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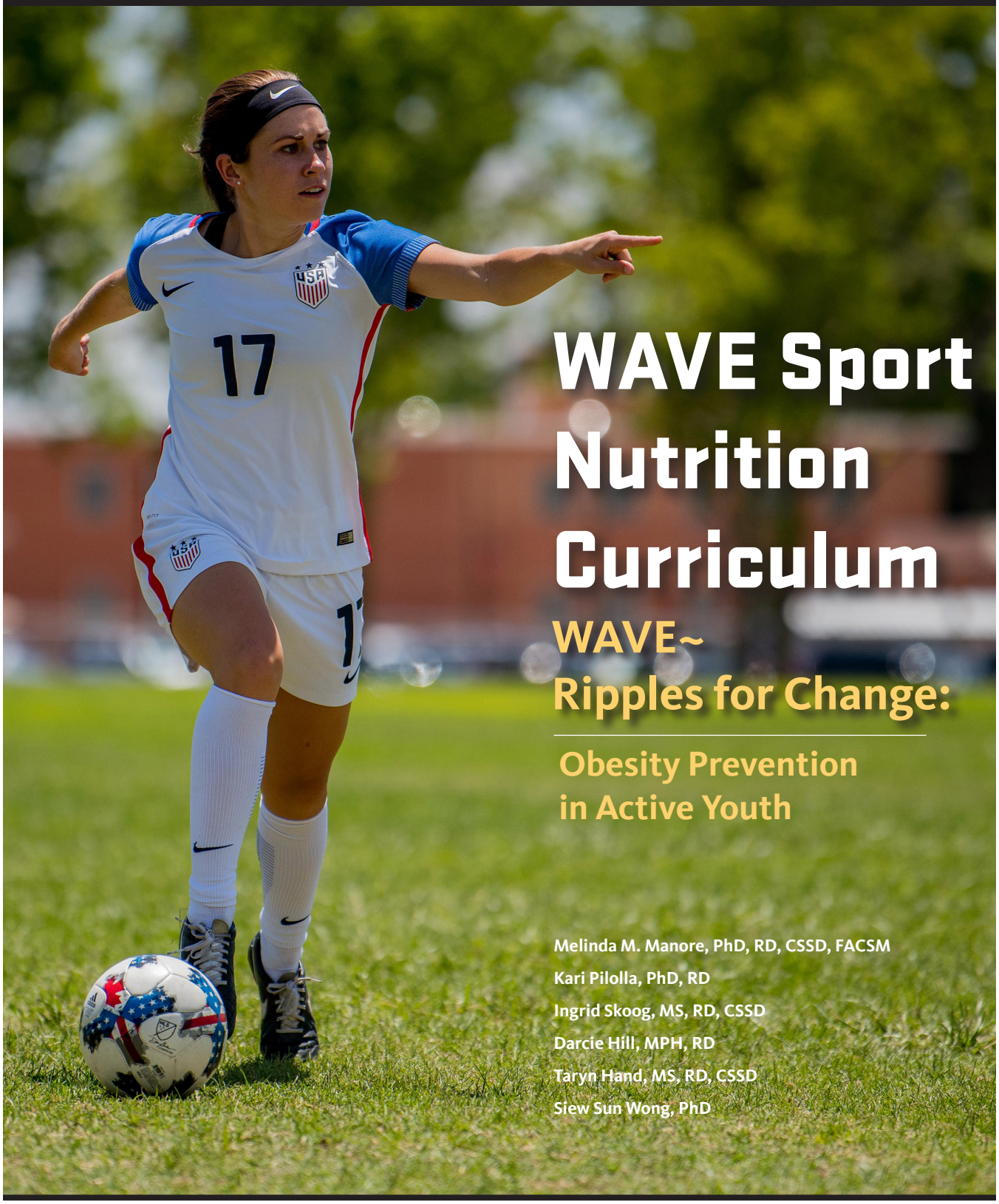

WAVE Sport Nutrition Curriculum

WAVE~ Ripples for Change:

Obesity Prevention in Active Youth

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Photo (above and on cover): US Air Force

A player controls the ball during a soccer practice.

Preface

WAVE~Ripples for Change: Obesity Prevention in Active Youth is a five-year research project funded by the National Institutes of Food and Agriculture's Agricultural and Food Research Initiative (AFRI). As part of this project, we developed, pilot-tested, and delivered a two-year, sport-nutrition curriculum to high school soccer players—the WAVE Sport Nutrition Curriculum.

One of the project objectives was to use youth's interest in sport to draw them into learning more about healthy eating and sport nutrition to fuel a healthy, active body for life. High school athletes already know about physical activity, training hard, and working toward a goal. We wanted to capitalize on this interest and passion to teach lifelong skills for healthy eating and physical activity. This knowledge helps athletes manage body weight and avoid unwanted weight gain in adulthood.

Who needs this curriculum?

The WAVE Sport Nutrition Curriculum targets high school athletes or active adolescents. Although we used this curriculum with high school soccer players, the content is applicable to all active adolescents.

The curriculum can be adapted for youth involved in many different sports and activities. The program was pilot-tested and revised based on input from high school athletes, registered dietician nutritionists (RDN), RDNs trained in sport nutrition (certified specialists in sport dietetics or CSSD), college athletes, nutrition and exercise science educators, and coaches.

The revised program was delivered over a two-year period (2015–17) to over 300 multiethnic Oregon high school soccer players ages 14 to 19 years old. Input from these athletes also helped to refine the curriculum.

Melinda M. Manore, professor, School of Biological and Population Sciences, Oregon State University; Kari Pilolla, assistant professor, California Polytechnic State University; Ingrid Skoog, senior Instructor, School of Biological and Population Sciences, Oregon State University; Darcie Hill, wellness administrator, Western Washington University; Taryn Hand, health educator/nutritionist, University of Oregon; and Siew Sun Wong, associate professor and Extension specialist, Extension and Family Community Health, Oregon State University.

Who should deliver the program?

Knowledgeable nutrition or health professionals working with active youth can deliver the curriculum. These professionals might include Extension family and consumer health or 4-H faculty, high school health teachers, or RDNs. Our program was delivered by a dietician (an RDN with a masters in public health) with degrees in exercise science and public health and experience playing collegiate and professional soccer.

How is the curriculum delivered?

Instructors can deliver the curriculum in a variety of settings, including classrooms, after-school programs, or weekend-summer workshops or camps. We delivered the curriculum over the fall soccer season at individual high schools and during summer camps. The curriculum can be adapted for delivery within a variety of programs, depending on the time available and access to adolescent athletes.

What is included in the curriculum?

The WAVE Sport Nutrition Curriculum consists of seven lessons designed to be presented in 30- to 45-minute periods. The lesson time depends on the number of activities included in the lesson by the educator, and when and where the lessons can be delivered. We found that coaches are reluctant to take time away from practice for sport nutrition lessons, so we employed short, focused, and student-engaged lessons. Coaches who participate in the lessons and reinforce key messages in practice play a critical role in engaging the athletes and changing behaviors.

The following topics are included in the curriculum, each based on the latest sport-nutrition research, with the reference sources provided in every lesson plan.

1. Hydration and exercise
2. Pre-exercises nutrition—fueling before exercise
3. During-exercise fueling
4. Recovery fueling
5. Body image and composition
6. Maintaining body composition and staying well
7. Eating well while eating out

Photo: US Air Force

Use your athletes' interest in sport to draw them into the topic of sport nutrition and healthy eating.

Each lesson contains the following items:

- Lesson plan, including in-class activities, materials needed for the lesson, and specific references for additional information on the topic
- PowerPoint presentation with presenter notes. Educators can customize the PowerPoint slides for their particular audience.
- Activities (such as clickers and recipe tasting) and worksheets to engage students
- Handouts for coaches or athletes

As teachers and educators, we are familiar with the myriad challenges in presenting nutrition, diet, and physical activity information to high school students. We used our athletes' interest in sport to draw them into the topic of sport nutrition and healthy eating and show them how to apply the knowledge and skills they learned in class on the field and in their lives. We hope this curriculum excites your students to learn about eating healthy and smart for sport performance—knowledge and skills they can use for a lifetime long after high school sports are over.

WAVE Sport Nutrition Curricula Assessment Tool

Directions: Please complete this assessment tool for each of the seven lessons in the curriculum. If a question is not appropriate for the lesson, mark N/A. Provide additional comments at the end of the tool or on the curriculum and mail back to OSU Extension.

Reviewer: _____ **Lesson topic/number:** _____ **Date:** _____

	Effective: 4pts	Good: 3 pts	Fair: 2 pts	Ineffective: 1 pts	Score	Comments
Sport Nutrition Content						
Research-based content	The content of the lesson is research-based, accurate, and current.	One key point is missing from the lesson.	More than one key point is missing from the lesson.	The content is not research-based, accurate, or current.		
Balanced View – recognizing any aspects that are not yet clearly understood or open to debate.	The lesson presents a balanced view of the sport nutrition topic for high school (HS) athletes.	One aspect of the lesson does not present a balanced view.	More than one aspect of the lesson does not present a balanced view.	The lesson presents a one-sided view of the topic.		
Learning objectives	Includes clear, measurable learning and/or behavioral objectives linked to the lesson.	One learning objective is not clear or is not linked to the lesson.	More than one objective is not clear or is not linked to the lesson.	Does not include clear, measureable learning or behavioral objectives.		
				Total Score		
Audience						
Target audience (HS athletes or active individuals in this age group)	Lesson is appropriate for audience.	One aspect of the lesson is not appropriate for the audience.	More than one aspect of the lesson is not appropriate for the audience.	The lesson is not appropriate for the audience.		
Audience involvement occurs in a variety of ways.	Actively engages the audience in the learning process and promotes behavior change.	One aspect of the lesson does not involve the audience.	More than one aspect of the lesson does not involve the audience.	Does not actively engage the audience.		

	Effective: 4pts	Good: 3 pts	Fair: 2 pts	Ineffective: 1 pt	Score	Comments
Graphic images reflect and respect diversity.	Images used in the lesson reflect and respect diversity.	One image in the lesson does not reflect and respect diversity.	More than one image in the lesson does not reflect and respect diversity.	The images do not reflect and respect diversity.		
				Total Score		
Readability of slides, handouts and/or activities						
Grammar, including spelling and punctuation	Reflects standard written English	One or two grammatical errors	More than two grammatical errors	Not comprehensible.		
Readability (slides, handouts, or activities)—unfamiliar words are clearly defined	The context on the slides and the handouts or activities are at the appropriate reading level for the target audience.	One slide, handout, or activity is at an inappropriate reading level for the target audience.	More than two handouts, slides, or activities are at an inappropriate reading level for the target audience.	The lesson is not at the appropriate reading level for the target audience.		
				Total Score		
Utility						
Lesson implementation/ preparation (for educators)	Includes all the materials, information, and resources needed to support, prepare for, and present the lesson to the class	One or two pieces need more information before implementation.	More than two pieces need more information before implementation.	Does not include the necessary material for implementation		
Instructions (lesson plan and presenter notes)	Includes appropriate instruction for the educator	One or two key instructions are missing.	More than two references are missing.	Instructions are incomplete and hard to follow.		
Activities (video, handouts, worksheets, recipes)	Activities reinforce the educational message and are practical to implement.	Only one activity or part of an activity is difficult to implement.	More than one activity not practical to implement.	The activities are not practical to implement.		
References and source citations.	Includes appropriate reference material for educator to support the lesson	One or two key references are missing.	More than two references are missing.	Does not include appropriate references		
				Total Score		

	Effective: 4pts	Good: 3 pts	Fair: 2 pts	Ineffective:1 pt	Score	Comments
Evaluation						
Audience knowledge assessment	Includes knowledge assessments using 'clicker questions' or open questions in class	One or two key knowledge assessments are missing.	More than two key knowledge assessments are missing.	Does not include a knowledge assessment component.		
Target audience engagement	Includes activities, questions, and learning processes that engage the target audience	One or two key methods for engaging the target audience are missing	More than two key methods for engaging the target audience are missing.	The lesson does not engage the target audience.		
Knowledge application	Includes activities, discussion, and experiential learning that helps the HS athletes apply their knowledge to real life	One or two key application methods are missing.	More than two key application methods are missing.	The lesson does not contain application activities or methods.		
				Total score		
				TOTAL LESSON SCORE		

Additional comments. Please provide specific comments on items that need to be changed or addressed below or directly on the paper copy of the curriculum. Mail assessment tool forms and specific comments to OSU Extension.

Photo: US Air Force

US Air Force 2nd Lt. Alicia Bridel, an operational research analyst, practices her goal scoring accuracy at Kirtland Air Force Base, in New Mexico. Bridel, also shown on the cover, competes with the US Armed Forces Women's soccer team.

Published September 2018

Lesson 1: Hydration and Exercise

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Recognize factors that influence fluid needs and why fluids are necessary for good health and sport performance 2. Calculate fluid needs (pre-, during, post-exercise) 3. Create a pre-, during and post-exercise fluid intake strategy or plan and appropriate beverage options 4. Recognize signs and symptoms of poor fluid intake (dehydration).
Lesson goals	To help participants understand the purpose of proper hydration for sport and the tools and skills needed to implement a hydration plan to: 1. Delay onset of dehydration 2. Improve and maintain training and performance 3. Decrease risk of illness and injury related to dehydration.
Key terms	Dehydration, rehydration
Prerequisite knowledge	Pound = lb, weight= wt, ounce= oz., kilogram= kg 8 oz. = 1 cup, 1 lb = 16 oz., 1 lb = 2.2 kg

Activities

	Title	Steps
1	Sports drink taste test	Set up chilled sports drinks for taste testing (Gatorade, PowerAde, Accelerade, homemade sport drink [recipe included]) Taste testing: set up samples for participants to take at the beginning of the presentation. This will save time and allow for discussion during the presentation. Fill small Dixie cups with 2 oz. of each sport drink. Label.
2	Calculating body water losses and replacement	Activity Handout: *Calculating Body Water Losses and Replacement* Walk students through "Messi" example on handout Direct participants to work through the steps using their own data or an example of a 4-lb weight loss during exercise.
3	Individualized Sport Nutrition Worksheet	Activity handout: *Individualized Sport Nutrition Plan* Have participants complete the green "Hydration" section using the skills they just learned and by referencing Section A for additional assistance.

Materials needed

Item	Details
▪ PowerPoint presentation with presenter notes ▪ Optional: Remote Response Devices (clickers) for each student and 1 receiver for instructor ▪ If you want feedback from participants: note cards and pencils for each student ▪ Paper tasting cups (enough for all to taste each sport drink) and paper towels ▪ Trash containers ▪ Small calculators for participants to use or allow them to use their phones ▪ White board/chalk board/flip chart	
AV/other	Computer, projector, projector screen,
Handouts	1. *Individualized Sport Nutrition Plan* 2. *Calculating Body Water Losses and Replacement* 3. Homemade sports drink recipe and information 4. *Urine Color Charts* (3-4 laminated) with hydration reminders (when and what). These are for coaches to put in locker rooms.
Lesson-specific supplies	▪ *Urine Color Charts* for comparison ▪ Sports drinks for tasting (including homemade sport drink)
Materials for coaches	Laminated *Urine Color Charts* (mentioned above). This is for coaches to put in locker room.

Preparation instructions

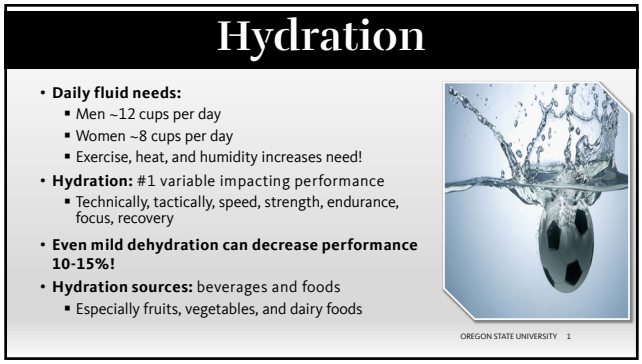
In advance
1. Review lesson plan, PowerPoint, and handouts
2. Practice lesson prep (making sports drink, etc.) and giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup.

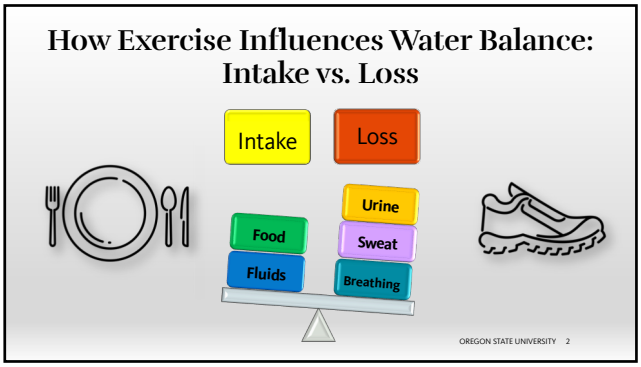
On-site preparation
1. Arrange the room to accommodate groups of 3-4 participants per group.
2. Set up computer and projector. Ensure there will be a screen or blank wall to project on; if not, acquire a mobile projector screen or similar alternative.
3. Turn on PowerPoint and open slide presentation and response software
4. Make your homemade sports drink recipe. Purchase other sports drinks to sample. Place beverage samples on a table in front or to the side of the room (long table preferred). Arrange tasting cups.

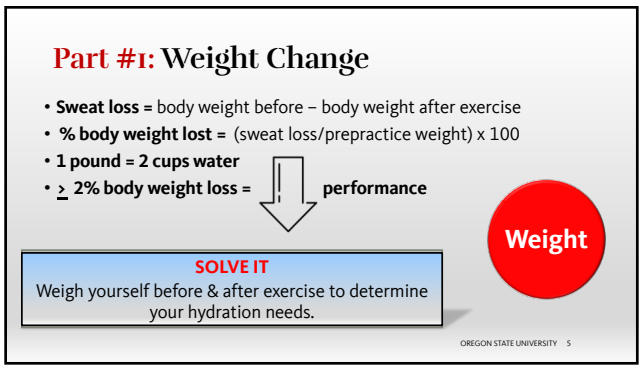
References for further information

1	Armstrong, L.E., D.J. Casa, M. Millard-Stafford, D.S. Moran, S. Pyne, W. Roberts. 2007. Exertional Heat Illness during Training and Competition. *Medicine and Science in Sports and Exercise 39*, 556–572. http://journals.lww.com/acsm-msse/Fulltext/2007/03000/Exertional_Heat_Illness_during_Training_and.20.aspx
2	Casa, D.J., J.K. DeMartini, M.F. Bergeron, D. Csillan, E.R. Eichner, et al. 2015. National Athletic Trainers' Association Position Statement: Exertional Heat Illnesses. *J Athletic Training* 50(9):986–1000. http://www.natajournals.org/doi/pdf/10.4085/1062-6050-50.9.07
3	Desbrow, B., J. McCormack, L.M. Burke, G.R. Cox, K. Fallon, M. Hislop, R. Logan, N. Marino, S.M. Sawyer, G. Shaw, et al. 2014. Sports Dietitians Australia Position Statement: Sports Nutrition For The Adolescent Athlete. *International Journal of Sport Nutrition And Exercise Metabolism* 24, 570-584. http://journals.humankinetics.com/doi/abs/10.1123/ijsnem.2014-0031
4	Houtkooper, L., J.M. Abbot, V. Mullins. 2007. *Winning Sports Nutrition*. DSW Fitness, Tucson, AZ.
5	Manore, M.M., N.L. Meyer, J. Thompson. 2009. *Sport Nutrition for Health and Performance*, 2nd Ed. Human Kinetics, Champlain, IL.
6	Meyer, N.L., M.M. Manore, and J. Berning. 2012. Fueling for Fitness: Food and fluid recommendations for before, during and after exercise. *ACSM's Health and Fitness Journal* 16 (3):7–12. http://journals.lww.com/acsm-healthfitness/Abstract/2012/05000/Fueling_for_Fitness__Food_and_Fluid.5.aspx
7	Sawka, M.N., L.M. Burke, E.R. Eichner, R.J. Maughan, S.J. Montain, N.S. Stachenfeld. 2007. American College of Sports Medicine Position Stand. Exercise and fluid replacement. *Medicine and Science in Sports and Exercise* 39, 377-390. http://journals.lww.com/acsm-msse/Fulltext/2007/02000/Exercise_and_Fluid_Replacement.22.aspx
8	Thomas, D.T., K.A. Erdman, L.M. Burke. 2016. American College of Sports Medicine (ACSM)/Academy of Nutrition and Dietetics (AND) Joint Position Statement. Nutrition and Athletic Performance. *Medicine and Science in Sports and Exercise*, 48(3):543-568. http://www.sciencedirect.com/science/article/pii/S221226721501802X

Presentation: Hydration







Example: Messi's Mistake

- **Messi**: weighs 150 pounds
- **He loses 5 pounds (3%) during a game … Oops!**
- **5 pounds = 10 cups of water (sweat) lost**
- **To replace water losses:**
  - ✓He needs to drink 2–3 cups per pound lost = 10–15 cups of water
  - ✓ But not all at once—spread out intake over the next 2 hours, then stay ahead by continuing to hydrate.
- **Next time, drink more fluids before and during your game, Messi!**

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Your Turn, Your Plan

1. **Handout:** Section A
2. **Find the weight range that fits you.**
3. **Then follow across the row to find:**
   - What 2% body weight loss looks like
   - How many cups of water = 2% of your body weight
   - The amount of water you need to consume to fully rehydrate

Put your plan into action!

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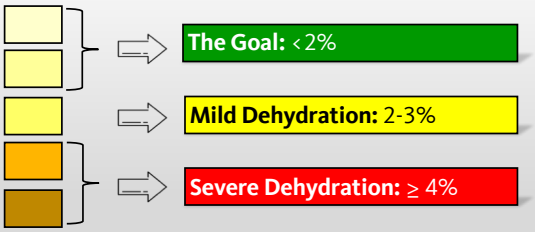
Part #2: Urine Color

- **Urine color gets darker with dehydration.**
  ⇨ Therefore, urine color can be used as an indicator of hydration status.
- **What color was your urine the last time you looked?**
  - Morning urine color is always darker.
  - Use urine color as indicator during the day.

SOLVE IT
Take a look and take action!

OREGON STATE UNIVERSITY 8

Three Levels of (De)hydration



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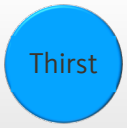
Part #3: Thirst

- **Thirst cues work well during the day but may not always work during exercise.**
  - Thirst indicates fluid need, but might not indicate amount of fluid needed during exercise.
  - If you are thirsty during exercise, you may already be 1–2% dehydrated.
- **Water versus sports drinks?**
  - Water: the "go-to" hydration option
  - Sports drinks:
    - ✓ Carbohydrate for muscle and brain fuel
    - ✓ Replenishes electrolytes, helps water absorption, and triggers thirst.
- **Homemade sport drink** = 5 cents per cup!
- **Remember:** You need water and electrolytes!



SOLVE IT
Hydrate throughout your day and don't skip water breaks during exercise!

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Taste Testing: Sports Drink Comparison

Homemade (1 cup)	Gatorade (1 cup)	PowerAde (1 cup)	Accelerade (1 cup)
50 calories	61 calories	53 calories	80 calories
12 g carbohydrate	15 g carbohydrate	14 g carbohydrate	14 g carbohydrate
110 mg sodium	102 mg sodium	100 mg sodium	147 mg sodium
$0.05 per cup	$0.61 per cup	$0.55 per cup	$0.67 per cup

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"WUT" is the Solution to Proper Hydration

Review and complete your plan!

- **Throughout the day:** Drink fluids early and often! Don't wait until you are thirsty.
- **Before sports:** Drink **1–2 cups of cool water at least 4 hours before sports**. May need additional 1–2 cups at 1–2 hours prior if urine color is sti dark.
- **During sports:** **Drink ½–1 cup of cool water or sports drink every 20 minutes**. For exercise lasting > 60 minutes, incorporate a sports drink (handout).
- **After sports:** Within the following 2 hours, **drink 2–3 cups of cool water or sports drink for every pound of body weight you lost during exercise.**

Hydration: Which of the following is the best way to know your own level of dehydration?

A. Calculate pre- and post-exercise weight.
B. Make sure your urine is always clear.
C. Wait until your mom tells you to drink water.
D. Wait until you are thirsty.

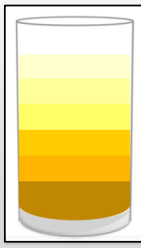
Apply it: Hydration Goal(s)

A. Weigh before and after practice.
B. Pay attention to my urine color during the day.
C. Pay attention to when I am thirsty during the day.
D. Drink more fluids during practice.

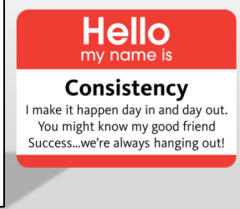
Take-Homes and Game-Changers

1. Your hydration and fueling can be the difference between improving or not! Winning or losing!
2. Consistency with nutrition and hydration is just as important as consistency with training.
3. Even a 2% loss of body water can decrease performance.
4. Your training is not done until you have refueled and rehydrated.

Take-Homes and Game-Changers



Good
Good
Fair
Dehydrated
Dehydrated
Very Dehydrated
Severe Dehydration



Questions for you:

1. What has been the most interesting and/or helpful thing you've learned today?
2. How has fueling and/or hydrating impacted your training, energy level, or/and performance?
3. Did you like the homemade sports drinks?
4. Any lingering questions?

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Thank You!

- **What's next?**
  - Look for more sports nutrition tips and tools in the next lesson.
- **Have a great game/practice or workout:**
  - Eat Smart, Train Smart and Stay Hydrated!
- **See you next time!**

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Activity 1: Homemade sport drink

Yield: 1 liter

- *(1 qt or 4 cups*
- *Prep time: 2 minutes*
- *Cost per batch: $0.20*
- *Cost per cup: $0.05*

Recipe and nutrition information

Ingredients

¼ cup (50 g) granulated sugar
¼ teaspoon salt
¼ cup (60 ml) hot water
¼ cup (60 ml) orange juice (not concentrate) plus 2 tsp lemon juice
3½ cups (840 ml) cold water

Directions

1. In the bottom of a pitcher, dissolve the sugar and salt in the hot water
2. Add the juice and the remaining water; chill.
   - If hot, freeze some sport drink in ice cube trays, yogurt container, or anything else handy. Before serving or taking it on the road, add the "sport drink ice cube" to the pitcher.
3. Quench that thirst!

Nutrition Information

200 total calories; 50 calories per 8 oz. (240 ml); 12 g carbohydrate; 110 mg sodium

Source: *Clark N. Nancy Clark's Sports Nutrition Guidebook*. 5th edition. 2014. Human Kinetics Publishers, Champaign, IL.

Activity 2: Calculating body water losses and replacement needs

It is amazing how fast the body can lose water through sweat, urine, and breathing. When dehydration occurs at a level of 2 percent or more, training, performance, and health can be negatively impacted. Athletes who train hard, especially in hot weather, need to have a plan for staying hydrated.

The following table includes an example and an opportunity for you to practice assessing your hydration status and how much fluid you need to consume after training or competition. (*Note*: pounds = lbs)

Fluid loss and percent dehydration level

Calculate the following		Example case: Messi	Your turn
1	Weight before exercise, in lbs	150 lbs	
2	Weight after exercise, in lbs	145 lbs	
3	Weight change during exercise (lbs) Math: Pre-exercise wt – post-exercise wt	150 lbs – 145 lbs = 5 lbs lost	
4	Fluid lost: 2 cups = 1 lb	5 lbs lost during exercise x 2 cups per/lb = 10 cups	
5	Calculating your level of dehydration Math: Wt. change (3 lbs) divided by pre-exercise weight (150 lb) x 100 = % dehydration level	(5 lbs/150 lbs) x 100 = 3.3% of body weight lost due to fluid loss (sweat, breathing, etc.).	
6	Side note: Quick method to calculate your % dehydration level if you do not have a calculator.	Weight = 150 lbs If you lose 1.5 lbs= 1% wt loss. Then… 1.5 x 2= 3.0 lbs lost = 2% 1.5 x 3 =4.5 lbs lost = 3%	
Rehydration			
It's as easy as 1-2-3: For every 1 lb lost, you need to drink 2–3 cups of water to rehydrate. Example: If you lost 4 lbs during practice, how many cups of water do you need to drink to fully rehydrate?		2–3 cups x 4 lbs lost = 8–12 cups of fluid needed to rehydrate	
Adjust: If your dehydration level is above 2%, plan to drink more before and during your next practice.			
Pre-exercise: Consume 1–2 cups of fluid, 1–2 hours before exercise. Larger people may need more.			
During exercise: ½–1 cup every 20 minutes. If hydration is only available at breaks or half-time, consume 1–2 cups of water/sports drink when the opportunity occurs.			

Symptoms of dehydration: dry sticky mouth, thirst, headache, goosebumps, dizziness, lightheadedness, early fatigue, confusion, cold clammy hands, decreased urine output.

Activity 3: Individualized sport nutrition worksheet

Individualized sports nutrition plan for:_____

Hydration	See Section A below	How many pounds lost during practice would equal a 2% water loss? (Column A green area below)	
		How many water (cups) = 2% of your body weight? (Column B green area below)	
		How much water (cups) is needed to replace a 2% water loss? (Column C green area below)	
		How much water should you consume every 15–20 minutes during practice? (From presentation)	
Your goal		In order to sustain optimal performance during training and games, I would like to keep my weight loss during practice at _____ pounds or less.	

What would you eat and drink during each time period? Think about amounts and types of foods and fluids.			
Pre-exercise	See Section B below	What could you eat for each pre-fueling window?	
		4+ hours before exercise	
		3 hours before exercise	
		2 hours before exercise	
		≤ 1 hour before exercise	
Your goal		Foods I *will* try during pre-fueling (list here):	
During exercise	See Section C below	If training longer than 1 hour, fuel is needed to maintain performance during exercise. What can you eat or drink that provides 30 to 60 grams (g) of carbohydrate?	
		Foods/beverages that provide 30g to 60g of carbohydrate →	List several options here:
Your goal		These are the during-exercise fueling foods/drinks that I *will* add (list here):	
Post-exercise (Recovery)	See Section D below	What are your carbohydrate needs (g) for recovery?	I need 50g to _____ g of carbohydrate for recovery.
Your goal		If exercise lasts longer than 90 minutes or is high intensity, recovery nutrition is recommended.	List several foods here that would be great choices for recovery:

Section A: Hydration

What does 2 percent dehydration look like at different body weights? How much water do you need to replace this loss?

	A	B	C
Weight	Pounds of weight lost that equal 2% of your body weight.	Cups of fluid equal to 2% of your body weight.	Cups of water needed to rehydrate after 2% weight loss (1.5 x number of cups fluid lost)
100–110	2.0 pounds	4 cups	6 cups
110–120	2–2.5 pounds	4–5 cups	6–7.5 cups
125–130	~2.5 pounds	5 cups	7.5 cups
130–140	2.5–3.0 pounds	5–6 cups	7.5–9 cups
140–150	~3.0 pounds	6 cups	9 cups
150–170	~3–3.5 pounds	6–7 cups	9–10.5 cups
170–200	~3.5–4.0 pounds	7–8 cups	10.5–12 cups

2 cups of water weighs approximately 1 pound body weight.
1 Liter (1,000 ml) of fluid is approximately 4 cups.

Section B: Pre-exercise fueling

≤ 1 hour	~2 hours	~3 hours	≥ 4 hours
Keep it simple: water and easy-to-digest carbs	Water/sports drinks, carbohydrates	Small mixed meal with fluids	Pregame meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Some protein, fat, and fiber	Whole grain foods, low fat, protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana **OR** ½ sport bar and water/juice	**Examples:** Toast or bagel with jam and water/juice	**Examples:** whole wheat turkey sandwich, fruit, fluids	**Examples:** chicken, bean, and rice burrito and water or low-fat milk/ juice

Section C: During exercise fueling

Goal: Consume 30–60 grams of carbohydrate per hour of exercise. Spread carbohydrate intake throughout the training period. Consider the following options that provide 25–30 or 45–60 grams of carbohydrate per serving.

25–30 grams carbohydrate	2 cups sport drink, 1 medium banana, 3 graham crackers, ½ cup pretzels, 3 Fig-Newtons, 1 small box of raisins, 2 Tbs honey, 1 small can Boost/Ensure, or 1 energy bite bar
45–60 grams carbohydrate	1 sport energy bar, 1 Powerbar, 1 Nature Valley granola bar, 2 energy gels or GUs, about 16 vanilla wafers, or 4 cups sports drink.

Section D: Recovery nutrition

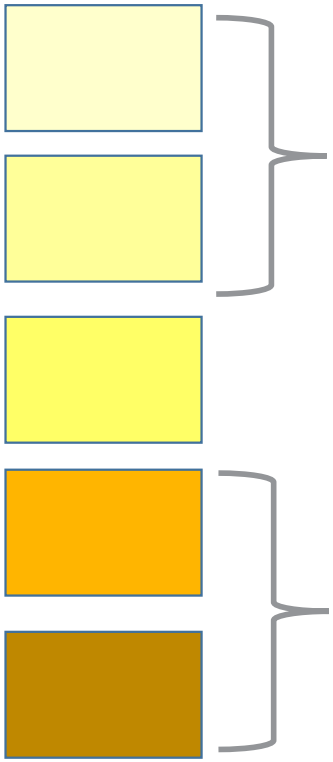
(consume within 2 hours after the time a game or practice ends)

Body weight (lbs)	100–110	111–120	121–130	131–140	141–150	151–160	161–170	171–180	181–190
Estimate your recovery carbohydrate range: 50g up to →	68–75 g	76–82 g	78–88 g	88–96 g	88–102 g	102–109 g	109–115 g	109–123 g	123–129 g
Your recovery protein (g)	10–15 grams of protein								

EXAMPLES: Quick, cheap, and easy recovery food options
Peanut butter and jelly sandwich, 2 cups low-fat chocolate milk, peanut butter or oatmeal sport/energy bar, yogurt and fruit, bowl of cereal and milk, real fruit smoothie with yogurt and/or milk, Smash Pack, trail mix, fig bars

Three levels of dehydration

Keep it to no more than 2 percent



The Goal: <2% weight change

Mild Dehydration: 2-3% weight change

Severe Dehydration: ≥ 4% weight change

Wave Research Project: Oregon State University

Lesson 2: Pre-exercise Nutrition

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Describe pre-exercise nutrition needs relating to energy and macronutrients 2. Identify critical pre-exercise period for nutrient intake 3. Choose foods appropriate for different pre-exercise times 4. Create a list of pre-exercise food options
Lesson goals	▪ To provide participants with the knowledge to understand proper fueling prior to exercise. ▪ To provide participants with the tools and skills necessary to implement a pre-exercise fueling plan to achieve the following: 1. Delay onset of fatigue and dehydration by "topping off" fueling and hydration levels in the body. 2. Improve and maintain training and performance. 3. Avoid gastrointestinal discomfort.
Key terms	Nutrient timing, macronutrients, micronutrients, glycogen
Prerequisite knowledge	Calorie = kcal, gram = g, milligram = mg

Activities

	Title	Steps
1	Label activity	1. Print the PDF file with 27 different foods and their labels. Print in color if possible. Alternatively, the instructor could collect labels of foods participants might typically eat. Before the session, print and sort the labels so that each group will have a variety of labels. Review the labels in each folder to make sure that there are enough labels for each of the four pre-exercise periods given on the handout. 2. Make sure you have the *Individualized Sport Nutrition Worksheet*. This is the same worksheet used in the Hydration Lesson. Have students complete the orange section of the worksheet and/or print enough copies of the *Coaches' handout: Pre-exercise fueling windows* for each individual. 3. Participants will keep the *Pre-exercise fueling windows* handout. However, make sure to collect the *Individualized Sport Nutrition Worksheet* after class to hand out for the During-exercise Fueling Lesson. 4. The coach will keep their *Pre-exercise Fueling Windows* handout and the Activity Key handout (if using). If possible, laminate this handout for the coach to put in the locker room. 5. Collect all the labels at the end of the session and be careful to place the labels back in their original folders.

Materials Needed

Item	Details
▪ PowerPoint presentation with presenter notes ▪ Print as many copies of the 27 different nutrition labels needed to accommodate the number of people/ groups (there should be a variety in each folder) ▪ Folders to group nutrition label printouts. ▪ Remote Response Devices (clickers) for each student and one receiver for instructor ▪ Note cards and pencils for each student, if you want feedback. ▪ White board/chalkboard/flip chart	
AV/other	Computer, projector, projector screen
Handouts	▪ *Individualized Sport Nutrition Plan* ▪ *Fueling Windows for Pre-exercise Nutrition* ▪ Key for the *Fueling Windows for Pre-exercise Nutrition*. These are to give to coaches for their reference. ▪ *Pre-exercise Fueling Windows* handout (3–4 laminated). These are to give coaches to put in locker rooms.
Lesson-specific supplies	▪ Food nutrition labels (found in PDF file): print as many copies of the 27 different nutrition labels needed to accommodate the number of people/groups (there should be variety in each folder).
Materials for coaches	▪ Key for the *Fueling Windows for Pre-exercise Nutrition*. These are to give to coaches for their reference (mentioned above). ▪ *Pre-exercise Fueling Windows* handout (3–4 laminated). These are to give coaches to put in locker rooms (mentioned above).

Preparation instructions

In advance
1. Review lesson plan, PowerPoint, and handouts
2. Practice lesson prep (sorting labels and trying the activity yourself) and giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup.

On-site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group.
2. Set-up computer and projector. Ensure there will be a screen or blank wall to project on; if not, acquire a mobile projector screen or similar alternative.
3. Turn on PowerPoint and open slide presentation and response software.
4. Folders with handouts

References for further information:

1	Armstrong, L.E., D.J. Casa, M. Millard-Stafford, D.S. Moran, S. Pyne, and W. Roberts. 2007. Exertional Heat Illness during Training and Competition. *Medicine and Science in Sports and Exercise 39*, 556–572. http://journals.lww.com/acsm-msse/Fulltext/2007/03000/Exertional_Heat_Illness_during_Training_and.20.aspx
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4	Houtkooper, L., J.M. Abbot, and V. Mullins. 2007. *Winning Sports Nutrition*. DSW Fitness, Tucson, AZ.
5	Manore, M.M., N.L. Meyer, and J. Thompson. 2009. *Sport Nutrition for Health and Performance*. 2nd Ed (3rd edition in press). Human Kinetics, Champlain, IL.
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8	Thomas, D.T., K.A. Erdman, and L.M. Burke. 2016. American College of Sports Medicine (ACSM)/ Academy of Nutrition and Dietetics (AND) Joint Position Statement. Nutrition and Athletic Performance. *Medicine and Science in Sports and Exercise* 48(3):543–568. http://www.sciencedirect.com/science/article/pii/S221226721501802X

Presentation: Pre-exercise nutrition

College of Public Health and Human Services
Extension Family and Community Health

WAVE Sport Nutrition Program
Pre-Exercise Fueling

WAVE ripples for change

Nutrition Coach: [Your name here.]

Oregon State University

Welcome!

Sports Nutrition Secrets for Soccer Success

- **Soccer = high intensity sport**
  - Requires endurance, speed, strength, skill, and mental focus
- **Without proper fueling and hydration, performing at your best in these areas is nearly impossible.**
- ***What*, *when*, and *how much* you eat and drink before exercise impacts your training and performance.**
- **Our Plan of Attack:**
  - How do you need to eat before training and competition.

OREGON STATE UNIVERSITY 1

Energy Sources (Calories)

Fat
9 kcal/g

Food and Drink

Protein
4 kcal/g

Carbohydrates
4 kcal/g

Alcohol
7 kcal/g

Energy!

OREGON STATE UNIVERSITY 2

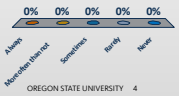
Which of the following is the most important fuel source for soccer?

A. Fat
B. Protein
C. Carbohydrate
D. Caffeine

OREGON STATE UNIVERSITY 3

How often do you eat a pre-exercise snack within 2 hours of your game or practice?

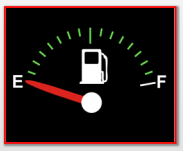
A. Always
B. More often than not
C. Sometimes
D. Rarely
E. Never



OREGON STATE UNIVERSITY 4

Why does Pre-exercise Fueling Matter?

- **Practice and Games:** usually ≥ 90 min.
- **Eating and drinking before exercise:** will help delay fatigue and improve your training.
- **Topping off the tank:** Although you have fuel stores in the body, eating before exercise can prevent 'running out of gas' during the game.



OREGON STATE UNIVERSITY 5

Learning from Your Own Experience…

- **Have you ever eaten too much before a practice or game?**
- **Has anyone ever gotten hungry during practice or a game?**
- **How do you solve some of these obstacles?**
  - Use the clock to decide what, when, and how much to eat.
  - The amount of time before exercise impacts what your body can tolerate, digest, and utilize as energy during the game.

Pre-exercise Fueling Windows

- You can use the 4 'Pre-exercise Fueling Windows' to get the most out of your pre-exercise fueling.

≤ 1 hour | **~2 hours** | **~3 hours** | **≥ 4 hours**

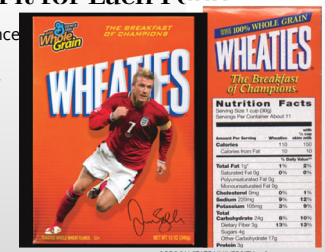
→ Remember, do NOT try new pre-exercise foods on game day. Eat familiar foods.

Pre-exercise Fueling Windows: *When, What, and How Much*

≤ 1 hour
Keep it simple: water and easy to digest carbs
Low protein, fat, and fiber
100-200 kcals
Examples: sports drink, small banana OR ½ sport bar & water/juice

Activity: Find the Best Fit for Each Food

- **Scenario:** You're at a convenience or grocery store and need to figure what foods are good pre-exercise options for different timing windows.
- **Examples:**



Pre-exercise Fueling Windows

≤ 1 hour	~2 hours	~3 hours	≥ 4 hours
Keep it simple: water and easy to digest carbs	Water/Sports Drinks, Carbohydrates	Mini mixed meal with fluids	Pre-game meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Include some protein, fat, and fiber	Whole grain foods, low fat protein, starchy vegetables
100-200 kcals	200-300 kcals	300-400 kcals	400 + kcals
Examples: sports drink, small banana OR ½ sport bar & water/juice	Examples: Toast/bagel with jam and water/juice	Examples: whole wheat turkey sandwich, fruit, fluids	Examples: chicken, bean and rice burrito and water or low fat milk/juice

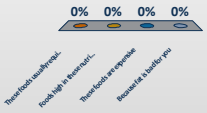
Why would you want the meal or snack consumed 2 hours before exercise to be lower in fat, fiber, and protein?

A. These foods usually require a lot of prep time.

B. Foods high in these nutrients digest and empty from the stomach more slowly.

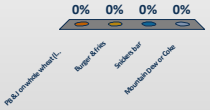
C. These foods are expensive.

D. Because fat is bad for you.



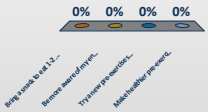
Which of these foods might be a good choice to eat 2 hours prior to exercise?

A. PB & Jelly on whole wheat (light on PB)
B. Burger and fries
C. Snickers bar
D. Mountain Dew or Coke



Apply it: Pre-exercise Fueling Goal(s)

A. Bring a snack to eat 1–2 hours before practice.
B. Be more aware of my energy level during practice.
C. Try a new pre-exercise snack at practice from the options presented.
D. Make healthier pre-exercise snack choices.



Take-Homes & Game-Changers

- **Fueling before exercise can protect and improve performance!**
  - Timing of pre-fueling impacts **what** and **how much** we can eat.
  - You will be able to take your pre-fueling window handout home with you at the end-- Keep it on your fridge or somewhere handy!
- **You all are working too hard to have poor fueling limit your success.**
- **You know what to do, so now you just have to do it!**

Eat Smart and Play Hard

- **Next time:**
  - **Check in on your goals.**
  - **Discuss during-exercise nutrition on training and performance.**
- **Have a good day:** Eat Smart, Train Smart, and Stay Hydrated!

Gatorade

Nutrition Facts Per 591 mL	
Amount	% Daily Value
Calories 150	
Fats 0g	0%
Sodium 250mg	11%
Potassium 65mg	2%
Carbohydrates 38 g	13%
Sugars 35g	
Protein 0g	

Image by Mike Motzart via Flickr: https://www.flickr.com/photos/jeepersmedia/13555950703

Banana

Nutrition Facts	
Amount	% Daily Value
Calories: 105 Calories from fat: 4	1%
Total fat: 0.4g Sat. fat: 0.1g	<1% <1%
Sodium: 1 mg	<1%
Potassium: 422.4mg	2%
Carbohydrates: 27g Dietary fiber: g Sugars 14g	9% 12%
Protein 1g	
Vitamin A: 2% • Vitamin C: 17% Calcium: 1% • Iron: 2%	

Image Juan Zelaya via Pixabay https://pixabay.com/en/banana-minimum-fruit-tropical-2449019/

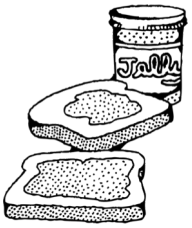
Chocolate Milk

Nutrition Facts	
Amount	% Daily Value
Calories 160 Calories from fat: 25	
Total fat: 2.5g Sat. fat: 1.5g	4% 8%
Cholesterol: 10 mg	3%
Sodium: 95mg	4%
Carbohydrates: 27g Dietary fiber: 1 g Sugars: 26g	9% 4%
Protein: 8g	
Vitamin A 2% • Vitamin C 4% Calcium 30% • Iron 6%	

Image by US Dept. of Agriculture https://https://www.flickr.com/photos/usdagov/9160426968

PB&J Sandwich

On whole wheat bread



Nutrition Facts	
Homemade PB&J sandwich	
Calories 327	
Total fat 14.23g	
Carbohydrates 42.2g	
Protein 10.32g	
Grape jelly used in this sandwich	
Carbohydrates: 49% Protein: 11% Fat: 40%	

Image by pixabay https://pixabay.com/en/sandwich-jelly-jam-toast-marmalade-31956/

Breakfast Burrito

Nutrition Facts 1 burrito (143g/5oz)	
Amount	% Daily Value
Calories 310 Calories from Fat 110	
Total Fat 13g Sat. Fat 5g	20% 25%
Cholesterol 80mg	27%
Sodium 630mg	26%
Carbohydrates 32g Dietary Fiber 1g Sugars 3g	11% 4%
Protein 17g	34%
Vitamin A 10% • Vitamin C 15% Calcium 20% • Iron 15%	

Image ayustety via flickr https://www.flickr.com/photos/ayustety/1806095153/

Bean, Chicken, Rice Burrito

Nutrition Facts 1 burrito (170g/6oz)	
Amount	% Daily Value
Calories 340 Calories from fat 70	
Total fat 8g	12%
Cholesterol 25mg	8%
Sodium 570mg	24%
Carbohydrates 50g Dietary Fiber 4g Sugars 1g	17% 16%
Protein 17g	34%
Vitamin A 8% • Vitamin C 4% Calcium 8% • Iron 20%	

Image by AnMai via flickr https://www.flickr.com/photos/awmai/6838690361

Turkey Cranberry Sandwich

Turkey sandwich image: by L.A. Foodie via Flicker https://www.flickr.com/photos/lafoodie/16175754391

Nutrition Facts	
Serving Size 286g	
Amount	% Daily Value
Calories 342	
Calories from fat 69	
Total fat 7.6g	12%
Sat. fat 1.4g	7%
Cholesterol 63mg	21%
Sodium 373mg	16%
Carbohydrates 40g	13%
Dietary fiber 6g	24%
Sugars 7g	
Protein 33g	
Vitamin A 19% • Vitamin C	56%
Calcium 5% • Iron	13%

Trail Mix

Image Evan-Amos via Wikimedia https://commons.wikimedia.org/wiki/File:Planters-Trail-Mix.jpg

Nutrition Facts	
3 Tablespoons (30g)	
Servings Per Container About 43	
Amount	% Daily Value
Calories 160	
Calories from fat 90	
Total fat 10g	15%
Sat. fat 2g	10%
Cholesterol 0mg	0%
Sodium 40mg	2%
Carbohydrates 12g	4%
Dietary fiber 1g	4%
Sugars 9g	
Protein 5g	
Vitamin A 0% • Vitamin C	4%
Calcium 0% • Iron	4%

Coconut Water

Image by Mike Mozart: https://www.flickr.com/photos/jeepersmedia/15106973659

Nutrition Facts	
Serving size 8 fl oz. (240ml)	
Servings Per Container About 2	
Amount	% Daily Value
Calories 45	
Total fat 0g	0%
Cholesterol 0mg	0%
Sodium 25mg	1%
Potassium 470mg	13%
Carbohydrates 11g	4%
Sugars 11g	
Protein 0g	0%
Vitamin C 100 % • Calcium	4%
Magnesium 4% • Phosphorus	2%

Energy Drink

Image by Juqao via Wikimedia:https://commons.wikimedia.org/wiki/File:Lata_de_Monster_Energy.jpg

Nutrition Facts	
Serving size 8 fl oz. (240ml)	
Servings Per Container About 2	
Amount	% Daily Value
Calories 100	
Carbohydrates 25g	9%
Sugars 25g	
Vitamin B2 1.7mg	100%
Vitamin B3 20mg	100%
Vitamin B6 2mg	100%
Vitamin B12 6mcg	100%
Sodium 180mg	8%
Taurine 1000mg	
Panax Ginseng 200mg	
Energy Blend 2500mg	
L-carnitine, Glucose, Caffeine, Guarana, Inositol, Glucuronolactone, Maltodextrin	

Red Bull

Image by Jhong Dizon via flickr: https://www.flickr.com/photos/japokskee/4323633571

Nutrition Facts	
Serving Size 1 Can	
Amount	% Daily Value
Calories 110	
Total fat 0g	0%
Cholesterol 0mg	0%
Sodium 100mg	4%
Potassium 470mg	13%
Carbohydrates 28g	9%
Sugars 27g	
Protein less than 1g	
Niacin 100 % • Vitamin B6	250%
Vitamin B12 80% • Pantothenic Acid	50%

Diet Coke

Image by Evan Amos: https://upload.wikimedia.org/wikipedia/commons/3/3c/Diet-Coke-Can.jpg

Nutrition Facts	
Serving size 8 fl oz. (240ml)	
Servings Per Container About 2.5	
Amount	% Daily Value
Calories 0	
Total fat 0g	0%
Sodium 30mg	1%
Carbohydrates 0g	0%
Protein 0g	0%

Chicken Vegetable Stir Fry

Nutrition Facts Serving Size (297g)	
Amount	% Daily Value
Calories 270	
Total fat 3g Saturated fat 0.5g	5% 3%
Cholesterol 30mg	10%
Sodium 700mg	29%
Carbohydrates 46g Dietary fiber 3g Sugars 11g	15% 12%
Protein 14g	
Vitamin C 25% ● Calcium 2% Iron 4% ● Vitamin A 15%	

Image by Kathy Maister via flickr : https://www.flickr.com/photos/startcooking/2760563800

Pasta with Spinach, Tomatoes, Parmesan and Olive Oil

Nutrition Facts Serving Size (206g)	
Amount	% Daily Value
Calories 290 Calories from fat 40	
Total fat 4.5g Saturated fat 0.5g	6% 3%
Cholesterol 15mg	6%
Sodium 200mg	8%
Carbohydrates 50g Dietary Fiber 7g Sugars 6g	15% 25%
Protein 14g	
Vitamin A 60% ● Vitamin C 20% Iron 15% ● Calcium 4%	

Image by Naotake Murayama via flickr : https://www.flickr.com/photos/naotakem/30273077975

Grilled Chicken, Rice, and Mixed Vegetables

Nutrition Facts Serving Size (257g)	
Amount	% Daily Value
Calories 325 Calories from Fat 51	
Total fat 5.6g Saturated fat 1.6g	9% 8%
Cholesterol 129mg	43%
Sodium 732mg	30%
Carbohydrates 18g Dietary Fiber 1.7g Sugars 12.8g	6% 7%
Protein 49.3g	
Vitamin C 88% ● Calcium 6% Iron 13% ● Vitamin A 9%	

Images: Rice author unknown: https://www.publicdomainpictures.net/en/view-image.php?image=105153&picture=bowl-of-rice
Chicken by Gavin Mahalo via flickr https://www.flickr.com/photos/144095318@N08/27529154515
Veggies by (Puamelia) via flickr: https://www.flickr.com/photos/ylucli/3055071343

Chili Stuffed Potato

Nutrition Facts Serving Size 1	
Amount	% Daily Value
Calories 350	
Total fat 8g Saturated fat 0g	12% 0%
Sodium 1169mg	49%
Carbohydrates 51g Dietary Fiber 0g Sugars 20g	17% 0%
Protein 16g	

Image by L.A. Foodie via flickr : https://www.flickr.com/photos/lafoodie/16427111286

Turkey Sandwich with Milk and Fruit

Turkey sandwich with mayonnaise, cheese, lettuce, and tomato, with 1 cup fruit (1 large apple), and 1.5 C 1% milk.

Nutrition Facts Serving Size 1	
Amount	% Daily Value
Calories 579 Calories from fat 139	
Total fat 15g Saturated fat 4.5g Trans fat 15g	23% 23%
Sodium 750mg	31%
Carbohydrates 69g Dietary Fiber 6g Sugars 39g	23% 24%
Protein 35g	70%

Turkey Sandwich by Efren Rodriguez via flickr: https://www.flickr.com/photos/paperstainer/4636068326
Milk Image by Bambo via pixabay:https://pixabay.com/en/milk-glass-drink-fresh-beverage-435295/
Fruit by Silviarita via pixabay: https://pixabay.com/en/fruit-fruits-fruit-salad-frisch-2305192/

Peanut Butter and Banana on Whole Wheat

Nutrition Facts	
Amount	% Daily Value
Calories 212	
Total fat 7g Saturated fat 0g	12% 0%
Sodium 23mg	1%
Carbohydrates 34g Dietary fiber 8g Sugars 9g	13% 27%
Protein 7g	

Image by cchana via flickr:https://www.flickr.com/photos/cchana/37523964094

Peperoni, Sausage & Cheese Pizza

Nutrition Facts Serving Size 1 Slice	
Amount	% Daily Value
Calories 360 Calories from fat 149	
Total fat 16.5g Saturated fat 6.8g	25% 34%
Cholesterol 38mg	13%
Sodium 870mg	36%
Carbohydrates 38g Dietary fiber 1.5g Sugars 3g	13% 6%
Protein 13.5g	
Calcium 150mg	

Image by Debbie Tingzon via flickr: https://www.flickr.com/photos/ilove9and23/17294405089

Oatmeal with Banana and Almonds

Nutrition Facts Serving Size 273g			
Amount	% Daily Value		
Calories 320 Calories from fat 81			
Total fat 9g Saturated fat 1g	14% 5%		
Cholesterol 0mg	0%		
Sodium 4mg	0%		
Carbohydrates 52g Dietary fiber 11g Sugars 13g	17% 43%		
Protein 9g			
Vitamin A 1%		• Vitamin C	15%
Calcium 9%		• Iron	15%

Image by Rachel Hathaway via Wikimedia:https://commons.wikimedia.org/wiki/File:Oatmeal_and_coconut_milk,_March_2011.jpg

Lentil Soup with Baked Crackers

Nutrition Facts Serving Size 1/8 recipe, about 2 cups			
Amount	% Daily Value		
Calories 370 Calories from Fat 70			
Total fat 7g Saturated fat 3g	11% 13%		
Cholesterol 30mg	10%		
Sodium 580mg	24%		
Carbohydrates 51g Dietary fiber 11g Sugars 8g	17% 44%		
Protein 26g			
Vitamin A 40%		• Vitamin C	30%
Calcium 6%		• Iron	35%

Soup Image by Mr. Granger via Wikimedia: https://commons.wikimedia.org/wiki/File:Amy%27s_lentil_vegetable_soup.jpg
Triscuits Image by Evan-Amos via Wikimedia: https://commons.wikimedia.org/wiki/File:Triscuit-Crackers.jpg

Cheeseburger &Medium Fries

Nutrition Facts			
Amount	% Daily Value		
Calories 630 Calories from fat 250			
Total Fat 28g Saturated fat 8g Trans fat 0.5g	43% 39%		
Cholesterol 40mg	14%		
Sodium 880mg	36%		
Carbohydrates 77g Dietary fiber 5g Sugars 7g	26% 21%		
Protein 18g			
Vitamin A 6%		• Vitamin C	45%
Calcium 45%		• Iron	20%

Image by Foodiefactor via pixabay:https://pixabay.com/en/burger-burgers-cheeseburger-2612137/

Chicken Taco Salad

Nutrition Facts			
Amount	% Daily Value		
Calories 730 Calories from fat 300			
Total fat 33g Saturated fat 7g	51% 35%		
Cholesterol 70mg	23%		
Sodium 1490mg	62%		
Carbohydrates 74g Dietary fiber 8g Sugars 7g	25% 32%		
Protein 33g			
Vitamin A 30%		• Vitamin C	20%
Calcium 20%		• Iron	30%

Image by Larry Hoffman via flickr:https://www.flickr.com/photos/dinesarasota/4169113381

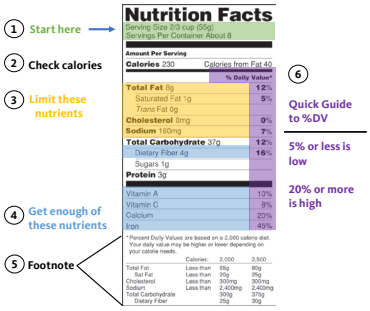


Image by USDA via Wikimedia:https://commons.wikimedia.org/wiki/File:FDA_Nutrition_Facts_Label_2006.jpg

≤ 1 hr	~2 hrs	~3 hrs	≥ 4 hrs
Keep it simple: water and easy to digest carbs	Water/sports drinks, carbohydrates	Mini mixed meal with fluids	Pregame meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Include some protein, fat, and fiber	Whole grain foods, low-fat protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana or ½ sport bar and water/ juice	Examples: Toast/bagel with jam and water/juice	Examples: whole wheat turkey sandwich, fruit, fluids	Examples: chicken, bean, and rice burrito and water or low-fat milk/ juice

Activity: Pre-exercise Nutrition

Use the table below to decide which foods (from the labels provided) are most suitable for each pre-exercise time period. The table above will help guide you in your categorization.

< 1 hr List food name here	2–3 hrs List food name here	3–4 hrs List food name here	>4 hrs List food name here

≤ 1 hr	~2 hrs	~3 hrs	≥ 4 hrs
Keep it simple: water and easy-to-digest carbs	Water/sports drinks, carbohydrates	Mini mixed meal with fluids	Pre-game meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Include some protein, fat, and fiber	Whole-grain foods, low-fat protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana **or** ½ sport bar and water/ juice	**Examples:** toast/bagel with jam and water/juice	**Examples:** whole wheat turkey sandwich, fruit, fluids	**Examples:** chicken, bean, and rice burrito and water or low fat milk/ juice

< 1 hr List food name here	2–3 hrs List food name here.	3–4 hrs List food name here	>4 hrs List food name here
Green-tip banana and water Powerbar and water Gatorade or other sport drink Chewy granola bar and water Apple sauce (no sugar added)	Low-fat yogurt with low sugar cereal, Clif bar, Nature Valley granola bar, Luna bar, peanut butter and jelly (PBJ) on wheat (light on the PB), bagel with jam, pretzels, and a small banana. Homemade, low-fat energy bars	PBJ, fruit and water Turkey sandwich low in fat Hummus and pita bread Low-fat crackers and tuna, fruit Granola and yogurt Apple slices and peanut butter Lower-fat pasta salad Beans and rice	Pasta, chicken, and carrots Rice, beans, and tortilla Granola, yogurt, and fruit Low-cheese pizza with Canadian bacon, bean dips, and baked chips

Activity: Individualized sport nutrition worksheet

Individualized sports nutrition plan for: _____

Hydration	See Section A below	How many pounds lost during practice would equal a 2% water loss? (Column A green area below)
		How many water (cups) = 2% of your body weight? (Column B green area below)
		How much water (cups) is needed to replace a 2% water loss? (Column C green area below)
		How much water should you consume every 15–20 minutes during practice? (From presentation)
Your goal		In order to sustain optimal performance during training and games, I would like to keep my weight loss during practice at _____ pounds or less.

What would you eat and drink during each time period? Think about amounts and types of foods and fluids.			
Pre-exercise	See Section B below	What could you eat for each pre-fueling window?	
		4+ hours before exercise	
		3 hours before exercise	
		2 hours before exercise	
		≤ 1 hour before exercise	
Your goal		Foods I *will* try during pre-fueling (list here):	
During exercise	See Section C below	If training longer than 1 hour, fuel is needed to maintain performance during exercise. What can you eat or drink that provides 30 to 60 grams (g) of carbohydrate?	
		Foods/beverages that provide 30g to 60g of carbohydrate →	List several options here:
Your goal		These are the during-exercise fueling foods/drinks that I *will* add (list here):	
Post-exercise (Recovery)	See Section D below	What are your carbohydrate needs (g) for recovery?	I need 50g to _____ g of carbohydrate for recovery.
Your goal		If exercise lasts longer than 90 minutes or is high intensity, recovery nutrition is recommended.	List several foods here that would be great choices for recovery:

Section A: Hydration

What does 2 percent dehydration look like at different body weights? How much water do you need to replace this loss?

	A	B	C
Weight	Pounds of weight lost that equal 2% of your body weight.	Cups of fluid equal to 2% of your body weight.	Cups of water needed to rehydrate after 2% weight loss (1.5 x number of cups fluid lost)
100–110	2.0 pounds	4 cups	6 cups
110–120	2–2.5 pounds	4–5 cups	6–7.5 cups
125–130	~2.5 pounds	5 cups	7.5 cups
130-140	2.5–3.0 pounds	5–6 cups	7.5–9 cups
140–150	~3.0 pounds	6 cups	9 cups
150–170	~3–3.5 pounds	6–7 cups	9–10.5 cups
170–200	~3.5–4.0 pounds	7–8 cups	10.5–12 cups

2 cups of water weighs approximately 1 pound body weight.
1 Liter (1000 ml) of fluid is approximately 4 cups.

Section B: Pre-exercise fueling

≤ 1 hr	~2 hrs	~3 hrs	≥ 4 hrs
Keep it simple: water and easy-to-digest carbs	Water/sports drinks, carbohydrates	Small mixed meal with fluids	Pregame meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Some protein, fat, and fiber	Whole grain foods, low fat, protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana **OR** ½ sport bar and water/juice	**Examples:** Toast or bagel with jam and water/juice	**Examples:** whole wheat turkey sandwich, fruit, fluids	**Examples:** chicken, bean, and rice burrito and water or low-fat milk/ juice

Section C: During exercise fueling

Goal: Consume 30–60 grams of carbohydrate per hour of exercise. Spread carbohydrate intake throughout the training period. Consider the following options that provide 25–30 or 45–60 grams of carbohydrate per serving.

25–30 grams carbohydrate	2 cups sport drink, 1 medium banana, 3 graham crackers, ½ cup pretzels, 3 Fig-Newtons, 1 small box of raisins, 2 Tbs honey, 1 small can Boost/Ensure, or 1 energy bite bar
45–60 grams carbohydrate	1 sport energy bar, 1 Powerbar, 1 Nature Valley granola bar, 2 energy gels or GUs, about 16 vanilla wafers, or 4 cups sports drink.

Section D: Recovery nutrition

(Consume within 2 hours after the time a game or practice ends)

Body weight (lbs)	100–110	111–120	121–130	131–140	141–150	151–160	161–170	171–180	181–190
Estimate your recovery carbohydrate range: 50g up to →	68–75 g	76–82 g	78–88 g	88–96 g	88–102 g	102–109 g	109–115 g	109–123 g	123–129 g
Your recovery protein (g)	10–15 grams of protein								

EXAMPLES: Quick, cheap, and easy recovery food options
Peanut butter and jelly sandwich, 2 cups low-fat chocolate milk, peanut butter or oatmeal sport/energy bar, yogurt and fruit, bowl of cereal and milk, real fruit smoothie with yogurt and/or milk, Smash Pack, trail mix, fig bars

Coaches' handout: Pre-exercise fueling windows

Less than 1 hour	~ 2 hours	~ 3 hours	More than 4 hours
Keep it simple: water and easy-to-digest carbs	Water or sport drinks, carbohydrates	Mini mixed meal with fluids	Pre-game meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Include some protein, fat, and fiber	Whole-grain foods, low-fat protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana or ½ sport bar and water or juice	Examples: Toast or bagel with jam and water or juice	Examples: whole wheat turkey sandwich, fruit, fluids	Examples: chicken, bean, and rice burrito and water or low-fat milk or juice

Lesson 3: During-exercise Nutrition

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Choose foods and beverages appropriate to use during exercise 2. Create a strategy for nutrition during exercise 3. Create a food option for use during exercise 4. Recognize the symptoms of fatigue related to fueling during exercise
Lesson goals	To help players understand the purpose of proper fueling during exercise. To provide players with the tools and skills necessary to implement a during-exercise fueling plan that will: 1. Provide fuel to maintain blood glucose levels 2. Delay onset of symptoms related to glycogen depletion, low blood glucose, and dehydration, 3. Improve and maintain training and performance 4. Avoid gastrointestinal (GI) discomfort
Key terms	Glycogen, glycogen depletion, blood glucose
Prerequisite knowledge	Physical activity intensity levels

Activities

	Title	Steps
1	Label activity (same labels from the pre-exercise nutrition lesson)	1. Before the session, print and sort the labels as needed. (If you used this activity in Pre-exercise Nutrition, this is already done. See pages 27–30) Review folders to make sure that there are appropriate labels for during-exercise fueling choices. 2. Ensure you have the *Individualized Sport Nutrition Worksheet*. Have students complete the blue section, and/or print enough copies of the *Activity: During-exercise Nutrition* handout for each individual. 3. Students will keep the *During-exercise Nutrition* handout after this lesson, but make sure to collect the *Individualized Sports Nutrition Worksheet* after class to hand out at the next class (Recovery Nutrition). 4. Collect all the labels at the end of the session and place the labels back in their original folders.
2	WAVE No-Bake Energy Bars	1. Before class, make sure there are enough energy bars for each student. 2. Bring napkins for serving and distribute during the presentation (slide 5). Students should take and touch only the bar they are going to eat. 3. Alert students that there are nuts (peanut butter) in these bars. If they are allergic to peanuts, suggest they use almond butter or sunflower butter instead.

3	*The Crawl* video (slide 7)	1. Prior to the class, review the video and make sure it is loaded and accessible. Save it on the desktop if Internet is not available. Video link: http://youtu.be/MTn1v5TGK_w#aid=P9A_ylXtIIo. Test play the video to ensure that it is audible. 2. Warn students that the video is intense and shows how athletes can struggle if they are not fueled appropriately. It may be uncomfortable for some to watch (see the PowerPoint presenter notes for more detail). 3. Discuss the video and the physiology and reasoning behind what is happening to the athletes (see the PowerPoint presenter notes for more detail).

Materials needed

Item	Details
▪ PowerPoint presentation with presenter notes ▪ Print enough food and nutrition labels to accommodate the number of people or groups (there should be a variety in each folder) ▪ Folders for nutrition labels ▪ Materials to make and transport WAVE bars and napkins (enough for each student) ▪ Remote Response Devices (clickers) for each student and one receiver for instructor ▪ Note cards and pencils for each student, if you want feedback. ▪ White board/chalkboard/flip chart	
AV/other	Computer, projector, projector screen
Handouts	▪ *Individualized Sport Nutrition Plan* ▪ Activity: *Fueling Needs During Exercise* ▪ *WAVE No-bake Energy Bar Recipe* handout
Lesson-specific supplies	▪ Food nutrition labels: Print as many copies of the food/nutrition labels needed to accommodate the number of people or groups. Make sure there are enough during-exercise fueling options in each folder.
Materials for coaches	▪ No specific coach materials for this lesson

Preparation instructions

In advance
1. Review lesson plan, PowerPoint, and handouts.
2. Make the WAVE No-Bake Energy Bars. Sort labels and try doing the activity yourself. Finally, practice giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup.

On-site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group.
2. Set up computer and projector. Check you have a screen or blank wall to project PowerPoint slides. Check that the sound is audible.
3. Turn on PowerPoint and open slide presentation and response software.
4. Load *The Crawl* video. Ensure the sound is audible.
5. Have handouts ready.

References for more information:

1	Armstrong, L.E., D.J. Casa, M. Millard-Stafford, D.S. Moran, S. Pyne, W. Roberts. 2007. Exertional Heat Illness during Training and Competition. Medicine and Science in Sports and Exercise 39, 556–572. http://journals.lww.com/acsm-msse/Fulltext/2007/03000/Exertional_Heat_Illness_during_Training_and.20.aspx
2	Casa, D.J., J.K. DeMartini, M.F. Bergeron, D. Csillan, E.R. Eichner, et al. 2015. National Athletic Trainers' Association Position Statement: Exertional Heat Illnesses. J Athletic Training 50(9):986–1000. http://www.natajournals.org/doi/pdf/10.4085/1062-6050-50.9.07
3	Desbrow, B., J. McCormack , L.M. Burke, G.R. Cox, K. Fallon, M. Hislop, R. Logan, N. Marino, S.M. Sawyer, G. Shaw, et al. 2014. Sports Dietitians Australia Position Statement: Sports Nutrition For The Adolescent Athlete. International Journal of Sport Nutrition And Exercise Metabolism 24, 570–584. http://journals.humankinetics.com/doi/abs/10.1123/ijsnem.2014-0031
4	Houtkooper, L., J.M. Abbot, V. Mullins. 2007. Winning Sports Nutrition. DSW Fitness, Tucson, AZ.
5	Manore, M.M., N.L. Meyer, J. Thompson. 2009. Sport Nutrition for Health and Performance. Human Kinetics, Champlain, IL.
6	Meyer, N.L., M.M. Manore, Berning, J.. 2012. Fueling for Fitness: Food and fluid recommendations for before, during and after exercise. ACSM's Health and Fitness Journal 16 (3):7–12. http://journals.lww.com/acsm-healthfitness/Abstract/2012/05000/Fueling_for_Fitness__Food_and_Fluid.5.aspx
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8	Thomas, D.T., K.A. Erdman, L.M. Burke. 2016. American College of Sports Medicine (ACSM)/Academy of Nutrition and Dietetics (AND) Joint Position Statement. Nutrition and Athletic Performance. Medicine and Science in Sports and Exercise, 48(3):543–568. http://www.sciencedirect.com/science/article/pii/S221226721501802X

Presentation: During-exercise nutrition

College of Public Health and Human Sciences
Extension Family and Community Health

WAVE Sport Nutrition Program
During Exercise Fueling

WAVE ripples for change

Nutrition Coach: [Your name here.]

Oregon State University

During-exercise Fueling

- **Even when we select the right pre-exercise fueling foods, we may still benefit from during-exercise fueling.**
- **During-exercise fueling can sustain your energy and level of play until the whistle blows.**
  - **Goal:** 30–60 grams of carbohydrate per hour
- **During-exercise fueling is a good example of eating with a purpose.**
- **ACTIVITY: Label Sorting Activity** for During Exercise Fueling (Handout)

OREGON STATE UNIVERSITY 1

Symptoms of an Under-fueled Athlete:

- Stomach growling during practice/game
- Lacking regular speed, endurance, skill, strength
- Cranky, frustrated, headaches, lacking mental focus
- Unable to complete the practice or game

OREGON STATE UNIVERSITY 2

Preventing Under-fueling

1. **Always be prepared:** Bring fuel for practice and games.
2. **If exercise is > 90 min, consume carbohydrate during the event.**
   - GOAL: 30-60 grams of carbohydrate/hour.
   - Spread out your intake.
   - Always consume water with food during exercise.
3. **Individualize your own plan, explore your options, "practice" with them first.**

OREGON STATE UNIVERSITY 3

WAVE No-bake Energy Bars

Prep time: 15 minutes
Yield: 25 servings
Cost per bar: 8 cents
Cost per batch: $1.99

Nutrition Facts
Serving Size 2 inch x 2 inch bar (51g)
Servings Per Container 16

Amount Per Serving	
Calories 210	Calories from Fat 80
	% Daily Value*
Total Fat 9g	14%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 100mg	4%
Total Carbohydrate 30g	10%
Dietary Fiber 3g	12%
Sugars 17g	
Protein 6g	
Vitamin A 2% • Vitamin C 4%	
Calcium 2% • Iron 15%	

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

OREGON STATE UNIVERSITY 4

WAVE No-bake Energy Bar Ingredients

OREGON STATE UNIVERSITY 5

Example: *The Crawl* Inadequate Fueling During Exercise

- ***The Crawl* video:** Everything these athletes are doing and experiencing is due to inadequate fueling and poor hydration.

http://youtu.be/MTn1v5TGK_w#aid=P9A_yIXtIIo

- **The Ironman:**

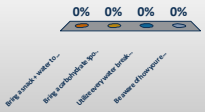
Apply it: During-exercise Fueling Goal(s)

A. Bring a snack and water to consume during practice and games.

B. Bring a carbohydrate sport drink to consume during practice and games.

C. Utilize every water break during practice to consume water and a sports drink.

D. Be aware of how your energy level changes between the first and second half of a practice or game.



Take-Homes and Game-Changers

- **Fueling during exercise can protect and improve performance.**
  - Eat with a *purpose*.
- **Our body does not store enough carbohydrate to fuel an entire intense practice or game.**
- **Fueling properly makes the most of all the hard work you put in on the field.**

Eat Smart & Play Hard

- **Next time:**
  - Check in on your goals
  - Discuss how recovery nutrition impacts training and performance
- **Have a good day:** Eat Smart, Train Smart and Stay Hydrated!

Activity: Label Sorting

(See pages 28-31)

Activity: Individualized sport nutrition worksheet

Individualized sports nutrition plan for: _____

Hydration	See Section A below	How many pounds lost during practice would equal a 2% water loss? (Column A green area below)
		How many water (cups) = 2% of your body weight? (Column B green area below)
		How much water (cups) is needed to replace a 2% water loss? (Column C green area below)
		How much water should you consume every 15–20 minutes during practice? (From presentation)
Your goal		In order to sustain optimal performance during training and games, I would like to keep my weight loss during practice at _____ pounds or less.

What would you eat and drink during each time period? Think about amounts and types of foods and fluids.			
Pre-exercise	See Section B below	What could you eat for each pre-fueling window?	
		4+ hours before exercise	
		3 hours before exercise	
		2 hours before exercise	
		≤ 1 hour before exercise	
Your goal		Foods I *will* try during pre-fueling (list here):	
During exercise	See Section C below	If training longer than 1 hour, fuel is needed to maintain performance during exercise. What can you eat or drink that provides 30 to 60 grams (g) of carbohydrate?	
		Foods/beverages that provide 30g to 60g of carbohydrate →	List several options here:
Your goal		These are the during-exercise fueling foods/drinks that I *will* add (list here):	
Post-exercise (Recovery)	See Section D below	What are your carbohydrate needs (g) for recovery?	I need 50g to _____ g of carbohydrate for recovery.
Your goal		If exercise lasts longer than 90 minutes or is high intensity, recovery nutrition is recommended.	List several foods here that would be great choices for recovery:

Section A: Hydration

What does 2 percent dehydration look like at different body weights? How much water do you need to replace this loss?

	A	B	C
Weight	Pounds of weight lost that equal 2% of your body weight.	Cups of fluid equal to 2% of your body weight.	Cups of water needed to rehydrate after 2% weight loss (1.5 x number of cups fluid lost)
100–110	2.0 pounds	4 cups	6 cups
110–120	2–2.5 pounds	4–5 cups	6–7.5 cups
125–130	~2.5 pounds	5 cups	7.5 cups
130–140	2.5–3.0 pounds	5–6 cups	7.5–9 cups
140–150	~3.0 pounds	6 cups	9 cups
150–170	~3–3.5 pounds	6–7 cups	9–10.5 cups
170–200	~3.5–4.0 pounds	7–8 cups	10.5–12 cups

2 cups of water weighs approximately 1 pound body weight.
1 liter (1000 ml) of fluid is approximately 4 cups.

Section B: Pre-exercise fueling

≤ 1 hr	~2 hrs	~3 hrs	≥ 4 hrs
Keep it simple: water and easy-to-digest carbs	Water/sports drinks, carbohydrates	Small mixed meal with fluids	Pre-game meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Some protein, fat, and fiber	Whole grain foods, low fat, protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana **OR** ½ sport bar and water/juice	**Examples:** Toast or bagel with jam and water/juice	**Examples:** whole wheat turkey sandwich, fruit, fluids	**Examples:** chicken, bean, and rice burrito and water or low-fat milk/ juice

Section C: During-exercise fueling

Goal: Consume 30–60 grams of carbohydrate per hour of exercise. Spread carbohydrate intake throughout the training period. Consider the following options that provide 25–30 or 45–60 grams of carbohydrate per serving.

25–30 grams carbohydrate	2 cups sport drink, 1 medium banana, 3 graham crackers, ½ cup pretzels, 3 Fig-Newtons, 1 small box of raisins, 2 Tbs honey, 1 small can Boost/Ensure, or 1 energy bite bar
45–60 grams carbohydrate	1 sport energy bar, 1 Powerbar, 1 Nature Valley granola bar, 2 energy gels or GUs, about 16 vanilla wafers, or 4 cups sports drink.

Section D: Recovery nutrition

(Consume within 2 hours after the time a game or practice ends)

Body weight (lbs)	100–110	111–120	121–130	131–140	141–150	151–160	161–170	171–180	181–190
Estimate your recovery carbohydrate range: 50g up to →	68–75 g	76–82 g	78–88 g	88–96 g	88–102 g	102–109 g	109–115 g	109–123 g	123–129 g
Your recovery protein (g)	10–15 grams of protein								

EXAMPLES: Quick, cheap, and easy recovery food options
Peanut butter and jelly sandwich, 2 cups low-fat chocolate milk, peanut butter or oatmeal sport/energy bar, yogurt and fruit, bowl of cereal and milk, real fruit smoothie with yogurt and/or milk, Smash Pack, trail mix, fig bars

Activity: During-exercise nutrition

Name: _____

The goal of during-exercise nutrition: To provide the right kind and amount of fuel and fluid to support training and peak performance while minimizing gastrointestinal distress.

When making food and fluid choices for during exercise...

1. Avoid foods and beverages that are high in fiber, fat, and/or protein.
2. Choose fluids that are well tolerated and have appropriate sources of carbohydrate, such as sports drinks.
3. Try NEW foods and beverages during training, not competition.
4. To limit stomach-upset risk from consuming a solid or semi-solid food, consume a well-tolerated beverage, such as water or a sports drink, at the same time.

During-exercise carbohydrate (CHO) and hydration recommendations

	Exercise duration	During-exercise CHO needs	During-exercise hydration
A	≤60 minutes	None (if you have prefueled well)	Water every 20 minutes, more if it is hot.
B	≥60 minutes	30–60 grams (g) of CHO/hour. Choose 30g/hour for lower-intensity, stop-and-go sports; chose 60g/hour for higher-intensity, continuous exercise.	½–1 cup water or sports drink* every 20 minutes
C	≥4 hours at lower intensities	60–90g of CHO/hour and may include a little protein.	½–1 cup water or sports drink* every 20 minutes

*Sports drinks provide easily absorbed water, carbohydrates, and electrolytes.

Calculate during-exercise carbohydrate needs:

	Question	Your answer	
1	How long is your average practice or game (include warm-up)?	_____ hours	
2	How many grams of CHO/hour are needed based on your exercise duration (#1) (circle one option)	None	30 g/hour
		60 g/hour	60–90 g/hour
3	#1 (duration of exercise) x #2 (CHO/hour recommendation) = CHO g needed for your exercise session	#1 x #2 =	

Foods and beverages that provide ~30 g of CHO per serving

2 cups of Gatorade or Powerade	1 large banana	6 graham cracker squares
¾ PowerBar	3 fig cookies	Nutri-Grain bar
1½ Chewy Granola bar	16 animal crackers	1.5 ounces pretzels (handful)
12 saltines	1 GU packet	2 WAVE No-Bake Energy Bars

Design three during-exercise fueling options that meet your CHO needs.
1. 2. 3.

What steps will you take to reach your during-exercise fueling goals? If you have not been fueling during exercise, maybe start small and work up to your goal.

Activity: WAVE No-Bake Energy Bars[1]

Yield: 16 bars
Prep time: 15 minutes
Cooking time: 5 minutes
Cost per bar: 8 cents
Cost per batch: $1.99

Nutrition Facts

Serving Size 2 inch x 2 inch bar (51g)
Servings Per Container 16

Amount Per Serving

Calories 210	Calories from Fat 80
	% Daily Value*
Total Fat 9g	**14%**
Saturated Fat 1.5g	**8%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 100mg	**4%**
Total Carbohydrate 30g	**10%**
Dietary Fiber 3g	**12%**
Sugars 17g	
Protein 6g	

Vitamin A 2% • Vitamin C 4%
Calcium 2% • Iron 15%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Ingredients

1/2 cup honey
1 cup peanut butter
2 cups rice cereal (like Rice Krispies)
2 cups quick oats
1 cup raisins or other dried fruit

Directions

1. In a saucepan, bring honey to a boil.
2. Reduce heat to low and stir in peanut butter.
3. Add dry cereal, oats, and raisins; mix well. Remove from heat.
4. Lightly spray or oil an 8-inch-square baking pan with cooking spray. Press into prepared 8-inch pan. When cool, cut into 16 bars.
5. Store in an airtight container for up to a week.

Easy and fun to make! Even better to eat! So...

Make your own granola bars and pack them to go to school, have as a snack before, during or after the game. Take them anywhere!

[1] Images and recipe courtesy of Foodhero.org © 2014 Oregon State University (http://foodhero.org/recipes/peanut-butter-cereal-bars)

This material was funded in part by the Supplemental Nutrition Assistance Program of USDA. OSU Extension Service and USDA are equal opportunity providers and employers. SNAP puts healthy food within reach - call Oregon SafeNet at 1-800-723-3638. In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, religion, political beliefs or disability.

Lesson 4: Recovery Nutrition

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Use nutrition labels to determine carbohydrate and protein content of foods 2. Determine carbohydrate and protein needs for recovery 3. Choose foods appropriate for recovery 4. Create a customized recovery nutrition snack plan, including composition and timing of snack
Lesson goals	To help participants understand proper recovery nutrition and the skills to implement a recovery plan that will: 1. Replenish glycogen stores 2. Rehydrate 3. Initiate recovery and adaptation processes in the body that require carbohydrate, protein, and water 4. Gain full benefit from training and maintain or improve performance
Key terms	Muscle glycogen repletion, muscle protein synthesis
Prerequisite knowledge	Physical activity intensity levels

Activities

	Title	Steps
1	Label activity (same labels from the pre-exercise nutrition lesson)	1. Before the session, print and sort the labels as needed. (If you used this activity in Pre-exercise and/or During Exercise Nutrition, this is already done.) Review folders to make sure that there are appropriate labels for during-exercise fueling choices. 2. Make sure you have the *Individualized Sport Nutrition Worksheet*. Have participants complete the pink section. 3. Participants can keep the *Individualized Sport Nutrition Worksheet* as long as all four sections have been covered and filled out. 4. Collect all the labels at the end of the session and be careful to place the labels back in their original folders.
2	WAVE Recovery Yogurt Parfaits	1. Before class, assemble and make sure there are enough parfaits for each participant 2. Bring napkins for serving 3. Alert participants that there is gluten in the granola (unless you select a gluten-free granola). If they are allergic to gluten, suggest they use a gluten-free granola when making their own parfaits.

Materials needed

Item	Details
▪ PowerPoint presentation with presenter notes ▪ Print enough different food/nutrition labels to accommodate the number of people or groups (there should be a variety in each folder) ▪ Folders for nutrition labels ▪ Materials to make and transport WAVE parfaits and napkins (enough for each student) ▪ Remote Response Devices (clickers) for each student and one receiver for instructor ▪ Note cards and pencils for each student, if you want feedback ▪ White board/chalkboard/flip chart	
AV/Other	Computer, projector, projector screen
Handouts	▪ *Individualized Sport Nutrition Plan* ▪ *WAVE Recovery Yogurt Parfait Recipe* handout
Lesson-specific supplies	▪ Food Nutrition Labels: print as many copies of the food/nutrition labels needed to accommodate the number of people/groups. Make sure there are enough during-exercise fueling options in each folder.
Materials for coaches	No specific coach materials for this lesson

Preparation instructions

In advance
1. Review lesson plan, PowerPoint, and handouts
2. Make the WAVE Recovery Yogurt Parfaits. Sort labels and try doing the activity yourself. Finally, practice giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup.

On-site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group.
2. Set up computer and projector. Check you have a screen or blank wall to project ppt slides. Check that the sound is audible.
3. Turn on PowerPoint and open slide presentation and response software.
4. Have handouts ready.

References for more information:

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Presentation: Recovery nutrition

College of Public Health and Human Services
Extension Family and Community Health

WAVE Sport Nutrition Program
Recovery Nutrition

WAVE ripples for change

Nutrition Coach: [Your name here.]

Oregon State University

We Have Food for You!

Grab a yogurt parfait and enjoy!

OREGON STATE UNIVERSITY 1

Welcome back!

- **Recap:** We have already discussed how pre- and during-exercise fueling and hydration strategies can take your training and performance to a higher level.
- **Today's Topic:** RECOVERY NUTRITION
  - Recovery nutrition will help your body recover and adapt to your training. This means you will "bounce back" from the stresses of exercise more quickly than if you don't practice good recovery nutrition.
- **Before we start today's topics, let's review and check in on your goals!**

OREGON STATE UNIVERSITY 2

How have you been monitoring your hydration level?

1. Weighing before and after practice.
2. Paying attention to my urine color during the day.
3. Paying attention to when I am thirsty during the day.
4. Drinking more fluids during practice.

OREGON STATE UNIVERSITY 3

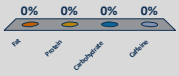
Which of the following is the most important fuel source for soccer?

A. Fat

B. Protein

C. Carbohydrate

D. Caffeine



OREGON STATE UNIVERSITY 4

Which of the following pre-exercise fueling ideas have you tried out?

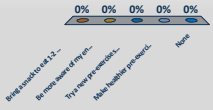
A. Bringing a snack to eat 1–2 hours before practice

B. Being more aware of my energy level during practice

C. Trying a new pre-exercise snack at practice from the options presented

D. Making healthier pre-exercise snack choices

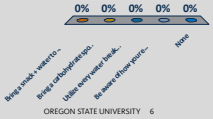
E. None



OREGON STATE UNIVERSITY 5

During-exercise fueling: Which of these behaviors did you try since we last met?

A. Bring a snack and water to consume during practice and games
B. Bring a carbohydrate sport drink to consume during practice and games
C. Utilize every water break during practice to consume water and sports drink
D. Be aware of how your energy level changes between the first and second half of a practice or game.
E. None

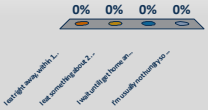


Refuel
Rebuild
Rehydrate
Recover

Recovery nutrition– Another key to successful sport performance.

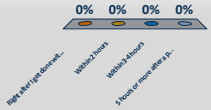
Recovery Nutrition: Which best describes your after-practice eating habits?

A. I eat right away, within 1 hour after all practices and games.
B. I eat something about 2 hours after practice or game.
C. I wait until I get home and shower, so about 3–4 hours after practice or game.
D. I'm usually not hungry so I don't eat much.



Recovery Nutrition: How soon after exercise SHOULD you consume a meal or a snack?

A. Right after I get done with practice or a game.
B. Within 2 hours.
C. Within 3–4 hours.
D. 5 hours or more after a practice or game.



Recovery Nutrition

- **Why?** Your body needs to rebuild and restore soon after exercise. This helps the body adapt to training and be ready for the next exercise bout.
  1. **Restore:** Glycogen (glucose) levels and body water (rehydration).
  2. **Rebuild:** Muscles have been challenged and need to repair and build.
- **When?** "Recovery window" is best done 0–2 hours after exercise.
- **How much?** The amount of carbohydrate, protein, and water needed depends on exercise duration, exercise intensity, and body size.

Recovery Nutrition 1: Diet and Fluid Recommendations

- **You need recovery nutrition if:**
  - Your training or game is high intensity or lasts 90 minutes or longer.
- **How much do I need to eat?**
  1. **Carbohydrate**: At least 50 grams, more if you can.
  2. **Protein:** 10–15 grams
- **What do I need to eat?**
  - A meal that is high in fruits, vegetables, whole grains, and lean protein.
  - A snack that has these same foods.

Recovery Nutrition 2: Diet and Fluid Recommendations

- **What if I am not hungry after practice?**
  - Try a nutrition shake or beverage.
- **Why select whole foods?**
  - Not only do you need carbohydrates and protein to recover, you need healthy fats and all the vitamins and minerals found in whole foods.
  - Carbohydrate, fat, and protein provide energy, but the vitamins and minerals in these foods are required too!

Individualizing Your Recovery Needs

- **Follow along with your handout for this example**
  - Let's say Alex Morgan weighs 150 pounds
  - **Her recovery needs are:**
    - **Carbohydrates:** 50–102 grams
    - **Protein:** 10–15 grams

Example snack: 2 cups of low-fat chocolate milk and 1 banana

→ 90 g carbohydrate and 14 g protein

- **Your Turn!**
  - How many grams of carbohydrate would you need?
  - Using the labels, pick and record three different options of your choice **on your handout**.
  - Share top choices with the rest of the class.

WAVE Recovery Yogurt Parfaits

- **Recipe and recommended serving:**
  - ¾ cup (6 oz) nonfat Greek vanilla yogurt
  - ½ cup fruit = ½ banana (or other fruit)
  - ¼ cup granola
- **A whole banana boosts the amount of carbohydrate (+ 13 grams).**
- **Recovery benefits:**
  - **Carbohydrate** helps replenish muscle glycogen stores and fuels brain function.
  - **Protein** helps repair muscle and improve immune function.

Nutrition Facts
Serving Size (255g)
Servings Per Container 1

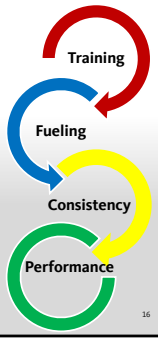
Amount Per Serving	
Calories 260	Calories from Fat 15
	% Daily Value*
Total Fat 1.5g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 80mg	3%
Total Carbohydrate 44g	15%
Dietary Fiber 4g	16%
Sugars 23g	
Protein 20g	

Take-Homes & Game-Changers

1. Recovery nutrition lets you get the most benefit from training hard.
2. Consistency with your nutrition and hydration is just as important as consistency with your training.
3. Your training is not done until you have refueled and rehydrated.

Questions for you:

1. **What has been the most interesting and/or helpful thing you've learned from these lessons?**
2. **How has fueling or hydrating impacted your training, energy level, or performance?**
3. **Did you like the bars, yogurt parfaits, homemade sports drinks?**
4. **Any final questions?**



Thank You!

Remember:

- Eat Smart, Train Smart and Stay Hydrated!

What's Next?

- [Add the name of the lesson you decide to cover next.]

Activity: Individualized sport nutrition worksheet

Individualized sports nutrition plan for: _____

Hydration	See Section A below	How many pounds lost during practice would equal a 2% water loss? (Column A green area below)
		How many water (cups) = 2% of your body weight? (Column B green area below)
		How much water (cups) is needed to replace a 2% water loss? (Column C green area below)
		How much water should you consume every 15–20 minutes during practice? (From presentation)
Your goal		In order to sustain optimal performance during training and games, I would like to keep my weight loss during practice at _____ pounds or less.

What would you eat and drink during each time period? Think about amounts and types of foods and fluids.			
Pre-exercise	See Section B below	What could you eat for each pre-fueling window?	
		4+ hours before exercise	
		3 hours before exercise	
		2 hours before exercise	
		≤ 1 hour before exercise	
Your goal		Foods I *will* try during pre-fueling (list here):	
During exercise	See Section C below	If training longer than 1 hour, fuel is needed to maintain performance during exercise. What can you eat or drink that provides 30 to 60 grams (g) of carbohydrate?	
		Foods/beverages that provide 30g to 60g of carbohydrate →	List several options here:
Your goal		These are the during-exercise fueling foods/drinks that I *will* add (list here):	
Post-exercise (Recovery)	See Section D below	What are your carbohydrate needs (g) for recovery?	I need 50g to _____ g of carbohydrate for recovery.
Your goal		If exercise lasts longer than 90 minutes or is high intensity, recovery nutrition is recommended.	List several foods here that would be great choices for recovery:

Section A: Hydration

What does 2 percent dehydration look like at different body weights? How much water do you need to replace this loss?

	A	B	C
Weight	Pounds of weight lost that equal 2% of your body weight.	Cups of fluid equal to 2% of your body weight.	Cups of water needed to rehydrate after 2% weight loss (1.5 x number of cups fluid lost)
100–110	2.0 pounds	4 cups	6 cups
110–120	2–2.5 pounds	4–5 cups	6–7.5 cups
125–130	~2.5 pounds	5 cups	7.5 cups
130–140	2.5–3.0 pounds	5–6 cups	7.5–9 cups
140–150	~3.0 pounds	6 cups	9 cups
150–170	~3–3.5 pounds	6–7 cups	9–10.5 cups
170–200	~3.5–4.0 pounds	7–8 cups	10.5–12 cups

2 cups of water weighs approximately 1 pound body weight.
1 Liter (1000 ml) of fluid is approximately 4 cups.

Section B: Pre-exercise fueling

≤ 1 hr	~2 hrs	~3 hrs	≥ 4 hrs
Keep it simple: water and easy-to-digest carbs	Water/sports drinks, carbohydrates	Small mixed meal with fluids	Pre-game meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Some protein, fat, and fiber	Whole grain foods, low fat, protein, starchy vegetables
100–200 kcals	200–300 kcals	300–400 kcals	400+ kcals
Examples: sports drink, small banana **OR** ½ sport bar and water/juice	**Examples:** Toast or bagel with jam and water/juice	**Examples:** whole wheat turkey sandwich, fruit, fluids	**Examples:** chicken, bean, and rice burrito and water or low-fat milk/ juice

Section C: During exercise fueling

Goal: Consume 30–60 grams of carbohydrate per hour of exercise. Spread carbohydrate intake throughout the training period. Consider the following options that provide 25–30 or 45–60 grams of carbohydrate per serving.

25-30 grams carbohydrate	2 cups sport drink, 1 medium banana, 3 graham crackers, ½ cup pretzels, 3 Fig-Newtons, 1 small box of raisins, 2 Tbs honey, 1 small can Boost/Ensure, or 1 energy bite bar
45-60 grams carbohydrate	1 sport energy bar, 1 Powerbar, 1 Nature Valley granola bar, 2 energy gels or GUs, about 16 vanilla wafers, or 4 cups sports drink.

Section D: Recovery nutrition

(consume within 2 hours after the time a game or practice ends)

Body weight (lbs)	100–110	111–120	121–130	131–140	141–150	151–160	161–170	171–180	181–190
Estimate your recovery carbohydrate range: 50g up to →	68–75 g	76–82 g	78–88 g	88–96 g	88–102 g	102–109 g	109–115 g	109–123 g	123–129 g
Your recovery protein (g)	10–15 grams of protein								

EXAMPLES: Quick, cheap, and easy recovery food options
Peanut butter and jelly sandwich, 2 cups low-fat chocolate milk, peanut butter or oatmeal sport/energy bar, yogurt and fruit, bowl of cereal and milk, real fruit smoothie with yogurt and/or milk, Smash Pack, trail mix, fig bars

Activity: WAVE Recovery Yogurt Parfait

Recipe and nutrition information:

Yield: 1 serving
Prep time: 5 minutes
Cost per parfait: $1.90

Recommended Serving:

¾ cup (6 oz) non-fat Greek vanilla yogurt
½ cup fruit = ½ banana (can also sub other fruit)
¼ cup low-fat granola

Note:

* Nutrition Facts are based on the use of bananas as the fruit source
* Amount needed for recovery varies by individual and sport

Nutrition Facts

Serving Size (255g)
Servings Per Container 1

Amount Per Serving

Calories 260	Calories from Fat 15
	% Daily Value*
Total Fat 1.5g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 80mg	3%
Total Carbohydrate 44g	15%
Dietary Fiber 4g	16%
Sugars 23g	
Protein 20g	

Activity: WAVE Recovery Yogurt Parfait

Recipe and nutrition information:

Yield: 1 serving
Prep time: 5 minutes
Cost per parfait: $1.90

Recommended Serving:

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Sodium 80mg	3%
Total Carbohydrate 44g	15%
Dietary Fiber 4g	16%
Sugars 23g	
Protein 20g	

Lesson 5: Male Body Composition and Muscle Mass

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Understand the components of body composition and size diversity in sport and its relationship to performance 2. Discuss the factors that contribute to their own body size, muscle mass, and body fat and how these can be changed or maintained 3. Discuss their beliefs in supplements to gain muscle mass
Lesson goals	To help participants understand body composition, how it is measured, and factors that influence body size and composition.
Key terms	Body composition
Prerequisite knowledge	None

Activities

	Title	Steps
1	Some sort of video	1. Before the session, load the Andy Reid You-Tube video to desktop: https://www.youtube.com/watch?v=cIDdlHwmoT4

Materials Needed

Item	Details
▪ PowerPoint presentation with presenter notes ▪ Remote Response Devices (clickers) for each student and one receiver for instructor ▪ Note cards and pencils for each student, if you want feedback. ▪ White board/chalkboard/flip chart	
AV/Other	Computer, projector, projector screen
Handouts	None
Lesson-specific supplies	None
Materials for coaches	None

Preparation instructions

In advance
1. Review lesson plan, PowerPoint, and handouts
2. Practice giving the lesson on your own and with a small audience
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup

On-site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group
2. Set up computer and projector. Check you have a screen or blank wall to project ppt slides. Check that the sound is audible.
3. Turn on PowerPoint and open slide presentation and response software.

References for more information

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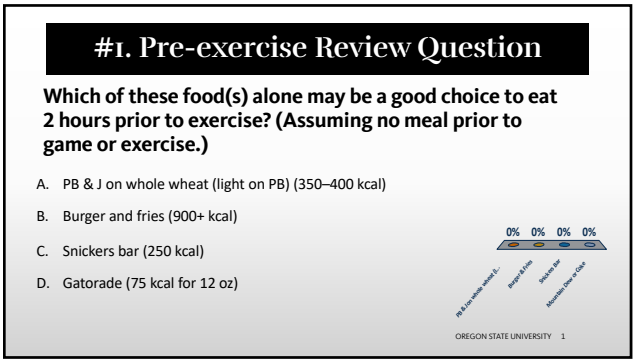
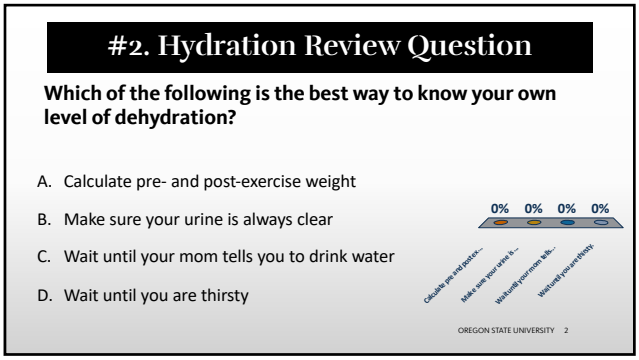
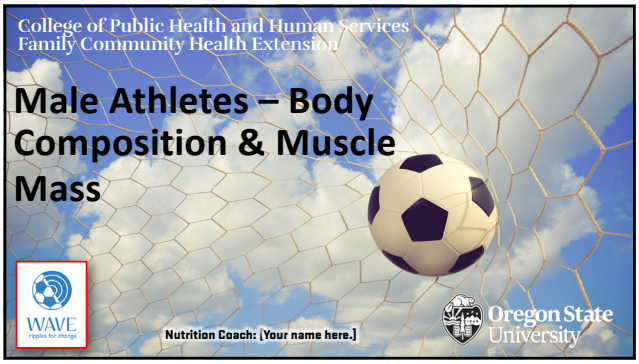
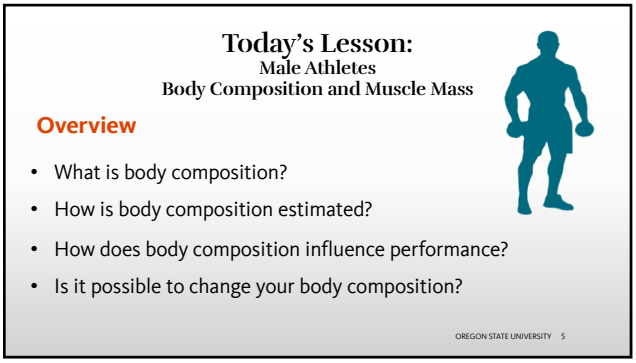
12	Thomas, D.T., K.A. Erdman, L.M. Burke. 2016. American College of Sports Medicine (ACSM)/ Academy of Nutrition and Dietetics (AND) Joint Position Statement. Nutrition and Athletic Performance. *Medicine and Science in Sports and Exercise* 48(3):543LJC.568. http://www.sciencedirect.com/science/article/pii/S221226721501802X
12	Wall, B.T., J.P. Morton, L.J. van Loon. 2015. Strategies to maintain skeletal muscle mass in the injured athlete: Nutritional considerations and exercise mimetics. *Eur J Sport Sci 15*, 53–62

Presentation: Male athletes: body composition and muscle mass









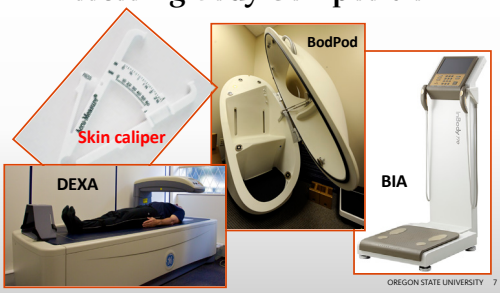
Body Composition

- **Water:**
  - **65% of our body is water.**
- **Muscle and body fat:**
  - **Muscle mass and body fat are most variable**
- **Bone:**
  - **Bone density increases with exercise.**
  - **~5–6% of body weight**

It is important for ***athletic success*** to build muscle and bone, maintain a healthy amount of fat, and to stay hydrated!

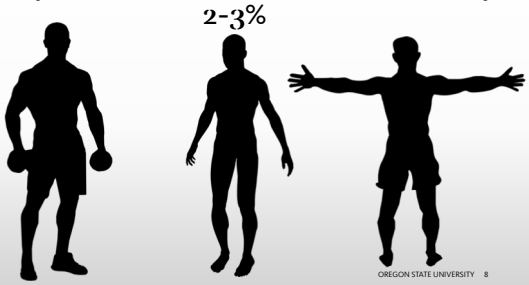
OREGON STATE UNIVERSITY 6

Assessing Body Composition



OREGON STATE UNIVERSITY 7

Body Fat % Estimation Error is Usually 2-3%



OREGON STATE UNIVERSITY 8

Elite athletes in some sports demonstrate similar body composition

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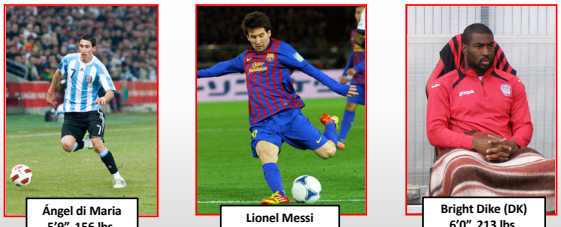
Body Composition in Soccer

- **Varies widely**
  - Dependent on age, skill level, position played, etc.
- **Body fat is essential for good health.**
  - Males need a minimum of ~12% body fat (range 8–14%)
  - Below this level muscle may be used as fuel
- **Average body fat level for male soccer players range from 9% to 15%.**

OREGON STATE UNIVERSITY 10

Elite Soccer Players Vary in Body Composition Relative to Other Sports

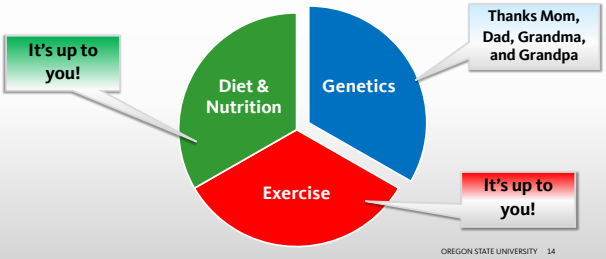


Is There a Body Fat Level Goal for a Soccer Player?

- **No!**
- **Focus should be on measures of performance.**
  - ✓Aerobic capacity (endurance capacity)
  - ✓Repeated sprint ability (7 x 35-meter sprint)
  - ✓Maximal lower body power (how high you jump)
  - ✓Technical soccer skills (dribble, pass, shoot)

Watch Andy Reid play!

Three Primary Factors that Influence Body Composition



What Can You Do to Maintain or Build Muscle Mass?

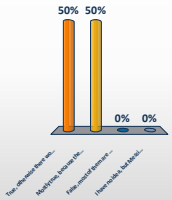
- Exercise
- Adequate energy intake
- Adequate protein intake
- Vitamins and minerals
- Post-exercise refueling and rest, including sleep

Do You Think You Need Supplements to Maintain or Build Muscle?

- **What supplements help muscle mass gain?**
- **Who monitors supplements' claims?**
  - FDA, but no law requires manufacturers to prove their claims are accurate or truthful.
- **How do you know the supplement will do what it says?**
  - You don't. No law requires clinical testing.
- **How do you know what's in the bottle matches the label?**
  - You don't. No testing is required, but this is changing.

Most Supplements Can Help You Gain Muscle or Lose Body Fat Safely

A. True, otherwise there would not be so many options
B. Mostly true, because the unsafe ones are banned and not for sale
C. False, most of them are a waste of money
D. I have no idea, but Messi uses Herbalife, so that one probably works …



Summary

- **Athletes are successful with a range of body fat %.**
- **Body fat % in athletes should be driven by measures of performance and health.**
- **Body composition results from several factors.**
  - Genetics
  - Exercise
  - Diet and nutrition
    - ✓ Eat smart
    - ✓ Fuel before, during, and after exercise
    - ✓ Timing is more important than quantity
    - ✓ Food first!

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Lesson 5: Female Body Composition and Body Image

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Understand the components of body composition and shape diversity in sport and its relationship to performance 2. Discuss factors that contribute to their own body image and how they can be more accepting of their body
Lesson goals	To help participants understand body composition and develop a heathy perspective on body image in order to develop body appreciation and acceptance.
Key terms	Body composition, body image, self-talk
Prerequisite knowledge	None

Activities

	Title	Steps
1	Photoshop video	1. Before the session, load the "Photoshop" video or download to desktop: https://www.youtube.com/watch?v=AKlVyUJw3TM. 2. Hand out one Self-Talk Activity note card and a pencil/pen to each student. 3. Start Self-Talk activity: see #3 below.
2	Self-Talk Video	1. Before the session, load the *Dove Self-Talk* video or download to desktop in advance: http://creativity-online.com/work/dove-one-beautiful-thought/40208. 2. Finish Self-Talk activity: see #3 below.
3	Self-Talk Activity (tying both videos together)	**After the Photoshop video:** 1. Have participants write their answers on note cards (give them ~60 seconds to write). Specify that there is no need for names on these. Collect note cards after they are done. 2. During the video follow-up discussion, have an assistant select both negative and positive comments to read to one another out loud in front on the class after the next video (if this is not possible, just randomly select cards to read after the next video). **After the Self-Talk video:** 1. Two instructors will read some of the negative comments to each other, driving home the point of how harmful these words and thoughts can be. Then they will follow up with positive comments, showing how much better that felt (try to act this out as best as possible). 2. Ask participants: Which comments made you uncomfortable? Why? Did anyone notice body language changes when reading or listening to the positive versus negative comments? 3. Summary: Why is our self-talk negative, even though we do not say these negative comments to anyone else? It is only damaging to our self-esteem and self-image.

Materials needed

Item	Details
▪ PowerPoint presentation with presenter notes ▪ Print and cut out Self-Talk Activity note cards so each student has one along with a pencil or pen for each student (cards on page 74) ▪ Remote Response Devices (clickers) for each student and one receiver for instructor ▪ Note cards and pencils for each student, if you want feedback. ▪ White board/chalkboard/flip chart	
AV/other	Computer, projector, projector screen
Handouts	▪ Self-Talk Activity note cards
Lesson-specific supplies	▪ None
Materials for coaches	▪ None

Preparation instructions

In advance
1. Review lesson plan, Power Point, and handouts.
2. Practice giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply and overall room setup.

On-site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group.
2. Set up computer and projector. Check you have a screen or blank wall to project ppt slides. Check that the sound is audible.
3. Turn on PowerPoint and open slide presentation and response software.
4. Have handouts ready.

References for more information

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Presentation: Female athletes: body composition and muscle mass

College of Public Health and Human Services
Extension Family and Community Health

WAVE Sport Nutrition Program Welcome Back

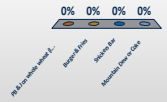
Nutrition Coach: [Your name here.]

Oregon State University

#1. Pre-exercise Review Question

Which of these foods alone would be a good choice to eat 2 hours prior to exercise? (Assuming no meal prior to game or exercise.)

A. PB & J on whole wheat (light on PB) (350–400 kcal)
B. Burger and fries (900+ kcal)
C. Snickers bar (250 kcal)
D. Gatorade (75 kcal for 12 oz)

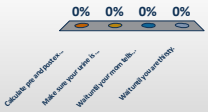


OREGON STATE UNIVERSITY 1

#2. Hydration Review Question

Which of the following is the best way to know your own level of dehydration?

A. Calculate pre- and post-exercise weight.
B. Make sure your urine is always clear.
C. Wait until your mom tells you to drink water.
D. Wait until you are thirsty.



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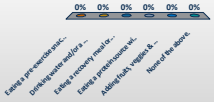
What sport nutrition behaviors have you been practicing?

A. Eating a pre-exercise snack 1–2 hours before exercise
B. Drinking water and/or a sports drink during practice and games
C. Eating a recovery meal or snack within 2 hours of practice
D. Eating a protein source with each meal.
E. Adding fruits, veggies and whole grains to your diet
F. None of the above



OREGON STATE UNIVERSITY 3

College of Public Health and Human Services
Family Community Health Extension

Female Athletes – Body Image and Body Composition

Nutrition Coach: [Your name here.]

Oregon State University

Today's Lesson:
Female Athletes
Body Composition and Image

Overview

- What is body composition?
- What are the primary factors that influence body composition?
- How does body composition influence performance?
- What is body image?

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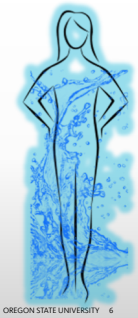
Body Composition

- **Water:**
  - 65% of our body is water.
- **Muscle and body fat:**
  - Muscle mass and body fat are most variable.
- **Bone:**
  - Bone density increases with exercise.
  - ~5–6% of body weight

It is important for ***athletic success*** to build muscle and bone, maintain a healthy amount of fat, and to stay hydrated!



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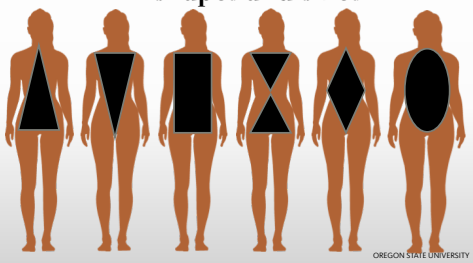
Three Primary Factors that Influence Body Composition

OREGON STATE UNIVERSITY 7

Genetics: Different Body Types All Shapes and Sizes



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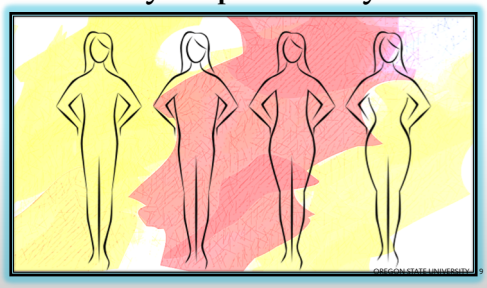
Body Shape Diversity



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Different Sports = Different Training, Body Weights, & Composition

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An Iconic Image, But Not the Only Body Type for Woman's Soccer

OREGON STATE UNIVERSITY 11

Body Composition in Soccer

- **Varies widely**
  - Dependent on age, skill level, position played
- **Body fat is essential for good health.**
  - Females need a minimum of ~12% body fat
  - Below this level, muscle may be used as fuel.
- **Average body fat level for female soccer players ranges from 18% to 28%.**

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How Could Having Too Little Body Fat Impact Health and Performance?

1. Lingering muscle soreness and increased injury
2. Early fatigue and loss of speed.
3. Missing menstrual periods or no periods
4. Poorer bone health

Alex Morgan on eating healthy

(check it out on Facebook)

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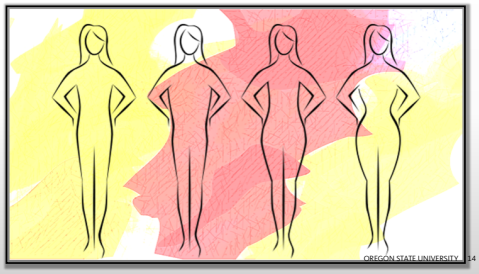
Body Image



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What is Body Image?

- **How you see yourself when you look in the mirror or when you picture yourself in your mind?**
  - National Eating Disorders Association, 2017; https://www.nationaleatingdisorders.org/what-body-image
- **Body image encompasses:**
  - What you **believe** about your own appearance
  - How you **feel** about your body, including your height, shape, and weight
  - How you **sense** and **control** your body as you move
  - How you feel **in** your body, not just **about** your body

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Where Do Your Feelings About Your Own Body Image Come From?

1. **Yourself** (your own views of yourself and self-talk)
2. **Coaches and mentors**
3. **Parents and relatives**
4. **Friends**
5. **Media**

Body Image Activity

- **Photoshop–A fake reality**
  - https://www.youtube.com/watch?v=AKlVyUJw3TM
  - Thoughts…?
- **How do you see yourself?**
  - Most likely very different than others see you.
  - Write down one negative and one positive thing you say to yourself about how you look.

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What We Say to Ourselves Matters

- **Self-Talk Dove Video:**
  http://creativity-online.com/work/dove-one-beautiful-thought/40208
- **Video reflection**
  - How do you keep your self-talk positive?
    - **Awareness is step #1**
    - **10 positive comments needed to outweigh 1 negative.**
    - **Brush off the negative thoughts**

Be a Positive Body Image Role Model

- **Change your goal from weight loss to optimal health and performance.**
- **Develop your body trust**
  - Get in touch with your hunger and fullness cues to establish a balanced eating pattern.

Be a Positive Body Image Role Model

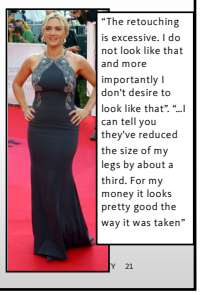
- **Develop awareness of negative thought triggers and do your best to avoid or counteract those.**
- **Give yourself a break from women's magazines and the mass media advertising if you feel prone to this kind of false perception.**
  - Spend time with uplifting people and body-positive media.
  - Make positive comments to others rather than focusing on weight and body image.

Maintain a Positive Body Image

What do you think a positive body image is?

To maintain a positive body image, you must know and believe that:

- Healthy bodies come in different shapes and sizes.
- Body size and weight do not predict happiness, success, or health.
- People are more than numbers on a scale.
  - Every person is a unique individual with admirable talents, skills, and abilities.
- Images in the media are unrealistic and are created to sell products.



Nourish Your Body!

Activity: Self-talk activity note cards

Negative comment: **Positive comment:**	**Negative comment:** **Positive comment:**
Negative comment: **Positive comment:**	**Negative comment:** **Positive comment:**

Lesson 6: Maintaining Body Composition and Staying Well

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Understand how nutrition and the timing of intake can help preserve lean body mass and keep bones strong. 2. Know what the Athlete's Plate looks like depending on how hard they are training. 3. Identify foods (meat and nonmeat sources) that provide protein to maintain muscle and help tissues heal. 4. Understand how exercise and nutrition affect the immune system. 5. Recall key nutrients in immune function and how they work together to support overall health. 6. Identify foods that contain immune supporting nutrients.
Lesson goals	1. To help participants understand how nutrient timing and composition of foods/meals will help meet their protein needs. 2. To help participants understand the importance of diet and lifestyle habits that will help them maintain a strong immune system and stay healthy.
Key terms	Muscle glycogen repletion, muscle protein synthesis
Prerequisite knowledge	Immunity, immune function, nutrient timing

Activities

	Title	Steps
1	'Got Protein?' activity	1. Before the session, print the *Got Protein?* worksheet. 2. Hand out one *Got Protein?* worksheet and a pen or pencil to each participant.
2	CLIF Bar label reading	1. Before class, hand out or have participants take one peanut butter CLIF Bar or a CLIF Bar wrapper. If you do not have CLIF bars to hand out, collect CLIF bar wrappers or print the label for students. 2. Alert participants that there is gluten and peanut butter in the CLIF bars.

Materials needed

Item	Details
▪ PowerPoint presentation with presenter notes. ▪ Print enough *Got Protein?* worksheets for each individual. ▪ If funding is available, purchase peanut butter CLIF Bars and napkins (enough for each student). ▪ Remote Response Devices (clickers) for each athlete and one receiver for instructor. ▪ Note cards and pencils for each athlete, if you want feedback. ▪ White board/chalkboard/flip chart	
AV/Other	Computer, projector, projector screen
Handouts	▪ *Got Protein?* worksheet
Lesson-specific supplies	▪ Peanut butter CLIF Bars
Materials for coaches	▪ Timing of Protein Intake

Preparation instructions

In advance
1. Review lesson plan, PowerPoint, and handouts.
2. Purchase the peanut butter CLIF Bars. Print the *Got Protein?* worksheet and try doing the activity yourself. Finally, practice giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup.

On-site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group.
2. Set-up computer and projector. Check you have a screen or blank wall to project ppt slides. Check that the sound is audible.
3. Turn on PowerPoint and open slide presentation and response software.
4. Have handouts ready.

References for more information

1	Desbrow, B., J. McCormack, L.M. Burke, G.R. Cox, K. Fallon, M. Hislop, R. Logan, N. Marino, S.M. Sawyer, G. Shaw, et al. 2014. Sports Dietitians Australia Position Statement: Sports Nutrition For The Adolescent Athlete. *International Journal of Sport Nutrition And Exercise Metabolism 24*, 570–584. http://journals.humankinetics.com/doi/abs/10.1123/ijsnem.2014-0031
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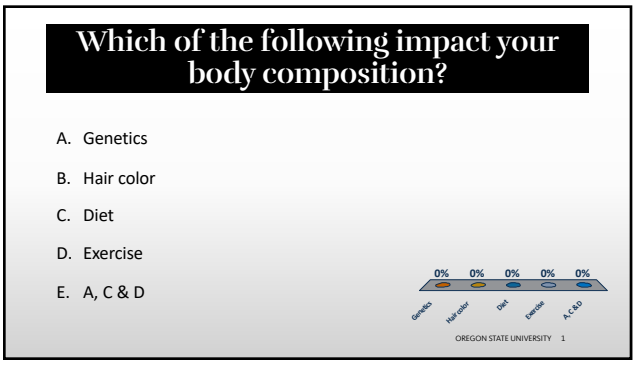
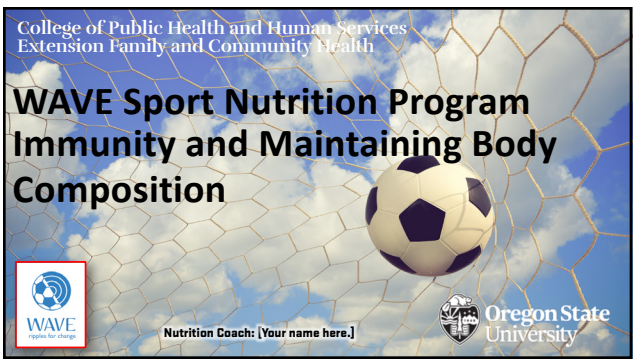
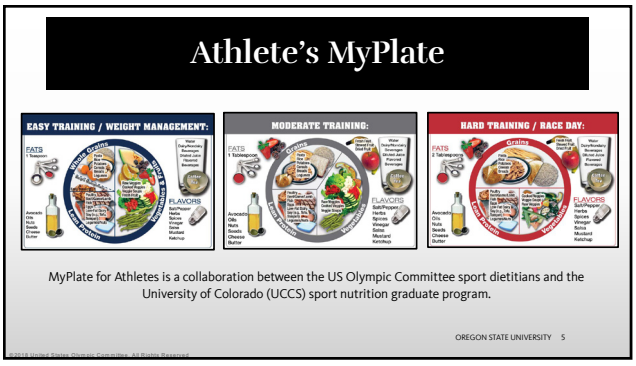
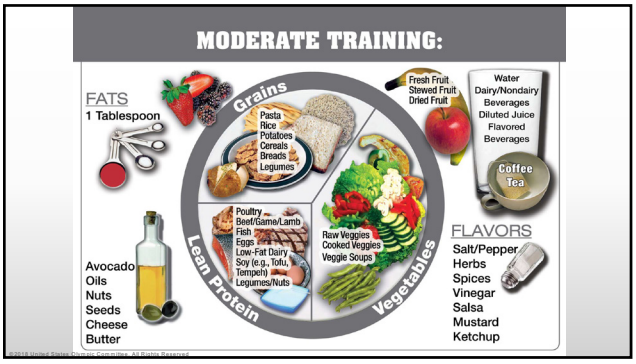
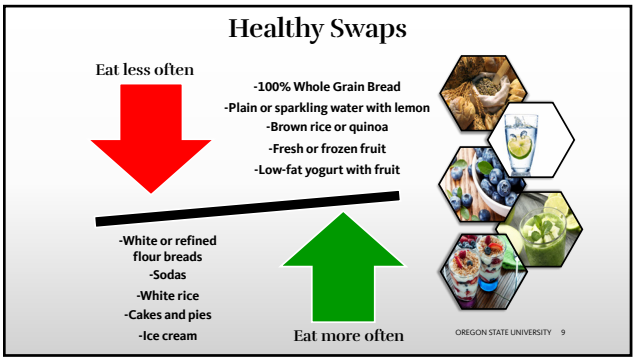
Presentation: Immunity and maintaining body composition

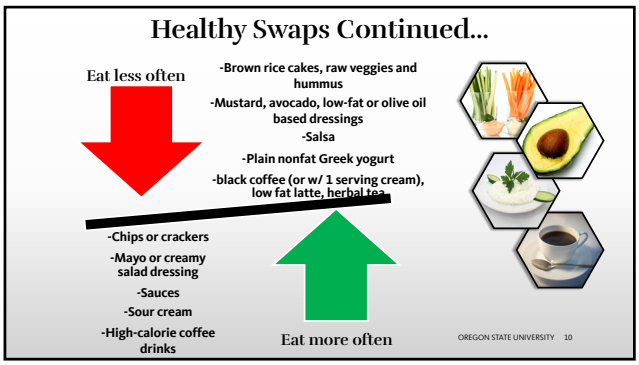












How Much Protein Do You Need?

- **Athletes need more protein than inactive individuals.**
- **Use the 'Got Protein?' worksheet to calculate your daily protein requirements as an active and still growing individual.**
  - 0.55–0.90 g protein x body weight (lbs) = g of protein/day
- **How much protein is needed for recovery?**
  - 10–15 g
- **Remember:**
  - Protein + carbohydrates together = best recovery
  - Timing is more important than a large quantity.

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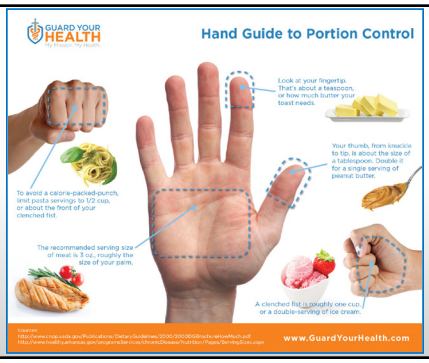
Protein Content of Various Foods

Animal Food Sources of Protein	5 oz. chicken breast (1/2)	44 g
	3/4 cup tuna	42 g
	4 oz. lean sirloin steak	34 g
	4 oz. turkey breast	32 g
	2 cups milk	18 g
	2 eggs-large	13 g
	1 cup Greek yogurt	13 g
	1 slice cheese (1oz)	6-7 g
Vegetable Sources of Protein	½ cup edamame	18 g
	1 cup pinto beans	14 g
	1 cup cooked quinoa	6 g
	2 Tbsp. peanut butter	8 g
	1 cup soy milk	8 g
	10" flour tortilla	6 g
	1 Slice bread	3 g
	1 cup cooked vegetables	3 g

OREGON STATE UNIVERSITY 12



Protein Content of a Peanut Butter CLIF Bar ©

Nutrition Facts

Serving Size: 1 bar (68g)

Amount Per Serving	
Calories 250	Calories from Fat 50
	% Daily Value*
Total Fat 6 g	9%
Saturated Fat 1.5 g	8%
Trans Fat 0 g	
Cholesterol 0 mg	0%
Sodium 250 mg	10%
Potassium 230 mg	7%
Total Carbohydrate 40 g	13%
Dietary Fiber 5 g	20%
Sugars 18 g	
Sugar Alcohols	
Protein 12 g	
Vitamin A 1500 IU	30%
Vitamin C 60 mg	100%
Calcium 250 mg	25%
Iron 4.5 mg	25%

Sample Day for an Athlete: Protein Intake

Breakfast:
1 C Greek yogurt = **13g**
½ C berries

Snack:
1 banana = **1g**
2 Tbsp peanut butter = **8g**

Lunch:
3 oz turkey = **24g**
2 slices WW bread = **6g**

Dinner:
3 oz chicken Breast = **26g**
1 C brown rice = **5g**
1 C steamed broccoli = **3g**

Total Protein = 95 grams

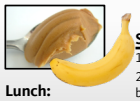
Post-workout snack:
1 C chocolate milk = **9g**
1 apple

OREGON STATE UNIVERSITY 15

Higher Protein Needs? Simply Increase Serving Size

Breakfast:
1 C Greek yogurt = **13g**
½ C berries
⅓ C granola=6g

Snack:
1 banana = **1g**
2 Tbsp peanut butter = **8g**



Lunch:
3 oz. turkey = **24g**
2 slices WW bread = **6g**
1 oz. cheese = **7g**

Post-workout snack:
2 C low-fat chocolate milk = **18g**
1 apple

Dinner:
1 C brown rice = **5g**
1 C steamed broccoli = **3g**
5 oz chicken Breast = **44g**

Total Protein = 131 grams

OREGON STATE UNIVERSITY 16

Let's See! Application Activity

1. **You have already calculated the amount of protein you need to eat per day (worksheet).**
2. **Now, design a lunch from the food options provided on the second page of your handout.**
3. **Add up the protein in your lunch.**
4. **How does it compare to your DAILY need?**

OREGON STATE UNIVERSITY 17

Staying Well: Building Your Immune Function!

The BIG picture

- **A lifestyle consistently filled with a healthy diet, adequate hydration, regular exercise and enough sleep, work together to . . .**
  - ✓Improve injury recovery
  - ✓Improve our overall health
  - ✓Decrease long term risk for disease
  - ✓Maintain our overall ***immune function***.

What is Immunity

- **Our Immune System is --**

an internal defense system that protects against bacteria and viruses that cause sickness.

OREGON STATE UNIVERSITY 19

Which of the Following are Ways Bacteria and Viruses Enter the Body?

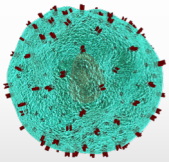
A. Nose

B. Mouth

C. Eyes

D. Food

E. All of the above



OREGON STATE UNIVERSITY 20

How Many Times in the Last Year Were You Sick Enough to Miss Practice or School?

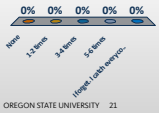
A. None

B. 1–2 times

C. 3–4 times

D. 5–6 times

E. More—I catch every cold out there!

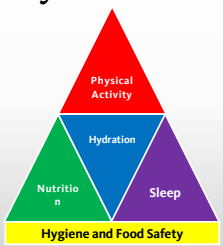


OREGON STATE UNIVERSITY 21

How Do You Build and Support a Strong Immune System?

1. **Adequate hydration**
2. **Regular exercise**
3. **Healthy eating**
4. **Getting enough sleep**
5. **Hygiene and food safety**

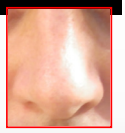
→ **Help manage stress**



OREGON STATE UNIVERSITY 22

#1. Hydration and Immune Function

- **Proper hydration works to help destroy bacteria and viruses.**
- **Dehydration:**
  - Makes it harder for enzymes in saliva to kill bacteria.
  - Dries out our nasal passages making it easier for bacteria and viruses to enter body.
  - Stresses our bodies, which decreases immune function



OREGON STATE UNIVERSITY 23

Do You Remember How Much Water You Need Each Day?

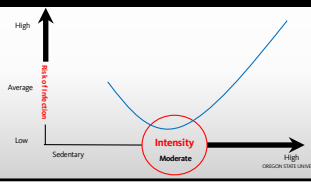
A. I drink when I'm thirsty, so I don't know.

B. I'm a guy, I need about 10–12 cups. -OR- I'm a girl, I need about 8 cups.

C. It depends on how much I work out and sweat.

D. Both B and C

#2. Impact of Regular Exercise on Immune Function



#3. Eat Smart—Nutrition and Immunity!

Poor diet is a fast track to a compromised immune system! Make sure you…

- ✓Eat breakfast!
- ✓Get adequate carbohydrate and protein
- ✓Spread meals and snacks throughout the day
- ✓Eat a variety of foods (colors)
- ✓Pick healthy snacks

#4. Getting Enough Sleep How Much Sleep Do You Get Per Night?

A. 5 hours or less

B. 6–7 hours

C. 8–10 hours

D. More than 10 hours

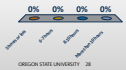
How Much Sleep Do You Think You Need Per Night?

A. 5 hours or less

B. 6–7 hours

C. 8–10 hours

D. More than 10 hours



What Percentage of Teens Get Enough Sleep on School Nights?

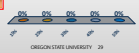
A. 15%

B. 25%

C. 35%

D. 45%

E. 55%



What Happens If You Don't Get Enough Sleep?

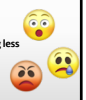
A. It limits your ability to learn, listen, remember, concentrate and solve problems.

B. It may contribute to stress, which may contribute to acne.

C. It can influence your mood: You are more angry, impatient, feeling less happy.

D. It can contribute to poor eating behaviors, such as skipped meals.

E. Increased risk of accidents, injury, or illness.



UCLA Sleep Disorder Center – Sleep & Teens

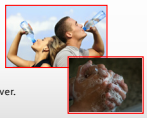
Get Enough Sleep!

- **Sleep is vital to your well-being. In fact, it can be as important as the …**
  - training you put in,
  - water you drink , and
  - food you eat!
- **Sleep can help you make better nutrition choices and manage stress.**

National Sleep Foundation: http://sleepfoundation.org/sleep-topics/teens-and-sleep

#5. Pay Attention to Hygiene and Food Safety.

- **Don't share water bottles.**
- **Wash your hands often!**
- **Food safety. . .**
  - Refrigerate raw eggs, dairy, meat, and fish.
  - Refrigerate cooked foods after the meal is over.
  - Wash your fruits and vegetables.
  - Use different cutting boards for meats and vegetables.



Summary

- **Staying healthy requires:**
  - **Nutritious food, hydration, regular exercise, adequate sleep, good hygiene, and food safety.**
    - Plus they all help manage stress
- **Eating for health:**
  - Fruits, veggies, whole grains, and lean protein options.

Activity: Got protein?

How much do you really need?

Your name: _____

1. It is recommended that athletes consume **0.55–0.90 grams (g) of protein per pound of body weight each day.** ***How much protein do you need?*** **Use the tables below to find your daily protein needs.**

Directions: Find your body weight (BW) (first row); record g protein needed per day (second row) here:

_____ (g/protein/day).1

Your weight (pounds)	100–110 lbs	110–120 lbs	120–130 lbs	130–140 lbs	140–150 lbs	150–160 lbs	160–170 lbs
Protein needed (g/day)	55–99 g/day	60–108 g/day	66–117 g/day	72–126 g/day	77–135 g/day	83–144 g/day	88–153 g/day

Your weight (pounds)	170–180 lbs	180–190 lbs	190–200 lbs	200–210 lbs	210–220 lbs	220–230 lbs	230–240 lbs
Protein needed (g/day)	94–162 g/day	99–171 g/day	105–180 g/day	110–189 g/day	116–198 g/day	121–207 g/day	127–216 g/day

2. How many grams of protein do you need to eat for recovery? ____(g/protein)

3. Use the food lists on the next page to design a lunch you might choose to eat. Write your lunch choices in the space below. The goal is to meet about 1/3 of your protein needs for the day.

4. Add up and record the amount of protein in your designed lunch: _____ (g protein)

5. Was your lunch protein content about 1/3 of your daily needs (circle one)? Yes/No

■ *If you were a little short, don't worry, snacks are a good way to include some extra protein in your day!*

[1] Reference: Thomas et al., Position of the Academy, JAND, 2016. Recommends 1.2–2.0g pro/kg BW ~ 0.55–0.9g pro/lb BW.

Animal food sources of protein	
5 oz chicken breast (1/2)	44 g
3/4 cup tuna	42 g
4 oz lean sirloin steak	34 g
4 oz turkey breast	18 g
2 cups milk	13 g
2 eggs–large	13 g
1 cup Greek yogurt	13 g
1 slice cheese (1 oz)	6–7 g
Vegetable sources of protein	
½ cup edamame	18 g
1 cup pinto beans	14 g
1 cup cooked quinoa	6 g
2 Tbsp. peanut butter	8 g
1 cup soy milk	8 g
10-inch flour tortilla	6 g
1 slice bread	3 g
1 cup cooked vegetables	3 g

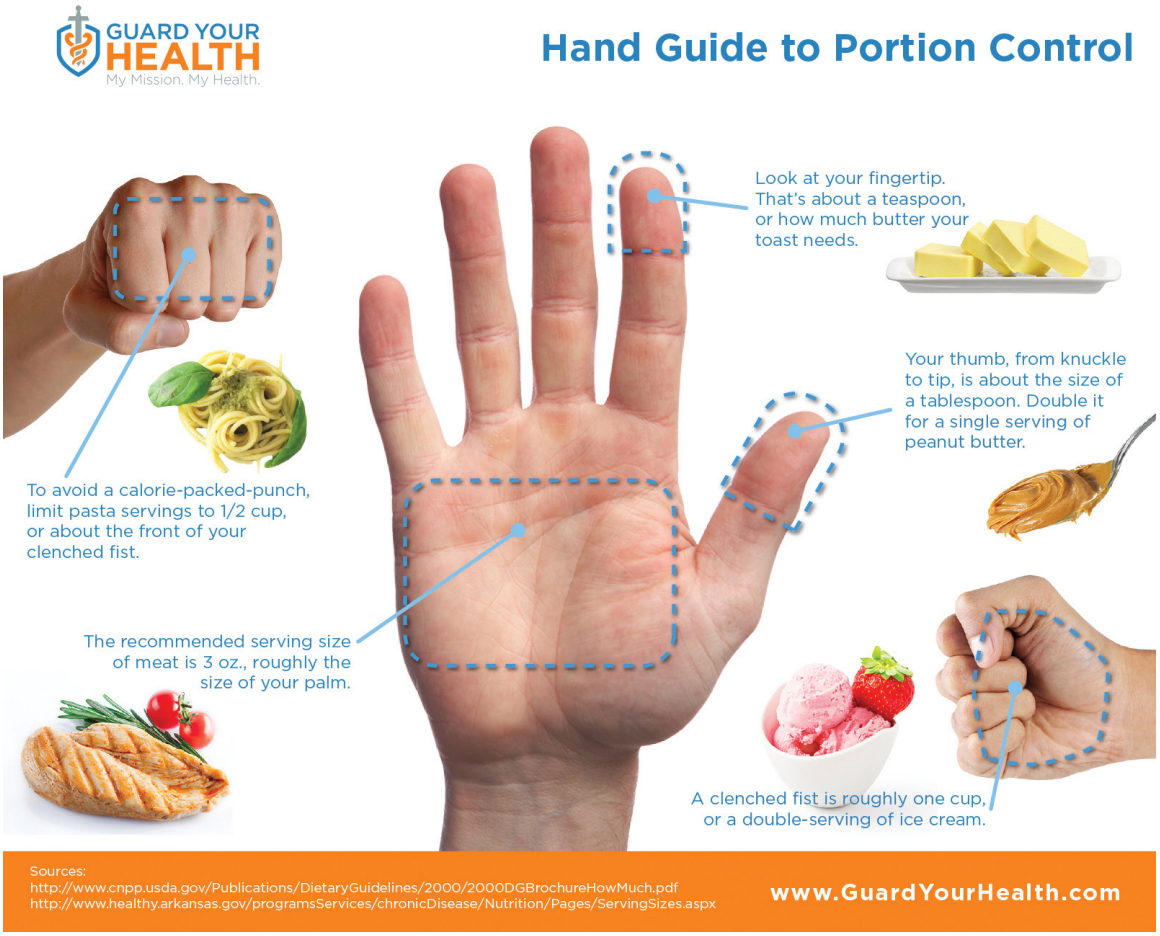


Illustration: www.GuardYourHealth.com

Lesson 7: Eating Well While Eating Out

Overview

Item	Details
Lesson objectives	The participant will be able to: 1. Identify the 'criteria' participants currently use to make food selections away from home. 2. Develop strategies for making healthy food choices outside of the home. 3. Practice identifying 'criteria' for choosing the 'healthier option' when given a choice between food items at an eating establishment.
Lesson goals	Help participants understand how to make better food selections outside the home that are within their budgets. Raise awareness that cooking and eating food from home can be the most affordable and 'healthy' option.
Key terms	In-season, off-season
Prerequisite knowledge	Athlete's MyPlate

Activities

	Title	Steps
1	*Healthier Choice* worksheet: Challenge: Best Choice for During-Season or Off-Season?	1. Before the session, print and staple handout. 2. Review the scoring for the 'challenge' with the participants before beginning the activity. 3. After completion of the activity, review the correct answers with the athletes/participants and the rationale behind the answers. 4. Have athletes/participants total up their points. 5. Commend participants that scored well. If serving popcorn, include the popcorn handout discussed below.
2	Optional activity: Homemade Paper Bag Microwave Popcorn Starter Kit	1. Before class, assemble the homemade paper bag microwave popcorn starter kit. Make enough for three top-place finishers or for the whole class, whichever option you prefer. ■ Place ¼ to ½ cup popcorn kernels (¼ cup makes ~4 cups popped, ½ cup makes ~8 cups popped) into a paper bag. Fold the top of the bag over a few times and staple shut. These stapes must be removed before the bag is microwaved. ■ At home, the participants can try making the popcorn. ■ Instruct participants that all they have to do is place the paper bag with kernels in the microwave until there are about 4 seconds between pops. No staples in the bag put in the microwave. ■ Instruct participants that after popping, all they have to do is mix with 1 tsp to 1 Tbsp oil (olive, vegetable, etc.), sprinkle with salt, and season to preference.

Materials needed

Item	Details
▪ PowerPoint presentation with presenter notes. ▪ Print enough *Healthier Choice* worksheets for each participant. ▪ Gather materials to make and transport Homemade Paper Bag Microwave Popcorn Starter Kits. ▪ Remote Response Devices (clickers) for each participant and one receiver for instructor. ▪ Notecards and pencils for each participant to provide questions and feedback. ▪ White board/chalkboard/flip chart.	
AV/other	Computer, projector, projector screen
Handouts	▪ *Healthier Choice* Worksheet: Challenge: Best Choice for During-Season or Off-Season?
Lesson-specific supplies	▪ Option activity: Homemade Paper Bag Microwave Popcorn Starter Kit (one for each participant or three for the top three finishers). If you have time and space, participants could make their own in class.
Materials for coaches	▪ No specific coach materials for this lesson

Preparation instructions

In advance
1. Review lesson plan, PowerPoint, and handouts.
2. Make a sample paper bag popcorn, pop and prepare (with oil and seasoning) yourself. You could demonstrate the process in class if there is a microwave; however, remember microwaves have different power levels, so practice first. Finally, practice giving the lesson on your own and with a small audience.
3. Assess the availability of tables, chairs, projector screen, outlets, water supply, and overall room setup.

On -site preparation
1. Arrange the room to accommodate groups of 3–4 participants per group.
2. Set-up computer and projector. Check you have a screen or blank wall to project ppt slides. Check that the sound is audible.
3. Turn on PowerPoint and open slide presentation and response software.
4. Have handouts ready.

References for more information

1	Desbrow, B., J. McCormack, L.M. Burke, G.R. Cox, K. Fallon, M. Hislop, R. Logan, N. Marino, S.M. Sawyer , G. Shaw et al. 2014. Sports Dietitians Australia Position Statement: Sports Nutrition For The Adolescent Athlete. *International Journal of Sport Nutrition And Exercise Metabolism 24*, 570–584. http://journals.humankinetics.com/doi/abs/10.1123/ijsnem.2014-0031
2	Houtkooper, L,. J.M. Abbot, V. Mullins. 2007. *Winning Sports Nutrition*. DSW Fitness, Tucson, AZ.
3	Manore, M.M., N.L. Meyer , J. Thompson. 2009. *Sport Nutrition for Health and Performance*. Human Kinetics, Champlain, IL.
4	Meyer, N.L., M.M. Manore, J. Berning. 2012. Fueling for Fitness: Food and fluid recommendations for before, during and after exercise. *ACSM's Health and Fitness Journal* 16 (3):7–12. http://journals.lww.com/acsm-healthfitness/Abstract/2012/05000/Fueling_for_Fitness__Food_and_Fluid.5.aspx
5	Thomas, D.T., K.A. Erdman, L.M. Burke. 2016. American College of Sports Medicine (ACSM)/Academy of Nutrition and Dietetics (AND) Joint Position Statement. Nutrition and Athletic Performance. *Medicine and Science in Sports and Exercise* 48(3):543–568. http://www.sciencedirect.com/science/article/pii/S221226721501802X
6	USDA. 10 Tips: Eating Foods Away from Home. USDA Choose MyPlate.gov. https://www.choosemyplate.gov/ten-tips-eating-foods-away-home

Presentation: Eating well while eating out

College of Public Health and Human Services
Extension Family and Community Health

WAVE Sport Nutrition Program
Eating Well While Eating Out!

WAVE
ripples for change

Nutrition Coach: [Your name here.]

Oregon State University

Which of the Following Are Good Sources of Protein to Help Maintain Body Composition?

A. 1 cup beans
B. 1 can of tuna fish
C. 1 cup Greek yogurt
D. 2 Tbsp peanut butter
E. All of the above

OREGON STATE UNIVERSITY 1

In Order to Maintain a Strong Immune System, I Should Try to:

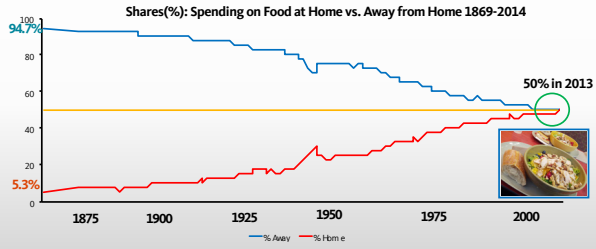
A. Drink water throughout my day.
B. Participate in 2+ hours of high-intensity exercise every day.
C. Eat all three meals and some snacks to include a variety of health-packed foods.
D. Sleep 6–7 hours per night.
E. Share my water bottle with everyone.
F. Only A and C

OREGON STATE UNIVERSITY 2

Our Topic for Today: Eating Well while Eating Out

OREGON STATE UNIVERSITY 3

United State Department of Agriculture Data, 2014



OREGON STATE UNIVERSITY 4

Data from USDA Economic Research Service

Ordering Smart at Restaurants

- Choose 'small' options or share a main dish.
- Choose water or reduced-fat milk.
- Choose a side salad + vinaigrette.
- Avoid fried foods; select whole grains
- Ask for condiments/dressings "on-the-side" or request low-fat dressings/sauces.
- Check the calorie levels of the foods you plan to order—it is the law they be listed.

OREGON STATE UNIVERSITY 5

Ordering Smart at Fast Food Places

- Look for the 'grilled' or lower-fat options.
- Don't drink your calories—stick with ice water.
- Choose a side salad and vinaigrette on the side.
- Select whole grain breads, tortillas, grains.
- Get extra veggies on pizza and sandwiches; extra beans on burritos.
- Check the calorie level on the foods you order!

Athlete's MyPlate

MyPlates for Athletes is a collaboration between the US Olympic Committee sport dietitians and the University of Colorado (UCCS) Sport Nutrition graduate program.

Make It Easy!

Select a...

+Fruit and/or vegetable

+Lean protein

+Whole grains

Challenge

Choose the best option for fueling during season versus off-season

Grab your handout and group up

Activity Score Card			
Restaurant or food	During season/heavy training	Off-season/post athletic career	Points Correct= 1 Incorrect= 0
1. Panera	Panini or salad	Panini or salad	
2. Jamba Juice	Regular or light	Regular or light	
3. Starbucks	Strawberry banana smoothie or Green tea frappuccino	Strawberry banana smoothie or Green tea frappuccino	
4. Subway	Meatball -OR- Turkey	Meatball or turkey	
5. Popcorn	Smartfood white cheddar or Home-cooked	Smartfood white cheddar or Home-cooked	
TOTAL POINTS =			

Panera Bread Company During Season or Off-Season?

Fontega Chicken Panini on Focaccia

Whole sandwich: 750Kcal, 24g fat, 85g carbs, 48g Protein

Strawberry Poppyseed Salad with Chicken

Whole salad: 340Kcal, 12g fat, 31g carbs, 31g Protein

Jamba Juice
During Season or Off-Season?

Regular Strawberry Surf Rider Smoothie

Medium 24oz: 450kcal, 0g fat, 110g carbs (98g sugar), 3g protein

Light Strawberry Surf Rider Smoothie

Medium 24oz: 280kcal, 0g fat, 67g carbs (57g sugar), 5g protein

Starbucks
During Season or Off-Season?

Evolution Fresh Strawberry Banana Smoothie

24oz Smoothie: 340 kcal, 1g fat, 76g carbs (58g sugar), 9g protein

Green Tea Frappuccino

24oz Frappuccino: 550kcal, 18g fat, 91g carbs (88g sugar), 8g protein

Subway
During Season or Off-Season?

6" Meatball Marinara on White

6" Sandwich: 480 kcal, 18g fat, 60g carbs, 21g protein

6" turkey Breast Sub on Whole Wheat or Multigrain

6" Sandwich: 280 kcal, 3.5g fat, 46g carbs, 18g protein

Popcorn
During Season or Off-Season?

Smartfood White Cheddar Popcorn

1 Cup: 91 kcals, 6g fat, 8g carbs, 2g protein, Price = 20 cents/cup

(ten times more expensive)

Microwave self-popped

(1/3 c kernels, 1tsp oil, 1 tsp salt or taste)

1 Cup: 30 kcal 0.5g fat, 6g carbs, 2g protein, + olive oil= 74 kcal, 3g fat

Price= 2 cents/cup

Activity Score Card

Restaurant or food	During season/heavy training	Off-season/post athletic career	Points Correct= 1 Incorrect= 0
1. Panera	Panini or Salad	Panini or salad	
2. Jamba Juice	Regular or Light	Regular or light	
3. Starbucks	Strawberry Banana Smoothie or Green Tea Frappuccino	Strawberry Banana Smoothie or Green Tea Frappuccino	
4. Subway	Meatball -OR- Turkey	Meatball -OR- Turkey	
5. Popcorn	Smartfood White Cheddar Or Home-cooked	Smartfood White Cheddar or Home-cooked	
TOTAL POINTS =			

OREGON STATE UNIVERSITY 16

OREGON STATE UNIVERSITY 17

Summary

When eating out:

- ✓Keep your plate balanced and colorful.
- ✓Make half your plate veggies.
- ✓Take your time and enjoy your company.
- ✓ If portions are too big, take a to-go box—then you can enjoy it longer! ☺

OREGON STATE UNIVERSITY 18

Reasons to Eat Healthy

1. You will feel more energized and have better attention span.
2. You will heal faster from injuries.
3. You will be at lower risk for many diseases, such as diabetes and cardiovascular disease.
4. You will look great! Glowing skin , hair shining and healthy body.
5. You will sleep better and wake rested.
6. You will feel more self confident!

OREGON STATE UNIVERSITY 19

Note Card Questions

1. What is the most interesting or important thing you have learned in these lessons?
2. Are there any nutrition or wellness questions you still want answered?

OREGON STATE UNIVERSITY 20

Wrap It Up

Activity challenge: Best choice for during the season or off-season?

Your name: _____

1. In column 1: Circle the better choice during soccer season on the score card (pg. 94).

2. In column 2: Circle the better choice during the off-season on the score card (pg. 94).

*Keep in mind those choices may be the same or different.

1. **Panera Bread Company**	
	
Fontega Chicken Panini on Focaccia: Smoked, pulled chicken raised without antibiotics, mozzarella, vine-ripened tomatoes, red onions, chopped basil, and chipotle mayo all grilled on focaccia.	**Strawberry Poppyseed Salad with Chicken:** Chicken raised without antibiotics and romaine tossed with fat-free poppyseed dressing and topped with fresh strawberries, blueberries, pineapple, mandarin oranges, and toasted pecan pieces.

2. Jamba Juice

Regular Strawberry Surf Rider Smoothie: A blend of lemonade, strawberries, lime sherbet (contains milk), ice, peaches

Light Strawberry Surf Rider Smoothie: A blend of lemonade, lower-calorie dairy base (contains milk), strawberries, ice, peaches

3. Starbucks

24 oz Evolution Fresh Strawberry Banana Smoothie: Apple, banana, and nonfat Greek yogurt added to the classic strawberry smoothie.

24 oz Green Tea Frappuccino: Sweetened premium matcha green tea, milk, and ice topped with sweetened whipped cream.

4. Subway

6" Meatball marinara on white: Italian-style meatballs in marinara sauce, served on freshly baked white bread.

6" Turkey breast on whole wheat or multigrain: Turkey breast with lettuce, tomatoes, banana peppers, and jalapeños (if requested)

5. **Popcorn**	
	
SmartFood White Cheddar: Made with white cheddar cheese.	**Home-made microwave popcorn:** Place ⅓ cup popcorn kernels (5 cups popped) in paper bag and fold top over twice. Microwave for 1½ to 2 min, add 1 Tbsp oil, 1 tsp salt, and mix together.

Activity scorecard

Scoring directions: *Star* the correct answer.

- You get 1 point for each correct choice you make above
- You get 0 points for each incorrect choice
- You can get a maximum of 2 points per question.

Restaurant or food	During season or heavy training	Off-season/post-athletic career	Correct= 1 Incorrect= 0
1. Panera	Panini or salad	Panini or salad	
2. Jamba Juice	Regular or light	Regular or light	
3. Starbucks	Strawberry Banana Smoothie or Green Tea Frappuccino	Strawberry Banana Smoothie or Green Tea Frappuccino	
4. Subway	Meatball or Turkey	Meatball or Turkey	
5. Popcorn	Smartfood White Cheddar **or** Home-cooked	Smartfood White Cheddar or Home-cooked	
		Total score:	

USDA
United States Department of Agriculture

10 tips Nutrition Education Series

MyPlate MyWins

Based on the **Dietary Guidelines for Americans**

Eating foods away from home

Full-service and fast-food restaurants, convenience stores, and grocery stores offer a variety of meal options. Typically, these meals are higher in calories, saturated fat, sodium, and added sugars than the food you prepare at home. Think about ways to make healthier choices when eating food away from home.

1 Consider your drink

Choose water, unsweetened tea, and other drinks without added sugars to complement your meal. If you drink alcohol, choose drinks lower in added sugars and be aware of the alcohol content of your beverage. Keep in mind that many coffee drinks may be high in saturated fat and added sugar.

2 Savor a salad

Start your meal with a salad packed with vegetables to help you feel satisfied sooner. Ask for dressing on the side and use a small amount of it.

3 Share a dish

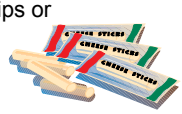
Share a dish with a friend or family member. Or, ask the server to pack up half of your entree before it comes to the table to control the amount you eat.

4 Customize your meal

Order a side dish or an appetizer-sized portion instead of a regular entree. They're usually served on smaller plates and in smaller amounts.

5 Pack your snack

Pack fruit, sliced vegetables, low-fat string cheese, or unsalted nuts to eat during road trips or long commutes. No need to stop for other food when these snacks are ready-to-eat.



6 Fill your plate with vegetables and fruit

Stir-fries, kabobs, or vegetarian menu items usually have more vegetables. Select fruits as a side dish or dessert.

7 Compare the calories, fat, and sodium

Many menus now include nutrition information. Look for items that are lower in calories, saturated fat, and sodium. Check with your server if you don't see them on the menu. For more information, check www.FDA.gov.

8 Pass on the buffet

Have an item from the menu and avoid the "all-you-can-eat" buffet. Steamed, grilled, or broiled dishes have fewer calories than foods that are fried in oil or cooked in butter.

9 Get your whole grains

Request 100% whole-wheat breads, rolls, and pasta when choosing sandwiches, burgers, or main dishes.

10 Quit the "clean your plate club"

You don't have to eat everything on your plate. Take leftovers home and refrigerate within 2 hours. Leftovers in the refrigerator are safe to eat for about 3 to 4 days.

Center for Nutrition Policy and Promotion
USDA is an equal opportunity provider, employer, and lender.

Go to **ChooseMyPlate.gov** for more information.

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