

Nutrition For Rowers

Fueling Workouts & Races

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Where we're headed...

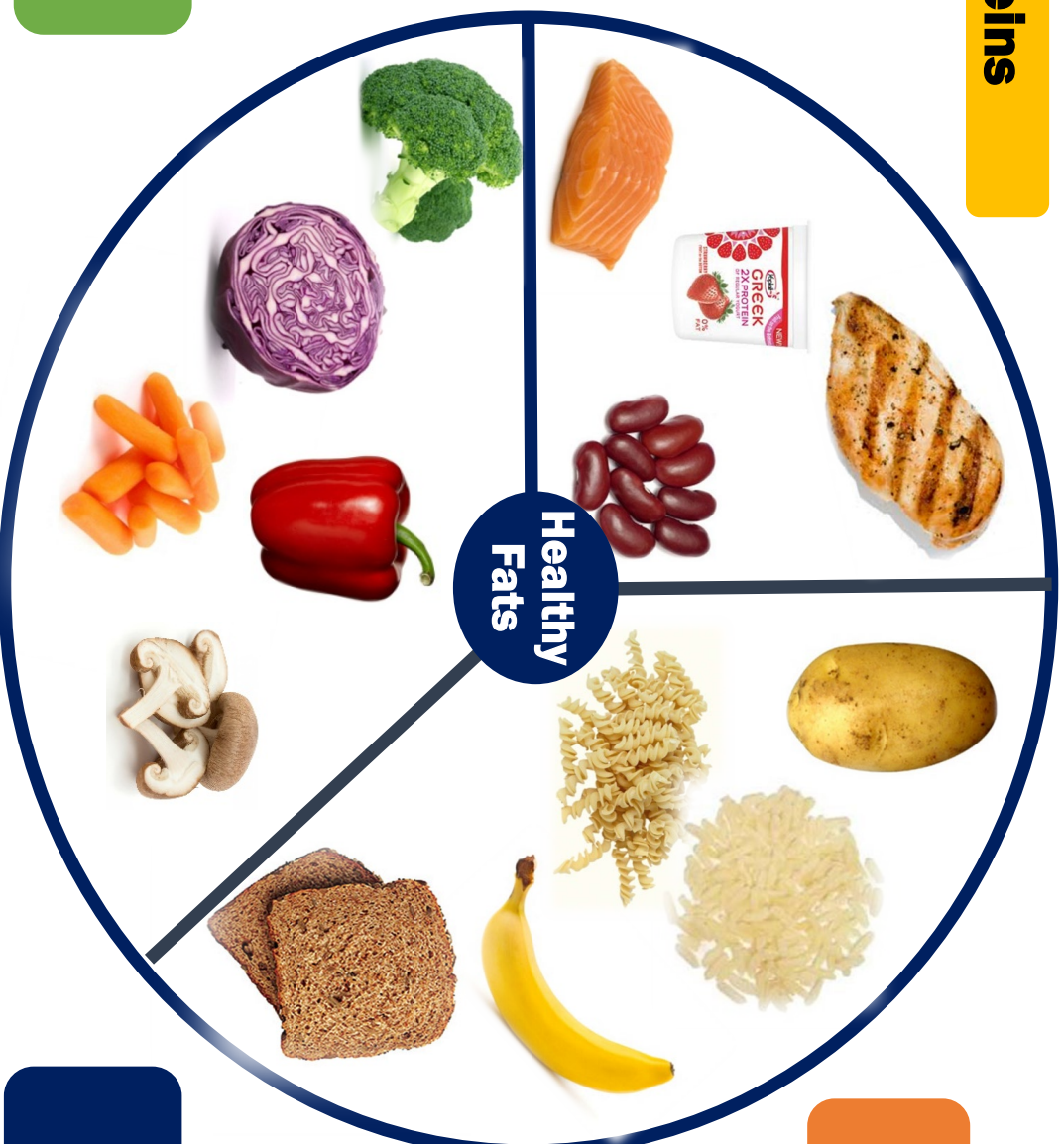
- The athlete's plate
 - Basic, daily fueling
- Fueling timing
 - Let's play "Fuel Your Day"
- Hydration

The Athlete's Plate

Lean Proteins

**Quality
Carbohydrates**

**Non-starchy
Vegetables**



**Healthy
Fats**

Quality Carbohydrates

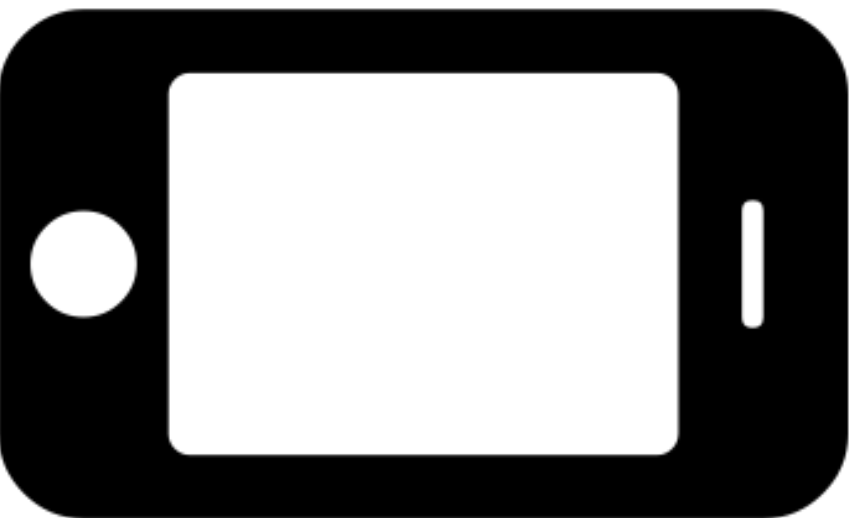
Why do we need 'em?

Consider your phone...

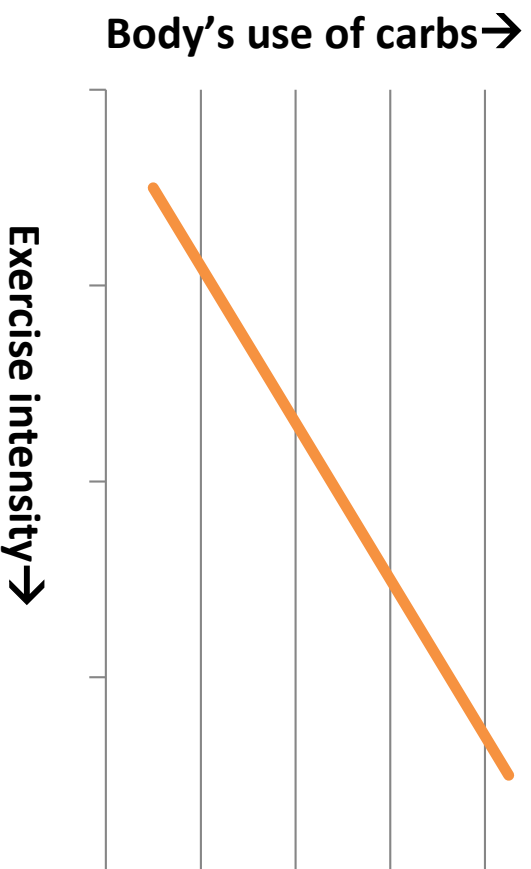
- It has to be charged periodically to have enough power
- Over the course of the day the battery gets slowly drained
- Certain activities (video chats, roaming, etc.) take up more power and really “work” the phone

It's similar for a student-athlete!

- You need to consume carbohydrates periodically for energy
- Those carbohydrates stored up slowly get used over the day
- Certain activities (like rowing!) use up more carbohydrate



Carbohydrates for Exercise



Carbs stored as **glycogen** in muscle and liver.

Limited storage → 300-400 grams
(1200-1600 Calories)

Quality Carbohydrates

What they do...

- Energy for the body, in particular the brain and muscles
- Important for high intensity or high volume exercise
- Good for gut health



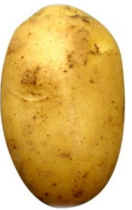
Vitamins

Minerals

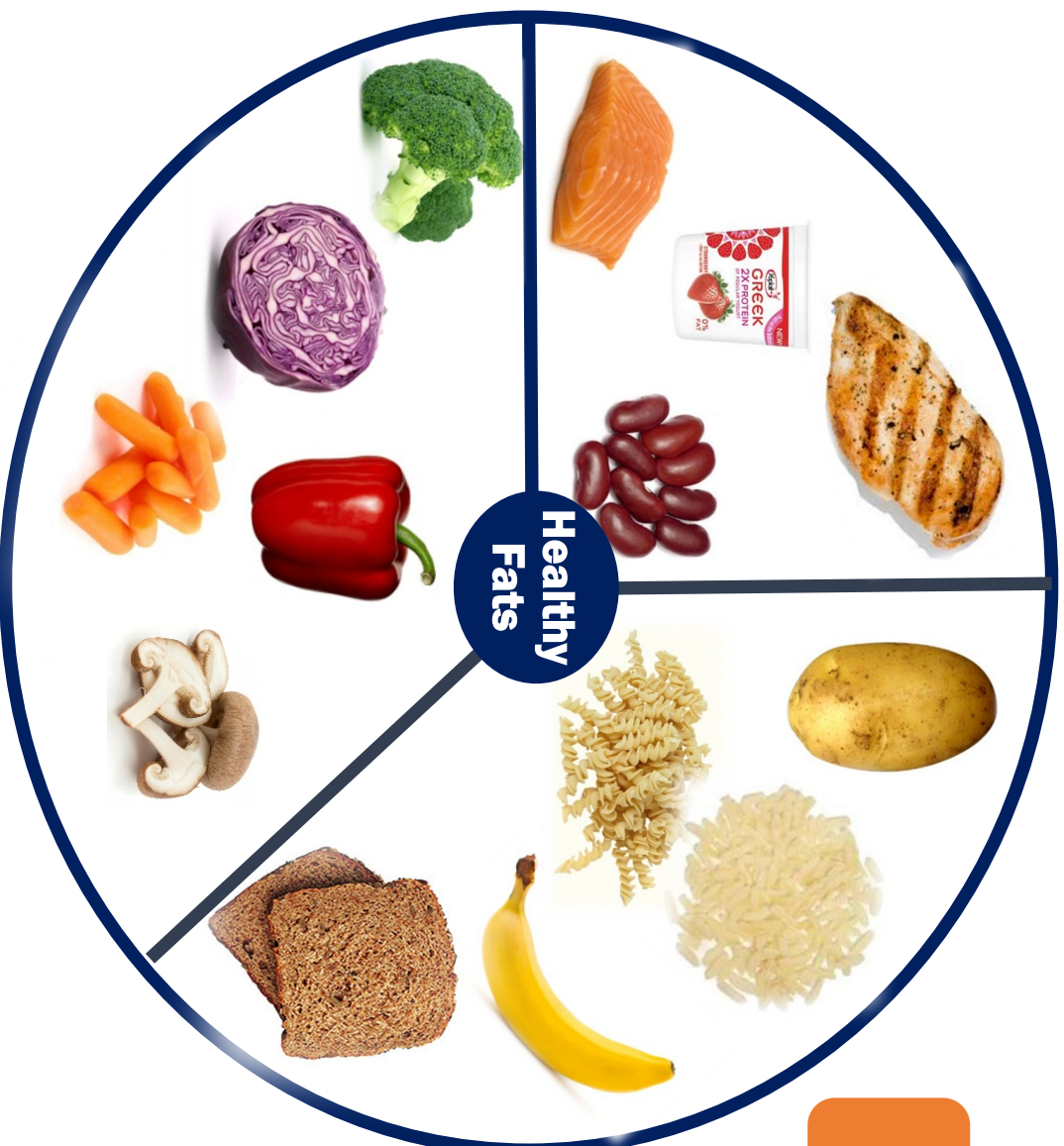
Fiber

What foods contain them...

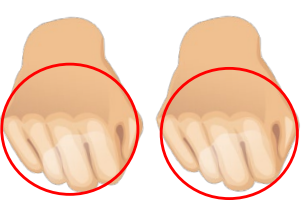
- Potatoes/sweet potatoes
- Brown rice
- Quinoa
- Barley
- Whole grain pasta
- Whole grain bread
- Oatmeal/cereal
- Fruit (fresh, frozen, or canned in fruit juice)
- Tortillas
- Corn
- Butternut or acorn squash
- Beans
- Low-fat dairy (milk, yogurt)



The Athlete's Plate



**Quality
Carbohydrates**

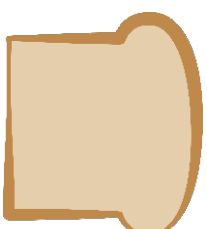


**1 to 2 cups
quality carb**

Guess the Daily Carbohydrate Needs...



= 1 cup rice = 40 grams



= 1 slice = 20 grams

1) A 270 lb pro football player in summer camp workouts

a) 250-300 grams

b) 500-550 grams

c) 800-850 grams

2) A 160 lb male rower in winter training

a) 200-250 grams

b) 325-375 grams

c) 600-650 grams

3) A 5'0" female gymnast in season

a) 25-50 grams

b) 150-200 grams

c) 300-350 grams



Lean Proteins

What they do...

- Building block: muscle, skin, hair, nails
- Provide satiety



Vitamins



Minerals



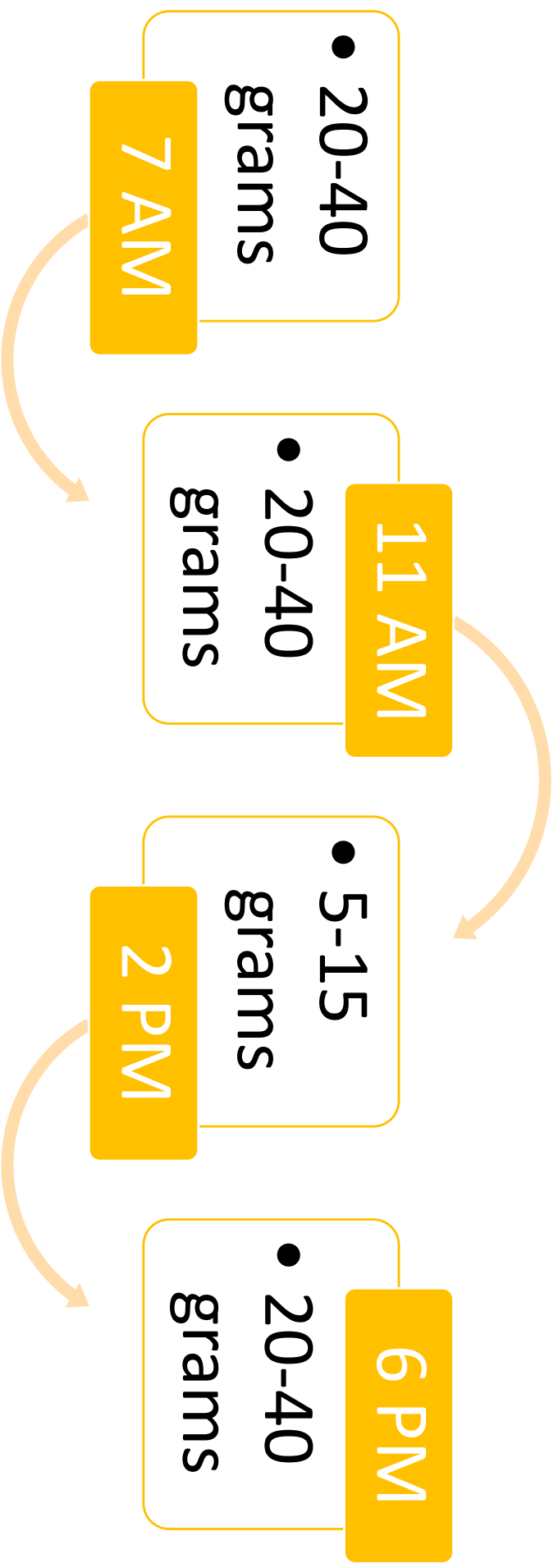
Plant vs Animal

What foods contain them...

- Fish
- Chicken, turkey
- Lean cuts of pork or beef
- Low-fat dairy (milk, yogurt, cottage cheese, cheese)
- Soy (tofu, soy milk, edamame, tempeh)
- Beans, lentils
- Nuts, seeds
- Eggs



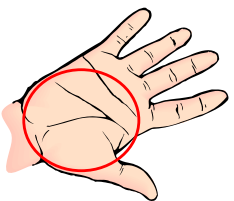
Protein “Spread”



- No storage bin
- Excess gets converted to energy or stored as fat

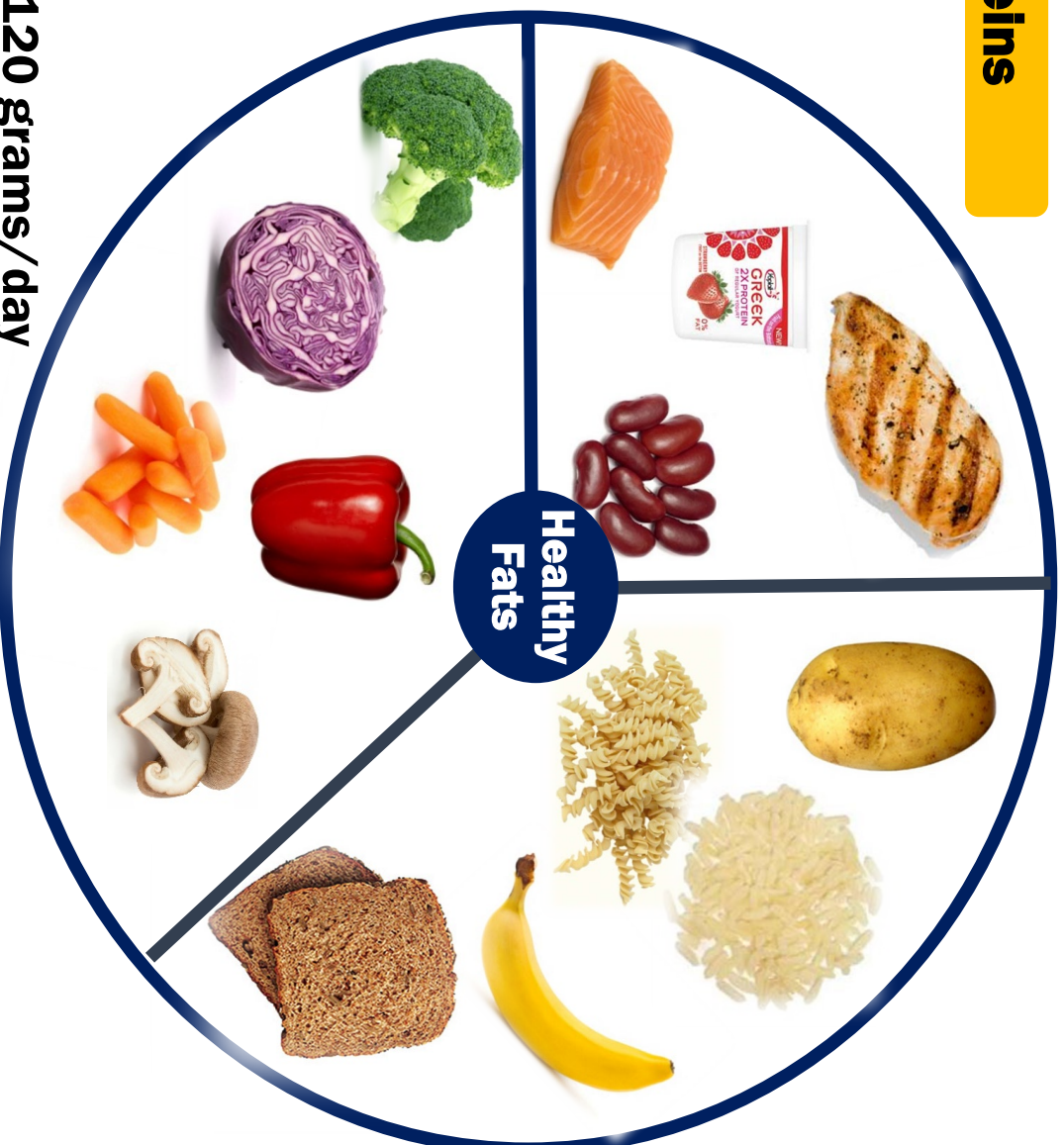
The Athlete's Plate

Lean Proteins



3-4 oz

20-30 grams



140 lb rower = 90-120 grams/day

Guess the Protein Content...

1) 4 oz chicken breast

a) 20 grams

b) 30 grams

c) 40 grams

2) 1 cup plain Greek yogurt

a) 12 grams

b) 22 grams

c) 30 grams

3) 2 tbsp. peanut butter

a) 8 grams

b) 12 grams

c) 26 grams

4) 1 cup almond milk

a) 1 gram

b) 5 grams

c) 10 grams

Healthy Fats

What they do...

- “Limitless” energy supply – low to moderate intensity activity
- Build cell membranes & support nerve transmission
- Reduce (or promote) inflammation



Unsaturated

What foods contain them...

- Oils (olive, canola, flax, avocado, sesame, etc)
- Nuts & seeds (walnuts, almonds, peanuts, chia seeds, etc)
- Nut butters (peanut, almond, soy)
- Avocado
- Fatty fish (salmon, mackerel, sardines)



Non-starchy Vegetables

What they do...

- Provide antioxidants
- Good for gut health
- Source of water



Vitamins



Minerals




Fiber

What foods contain them...

- | | | |
|---------------|-------------------|-------------|
| • Asparagus | • Tomato | • Celery |
| • Cauliflower | • Brussel sprouts | • Cucumbers |
| • Eggplant | • Carrots | • Spinach |
| • Peppers | • Broccoli | • Beets |
| • Zucchini | • Cabbage | • Parsnips |
| • Mushrooms | • Bok choy | • Kale |
| • Onion | • Leeks | • Turnip |



Let's Play “Fuel Your Day”

1. Transit the path from start to finish.
2. The  indicates an eating opportunity.
3. Listen to the fueling guidance then pick an example meal or snack from the options provided that is appropriate for that time.

A Training Day

START



FINISH



Breakfast Time!

- Start the day off balanced
- Think of the “Athlete’s Plate” (maybe swap a fruit for a vegetable)

YOUR CHOICES		
English muffin Sliced bread Oatmeal Leftover roasted potatoes Cereal	Greek yogurt Milk Eggs Sliced cheese Walnuts Peanut butter	Bananas Blueberries Spinach Bell pepper

What would you have?

- Egg & cheese sandwich on English muffin with a banana
- Oatmeal (made with milk) topped with walnuts and blueberries
- Cereal (with milk) topped with banana and an egg on the side
- Potato hash with bell peppers and 2 eggs



A Training Day

START



FINISH

Lunch Time!

- Keep your energy going with a balanced choice
- Think of the “Athlete’s Plate” (maybe swap a fruit for a vegetable)

YOUR CHOICES		
Sliced bread Brown rice Baked potato Whole grain crackers Corn	Sliced turkey meat Cheese stick Leftover chicken Hardboiled egg Hummus Leftover chili	Spinach Carrot sticks Vegetable soup Leftover sautéed broccoli Apple Orange

What would you have?

- Turkey sandwich with spinach plus carrots with hummus
- Leftover chicken & broccoli with brown rice
- Leftover chili with whole grain crackers and an apple
- Vegetable soup plus a hardboiled egg and cheese stick

A Training Day

START



FINISH

Pre-Workout Snack Time!

- ~1-2 hours before practice
- Carbohydrate + some protein
- Easy to digest (lower fiber & fat)

YOUR CHOICES		
Sliced bread Granola bar Graham crackers	Protein bar (5-10 grams) Almonds Turkey jerky Low-fat chocolate milk (8-12 oz) Peanut butter	Banana Orange Raisins

What would you have?

- Slice of bread with small amount peanut butter
- Banana plus almonds
- Protein bar
- Granola bar plus turkey jerky

The gut is trainable – practice!

The closer to go-time, the more focus on carbs...

60-90 minutes	0-30 minutes
½ PB & J sandwich	8-12 oz sports drink
½ large baked potato ¼ - ½ cup cottage cheese	6 sports chews
Rice cake with PB smear Banana	1 sports gel
1 bagel ½ cup yogurt	¼ cup raisins
Clif ® Bar	1 banana
½ turkey sandwich	1 orange
½ - ¾ cup yogurt Banana	--
1 bagel 1-2 tbsp. PB	--

- Faster to digest
- Easier to digest, fewer gastrointestinal problems

A Training Day

START



FINISH



Post-Workout Snack Time!

- Suggested if NOT eating dinner for at least 60 minutes
- Carbohydrate + protein + fluids

YOUR CHOICES		
Sliced bread Granola bar Graham crackers	Protein bar (10-20 grams) Almonds Turkey jerky Low-fat chocolate milk (8-12 oz) Peanut butter	Banana Orange Raisins

What would you have?

- Chocolate milk
- Protein bar plus banana
- Graham crackers plus peanut butter
- Raisins plus almonds plus turkey jerky

A Training Day

START



FINISH

Dinner Time!

- Finish on a balanced note
- Think of the “Athlete’s Plate” – get in a veg if you missed it earlier

YOUR CHOICES		
Brown rice Baked potato Pasta Quinoa Burger buns	Grilled chicken Salmon Veggie burgers Pork tenderloin Turkey burger	Romaine salad Sauteed green beans Sauteed peppers & onions Roasted Brussel sprouts Steamed cauliflower

What would you have?

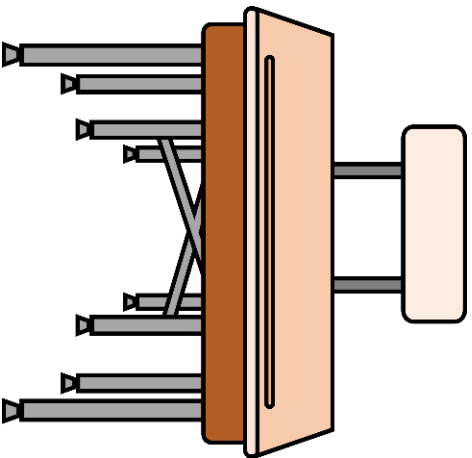
- Salmon with baked potato and steamed cauliflower
- Brown rice with grilled chicken and romaine salad
- Turkey burger on bun with peppers & onions
- Veggie burger on bun with sautéed green beans

Put it all together - Example Plan

(150-160lb Rower)		MEAL PLAN
Breakfast	2 eggs 1 cup oatmeal made with milk 1 cup berries 1 slice whole wheat toast with peanut butter	
Morning Snack	Snack bag (handful) fruit and nut trail mix	
Lunch	Turkey with cheese and spinach on whole wheat bagel 10-12 carrot sticks with hummus Apple Small handful almonds	
Afternoon Snack/ Pre-workout	Granola bar	
Post-workout*	Turkey jerky Banana	
Dinner	4-5 oz pork tenderloin (made with olive oil) 1 large sweet potato (with 1-2 tsp butter) 1 cup steamed broccoli 1 small whole wheat roll	
Snack	1 vanilla Greek yogurt	

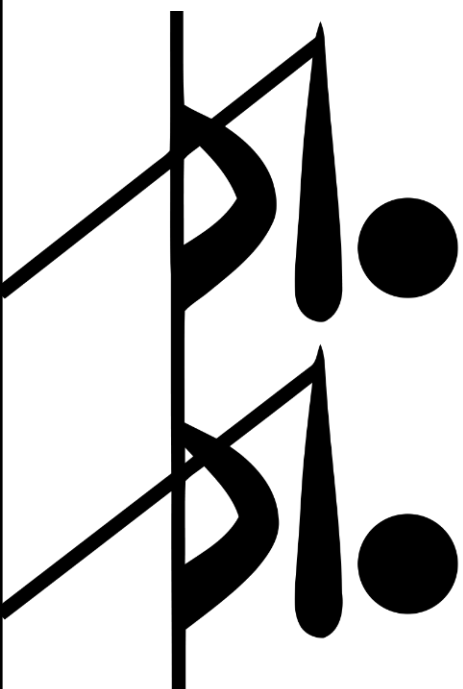
*Necessary if not having dinner within 30-60 minutes of practice finish

Obstacles to the Fueling Plan



Obstacle:	Class schedule, not allowed to eat in class, etc.
Solution(s):	<ul style="list-style-type: none">• Carry snacks in backpack – snack between class• Keep non-perishable snacks in locker for “just in case”• Allowed liquids? Drink caloric beverages during class• Uses insulated lunch bag for more options• Adapt certain meals or snacks to be larger/smaller to fit schedule

Obstacles to the Fueling Plan



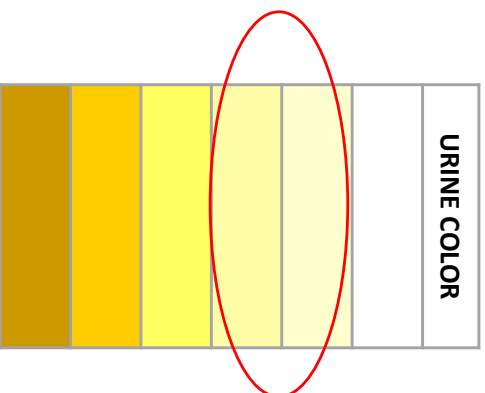
Obstacle:	Practice schedule/timing
Solution(s):	<ul style="list-style-type: none">• Bring snacks to school for pre-practice• Adjust size or content of other meals or snacks based on timing<ul style="list-style-type: none">• Ex: Have a larger morning snack and smaller lunch if late in the day• Ex. Have a larger lunch if early in the day, large snack in the afternoon• Bring post-practice snack, or have parent bring snack

Hydration

Hydration: Timing

Before practice/regatta

- 8-12 oz before early morning row
- Sip 20-24 oz in 1-3 hours leading up to afternoon practice
- Carry bottle all the time!!
- Watch urine



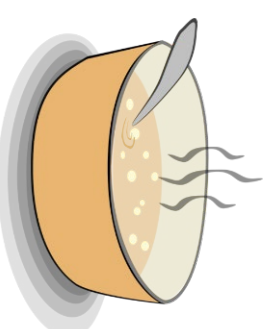
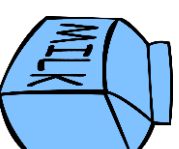
During

- Drink based on *sweat rate*
- Sports drinks:
 - Heavy or salty sweater
 - Fatigue during practice
 - Cramp during game/practice



After practice/regatta

- 20-24 oz every lb lost
- Water + foods, sports drinks
- Don't chug
- Avoid alcohol during recovery



What hydrates?

Sweat Test

Goal = Prevent losing >2% of starting body weight

Step 1: Weigh yourself without clothing immediately prior to a workout roughly 60 minutes in length. Record weight below.

Weight = 165 lbs (Pre-Workout)

Step 2: Record any fluid consumption during the workout.

Fluid consumed during workout = 32 oz consumed

Step 3: Remove wet clothing, dry off, and weigh yourself immediately following the workout. Record weight below.

Weight = 163 lbs (Post-Workout)

Step 4: Subtract your post-workout weight from your pre-workout weight to determine weight lost during the workout and record below.

165 - 163 = 2 lbs weight change
(Pre-Workout) (Post-Workout)

Step 5: Convert lbs to oz to determine fluid lost. (1 lb = 16 oz)

2 * 16 = 32 oz fluid/weight change
(lbs lost during)

Step 6: Account for any fluid consumed during the workout by adding it to what you lost.

32 + 32 = 64 oz TOTAL lost during workout
(oz lost during) (oz consumed)

Note: Replace with 30-36 oz/hr during

**Avoid losing more
than 2% body weight
during a workout**

Questions?

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