# HIDDEN TRAINING:
# NUTRITION & RECOVERY:
# *WHY, WHEN, HOW*

# Mark Hesse
# Performance Development Manager

With USA Swimming since June 2012

30+-year career as a club coach in Potomac Valley, Florida, Texas, Indiana & Colorado

Placed swimmers in Olympic Trials Semi-Finals & on National Junior Team

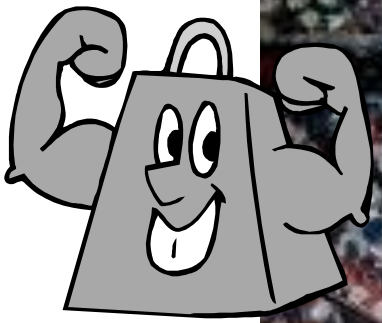
ASCA Level 5 Certified Coach

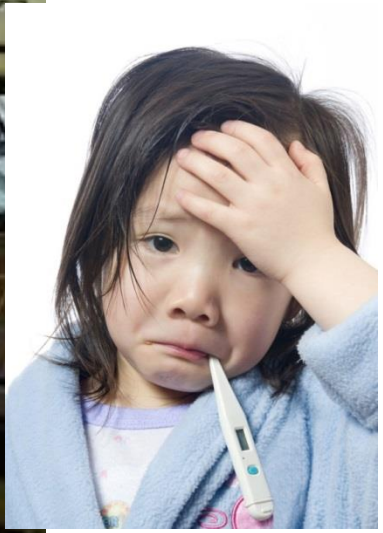
# Nutrition Foundations…

normal sugar level

- Eat real food – the fresher the better
- Eat colorful foods (5 colors on your plate) …including *recovery*
- Don’t skip meals & snack a lot …including *recovery*
- Drink early & often …including *recovery*

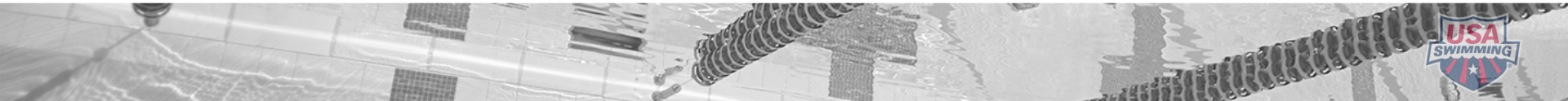
# Why is “nutrition” important?





*“Compete in the Kitchen”*

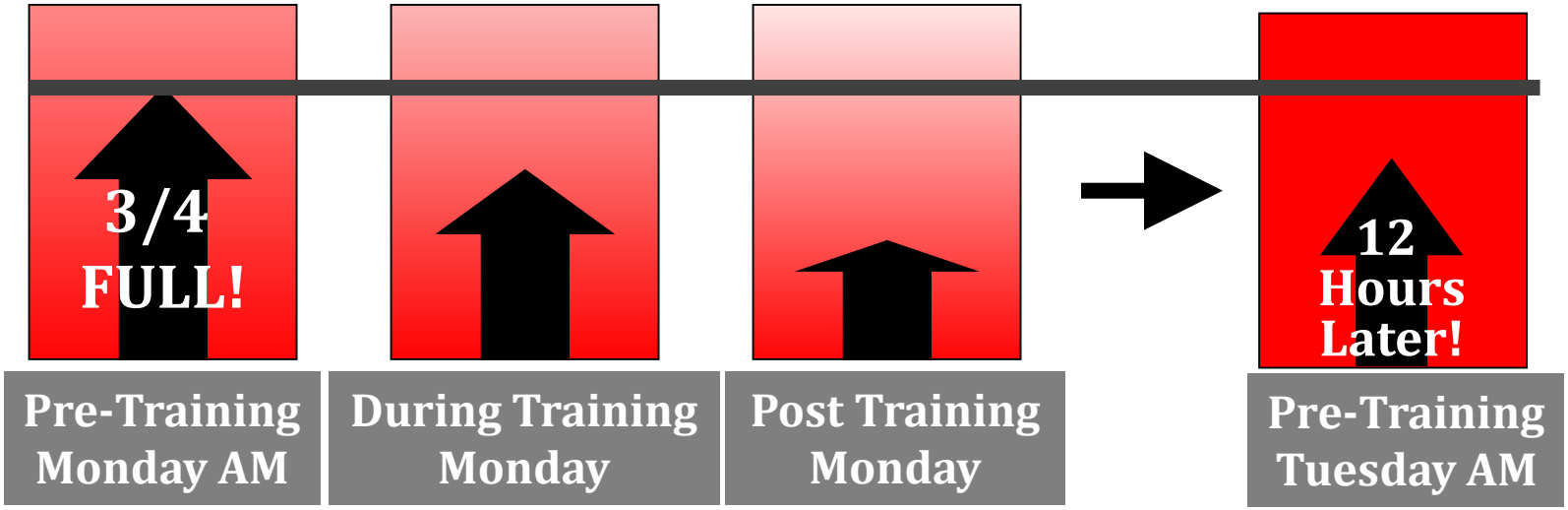
*“The 24/7/365 Athlete”*



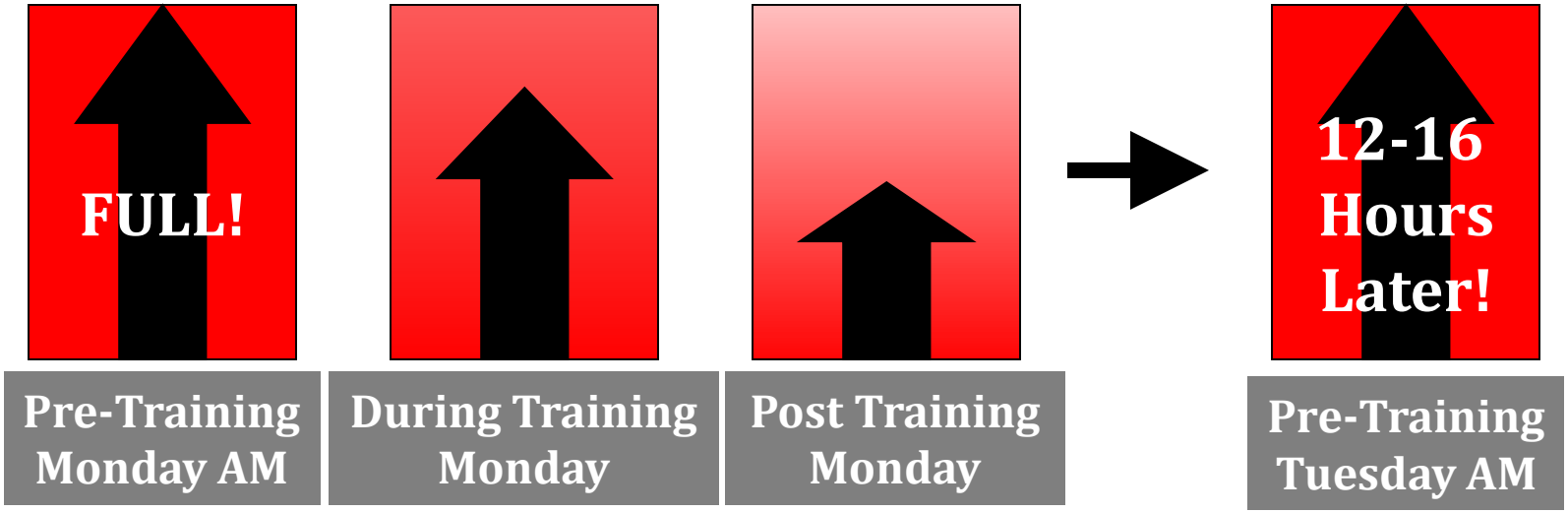
# If You Don't Eat Right...

- Everything seems harder
- Get tired faster
- It takes longer to recover
- You eat too much at next meal

# *Poor* Nutrition Habits



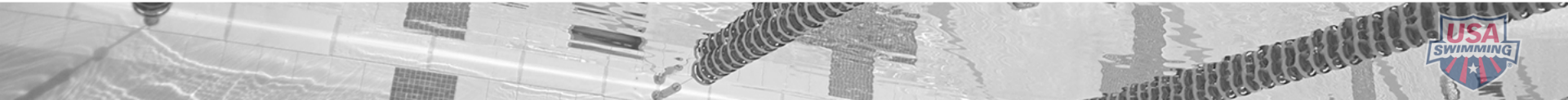
# *Good* Nutrition Habits



# Develop Great Habits


Don’t wait for the Pasta Party !

# What To Eat



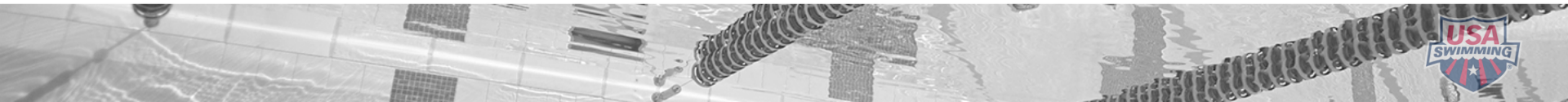
# Functional Fueling

Carbs – Gasoline – helps you move

Protein – Horsepower – helps you grow

Fat – helps your brain & health

Water & Fluid – Oil – helps everything work



# Fuel: **Carbohydrates**

## Good Sources:


fitterfly

# Complex Carbs

# Simple Carbs

# Building Blocks: **Protein**

## Good Sources:

# Function: **Fat**

## Good Sources:

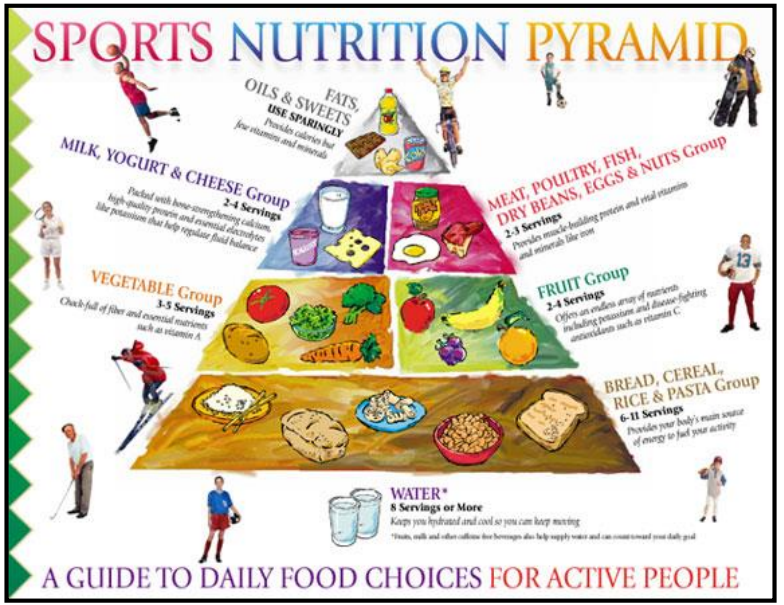
# Proper Fuel: **Well Balanced Diet**

Carbohydrates…50-60%

Protein……15-25%

(Carbs:Protein = 2-4:1)

Fat ……≤25%



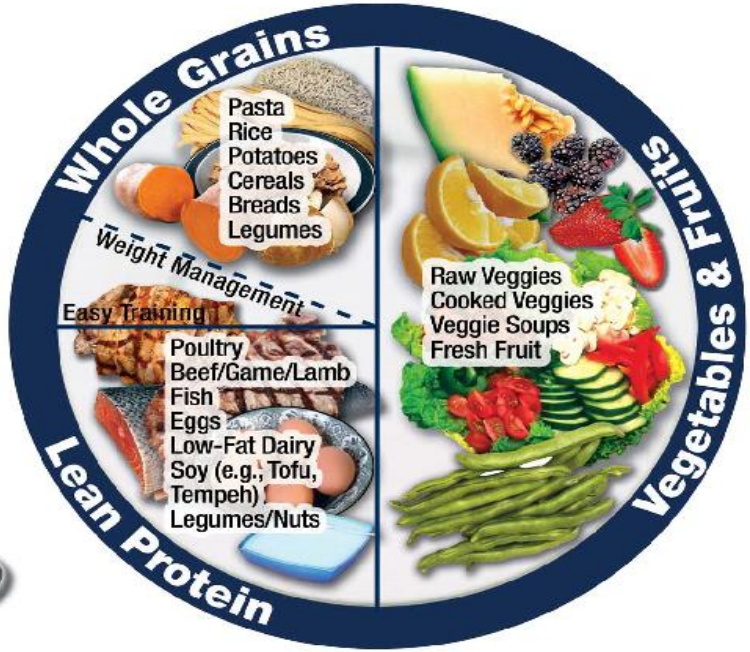

| | |
|---|---|
| Carbs & Protein | 1 Gram = 4 calories |
| Fat | 1 Gram = 9! calories |

# ATHLETE'S PLATE

## EASY TRAINING / WEIGHT MANAGEMENT:

### FATS
1 Teaspoon

Avocado
Oils
Nuts
Seeds
Cheese
Butter



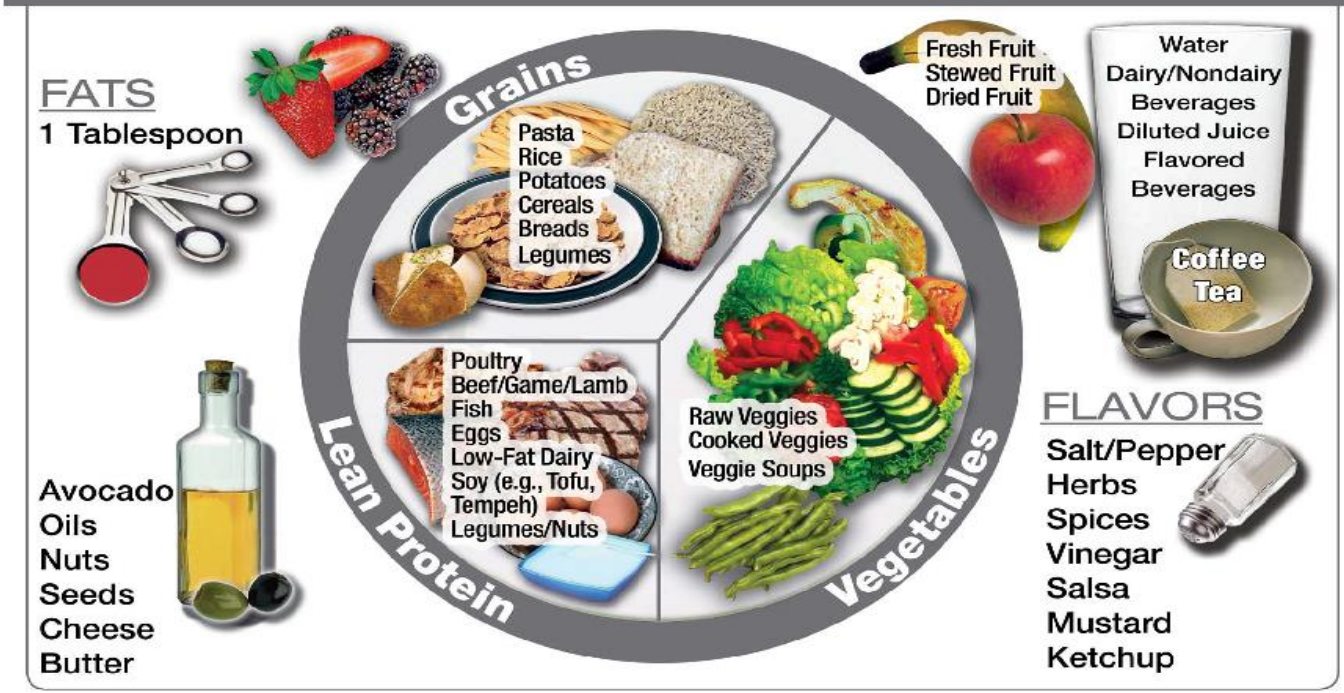


### FLAVORS
Salt/Pepper
Herbs
Spices
Vinegar
Salsa
Mustard
Ketchup

The Athlete's Plates are a collaboration between the United States Olympic Committee Sport Dietitians and the University of Colorado (UCCS) Sport Nutrition Graduate Program.

# ATHLETE'S PLATE

## MODERATE TRAINING:

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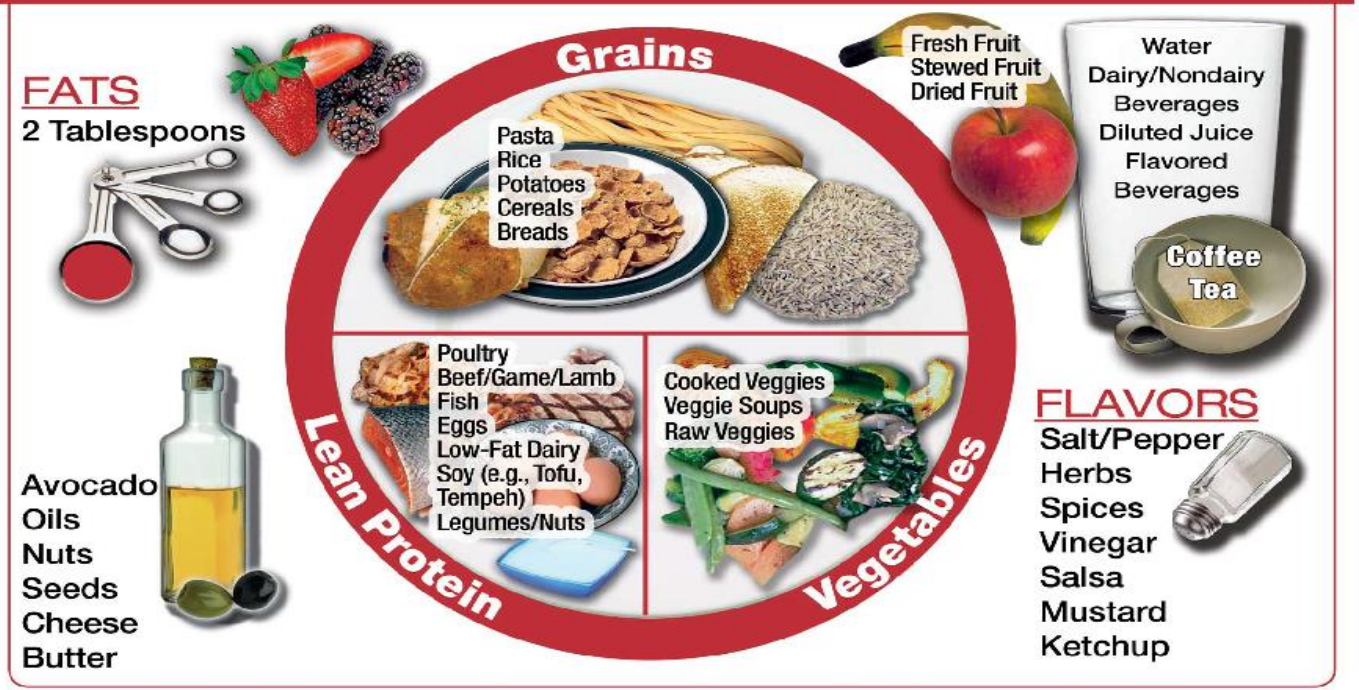
# ATHLETE'S PLATE

## HARD TRAINING / RACE DAY:

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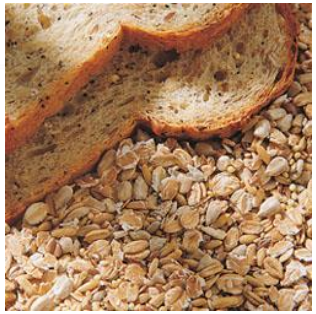
*For educational use only. Print and use front and back as 1 handout.*

Pick foods packed full of vitamins and minerals



- Whole Grains
- Dark Color Veggies
- Nuts/Seeds
- Avocados
- Fish
- Quinoa
- Berries
- Brown Rice
- Oatmeal
- Granola

# Eat A Rainbow

# Get the Timing Right

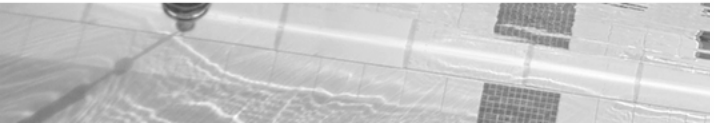
It's not just WHAT you eat, but WHEN you eat it!

Don't skip meals – ever!

Never go more than 2-3 hours without a snack or meal

# (De)Hydration

Even being just a little dehydrated changes how your body works – your brain & muscles won't work as well



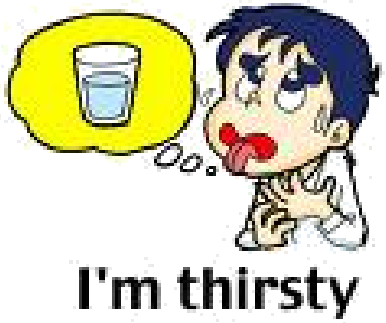
# Hydration: **How Much and When**

## Practice

- >16 oz. 30-90 minutes before
- 4-8 oz. every 15 minutes during

## During the day

- 16-20 oz. of water upon waking
- # of ounces = ½ your body weight



# “Sport” Drinks

**Contain a blend of sugars and electrolytes and are absorbed into the body as quickly as water**

**Can help at meets and longer practices**

# Dietary Supplements

Vitamins, minerals, herbals, energy drinks, shakes, etc. are not magic potions or pills to make you go faster

Consult your coach prior to taking any dietary supplement

Can be harmful to your body & **current/future** health

# Stimulant “Energy” Drinks

# Nutrition: Facts vs. Supplements

## Nutrition Facts

Serving Size 1/2 cup (51.0 g)

**Amount Per Serving**

**Calories** 237 — Calories from Fat 82

**% Daily Value***

**Total Fat** 9.1g — **14%**

Saturated Fat 3.5g — **18%**

Polyunsaturated Fat 1.0g

Monounsaturated Fat 3.5g

**Cholesterol** 1mg — **0%**

**Sodium** 26mg — **1%**

**Total Carbohydrates** 33.5g — **11%**

Dietary Fiber 4.2g — **17%**

Sugars 11.5g

**Protein** 5.3g

Vitamin A 0% • Vitamin C 2%

Calcium 6% • Iron 7%

**Nutritional Units** 5

* Based on a 2000 calorie diet

APPROVED

## Supplement Facts

Serving Size: 3 Level Scoops (99.9 g)
Servings Per Container: 15

| Amount Per Serving | | % DV |
|---|---|---|
| Calories | 370 | |
| Calories from Fat | 45 | |
| Total Fat | 5 g | 8%* |
| Saturated Fat | 1.5 g | 8%* |
| Cholesterol | 85 mg | 28%* |
| Total Carbohydrate | 39 g | 13%* |
| Dietary Fiber | 9 g | 36%* |
| Sugars | 3 g | † |
| Protein | 40 g | 80%* |
| Vitamin A | 3000 IU | 50% |
| Vitamin C | 60 mg | 100% |
| Vitamin D | 200 IU | 50% |
| Vitamin E | 30 IU | 100% |
| Thiamin | 0.75 mg | 50% |
| Riboflavin | 0.85 mg | 50% |
| Niacin | 10 mg | 50% |
| Vitamin B6 | 1 mg | 50% |

| Amount Per Serving | | % DV |
|---|---|---|
| Folic Acid | 200 mcg | 50% |
| Vitamin B12 | 3 mcg | 50% |
| Biotin | 150 mcg | 50% |
| Pantothenic Acid | 5 mg | 50% |
| Calcium | 500 mg | 50% |
| Iron | 11.8 mg | 65% |
| Phosphorous | 580 mg | 58% |
| Iodine | 75 mcg | 50% |
| Magnesium | 200 mg | 50% |
| Zinc | 7.5 mg | 50% |
| Selenium | 35 mcg | 50% |
| Copper | 1 mg | 50% |
| Manganese | 1 mg | 50% |
| Chromium | 60 mcg | 50% |
| Molybdenum | 37.5 mcg | 50% |
| Iodine | 160 mg | 7% |
| Potassium | 630 mg | 18% |
| L-Glutamine | 10[illegible] mg | † |

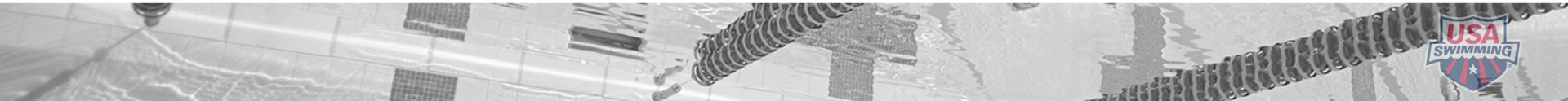
† Daily Value not established.
* Percent Daily Values are based on a 2[illegible] Calorie diet.

DECLINED

**Ingredients:** CARBOHYDRATE BLEND (OAT FLOUR AND BARLEY FLOUR), PROTEIN BLEND (WHEY PROTEIN CONCENTRATE, CALCIUM CASEINATE, EGG ALBUMEN, SODIUM CASEINATE, AND WHEY PROTEIN ISOLATE), COCOA, L-GLUTAMINE, GUM ACACIA, NATURAL & ARTIFICIAL FLAVORS, VITAMIN MINERAL BLEND (DICALCIUM PHOSPHATE, MAGNESIUM OXIDE, ASCORBIC ACID, DL-ALPHA TOCOPHERYL ACETATE, NIACINAMIDE, ELECTROLYTIC IRON, ZINC OXIDE, COPPER GLUCONATE, D-CALCIUM PANTOTHENATE, MANGANESE SULFATE, RETINYL PALMITATE, PYRIDOXINE HYDROCHLORIDE, THIAMIN MONONITRATE, RIBOFLAVIN, CHROMIUM CHLORIDE, FOLIC ACID, BIOTIN, POTASSIUM IODIDE, SODIUM MOLYBDATE, SODIUM SELENITE, CYANOCOBALAMIN, AND CHOLECALCIFEROL). GUM BLEND (CELLULOSE GUM, XANTHAN GUM, AND CARRAGEENAN), SILICA, SALT, AND SUCRALOSE.

## USADA

## United States Anti-Doping Agency



# Recovery: Plan, Plan, Plan

normal sugar level

Eat a carbohydrate/protein snack before morning workouts


Practices >90 minutes should include a carbohydrate snack or a sports drink

Bring a carbohydrate/protein snack for immediately after practice

Eat a meal within 1-2 hours after practice

| 5 R's of RECOVERY Nutrition | FOODS to EAT |
| --- | --- |
| **Rehydrate** with FLUIDS & ELECTROLYTES | Water or Sports Drinks (3 cups/pound lost |
| **Replenish** muscle glycogen stores with CARBOHYDRATES (0.5 g/lb. bodyweight) | Fresh/Dried Fruit, Breads (w/Peanut Butter and/or Jelly), Sports Drinks/Bars |
| **Repair & Regenerate** muscle tissue with high quality PROTEIN (15-25 g) | Dairy Products, Recovery Mix (w/whey, soy, casein protein) |
| **Reinforce** your immune system with ANTIOXIDANTS | Apples/Bananas/Oranges, Spinach, Carrots, Peppers |

# Recovery: What to Eat

- Chocolate milk
- Granola or breakfast bars
- Bagel with peanut butter
- Rest of your sports drinks
- Trail mix (nuts/dried fruit)
- Fresh fruit (apples, bananas, oranges, grapes)
- Turkey sandwich
- Rice & Beans
- Pita and hummus
- Homemade fruit smoothie
- Meal replacement shake
- Other “bars”
- Cooked pasta & protein
- Cheese Quesadilla

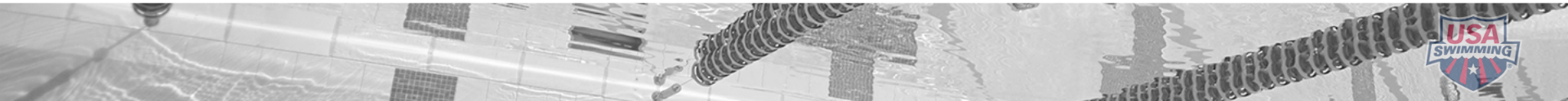
# Recovery Snack Ideas

***Choose a food from protein column + food from carb column based on training session!***

| Protein: 15-20 g | Protein: 20-25 g | Carbohydrates: 15-30 g | Carbohydrates: 45-60 g |
|---|---|---|---|
| • 2 c milk (cow's, soy)* | • 3 c milk (cow's, soy)* | • 1 piece or cup fresh fruit | • 2-3 piece or cups fresh fruit |
| • ¾ -1 c Greek yogurt* | • 1 ½ c Greek yogurt* | • ¼ - ½ c dried fruit | • ¾ - 1 c dried fruit |
| • ¾ c cottage cheese | • 1½ c cottage cheese | • 1 c fruit juice | • 2 c fruit juice |
| • 2 string cheeses | • 3 string cheeses | • 1 c chocolate milk | • 2 c chocolate milk* |
| • 1 c firm tofu | • 1 ¼ c firm tofu | • ½ c oatmeal | • 1-1 ½ c oatmeal |
| • 2-3 cooked eggs | • 3-4 cooked eggs | • 1-2 slices sandwich bread | • 3-4 slices sandwich bread |
| • 2-3 oz deli meat | • 3-4 oz deli meat | • ½ bagel | • 1 bagel |
| • 1 ½ c Kefir* | • 2-2 ¼ c Kefir* | • 1 english muffin | • 2 english muffins |
| • 1 ½ oz jerky | • 2-2 ½ oz jerky | • 1 granola or cereal bar | • 4 fig bar cookies |
| • 2-3 oz fish | • ¾ -1 c nuts or seeds * | • 2 x 6" tortillas or wraps | • 2 x 8" tortilla or wrap |
| • ½ c nuts or seeds* | • 1 c edamame | • ½ - ¾ c rice or farro | • 1-1½ c rice or farro |
| • ½ - ¾ c edamame | • 1-1½ c beans or lentils* | • ½ -1 c quinoa, beans, lentils* | • 1½ -2 c quinoa, beans, lentils* |
| • 4 Tbsp nut butter* | • 1 scoop whey protein | • ¾ c cooked pasta | • 1 ½ c pasta |
| • 1 c beans* | | • 4 Tbsp nut butter* | |

Key: * Protein source contains at least 15 g of carbs, Carb source contains at least 10 g protein

# WARMDOWN



# What is Lactate Production?

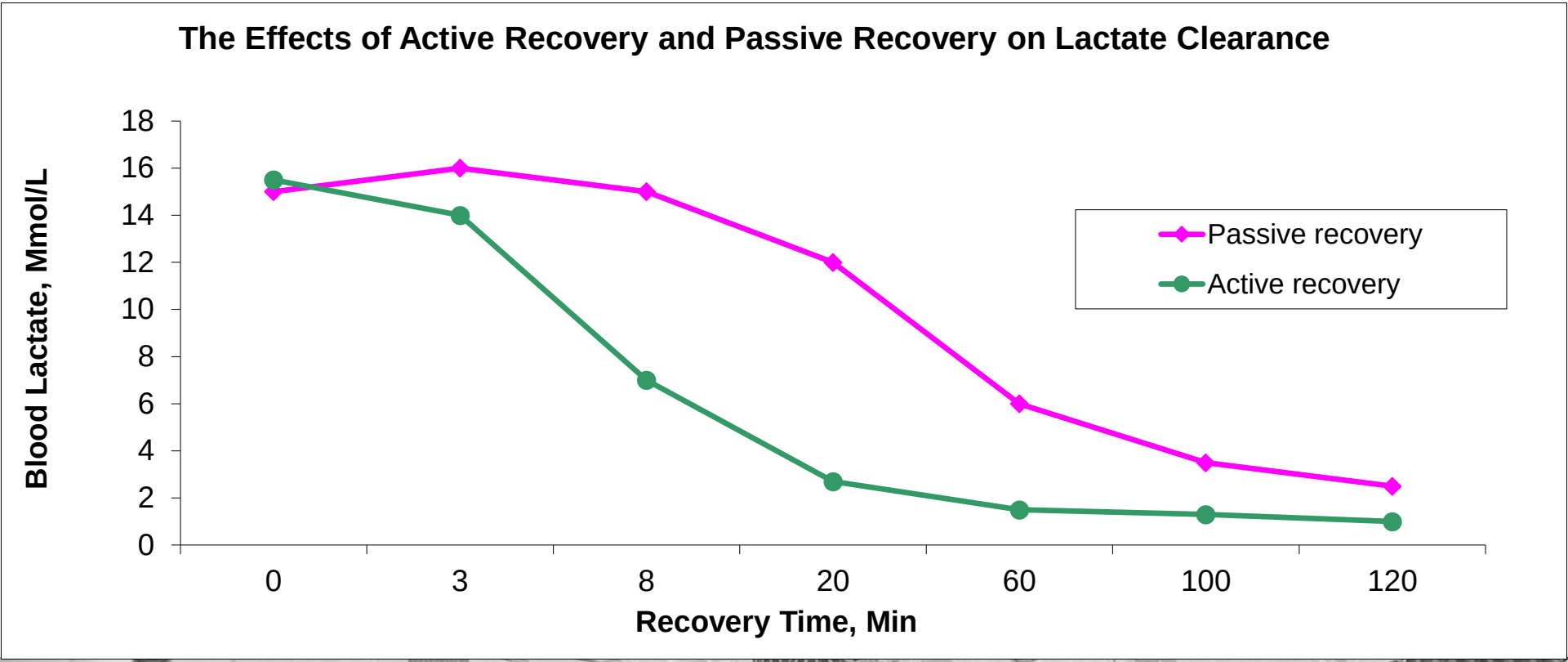
**High Intensity Performance utilizes the Anaerobic Pathway**

# What Happens?

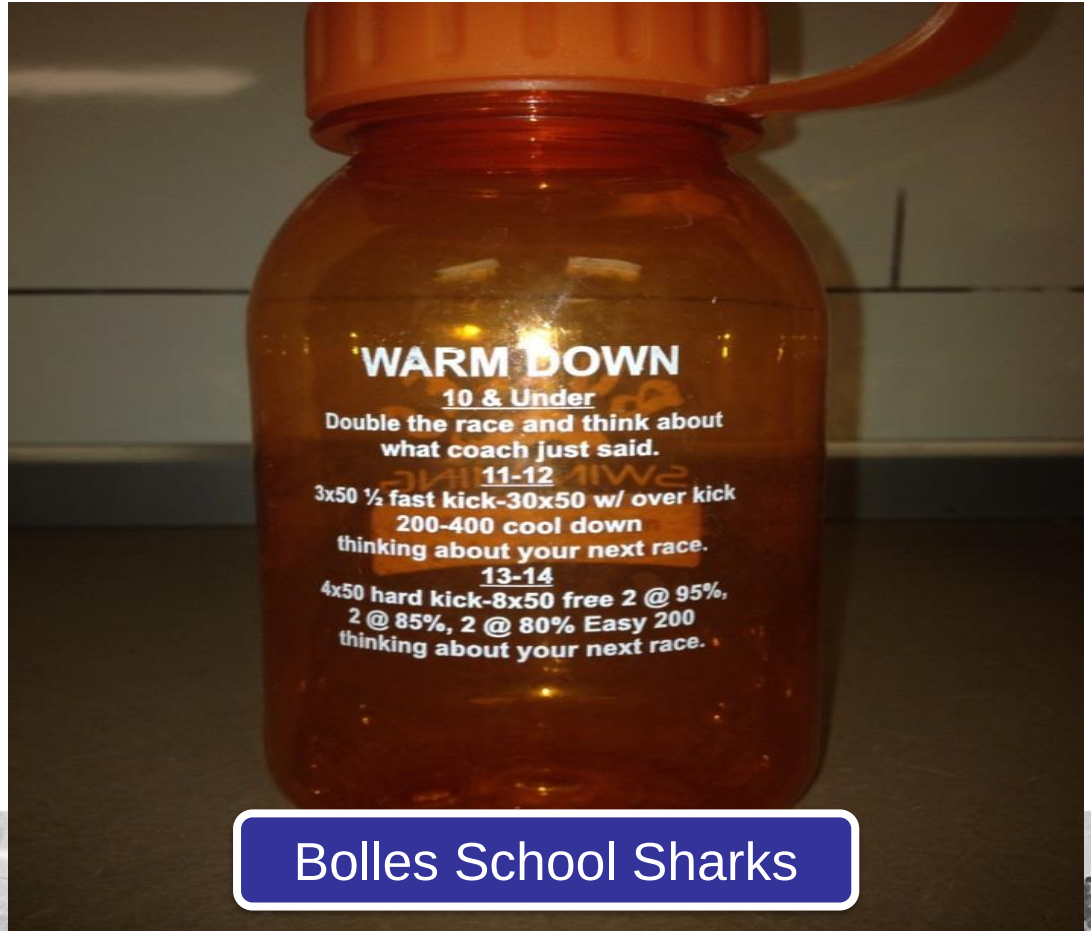
# How Much

| *Event/Distance Orientation* | *Duration* | *Intensity* | *Heart Rate* |
|---|---|---|---|
| Sprint Events (50-100m) | 15-30 min | 65-70% | 130-140<br>22-23/10 sec |
| Mid-Distance Events (200-400m) | 15-25 min | 70-75% | 140-150<br>23-24/10 sec |
| Distance Events (800m and above) | 15-20 min | 75-80% | 150-160<br>25-26/10 sec |

# Active vs. Passive Recovery

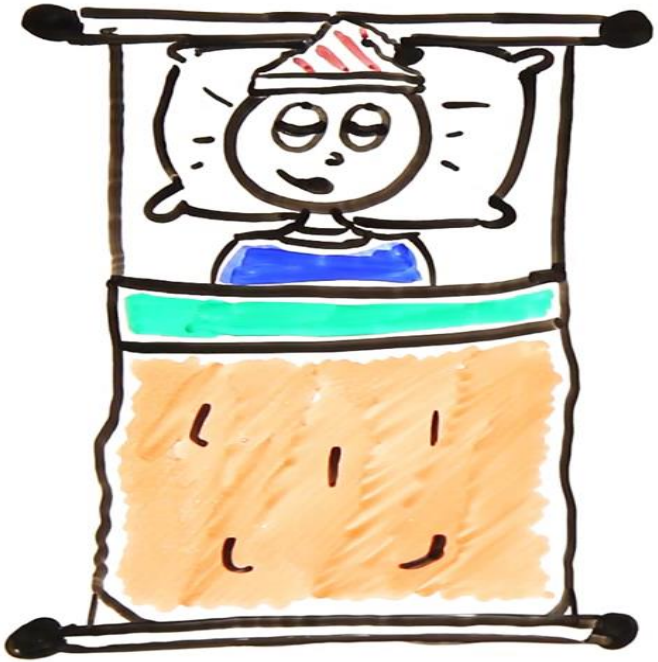


# What Should I Do For Cool Down?




Bolles School Sharks

# #1 Performance Enhancer



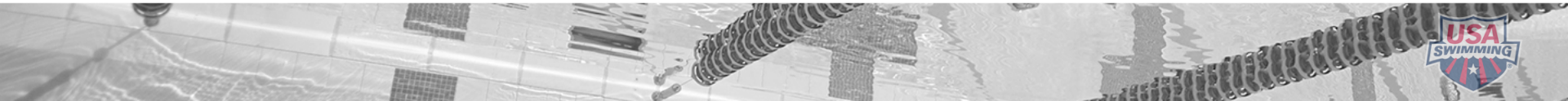
# Why Sleep?

We learn during deep sleep

Brain works better

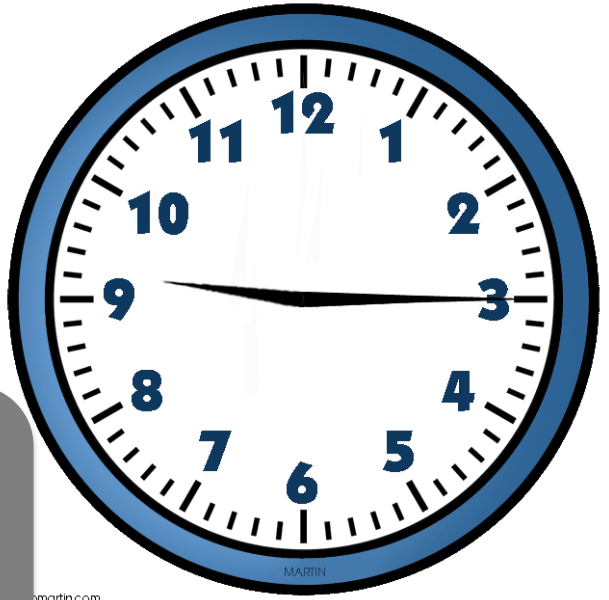
Bones & muscles grow faster

Stay healthier



# How Much Sleep?

**2 hours too little sleep per night = ~3 seconds slower/100**




**Sleep is more important than social media, electronics & entertainment**

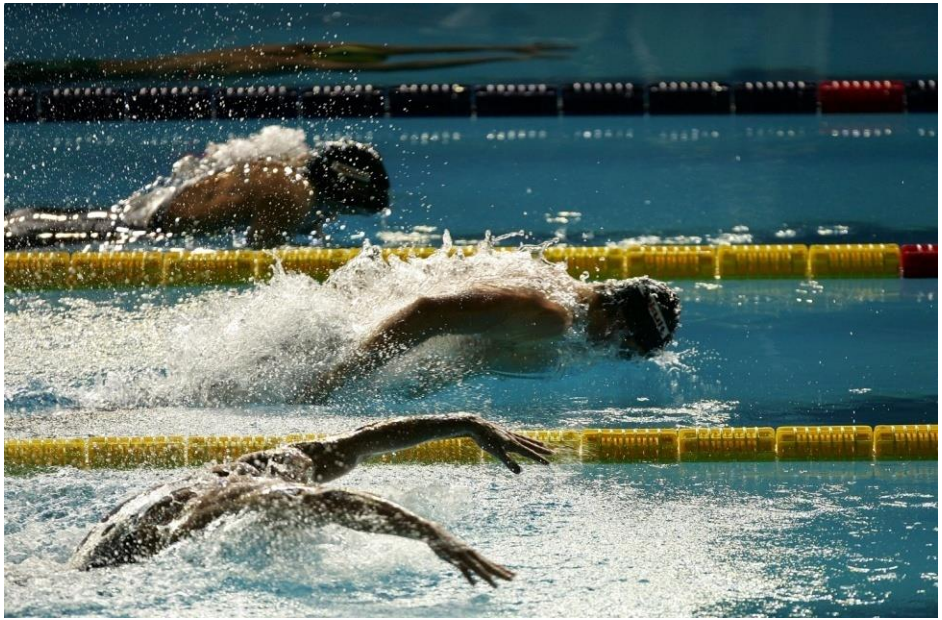
# Stanford University Study

5 male & female swimmers increased sleep time by 2 hours from 6.5 to 8.5 hours

- .51 seconds faster in 15-meter sprint
- .15 faster off blocks
- .1 second faster in turns
- Reduced daytime sleepiness & improvements in mood.

*"many of the athletes in the various sports… including the swimmers while participating in the study have set multiple new personal records & season best times, as well as broken long-standing Stanford & American records."* – Dr. Mah

# With Great Nutrition & Recovery Habits…



# Without…

# Nutrition Foundations…

normal sugar level

- Eat real food – the fresher the better
- Eat colorful foods (5 colors on your plate) …including *recovery*
- Don’t skip meals & snack a lot …including *recovery*
- Drink early & often …including *recovery*

# USADA Resources

http://www.usada.org


# Thanks To:

**Alicia Kendig**, USOC Sport Dietician, RD, CSSD

**Jackie Berning**, PhD, RD, CSSD

**Bob Seebohar**, MS, RD, CSSD, CSCS

**Theresa C. Logan**, MS, RD, CSSD

**Dan McCarthy**, USA Swimming National Team High Performance

**MJ Truex**, USA Swimming Club Development

# Questions?