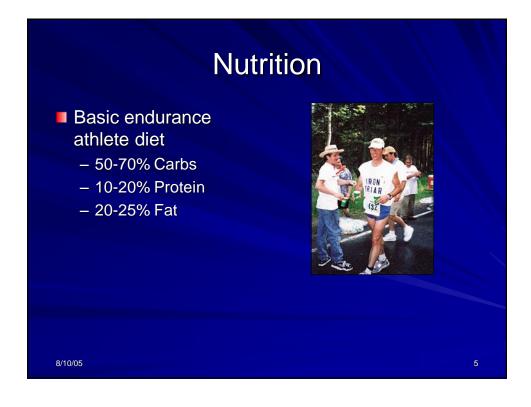
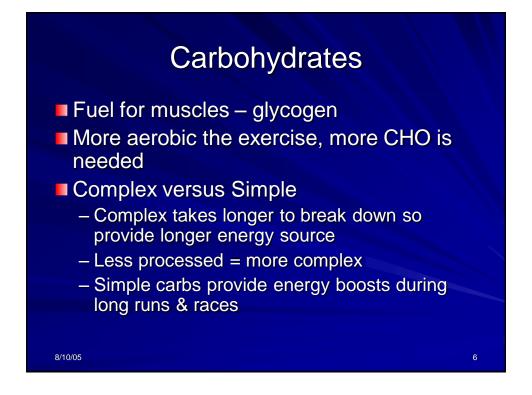






Nutrition Basics Eat a balanced and varied diet Most athletes need 1800-2000 calories/day minimum Even when trying to lose weight Low calorie diet – loss of muscle, higher risk of illness, poor performance For weight loss: decrease food calories by 250, increase exercise calories burned by 250 (net 500 kcal/day deficit)





GI Index

- Absorption index (0-100)
- Examples
 - Low GI (< 50) apple, orange, sweet potato, beans, lentils, chocolate
 - Moderate GI (50-60) raisins, brown rice, pasta, honey
 - High GI (60+) cereals, sports drinks, energy bars

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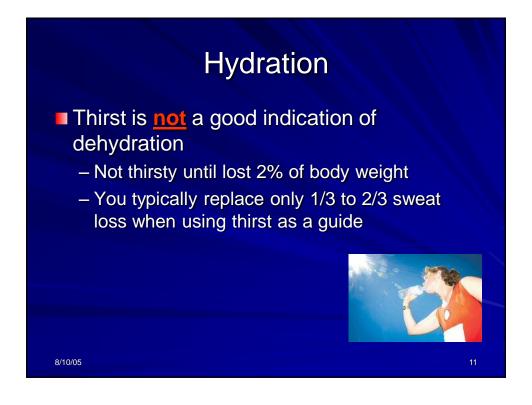
GI Index

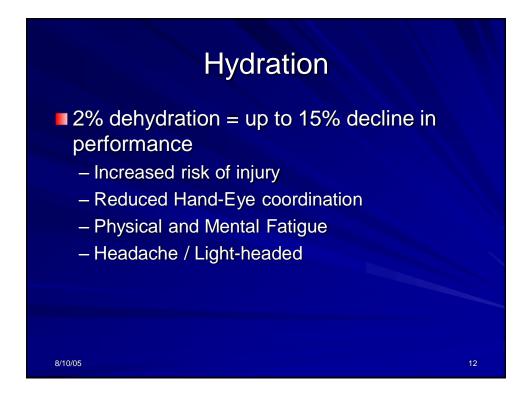
- GI rate affected by combinations, so you can lower GI:
 - Eat carbs with protein, fat
 - Add fiber
 - Increase acidity
- Low GI foods slow release eat 2-3 hrs before exercise
- High GI foods fast release during exercise, immediately after to refuel muscles

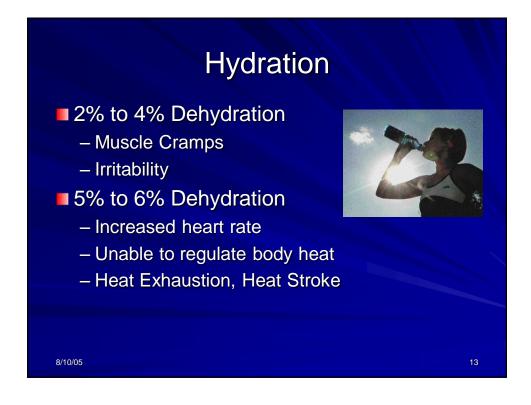
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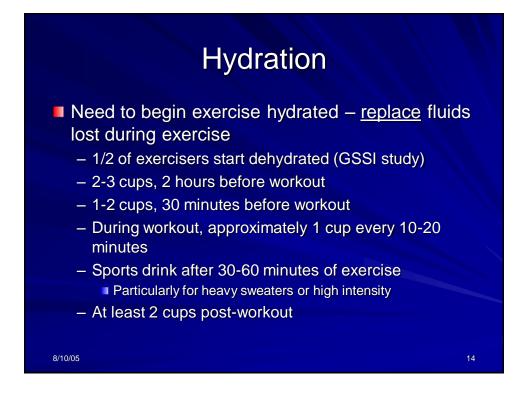
Protein Essential for muscle repair and growth Provides fuel in long endurance activities Vegetarian Choices Beans, seeds, nuts Soy products – soy milk, tofu Atkins – BAD, BAD, BAD for the athlete

Fat Necessary – concentrated energy source Transport fat soluble vitamins (A, D, K, E) Provides essential fatty acids you body cannot make 20-25% for most athletes < 15% fat diet linked to decrease in performance Eat primarily monounsaturated and polyunsaturated fats Canola oil, olive oil Nuts, seeds, salmon, tuna









Hydration

- Urine check for dehydration
 - Lemonade, not apple juice
- But some medications, food, vitamins can change urine

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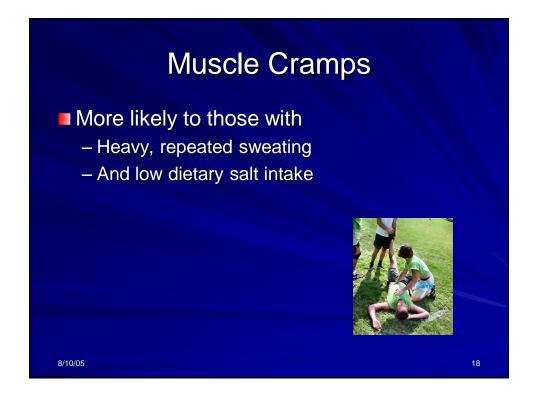
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Hyponatremia

- Over-hydrating, usually seen in slower marathoners
- Take in too much water, sodium level in blood drops too low
- Risk of heat illness from dehydration is much higher than for hyponatremia
- http://www.cararuns.org/cara_info/hydration.html

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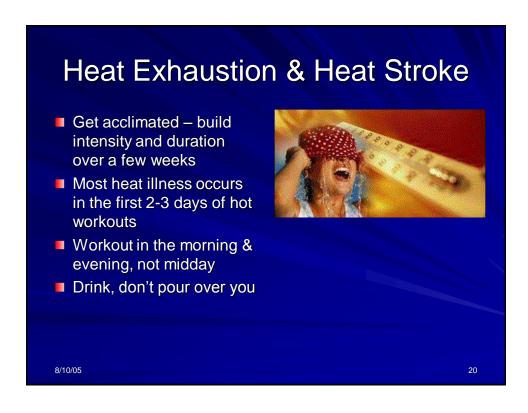
Muscle Cramps Cause mostly by dehydration Plus loss of sodium, chloride, potassium, calcium, magnesium in sweat Rest & gently stretch muscle + sports drink to replace fluid & electrolytes



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Muscle Cramps Preventive measures: - Salt your food, particularly after workout (if no diagnosis/history of hypertension) Though typical American diet has adequate to toomuch sodium Particularly with prepared foods - Sports drinks during exercise with electrolytes Include high potassium foods in everyday diet – potatoes, orange juice, tomato juice,

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bananas, black beans, milk

Heat Exhaustion

- Dizziness, light-headedness, clammy skin, chills, nausea/headaches
- Drink small amount of fluid often
- Rest in a cool, shaded area
- Lie down with legs slightly elevated
- Rest at least two hours before resuming exercise

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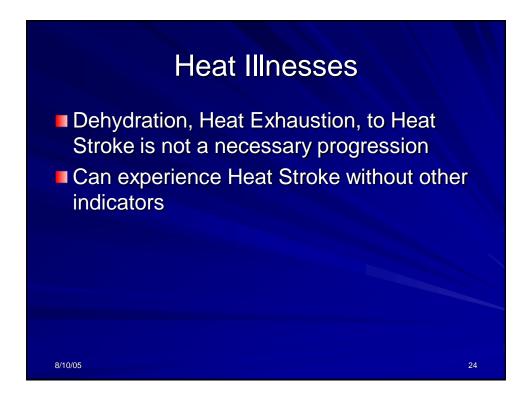
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Heat Stroke

- High body temperature, stop sweating, confusion, unconsciousness
- Requires immediate medical attention!
- After summoning medical attention, cool body – remove unnecessary clothing, ice bath, cold towels, spray body with water, etc.

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Heat Illness Risk Factors

- Hot, humid weather
- Dehydration
- Heavy equipment or clothing
- High intensity workout
- Obesity

- Deconditioning
- Certain medications like diuretics
- Chronic/long term diseases like diabetes
- Alcohol consumption
- Other substance abuse (Ephedra, ecstasy, cocaine)

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Fluids Needs - Sweat Rate

- To determine your sweat rate:
 - Pre-exercise, weight yourself naked
 - Take a known amount of fluid during exercise
 - Do not urinate during exercise
 - Post-exercise, dry off, weigh again naked
- Sweat rate = weight loss during exercise (1 lb = 16 oz) fluid consumed during exercise (oz)
- Hydration needs = Weight lost during exercise (oz) + Fluid consumed during exercise

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Sports Drinks

- Water alone is okay for most people exercising under 1 hour
 - Exceptions: heavy sweating, multiple sessions/day
 - Also stop-and-go sports (football, soccer, hockey)
- Look for 6% 9% carbohydrates best for absorption
 - Don't need to dilute
- Should offer carbs and electrolytes
 - Sodium in drink improves taste and facilitates absorption

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Sports Drinks

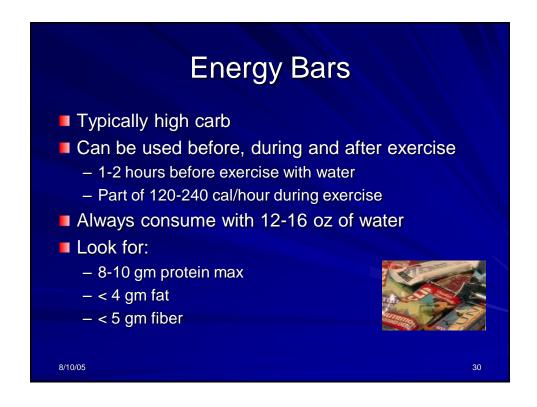
- Don't want fructose as the primary carb
 - Slow absorption may upset stomach
 - Look for sucrose, glucose, maltodextins
 - "high fructose corn syrup" OK
- See what works best for you try different brands
 - Taste and flavor should appeal to you or you won't drink
- Know what the race will have
 - Take your own if questionable
 - Possible errors in mixing

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Gels Concentrated carbs Generally around 100 cal, 25 gm CHO per packet Some contain electrolytes and/or protein Always take with water, not a sports drink! Gel + Sports Drink is too concentrated CHO Will not empty from stomach easily



Fueling During Training Swim Still need to hydrate because you still sweat, just don't realize it Sports drink in bottle, sip between laps Solid food might give side stitches

- Bike
 - Bottle carriers, packs (under seat, handlebars, bento
 - Put finger food in plastic bags raisins, fig bars, crackers
 - Cycle jersey with pockets
 - Carry \$\$ for rest stops

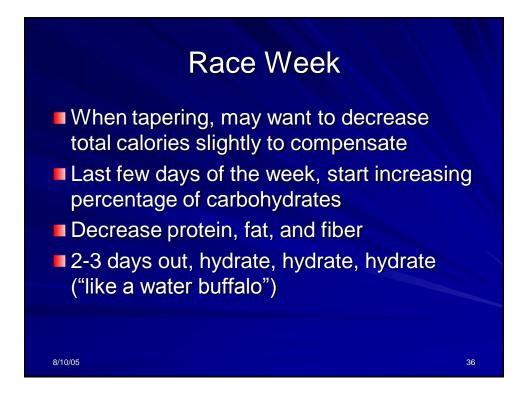
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Fueling During Training

- Run
 - Shorts with pockets (RaceReady)
 - Cycle jersey with pockets
 - Fanny pack
 - Stash goodies in car (loop course)
 - Water bottles, camelback
 - Nibble slowly, eat and drink little but often (too much liquid can be stomach jarring)
 - Choose liquids and gels over solid food

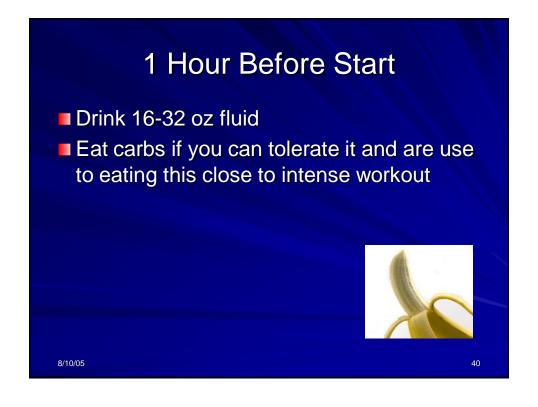




Night before have a high carbohydrate dinner, and snack, to load liver glycogen - Minimize protein and fat - Limit fiber & "gassy" foods Avoid alcohol At least 16 oz of fluid before bed



1-3 Hours Before Start Eat low GI carbs to prolong endurance "Breakfast" should be 2/3 size of regular meal 400-800 calories Low to minimum protein, low fat Plenty of fluids!



30 Minutes Before Start

- 8-16 oz sports drink (*think*: high GI carbs)
- Avoid protein and fat which are slow to digest – may lead to cramping
- Remember there are bathroom issues drinking this close to race start
- But: You Don't Want to Start the Race Dehydrated!

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During the Race

- Fluid 5-12 oz every 15-20 minutes
 - Set watch timer to remind you to drink
 - Take big gulps large volume empties from stomach faster
 - Cooler fluids also empty quicker
- Start drinking early T1



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During the Race

- More than 1 hour, 30-60 gm CHO per hour
 - High GI
 - Steady stream 60-120 cal per 1/2 hour
 - Sports drinks may be easiest
 - ■Check label & determine how much you have to drink to get 30-60 gm CHO
- Replace electrolytes for long sessions, heavy sweating

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Finish Line

- Re-hydrate 16 oz fluid for every pound lost
- Skip the Beer Tent
- Glycogen window 15-30 minutes after
 - High GI Carbs
 - Minimum 50 gm CHO
- Add 10-15 gm protein recover better than CHO alone

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