

Performance Nutrition



Vanessa Zoras, RD

Importance of Nutrition



Talent
Motivation
Training
Trainability
Avoiding injury
Nutrition

Supplements



“A good diet won’t make average athletes elite,
but a poor diet will make elite athletes average”

- Professor Ron Maughan (Loughborough University)



Talent

Motivation

Training

Trainability

Avoiding injury

Nutrition

Supplements

- Energy
- Immune function
- Muscle health
- Improved recovery
- Body composition
- Gut tolerance

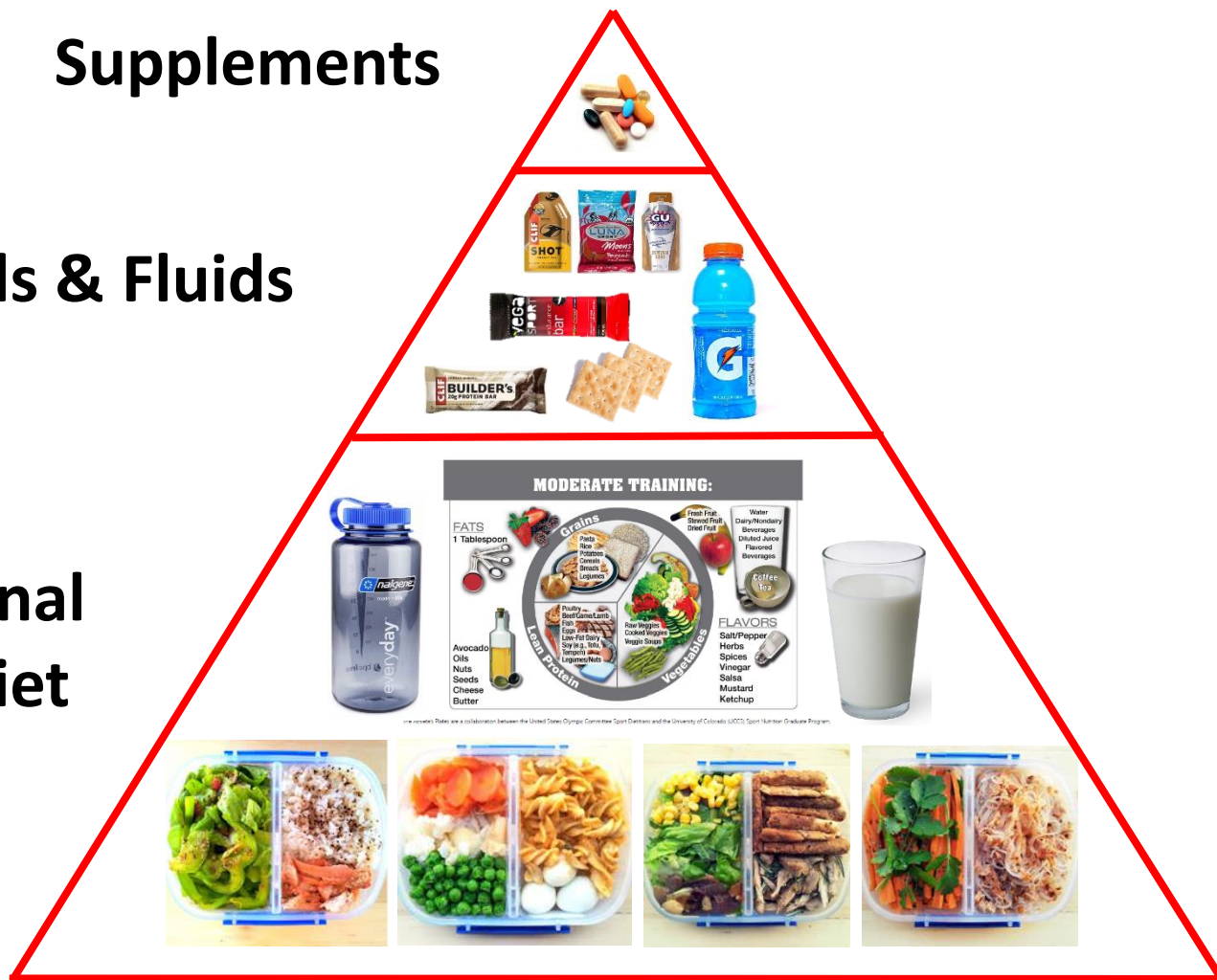
Athlete's Foundation



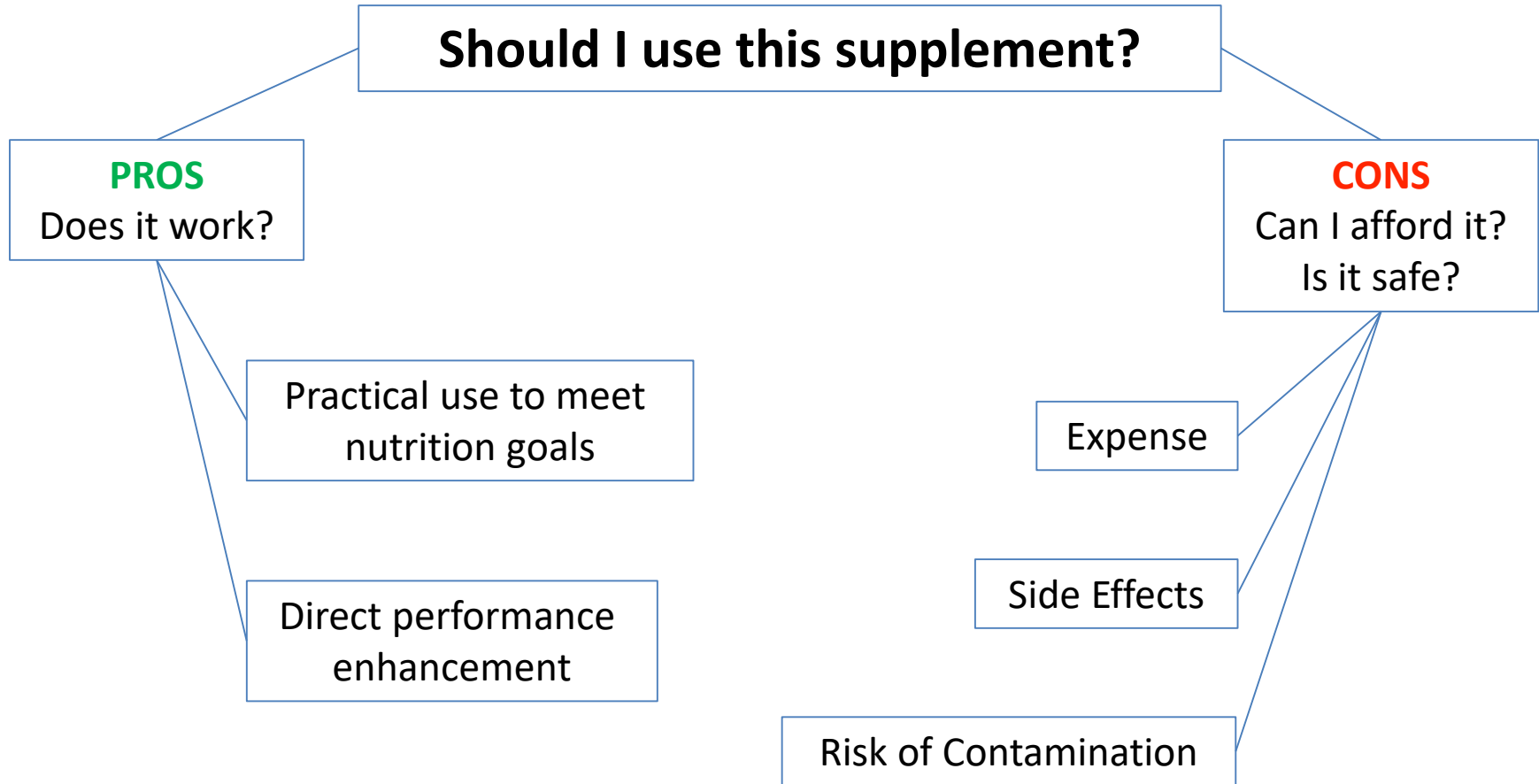
Supplements

Sport Foods & Fluids

Foundational Training Diet



Supplement Basics



Supplement Safety



WHAT IS PROHIBITED

English ▾

2017 LIST OF PROHIBITED SUBSTANCES AND METHODS

CERTIFIED PRODUCTS



Australian Government
Australian Sports Commission



AIS

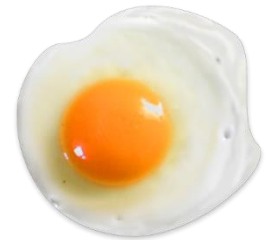


NSF International
Certified for Sport®

Main Nutrition Pillars



Timing
Composition
Hydration
Diet Quality



Common Issues



I'm not hungry in the morning and feel sick if I eat before training so I usually don't eat breakfast.

It's too much to plan food for the whole day, so I usually pack a lunch, but don't throw in anything to eat after morning training.

I'm not thirsty during practice so I usually end up only having a few sips of water during, but I drink lots of water later on.

I feel the same whether I eat a burger and fries or salmon and rice with cooked vegetables – plus I don't want to bother with planning or cooking.

Nutrition Challenges



Nutrition Challenges



Schedule & time

- balancing school and training responsibilities
- need to recover quickly (esp. double days)

Options & availability

- planning
- preparation
- portability

Nutrition Priorities



Manage energy levels

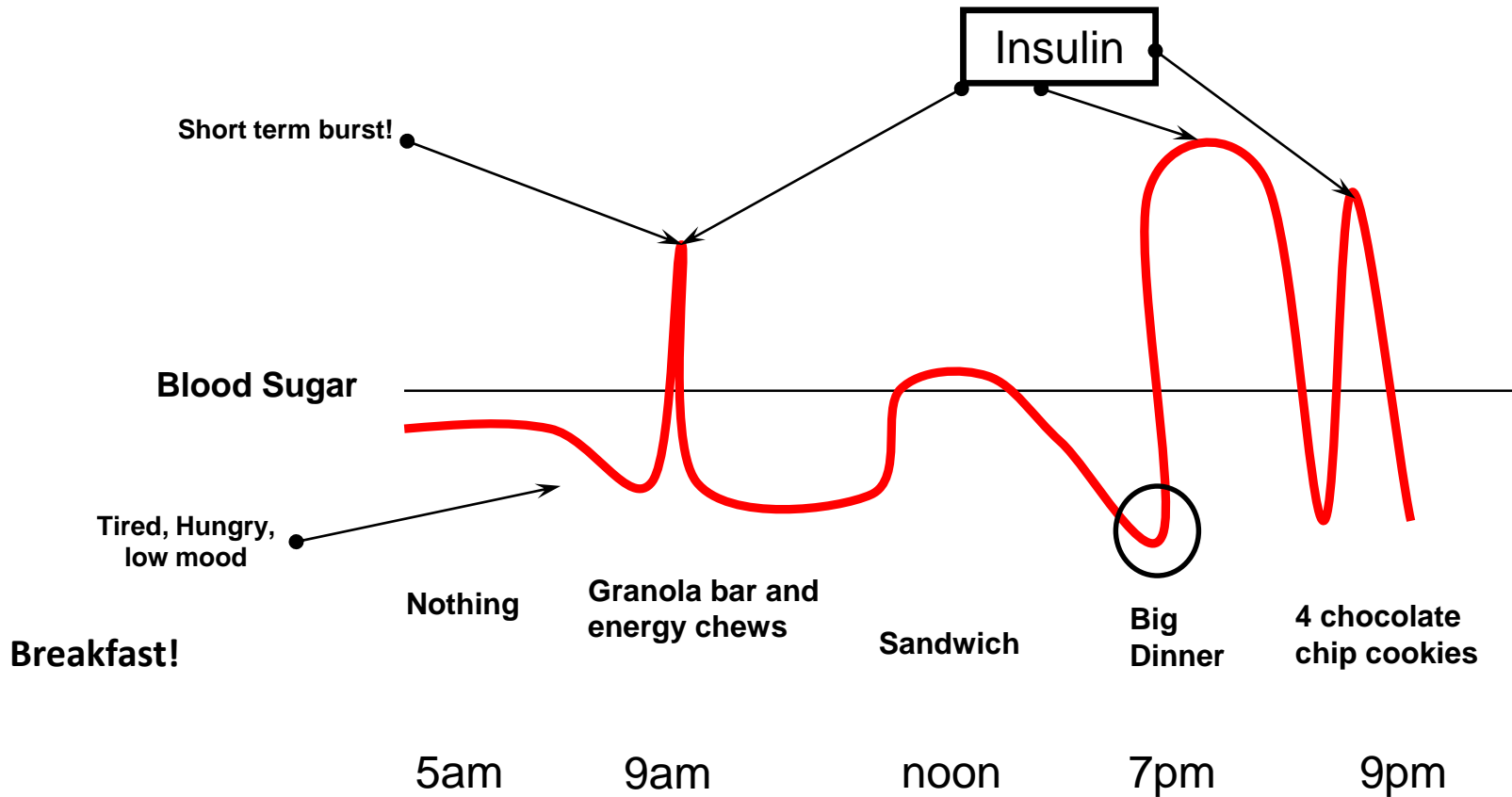
- endurance
- strength
- concentration & mood

Promote quick recovery

- glycogen resynthesis
- rehydration



Food-Energy Connection



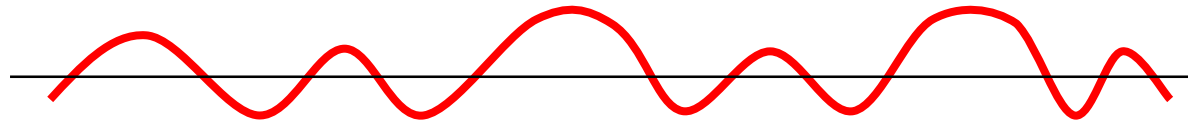
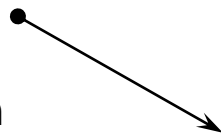
Timing



Eat every 2-3 hours (<4 hours): small **balanced** meals & snacks

**Energized
Fast Recovery
Quick Digestion
Improved Metabolism**

Blood Sugar



Snack	Breakfast	Snack	Lunch	Snack	Dinner	Snack
5:00	7:00	10:30	12:00	3:00	6:00	9:00

Balanced = Carbohydrate + Protein

Carbohydrates



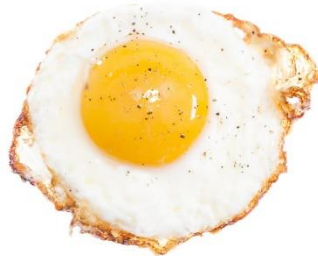
- Primary **energy** source for muscles and brain
- Provide fibre and antioxidants
- Support the **immune** system



Protein



- Repair **muscle** damage and promote growth
- **Satiety** (feeling of fullness)



Balance



Carbohydrate

Grains / Vegetables & Fruit



Protein

Milk & Alt. / Meat & Alt.



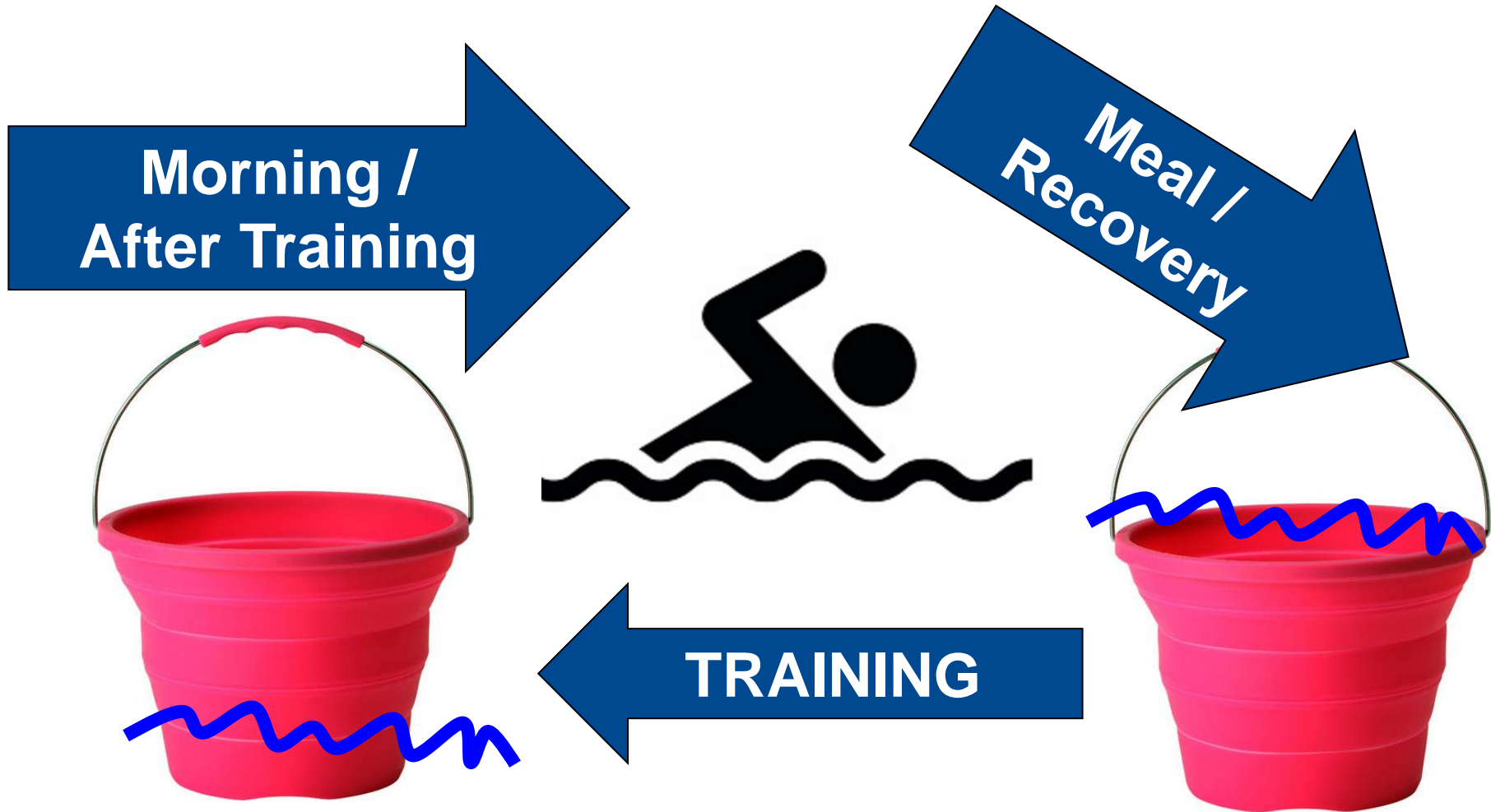
- Fresh fruit and cheese
- Chopped veggies and hummus
- Celery, raisins and peanut butter
- Fruit and yogurt shake
- Mini tuna cans with whole grain crackers
- Dried fruit and nuts (Trail mix)
- ½-1 sandwich or sub on whole wheat
- Greek/Regular yogurt and berries
- Bars (check the label & ingredients for sugar, fibre, & protein)
- Fruit and almonds (or other nuts)



Energy Reserves



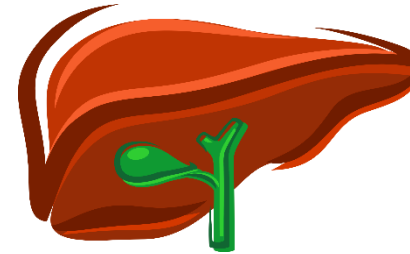
GLYCOGEN



Energy Reserves



GLYCOGEN



Morning or
after training



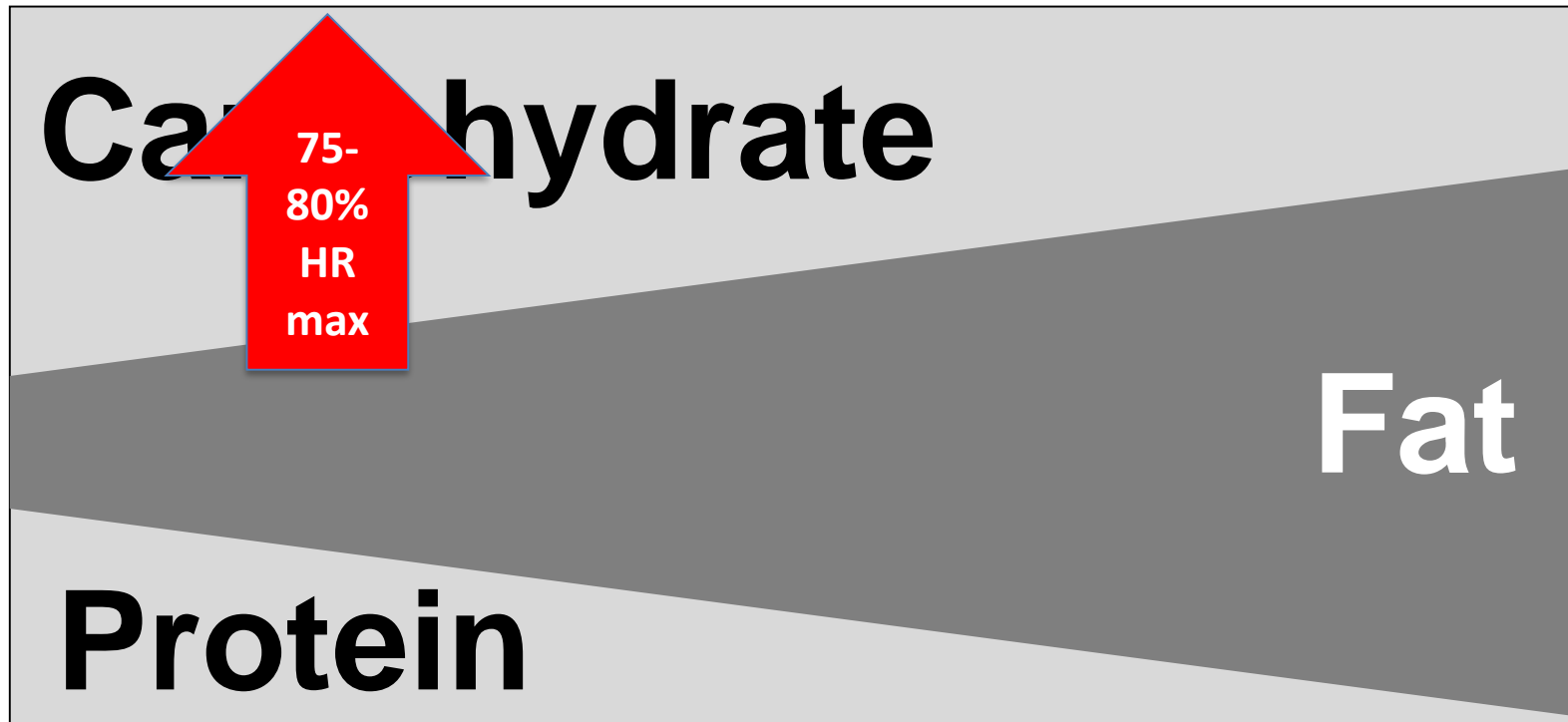
Meal or recovery

Which Fuel is Used?



Intensity +

Intensity -



Common Issues



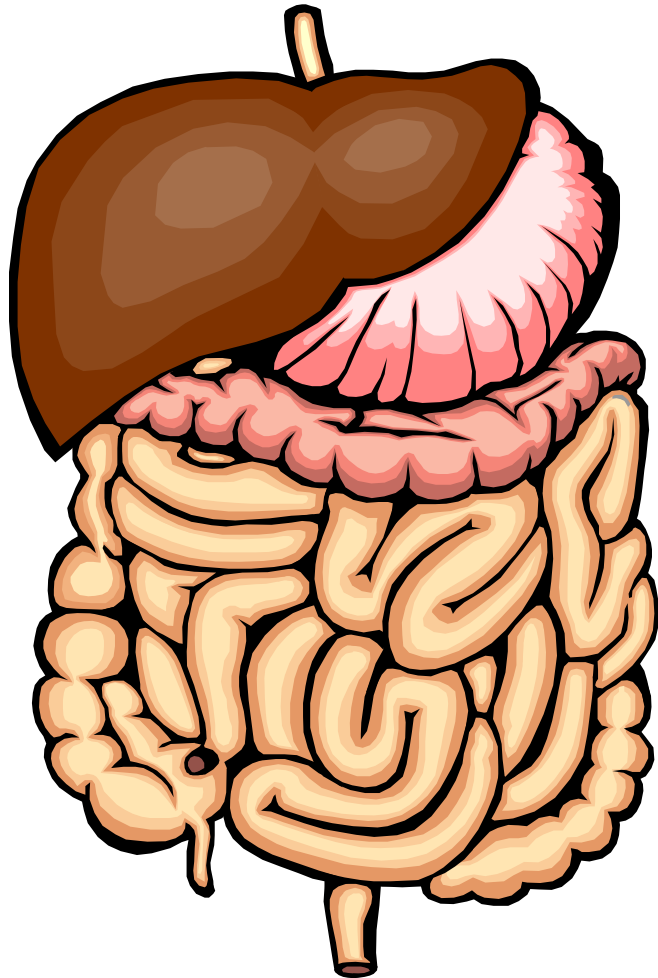
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It's too much to plan food for the whole day, so I usually pack a lunch, but don't throw in anything to eat after morning training.

I'm not thirsty during practice so I usually end up only having a few sips of water during, but I drink lots of water later on.

I feel the same whether I eat a burger and fries or salmon and rice with cooked vegetables – plus I don't want to bother with planning or cooking.

Time to Digest



**Carbohydrate : <
2h**

Protein : 2-5h

Fat : 4-9h

3, 2, 1 Rule



H o u r s B e f o r e

3 PROTEIN/_{FAT} + CARBS

2 PROTEIN + CARBS

1 CARBS

3, 2, 1 Rule



H o u r s B e f o r e

3

Greek yogurt + granola + berries

2

Peanut butter + bread

1

Banana

(4) 3, 2, 1 Rule



4...

French Fries
Chips
Ice cream
Hamburger
Beans and legumes
Large pieces of steak,
pork or meat
Lots of salad dressing
Lots of nuts
Lots of vegetables

3...

Pasta and sauce
Rice and fish
Cheese & bread
Peanut butter &
crackers
Chicken sandwich
Vegetables and dip
Salads
Oatmeal
***Small amounts of
zone 4 foods**

2...

Sportbars
Yogurt
Cereal and milk
Crackers
***Small amounts of
zone 3 foods**

1...

Fruit
Juice
Granola bar
Apple sauce
Fruit leathers
Fig Newtons
Pretzels
Bread (no spread)
***Small amount of
zone 2 foods**

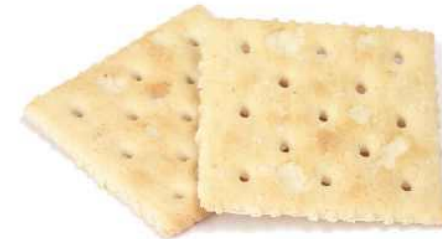


These foods are NOT recommended to eat before practices or games. BUT, if you do eat from this food zone, at least 4 HOURS to digest these foods!

Easy Digestion



Lower fat
Lower fibre
Protein as tolerated



Common Issues



I'm not hungry in the morning and feel sick if I eat before training so I usually don't eat breakfast.

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I'm not thirsty during practice so I usually end up only having a few sips of water during, but I drink lots of water later on.

I feel the same whether I eat a burger and fries or salmon and rice with cooked vegetables – plus I don't want to bother with planning or cooking.

Recovery Nutrition



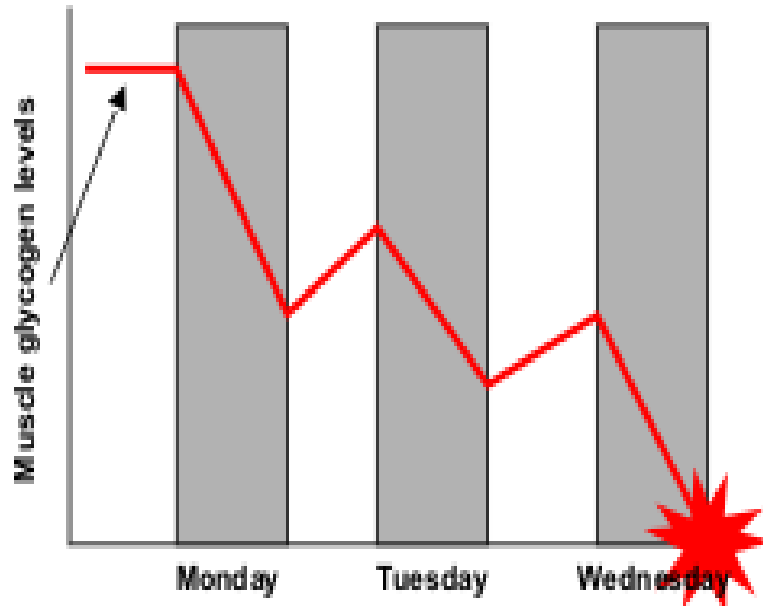
- **Short Term:**

- Manage hunger and energy levels
- Support the immune system

- **Long Term:**

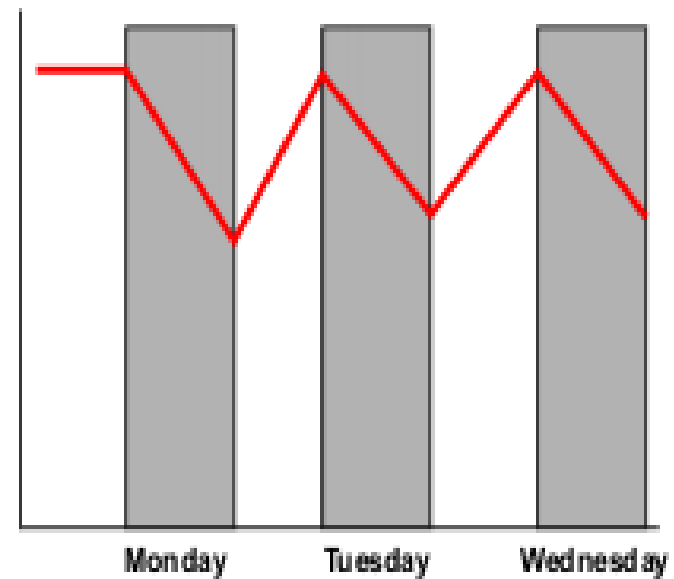
- Helps to meet higher nutrition targets
- Helps prevent injuries and illnesses

Consistent Recovery



[a] without proper carbohydrate feeding
2 hour quality training sessions...

Not Recovering Properly



[b] with good carbohydrate feeding during
and after each session...

Recovery Nutrition in Place

Recovery Nutrition



Refuel

Carbohydrate

Rehydrate

Fluid

Rebuild

Protein

Rapid Recovery



<8 hours between sessions

- eat / drink (simple) **carbohydrates** within **15-30 mins** and every hour after until a meal



>8 hours

- daily (complex) **carbohydrate** intake is enough

Simple Carbohydrate



No fat
No fibre
No/low protein



How Much?



eat / drink (simple) **carbohydrates** within **15-30 mins** and every hour after until a meal

1.0-1.2 g CHO / kg BW / hr

Sport Food/ Carb rich food	Portion	Carbohydrate (g)
Gel	1 pouch (25 g)	25
Sport Drink	500-600 ml	40 (may vary by +/- 10 g)
Power/ Clif bar (energy)	1 bar (50-60g)	40-45 (may vary by +/- 10 g)
Apple sauce	1 cup (250 ml)	30
Muffin	1 small (homemade)	30-40
Pita rounds	1 round	40
Raisin bread	1 slice	25-30

How Much?



eat / drink (simple) **carbohydrates** within **15-30 mins** and every hour after until a meal

1.0-1.2 g CHO / kg BW / hr

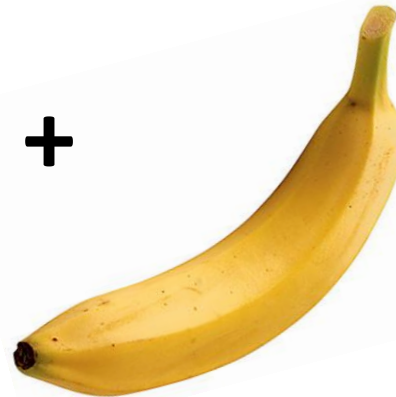
Example: 140 lb athlete = 64 kg

CHO needs = 64-77 grams

At least:



+



= 65 grams

Common Issues



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Hydration



- Dehydration is the #1 contributor to fatigue during exercise
- Inadequate fluid intake:
 - Faster use of stored energy
 - Makes exercise feel more difficult
 - Impairs concentration & focus

Feel thirsty = 3% dehydrated

Lost 10% of your performance potential



Staying Hydrated



- Drink first thing in the morning
- Small, frequent doses
 - Water bottle always in sight
- Don't aim for clear urine
- Drink continuously during exercise
 - Every 15 mins
- Drink water with all meals and snacks

1	
2	
3	
4	
5	
6	
7	
8	

Rehydration



Goal: Absorb and use fluids you drink

- Water to replenish losses
- Electrolytes (**sodium**, chloride, potassium)
 - pinch of salt (sodium, chloride)
 - electrolyte sports drink (sodium, chloride, potassium)
 - tomato juice (sodium, chloride, potassium)
 - chicken or vegetable broth soup (sodium, chloride)
 - fruit or dairy products (potassium)
 - pure coconut water (potassium)



Rehydration



Pretzels

28 grams / 17 pretzels

Nutrition Facts

Serving Size 1 oz (28g/About 17 pretzels)

Amount Per Serving

Calories 110 Calories from Fat 10

% Daily Value*

Total Fat 1g **2%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 450mg **19%**

Potassium 80mg **2%**

Total Carbohydrate 23g **8%**

Dietary Fiber 1g **4%**

Sugars less than 1g

Protein 2g

Vitamin A 0% • Vitamin C 0%

Calcium 0% • Iron 6%

Thiamin 8% • Riboflavin 8%

Niacin 6% • Phosphorus 2%

Magnesium 2%



450 mg

Sodium

80 mg

Potassium

23 g

Carb



250 mg

Sodium

65 mg

Potassium

38 g

Carb



Gatorade

591 mL

Nutrition Facts Valeur nutritive

Per 591 mL / par 591 mL

Amount % Daily Value
Teneur % valeur quotidienne

Calories / Calories 150

Fat / Lipides 0 g **0 %**

Sodium / Sodium 250 mg **11 %**

Potassium / Potassium 65 mg **2 %**

Carbohydrate / Glucides 38 g **13 %**

Sugars / Sucres 35 g

Protein / Protéines 0 g

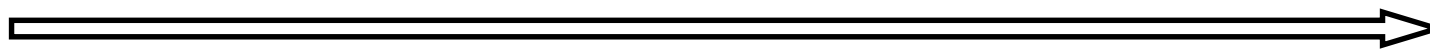
Not a significant source of saturated fat, trans fat, cholesterol, fibre, vitamin A, vitamin C, calcium or iron.

Source négligeable de lipides saturés, lipides trans, cholestérol, fibres, vitamine A, vitamine C, calcium et fer.

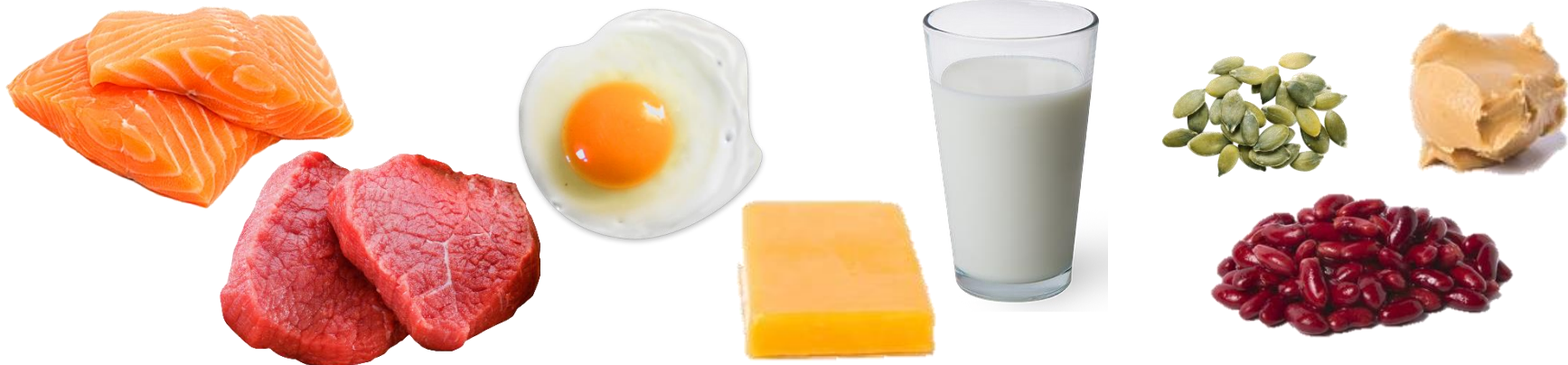
How Much Protein?



Snacks	After Practice	After Resistance Training	Meals
5 – 10 grams	10 – 20 grams	15 – 25 grams	20 – 30 grams



Spread intake throughout the day



Protein Powder



Food	25 g protein	Bonus Nutrients
Eggs, whole	3 eggs	B12, folate, bone minerals
Greek yogurt, vanilla	1 cup	300-500mg Ca, 30 g carbs
Milk/choc milk	3 cups	870mg Ca, Mg, K, P
Cheese	¾ cup (3 oz)	600mg calcium, Zn
Chicken breast	3 oz	B, K, Mg, B12
Canned tuna	3 oz (1 can)	B12, Ca, K
Salmon fillet	4 oz	Omega 3s
Almonds	1 cup	Carbs, fibre, fat, folate, K, Ca, P, Mg
Chick peas, cooked	2 cups	Vit C, carbs, fibre
Tofu (firm)	100g/ = 3/4 block	Ca, phytosterols
Hemp Hearts	7.5 tbsp	Omega 3s, Mg, Phos, Fe
Protein powder	1 scoop	20 mg calcium

Common Issues



I'm not hungry in the morning and feel sick if I eat before practice so I usually don't eat breakfast.

I'm not hungry after practice so I just wait a few hours until I'm home and feel hungry before I eat.

I'm not thirsty during practice so I usually end up only having a few sips of water during, but I drink lots of water later on.

I feel the same whether I eat a burger and fries or salmon and rice with cooked vegetables – plus I don't want to bother with planning or cooking.

Dietary Quality



Iron

Help Hb shuttle oxygen
Prevent shortness of
breath



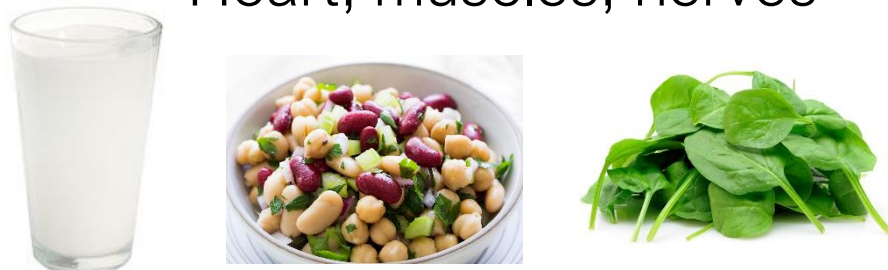
Magnesium

Muscle relaxation
Blood pressure
regulation



Calcium

Bone health
Heart, muscles, nerves



Vitamin D

Absorption of calcium
Muscles, nerves, immune
support



Dietary Quality



Omega-3s

Anti-inflammatory
Neuromuscular function



Antioxidants

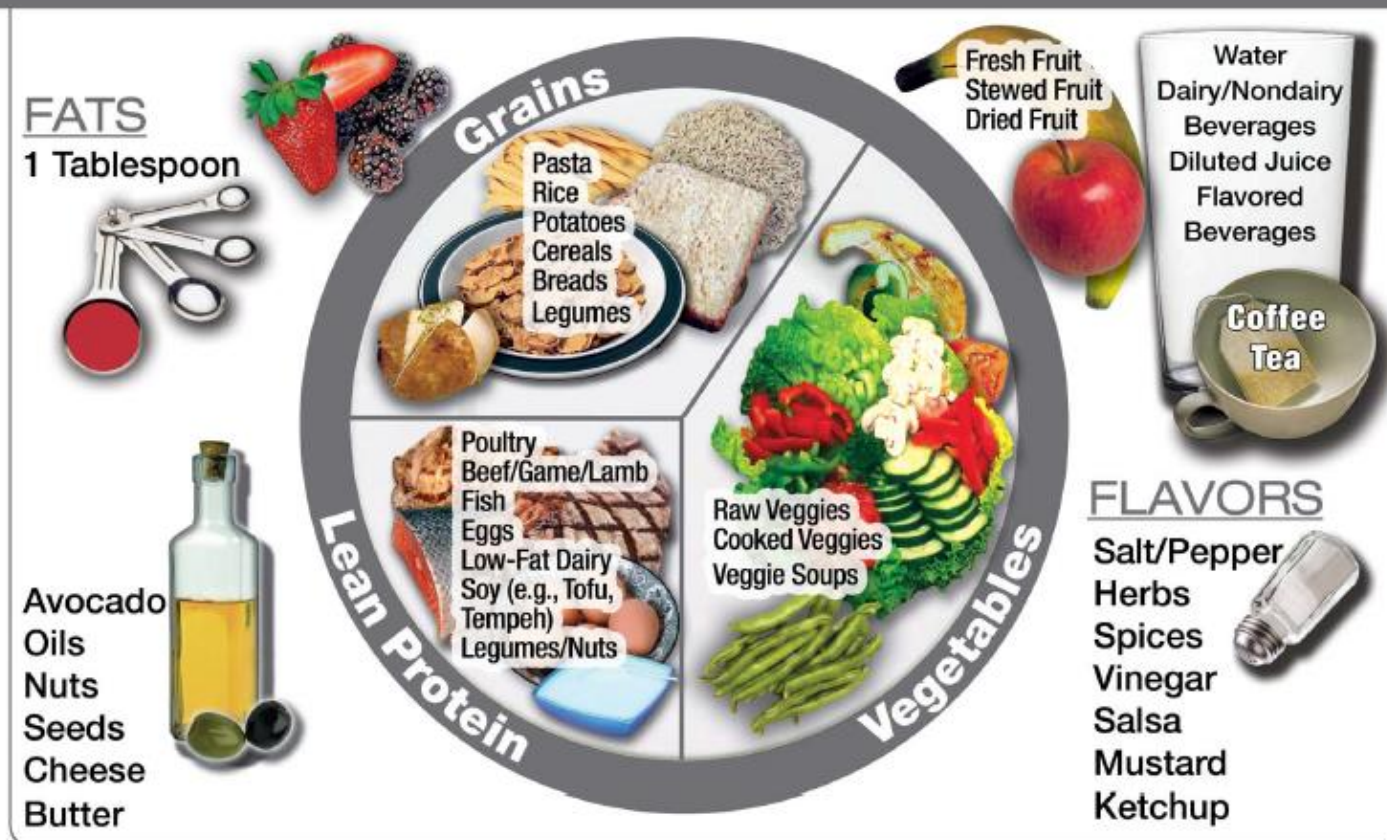
Limit cell damage
Improve cell regeneration



Balanced Plate



MODERATE TRAINING:



Balanced Plate



HARD TRAINING / RACE DAY:

FATS
2 Tablespoons

Grains
Pasta
Rice
Potatoes
Cereals
Breads

Lean Protein
Poultry
Beef/Game/Lamb
Fish
Eggs
Low-Fat Dairy
Soy (e.g., Tofu, Tempeh)
Legumes/Nuts

Vegetables
Cooked Veggies
Veggie Soups
Raw Veggies

Fresh Fruit
Stewed Fruit
Dried Fruit

Water
Dairy/Nondairy
Beverages
Diluted Juice
Flavored
Beverages

Coffee
Tea

FLAVORS
Salt/Pepper
Herbs
Spices
Vinegar
Salsa
Mustard
Ketchup

Avocado
Oils
Nuts
Seeds
Cheese
Butter

Putting it into Practice



Fuel Plan

Time	Event	Meal Plan
7:00 am	Breakfast	
8:00 am	Class	When / What
10:30 am	Snack	will
12:30 pm	Lunch	you
3:00 pm	Head home before practice	eat
4:00 pm	Early dinner	?
6:30-9:00 pm	Practice - Snack during	?
10:00 pm	Snack	

Fridge and Pantry Checklists



Batch cooking

Competition



Remember guidelines:

- Eat every 2-3 hours
- Balanced meals and snacks
- 3, 2, 1 rule for pre-exercise
- 3 R's of recovery for post-exercise
- Rapid recovery: consume carbs within 15-30 mins
- Hydration

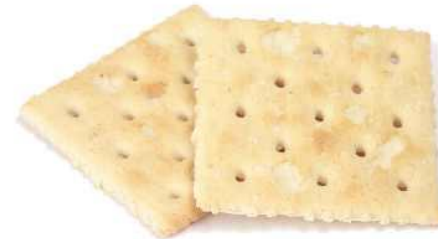
Eat for comfort and a happy gut

- Foods that affect speed of digestion
- Test competition nutrition in training

Easy Digestion



Lower fat
Lower fibre
Protein as tolerated



Be Prepared



Equipment

- Divide the supplies among the team/athletes
- Cooler, Fridge, Toaster, Blender/Magic Bullet
- Travel plate/bowl, utensils, water bottles
- Thermal bag

Plan ahead

- Restaurants
- Cafeterias
- Packed food
- Team responsibilities
- Hotel rooms with fridges



Bring Your Own



Non-Perishable Foods



Grains



Nuts & Seeds



Canned Pulses



Canned fish & Beef jerky



Non-Perishable Foods



Sports Food



Dairy



Fruit



Veg



Spreads



Thank You! Questions?



Vanessa Zoras, RD

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Resources



WADA prohibited list: <https://www.wada-ama.org/en/prohibited-list>

NSF Certified website: <http://www.nsf-sport.com/>

INFORMED-Sport website: <http://www.informed-sport.com/>

AIS supplement website: <https://www.ausport.gov.au/ais/nutrition/supplements/background>

UBC athlete nutrition website: <http://www.gothunderbirds.ca/sports/2016/7/5/nutrition.aspx>

Video on supplement safety: <https://www.youtube.com/watch?v=50QBwi11ncE>