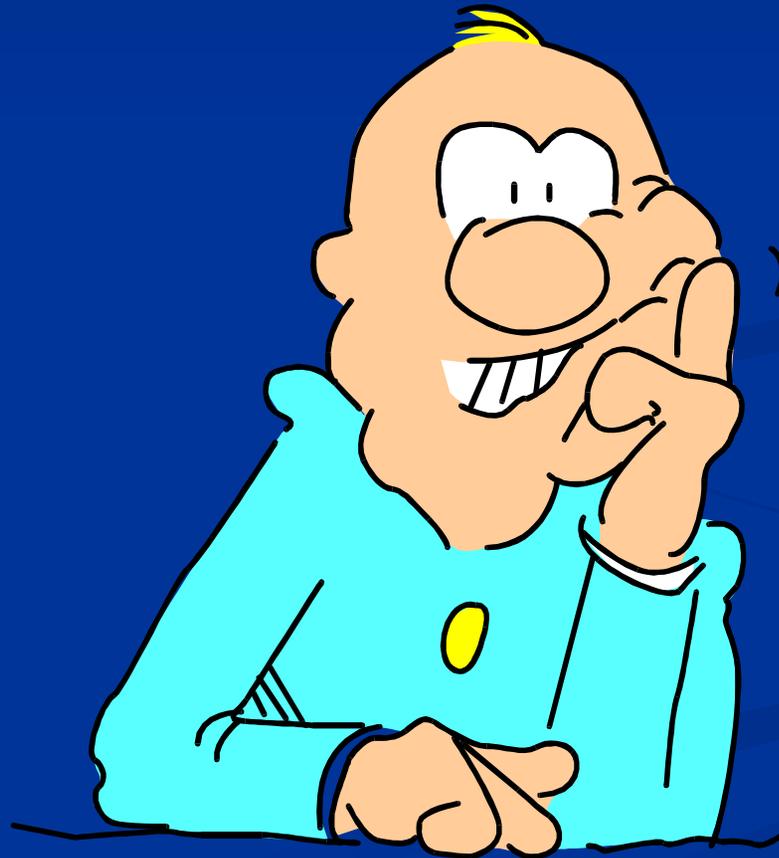
# Event and Recovery Bars

Bar	Carbs	Protein	Fat	Saturated	Fiber	Recommended Use
Clif	72%	17%	19%	4%	5g	Recovery Bar Event Bar (be careful w/ fiber)
Luna	60%	20%	25%	15% (high)	3g	Recovery Bar OK for events
Odwalla Bar	62-75%	9-13% (low)	18-26%	2-6%	3-5g	Event Bar (be careful w/ fiber) Some types are OK for recovery
Peak Energy Bar	79%	12% (low)	17%	10%	5g	Event Bar (be careful w/ fiber) OK for recovery
Power Bar Harvest	67-70%	16-17%	17-18%	4-9%	5g	Recovery Bar Event Bar (be careful w/ fiber)
Power Bar Performance	75%	15-17%	13%	2%	2-3g	Event Bar
Atkins Advantage	33% (low)	31% (high)	33% (high)	16% (high)	6g	Not Recommended
Balance	40% (low)	30% (high)	30% (high)	17% (high)	0g	Not Recommended
Hammer Bar	45-47% (low)	16-18%	37% (high)	4%	4-5g	Not Recommended
Lara Bar	48% (low)	8% (low)	43% (high)	5%	4g	Not Recommended
Mojo Clif Bar	40-48% (low)	20-21%	38-45% (high)	5-9%	2-3g	Not Recommended
Perfect 10	52-56% (low)	8-10% (low)	43-44% (high)	4%	3-5g	Not Recommended
XS Energy Bar	40% (low)	32% (high)	28%	21% (high)	<1g	Not Recommended
Zone Perfect	44% (low)	27% (high)	30% (high)	15% (high)	3g	Not Recommended

# Event and Recovery Foods

Food	Carbs	Protein	Fat	Saturated	Fiber	Recommended Use
Bagel	79%	15%	5%	1%	2g	Event Food
Banana	93%	5%	3%	1%	3g	Event Food
Fig Newton	75-96%	4%	0-21%	0-8%	1g	Event Food
Orange	90%	8%	2%	0%	3g	Event Food
PB & J	59-60%	13-14% (low)	27-29%	5-6%	3-8g	OK for event (white bread) OK for recovery (whole wheat)
El Pollo Loco BRC	58%	14% (low)	29%	11% (high)	10g	OK for recovery
Lean Ole' Frozen Burrito (CostCo)	69%	20%	9%	2%	4g	Recovery Food
Turkey Sandwich	62%	25%	13%	4%	3-6g	Recovery Food
Yogurt	64%	16%	10%	7%	0g (low)	Recovery Food

Any Questions?



# Thank You!

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