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Nutrition Manual for NSU Student Athletes

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Nutrition Manual for NSU Student Athletes



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The *Nutrition Manual for NSU Student Athletes* was created by graduate nutrition students enrolled in NUT 6700 Advanced Sports Nutrition as part of their Master of Science in Nutrition degree in the summer 2019. The original idea came via NSU's Strength and Conditioning Coach, Steve Orris, who championed this project as an experiential outcome. The students were offered this opportunity and enthusiastically agreed to embark on this collaborative project.

I would like to acknowledge Kaitlyn Flaskerud RDN, LDN, who served as the lead student editor and worked with NSU's Writing and Communication Center's input. She is a budding "Sports Dietitian Nutritionist."

This is the first edition of the *Nutrition Manual for NSU Student Athletes*. It targets the freshman athlete who is new to campus and possibly new to meal planning. The *Manual* provides information and examples of energy requirements, macronutrients, meal timing, the NSU Razor Reef Dining options, snack ideas, and eating on a budget and on the road.

For Student Athletes needing specific guidance, our Sports Medicine Clinic 954-262-5590 can schedule individual appointments for nutrition consultation and counseling.

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"A common concern amongst collegiate athletes is their ability to maintain adequate nutrition during training. A diet that is not properly balanced and/or lacks the necessary calories can lead to poor athletic performance and increase the potential for injury. By providing our athletes with educational resources and materials like in this manual, they will be better equipped to make better decisions in regard to their health and nutrition. I strongly support the Nutrition Manual for NSU Athletes."

Alessandra Posey, D.O.
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"The Department of Nutrition at Nova Southeastern University seeks to advance nutrition as the foundation for health and wellness. This comprehensive resource is a great way to share quality information and promote enhanced sport performance for our athletes and students. I applaud Dr. Gordon and her graduate nutrition students for being so responsive and creating this tool."

Stephanie N. Petrosky, M.H.A., RDN, LDN, FAND
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Energy Demands of a Student Athlete

The typical athlete is able to maintain a stable body weight over a long period of time with little attention paid to the amount of energy (food) consumed or used during each day.¹ However, consuming adequate energy or food should be a major concern for any athlete looking to achieve optimal performance and feel his or her best. Student Athletes of all ages must not only consume enough energy to cover Activities of Daily Living, but they have additional energy demands based on specific sports, as well as energy necessary for the growth, building, and repair of muscle and body tissues.¹

Different sports require different amounts and types of energy for optimal performance. Humans obtain energy from the consumption of plants and animals. Macronutrients derived from these energy sources come in the form of carbohydrates, proteins, and fats. The human body obtains energy from nutrients consumed in food and beverages, but the energy consumed may also be stored for later use.¹ All movement, including exercise, requires an increased energy demand.² By starting to focus on the type and amount of food consumed, any student athlete, whatever his or her sport, is able to take small steps toward feeling and performing better in both the classroom, at practice, and during competitions.



Active sports have the tendency to be energy demanding and require additional energy intake to fuel long practices, multiple training sessions, and strenuous competitions. By concentrating on the types of foods an athlete is consuming and what times these foods are consumed is a great start toward improving overall nutrition. The consistency of an athlete's diet has the potential to influence long-term changes on overall health, weight, and body composition.¹ Gender, age, body size, position, time spent training, environment, and type of sport all have the potential to influence how much energy is needed each day. If this energy or food is restricted, an athlete's overall health will be compromised, in addition to his or her performance both on and off the field. Appropriate training in combination with adequate fueling, enough rest, and recovery result in improved performance.¹ To learn more about fueling properly for your sport, start working with a Registered Dietitian Nutritionist (RDN) or sports dietitian at your school to discover how much energy you need to consume based on your individual daily demands and performance goals.

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1. Burke L, Deakin V, Allanson B. *Clinical Sports Nutrition*. 4th ed. North Ryde, N.S.W., Australia: McGraw-Hill Education (Australia) Pty Ltd; 2015.
2. Karpinski C, Rosenbloom C. *Sports Nutrition: A Handbook for Professionals*. 6th ed. Chicago, IL: Academy of Nutrition and Dietetics; 2017.

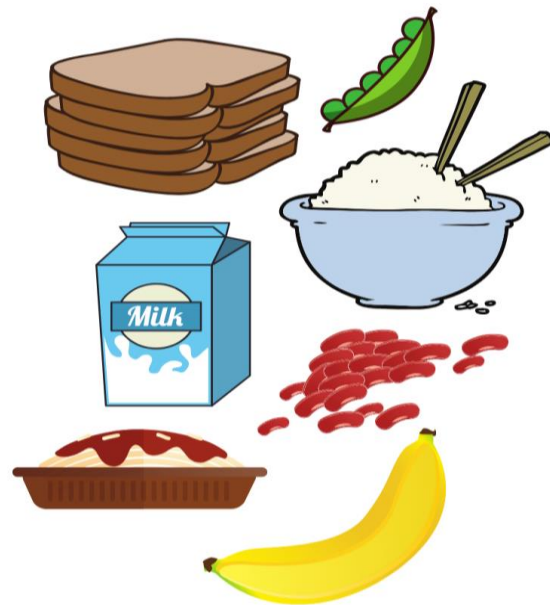
Carbohydrate Distribution

Carbohydrates (CHOs) are best known as sugar. Foods that are CHO-rich include fruits, grains, legumes, starchy vegetables, dairy, and sugary sweets. CHOs are the body's primary fuel source for energy when we perform any kind of physical activity and are considered the "master fuel" for all sports. CHOs are stored in our liver and muscles as glycogen and used during times of exercise. Adequate daily CHO intake keeps CHO stores at optimal levels and spares protein (muscle) usage for energy.

CHO stores are critical for both optimum athletic performance and endurance.¹ Some athletes will use a strategy called CHO loading before games in anticipation of needing more ATP (i.e., energy) during a game or intense practice. Depending on the length of the training session and the type of sport determines how much energy is needed and at what time it should be consumed. Athletes can store up to 1,800-2,000 calories of fuel as glycogen in the muscles and liver which will be used as fuel in about 90 to 120 minutes of performing any high intensity sport.² Typically, the average percentage of CHO intake should be around 45-65% of your total daily calories. This number will vary based on the athlete's sport, BMI, and personal goals.

Foods Rich in Carbohydrates:

- Breads
- Cereals
- Pasta
- Crackers
- Rice
- Starchy vegetables (potatoes, corn, peas)
- Beans
- Fruits
- Dairy (yogurt, milk)
- Sweets



Sources of Whole-Grains:

- Whole-wheat bread
- Oats
- Quinoa
- Brown, red or purple rice
- Whole-grain pasta
- Popcorn

References:

1. Karpinski C, Rosenbloom C. *Sports Nutrition: A Handbook for Professionals*. 6th ed. Chicago, IL: Academy of Nutrition and Dietetics; 2017.
2. Solga, C. *Basics of Carbohydrates Loading for Sports Performance*. Eat Right Academy of Nutrition and Dietetics article published May 6, 2019 found <https://www.eatright.org/fitness/sports-and-performance/fueling-your-workout/basics-of-carbohydrate-loading-for-sports-performance>

Fat Distribution

Fat gets a bad rap, but it is one of our main macronutrients for a reason; when it comes to athletes, this macronutrient is even more important as its role in physiological functions can greatly affect overall wellness and performance in training and competition.¹ Fats, also known as lipids, provide energy, helps the body absorb certain vitamins, facilitate post-exercise recovery, and plays a role in a variety of other physiological functions.^{1,2} Fat should consist of 20-35% of the total caloric intake for the day in order for athletes to meet the needs for essential fatty acids.¹ Fatty acids are a major fuel for muscle contractions during exercise, especially as intensity and duration increase, so it is important for athletes to consume adequate amounts of fat.¹

The key to eating fat is being aware of what type we should be consuming to maximize training efforts. Fatty acids can be classified by unsaturated fats, or the “good” fats, and saturated fats, also known as the “bad” fats.¹ Unsaturated fats can be further distinguished into polyunsaturated fatty acids (PUFAs) and monounsaturated fatty acids (MUFAs).¹ Some types of saturated fats can be identified as trans-fat, which should be limited in the diet.¹ A good rule of thumb when making dietary food choices is to look at the food label and identify which of the above types of fat is found in the product. Try to choose options that have less saturated or trans fats and those that have more PUFAs and MUFAs. Saturated fat should be limited to less than 10% of total calories for the day, and trans-fat should ideally be limited to less than 1% of total calories. High dietary fat intake is not recommended to improve athletic performance.

The below list includes foods considered healthy fats (MUFAs & PUFAs) that will help to promote and enhance your training and exercise performances.² These types of foods can reduce inflammation and maintain vascular function.¹

Suggested Sources of Healthy Fats:

- Avocados
- Cheese
- Whole eggs
- Fatty fish (salmon, mackerel, tuna, sardines)
- Nuts
- Extra virgin olive oil
- Oils (walnut oil, coconut oil, flaxseed oil)
- Peanut butter
- Seeds (sunflower, flaxseed, pumpkin)



References:

1. Thomas, D. T., Erdman, K. A., & Burke, L. M. (2016). Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance. *Journal of the Academy of Nutrition and Dietetics*, 116(3), 501-528. doi:10.1016/j.jand.2015.12.006
2. Academy of Nutrition and Dietetics (Ed.). (n.d.). Choose Healthy Fats. Retrieved June 30, 2019, from <https://www.eatright.org/food/nutrition/dietary-guidelines-and-myplate/choose-healthy-fats>

Protein Distribution for an Athlete

Protein intake is essential in the diet. Protein has a role in almost all major body functions. Although little protein is used directly for energy, it is constantly being broken down, transformed, and rebuilt in the body to repair and strengthen muscles and must be replaced on a daily basis with proper diet.^{1,2} Consuming protein-rich foods daily is necessary to obtain the amount of essential amino acids. An amino acid is a molecule that serves as a building block for protein.¹ Amino acids must be consumed in adequate amounts in the diet from a variety of foods.¹ Protein is found in both animal and plant foods. Each food provides specific proteins, as well as providing other health benefits. The richest sources of protein are found in the dairy and protein food groups, while grain products and some vegetables provide small to moderate amounts of protein.¹ Fruits and oils provide minimal to no protein.¹

Athletes have higher protein needs than sedentary individuals.⁴ Protein recommendations are not one-size-fits-all. Protein requirements differ for different sports and activities and are affected by other factors such as weight, exercise intensity, duration of exercise, age and gender. In general, protein intake for athletes should contribute approximately 12-20% of total calories in their diet.¹ Specific protein requirements vary from sport to sport. Total protein intake should be distributed throughout the day between 4-5 meals (total of 15-25 g/meal) and after strenuous workouts.³ Muscle growth only happens when exercise and diet are combined.^{2,3} The Academy of Nutrition & Dietetics and American College of Sports Medicine recommend basic guidelines of 1.2 to 2.0 grams of protein per kilogram of body weight per day for athletes, depending on training.⁴

While protein is crucial in building and maintaining muscle mass, more does not necessarily mean better.⁴ Athletes need to make sure they are obtaining enough CHOs, fat, and adequate hydration in their diet, not just protein.⁴ Most athletes can get the recommended amount of dietary protein with food alone and protein supplements are not necessary to consume.^{2,4} Protein powders, drinks, bars and supplements are great for convenience, but not necessary even for elite athletes.⁴ The need for a protein supplement should be evaluated on an individual basis.

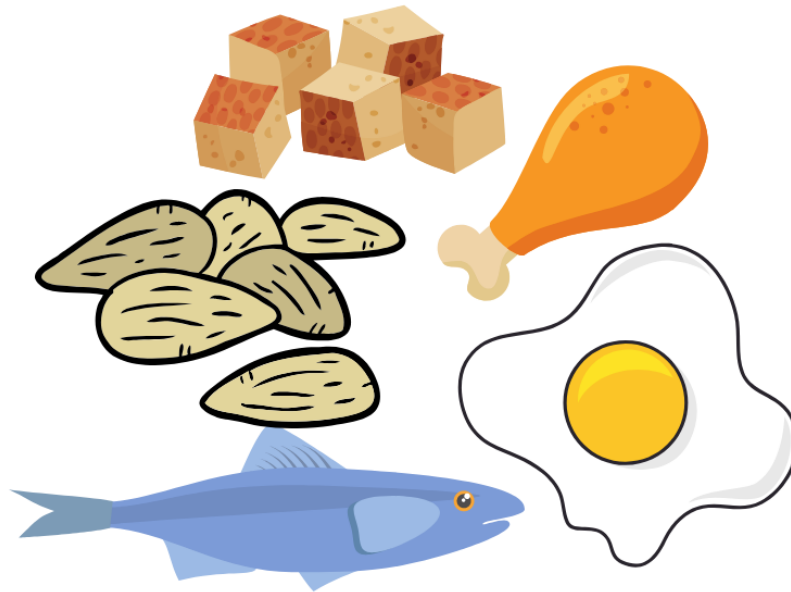
Overall health and sports performance can be impaired if protein intake is too low or from training without adequate protein replacement. If protein continues to lack in the diet, there will be a decrease in sports performance and an increased risk for illness and injury.¹ Athletes should consume protein-rich foods daily to ensure overall health, optimize performance, and prevent athletic-related injuries.

Daily Protein Recommendations for Athletes:

Strength Athletes	1.4 – 2.0 g/kg body weight (BW) per day (.65 - .90 g/lb.)
Endurance Athletes	1.2 – 2.0 g/kg BW per day (.55 - .90 g/lb.)
Team Sport Athletes	1.2 – 1.6 g/kg BW per day (.55 - .73 g/lb.)

Sources of Protein to Choose to Consume:

Animal Proteins:	Plant-Based Proteins:
Eggs (whole)	Grains
Dairy products	Beans
Fish	Nuts/seeds
Poultry	Fruits
Beef	Vegetables
Game	Nuts
Lamb	Plant-based “meat” alternatives



References:

1. Fink HH, Mikesky AE. *Practical Applications in Sports Nutrition*. 4th ed. Burlington, MA: Jones & Bartlett Learning; 2015.
2. Thomas DT, Erdman KA, Burke LM. Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance. *Journal of the Academy of Nutrition and Dietetics*. 2016;116(3):501-528. doi:10.1016/j.jand.2015.12.006
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Considerations for a Vegetarian/Vegan Athlete

The food first approach is always best; however, it may not always be the easiest strategy for Student Athletes on a strict diet and schedule. Some of the challenges vegetarian athletes face include consuming enough protein, eating foods that provide all nine essential amino acids, maintaining adequate energy intake⁴, sustaining nitrogen balance¹, avoiding non-anemic iron deficiency (particularly in females)², and also adequate creatine and carnitine intake^{4,6}. Other nutrients that are of concern when choosing to consume a plant-based diet include zinc, vitamin B12, iodine, magnesium, vitamin D, and calcium.^{3,4,5} Vegetarian athletes also have an increased risk of low bone mineral density and stress fractures⁴.

Meeting energy needs for all Student Athletes is a priority, but with vegetarian athletes it is much more difficult due to the high-fiber content and low energy density of plant-based diets⁶. Many plant-based protein foods do not contain all the necessary amino acids, so a variety of different plant foods should be eaten throughout the day to consume all the amino acids in necessary amounts.⁷ Vegetarian/vegan athletes are also faced with the challenge of proper protein intake, since most high-quality protein powders are made with whey or casein (dairy). The athlete should seek out other plant-based powders. Soy, pea, quinoa, pumpkin seed, brown rice, sunflower, and chia protein powders are all available to the plant-based athlete. Determining which is the best option for you is based on personal goals and type of sport (resistance vs endurance). Studies have shown that milk-based protein powders support greater increases in both full-body resistance training and gains in lean body mass. Plant-based protein powder made from quinoa has leucine, lysine and methionine content like that of milk and are superior to soy protein powder.

Nutrients:	Foods:
Calcium	Bok choy, kale, nuts, seeds (cashews, almonds, chia, unlulled sesame seeds), tofu, kidney beans, arugula, and watercress, almond milk
Iron	Legumes: lentils, tofu, lima beans, chickpeas, soybeans, tempeh, grains: oatmeal, quinoa, seeds: pumpkin, pine, sunflower, cashews Veggies: Swiss chard & collard greens
Vitamin B12	Yeast flakes, soymilk, fortified: milks, breakfast cereals and meat substitutes
Vitamin D	Fortified cereals & OJ, mushrooms (if allowed: fatty fish like salmon, milk, yogurt, egg yolks and margarine)
Zinc	Beans, whole grains, nuts and pumpkin & hemp seeds (if allowed: dairy and eggs)
Magnesium	Legumes, nuts & seeds, whole grains, black beans, dark leafy greens, rice, banana, apple, carrots, (if allowed: milk and yogurt)
Iodine	Iodized salt, sea vegetables (kombu or seaweed)
Plant-based foods rich in protein	Legumes (beans, lentils, peas), whole grains, soy products, nuts and nut butters, seeds, plant-based “meat” alternatives, plant-based protein powders (pea powder), (if allowed: eggs & dairy)

Why the amino acid leucine is important for the vegetarian/vegan athlete:

- Found mostly in dairy (whey) but also found in soy, legumes, and pea protein powder
- Plays a major role in muscle protein synthesis
- Promotes gains in muscle mass and strength

Tips for vegetarian/vegan athletes:

- Choose a variety of foods: whole & enriched grains, fruits, vegetables, legumes, nuts, & seeds (if allowed: eggs and dairy products)
- Consume adequate energy to optimize performance including protein, iron, zinc, magnesium, and riboflavin
- Incorporate healthy fats rich in omega-3 fatty acids, such as flaxseed, walnuts, and oils (if allowed: fish)
- Vegetarian and vegan athletes have an increased risk for iodine deficiency and should use iodized salt with meals
- Diets low in dairy & eggs should focus on foods high in B vitamins (B-12 & riboflavin): fortified cereals and bread, rice milk, legumes, and dark-leafy greens
- Consume vitamin C with plant-based protein sources to improve absorption (fruits and vegetables should accompany plant-based protein sources in meals)⁷
- Consume protein from a variety of food sources in a meal or within a day to adequately consume all essential amino acids (complementing proteins)⁷

Examples of plant-based meals providing complementary proteins:⁷

- Stir fried vegetables and tofu over rice (soy and grains)
- Vegetable chili with cornbread (legumes and grains)
- Barbequed tempeh on a whole wheat bun (soy and grains)
- Oatmeal with nuts and soymilk (grains, nuts, and soy)
- Spinach salad with vegetables, garbanzo beans, and sunflower seeds (legumes and seeds)



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1. Kohn, J. *Building Muscle on a Vegetarian Diet*. Eat Right Academy of Nutrition and Dietetics article published April 14, 2015 found <https://www.eatright.org/fitness/training-and-recovery/building-muscle/building-muscle-on-a-vegetarian-diet>
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4. AND. *Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance*. Journal of the Academy of Nutrition and Dietetics March 2016 Volume 116 Number 3.
5. Fuhrman, J. and Ferreri, D.M. *Fueling the Vegetarian (Vegan) Athlete*. The American College of Sports Medicine Volume 9 c Number 4 c July/August 2010 article is found https://www.drfuhrman.com/content-image.ashx/65m12qvx5stmidc00uft3w/vegan_athlete.pdf
6. Kardinia, C. & Rosenbloom, C.A. *Sports Nutrition: A Handbook for Professionals*, 6th edition. The Academy of Nutrition and Dietetics.
7. Fink HH, Mikesky AE. *Practical Applications in Sports Nutrition*. 4th ed. Burlington, MA: Jones & Bartlett Learning; 2015.

Best Timing for Fuel

The timing for consuming certain foods is just as important as the overall composition of Student Athlete’s diet. Having the right food choices before, during, or after a training session or competition is just as important as preparing and eating regularly scheduled meals. Pre-work out meals will give the athletes the best chance to obtain the most effort out of their training sessions or competitions. Nourishment during exercise provides the fuel to keep going and performing at an optimal level. Post-work out fuel helps aid the athlete in recovery, while preparing for the next event. There are many factors to consider for an athlete looking to optimize performance and recovery. Adequate nutrition is key to delay the onset of fatigue, improving and maintaining a high-performance level, and staying well hydrated.

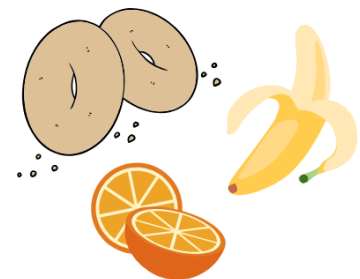
Carbohydrate Intake Timing-

Before Exercise:

- Before a workout, it's best to consume simple carbohydrates, as they are digested quickly and provide rapid energy¹

<i>Timing Before Exercise</i>	<i>Amount of Carbohydrate</i>
1 hour prior	1 g/kg BW (.5 g/lb.)
2 hours prior	2 g/kg BW (.9 g/lb.)
3 hours prior	3 g/kg BW (1.4g/lb.)
4 hours prior	4 g/kg BW (1.8g/lb.)

- Fruit- banana, grapes, pear or orange slices
- Granola or fruit bar
- Mini bagel with fruit jelly



During Exercise:

<i>Type of exercise:</i>	<i>CHO recommendations during exercise:</i>	<i>Suggestions:</i>
Lasting less than 30 minutes	Not necessary	-
High-intensity lasting 30-75 minutes	Small amounts of CHO or CHO rinse	Sports drinks/sports products provide easily consumed CHOs
Endurance, high-intensity lasting 1-2 hours or more	30 – 60 g/h	Include above Can be liquids or solid foods, practice refueling plan regularly including focus on hydration
Endurance, high intensity lasting 2.5 hours or more	Up to 90 g/h	Include above Higher CHO consumption = better performance Ex. CHO gels, sports drinks, energy bars (Clif Bar, PowerBar Energy Bar, fruit bar)

After Exercise:

- Replenish glycogen (i.e., CHO stores) that were already used to supply energy during your workout by consuming CHOs low in fiber after your workout or competition
- Athletes should consume quality CHOs immediately after or within 3 hours post exercise¹
- Athletes should aim to consume 1g of CHO per kg of body weight after exercise²
- CHO containing fluids are a good choice for athletes who are fatigued and dehydrated¹
- Small, frequent meals or snacks are recommended for athletes to achieve high CHO intakes to prevent the discomfort of overeating¹

Protein Intake Timing-

Before Exercise:

- Pre-activity protein intake can increase satiety, but also slow the digestion of carbohydrates to sustain energy levels (intake of protein-rich foods should remain moderate in the 1-4 hours before training and focus on low-fat, nutrient dense sources)¹
- Too much protein before training is known to cause gastrointestinal distress

During Exercise:

- Not recommended at this time

After Exercise:

- For speedy muscle recovery, protein should be consumed immediately after working out or within 3 hours, particularly after weight training¹
- A post exercise meal should consist of a combination of CHO's and high-quality protein containing all essential amino acids (specifically leucine)¹
- For optimal muscle growth and repair, post-exercise protein sources should consist of high-quality protein or protein sources that can be consumed together to provide all of the essential amino acids (0.25 – 0.3g/kg or approximately 15-25g protein)²

Fat Intake Timing-

Before Exercise:

- Not recommended, keep to a minimum
- It is not recommended that athletes eat a high-fat meal prior to exercise due to the potential for gastric upset

During Exercise:

- Fat intake in any form is not recommended during exercise

After Exercise:

- CHOs and protein are the main priorities to replace, restore and replenish after exercise¹
- Fat intake should be kept to a minimum after exercise and can be included in small to moderate amounts (focus should be on consuming unsaturated fats)¹

Hydration Intake Timing-

Before Exercise:

- Proper hydration before exercise sets the stage for optimal sports performance¹
- Lack of fluid consumption prior to activity causes fatigue quickly, dizziness, faster rise in body temperature, and increased heart rate, and therefore decreases performance¹
- Slowly drink 13-20oz at least 4 hours before exercise¹
- Drink an additional 7-10oz in 10 to 20 minutes prior to exercise¹
- Water is the preferred choice, but small amounts of sports drinks, 100% juice, and low-fat milk are also good choices for pre-exercise hydration

During Exercise:

- Focus on attempting to consume 7-10oz every 10 to 20 minutes to prevent dehydration¹
- More fluids are needed for physical activity performed in hot and humid temperatures
- The consumption of sports drinks is recommended during high-intensity or long durations of physical activity lasting longer than 45 minutes to replace essential electrolytes lost through sweat

After Exercise:

- An athlete should consume 2-3 cups of water for every pound lost during exercise¹
- Rehydration with water should begin as soon as possible³
- Choose to drink sports drinks in addition to water if exercise lasts longer than an hour at a higher intensity²

Additional Tips for Fueling-

- Limiting high-fiber foods starting several hours to one day prior to competition can help avoid feelings of heaviness, bloating, and/or intestinal discomfort¹
- Artificial sweeteners are sometimes used by athletes desiring to control body weight, but can often have a laxative effect and may need to be reduced prior to competition¹
- If your workout is scheduled for later in the day, plan to eat a good quality meal 3-4 hours before physical activity in combination with the pre-workout fuel recommendations³

References:

1. Fink HH, Mikesky AE. *Practical Applications in Sports Nutrition*. 4th ed. Burlington, MA: Jones & Bartlett Learning; 2015.
2. Thomas DT, Erdman KA, Burke LM. Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance. *Journal of the Academy of Nutrition and Dietetics*. 2016;116(3):501-528. doi:10.1016/j.jand.2015.12.006
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Hydration Needs of an Athlete

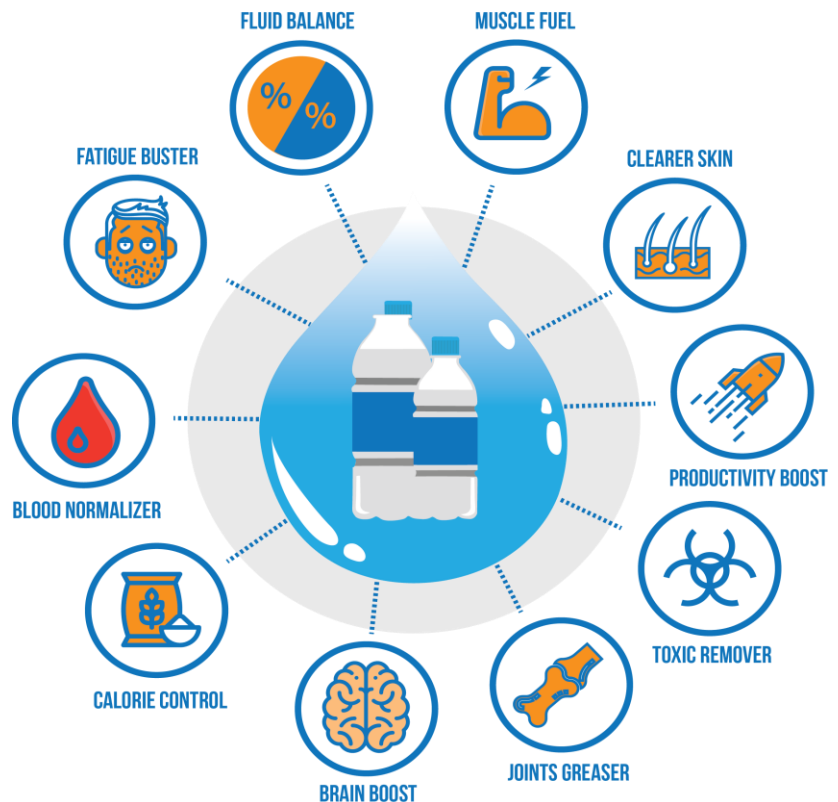
Being properly hydrated is essential for an athlete to achieve optimal performance. On a normal day, an individual can lose 1-3L of fluid dependent on size, gender, athletic ability, and through respiration and metabolic processes.¹ Proper daily hydration is of vital importance if an individual wants to train and perform to the best of their ability. Researchers had proven that with as little as a 3% fluid loss, athletic performance is hindered, pace decreases and perceived effort increases.² This goes not only for athletes but applies to most all individuals.

Fluid loss can occur in many ways:

- Exercising for a long period of time increases the overall need for additional fluids and thus creates a need for a hydration to prevent dehydration
- Exercising at higher altitudes can impose a dehydration effect on the body and eventually increases the amount of fluid needed to sufficiently hydrate
- Exercising or training in hot temperatures can increase the amount of fluid lost through sweating
- Some athletes sweat more than the others and those who do are at a greater risk for severe dehydration
- Other factors affecting hydration levels in athletes include temperature (cold, heat and humidity), intensity, duration of exercise, sport type, fitness level, size and gender³

Symptoms of Dehydration:

- Dizziness
- Nausea or vomiting
- Muscle cramping
- Dry mouth
- Lack of sweat produced
- Fast heartbeat



Approximately 80% of our daily water needs comes from fluid ingestion, while the remaining 20% comes from water found in fruits, vegetables, other foods, and metabolic water. Fluid needs for men 19 and older is 3.7L per day, while for women it is 2.7L per day.³ Needs for fluids vary on an individual basis and additional fluids may be needed for adequate hydration.

Dehydration occurs when the body loses more fluid than is consumed. When the human body doesn't have enough water, it does not function optimally. Dehydration resulting in a weight loss of as little as 2-3% of body weight begins to compromise cardiovascular function, which has a negative impact on sports performance.³

The Athlete's Guide to Staying Hydrated at Practice

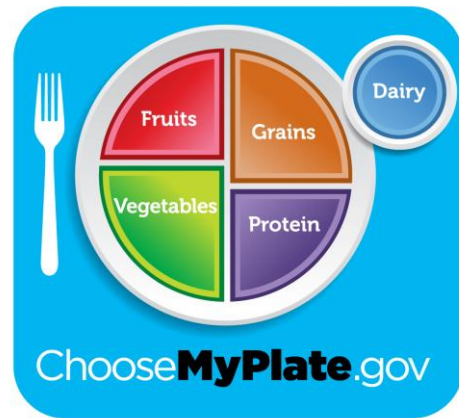
Before Practice	Top off with 16-20 oz two hours before you practice
During Practice	Drink 6 - 8 oz of water for every 15-20 minutes of activity
After Practice	Replenish each pound lost during activity with 20-24 oz

References:

1. American College of Sports Medicine, Sawka, M. N., Burke, L. M., Eichner, E. R., Maughan, R. J., Montain, S. J., & Stachenfeld, N. S. (2007, February). American College of Sports Medicine position stand. Exercise and fluid replacement. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/17277604>
2. Backes TP, Fitzgerald K. Fluid consumption, exercise, and cognitive performance. *Biology of sport*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4993146/>. Published September 2016. Accessed July 11, 2019.
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Navigating Dining at NSU

NSU offers a variety of dining locations available on campus. At times, these can seem overwhelming, especially when there is an abundance of favorite food choices. There are still plenty of foods available to students that can contribute to choosing to eat a healthy meal beyond the fries, muffins, and endless ice cream. According to the Academy of Nutrition and Dietetics, the MyPlate diagram is a helpful nutrition tool that easily displays how a typical plate or healthy meal should look in order to stay as close as possible to achieving your nutrition goals.¹



As seen in the MyPlate diagram, 25% of the plate contains vegetables and 25% of the plate contains foods with grains.¹ When choosing foods from the grain group, whole-wheat or multigrain options are a better choice. Half of your daily grain consumption should come from whole grain sources.¹

Next, one should fill their plate according to the diagram with protein and fruit (about 15-20% of the plate for each).¹ When choosing different fruits to eat, choose to consume fruits of different colors and preferably in season. Fresh, frozen, canned, and dried fruits all count. Choose to eat whole fruits over consuming fruit juices to reap all the health benefits. When eating protein-rich foods, choose protein choices lower in fat.¹ Vegetarian options are also available. Dairy is also another important food group to consume. One should consume 3 servings (cups) per day from lower fat sources.¹ Food sources of dairy include milk and milk alternatives, cheeses, and yogurt.

Another great resource to use is <https://www.dineoncampus.com/nova>. This website can inform you about campus dining options available, including their location, hours of operation, and the menus they offer. This website can help you better plan when and where you can eat your meals. Planning helps to make healthy choices easier to choose before arriving hungry and resorting to other options. There is also a specific page devoted to vegetarian and vegan eaters showing what food options can be found at each retail dining location. Another great addition at NSU dining locations is their labeling of gluten-free, Kosher, and Halal food products.



References:

1. "What is MyPlate?" Choose MyPlate.gov., 13 Mar. 2019. www.choosemyplate.gov/WhatIsMyPlate

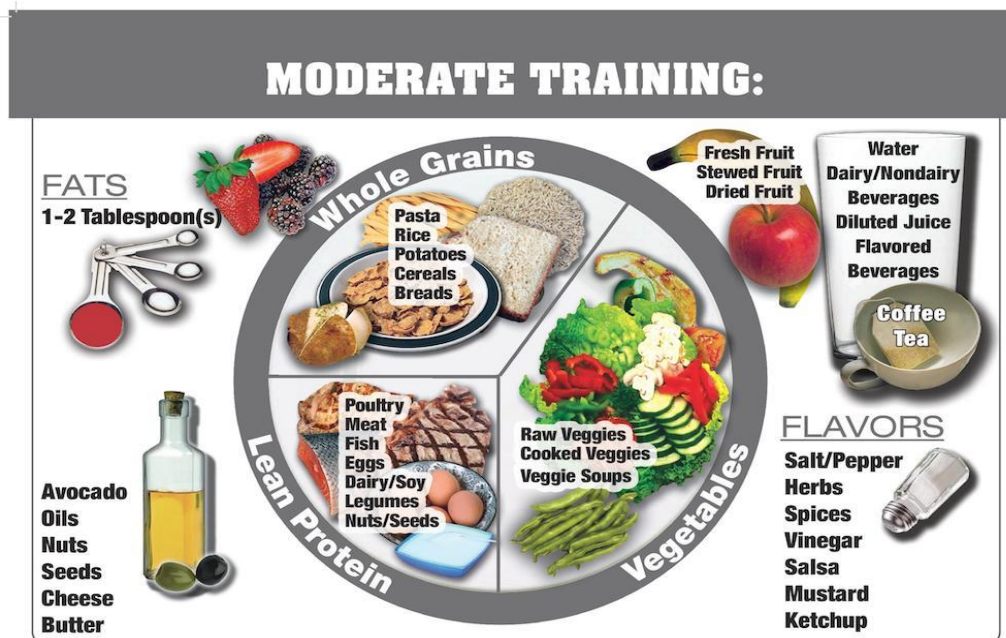
The Athlete's Plate

Another great diagram to model your own plate after is the Team USA Athlete's Plate models. By following the guidelines for nutrition and eating created by United States Olympic & Paralympic Committee sport dietitians, will help athletes tailor their meals to correspond with their personal training levels to enhance fueling, hydration, and recovery needs.¹

Easy Training/Weight Management Plate-



Moderate Training Plate-



Hard Training/Race Day Plate-



POST-WORK OUT MEALS

PRE-WORK OUT MEALS



References:

1. "Nutrition." *Team USA*, www.teamusa.org/nutrition. Accessed July 17, 2019.

Healthy Dorm Cooking

Living in the dorm means being creative with your food and cooking skills. Stove tops, hot plates, and ovens are not permitted in the dorm, but luckily there are new dorm-sized appliances perfect for cooking delicious, healthy recipes. Look for a company that produces dorm sized cooking appliances to promote healthy eating of whole foods.

A compact air fryer is perfect for cooking or reheating food without all the oil and mess. The technology uses high heat that circulates air to cook the ingredients. An air fryer helps reduce added fat by 70-80% without scarifying the flavor of the food. It's compact, easy to use, and super easy to clean.

Make food like:

- Sweet potato fries
- Chicken wings
- Zucchini chips
- Empanadas
- Buffalo Cauliflower bites



A mini rice cooker can cook more than just rice. This perfectly portioned size cooker can prepare grains, soups, mac n cheese, stews, rice, and much more. It is incredibly easy to use with a cook and warm function; making single-double serving sized meals is now easy to do in a dorm room.

- Macaroni & Cheese with broccoli
- Quinoa Taco Bowl
- Turkey chili
- Chicken & veggies saffron rice

An egg cooker can cook, soft/hard boil, poach, and omelet your eggs. You can hard boil up to 6 eggs at a time, so you always have a healthy snack to grab in the morning or when you're on your way to class. The cooker can also steam vegetables! It's small but mighty, and very useful if you love eggs.

- Deviled Eggs
- Eggs Benedict, Healthy Frittata
- Egg, ham, and cheese omelet

A dehydrator (not pictured), is a wonderful device to make homemade jerky, dried fruits and veggies. Without a lot of space to store food in a dorm room, the Dehydrator is great for preserving ingredients for future use. Student life means you're on the go and having healthy snacks on hand makes it easier to stay on track of your sport nutrition goals.

- Apple slices, pineapple chunks, mango spears, and banana chips
- Candied carrots, Porta Bella mushroom slices, and eggplant
- Jerky: turkey, chicken, venison, even salmon!

Eating Healthy on a Budget

One of the most difficult things as a student is balancing responsibilities such as school, work, and athletics while budgeting and attempting to maintain healthy lifestyle habits at the same time. [Choosemyplate.gov/budget](https://www.choosemyplate.gov/budget) is a government website that provides information on how to save money, best utilize your funds and make the most of your groceries. Listed below are some examples.¹



Creating a Grocery Game Plan

Planning before heading to the store can help you get organized, while saving money and choosing meal healthy options.

- 1) Think about larger recipes with enough servings for multiple meals. This can reduce the number of ingredients you need to buy and save you time preparing another meal.
- 2) Look in your freezer, cabinets, and refrigerator. Make a note of what you currently have on hand. You can save money by using these items in the upcoming week's meals.
- 3) Grocery shopping hungry can lead to impulse buying and unhealthy food choices. Eat before you buy.
- 4) Read sales flyers and use coupons. They are usually released mid-week and can be found at the store's entrance, in the newspaper, or on their website.
- 5) Grab from the back. Stores typically stock shelves from back to front, placing the newest items behind the older ones. Reach in the back for the freshest items especially in the produce, dairy, and meat aisles.
- 6) Join your store's loyalty program. Most stores offer a free loyalty program. Get special offers and discounts that non-members do not.



Prepare Healthy Meals

Tasty and low-cost recipes can be found at <https://www.choosemyplate.gov/budget-recipes>.

Anyone or their family wanting to follow a healthy diet at a modest price can use these sample 2-week menus. The menus are designed to meet nutrition needs on a budget.

Additional Tips:

- Refill water jugs at local water stations throughout your university. Utilize these sources to cut down on plastic waste, save funds and stay hydrated.
- Non-perishables such as canned or uncooked beans will last you longer and can be used in various meals
- Buying fresh fruit and vegetables in season is less expensive and healthier than buying pre-cut, bagged, and canned produce
- Focusing on protein sources such as steak and pork chops in time can make a dent in your budget. Here are some affordable and healthy ways to add protein to your diet:
 - 1 cup of dried beans: 16g protein
 - 2 tablespoons of peanut butter: 8g protein
 - 2 slices of whole grain bread: 8g protein
 - ½ cup of cottage cheese: 16g protein
 - 1 cup of tofu: 16g protein
 - 5 ounces of Greek yogurt: 15g protein



References:

1. Tasty and Low-Cost Recipes. Choose MyPlate. <https://www.choosemyplate.gov/budget-recipes>. Published April 19, 2017.

Healthy Ideas for Snacking

Between classes, homework, practices, weight training, living without a kitchen, and the general, hectic lifestyle of being a Student Athlete, it can be hard to find healthy snacks to keep available. When choosing a healthy snack, you should ask yourself if it has all the macronutrients (protein, CHOs, and healthy fats) and/or micronutrients (mainly from fruits and vegetables). Your snacks should help fuel your body in between meals or training sessions, and choosing options like chips, cookies, fries, etc. will not help you perform at your peak potential.

Remember that snacks are not meant to be meals! This means that these snacks should be portioned out. An entire bag of nuts or a whole jar of peanut butter is not a snack and eating snacks in excess can cause weight gain, which can make training sessions harder on your body. Balance, moderation, and portion control is always key!

Here are some snacks that are easy to keep in your dorm or that can be found in the dining hall and can keep you full and ready to take on that next practice session, race, or game:

- Fruits and vegetables
- Peanut butter with crackers/pretzels
- Hummus with vegetables or pita chips/bread
- Mama Chia Pouches (or other 100% fruit/veggie pouches such as GoGo Squeez)
- Rice cakes with peanut butter
- Turkey and cheese rollups
- Greek yogurt with nuts/fruit/granola
- Tuna-Go packs with whole-wheat crackers
- Hard-boiled eggs
- String cheese and nuts
- Cheese cubes and crackers
- Banana/apple with peanut butter
- Salsa/guacamole and tortilla chips
- Cereal and milk (add in fruit)
- Fruit cups in 100% juice
- Popcorn
- Low-fat chocolate milk
- Figgy Pops
- Seapoint products
- Trail mix
- Dried edamame or chickpeas
- Cherry tomatoes, carrot sticks, celery sticks with ranch dressing
- Cottage cheese and fruit
- Protein/fiber bars
 - Kind Bars
 - Clif Bars
 - Lara Bars
 - Zing Bars
 - Nature Valley Bars
 - Fig Bars



Healthy Eating While Traveling or Dining Out

Eating healthy at restaurants can be both confusing and frustrating. Here are some great suggestions for healthier options available at some fast-food and casual restaurants you may be dining out at. Try and aim for choosing a balanced meal by selecting a protein, starch (CHO), and non-starchy vegetable at each meal. *Grilled* or *baked* options are healthier choices than fried items. Salads, bowls, wraps, extra vegetable toppings, whole-grains, minimal sauces, vegetable-based soups, and smaller portion sizes (or from the kids' menu) are typically healthier and better choices than the other menu items offered. Order sauces and dressings on the side so you can have control of the amount you use. Some restaurant menus offer lighter fare selections that are lower in fat, added salt, and contain more vegetables. Water is preferred, but unsweetened tea, low-fat milk, or 100% juice are also good choices for beverages. Before ordering off the menu check with your coach or athletic trainer on your personal athletic goals and duties for the next day.

Restaurants:	Healthy Suggestions from the Menu:
Chic-Fil-A	<p><u>Breakfast:</u> Greek yogurt parfait, Egg White Grill, sunflower multigrain bagel, fruit cup</p> <p><u>Entrées:</u> Grilled chicken sandwich, grilled nuggets, Grilled Cool Wrap, Grilled Market Salad with vinaigrette or light dressing</p> <p><u>Sides:</u> side salad, Superfood Side</p> <p><u>Desserts:</u> Icedream cone (small)</p>
Boston Market (gluten-free options available)	<p><u>Entrées:</u> Rotisserie chicken quarter (white meat or skinless), roasted turkey breast, rotisserie chicken lunch bowl, Market Bowl with BBQ chicken/southwest rice/steamed vegetables, Caesar salad with chicken</p> <p><u>Sides:</u> Steamed vegetables or green beans, (choose one) Garlic Dill New Potatoes, sweet corn, chicken noodle soup</p>
Chipotle (offers gluten-free and vegetarian options)	<p><u>Entrées:</u> Salad bowl, burrito bowl, burrito, or two soft taco kid's meal, Proteins: (choose one) steak, chicken, Sofritas, or barbacoa</p> <p><u>Toppings:</u> (choose multiple) black beans, pinto beans, fajita vegetables, fresh tomato salsa, roasted chili-corn salsa, tomatillo green-chili salsa, romaine lettuce, guacamole</p> <p><u>Other:</u> (limit/skip) rice, tortilla, sour cream, cheese, queso, salad dressing</p>
Jason's Deli (offers vegetarian and gluten-sensitive)	<p><u>Entrées:</u> Turkey Rueben, Mediterranean wrap, southwest chicken chili, chicken noodle soup, Nutty Mixed-Up salad, Club Lite, Savvy chicken salad wrap, spinach veggie wrap, turkey wrap</p>

Restaurants: (continued)	Healthy Suggestions from the Menu:
Carrabba's Italian Grill (offers vegetarian and gluten-free options)	<u>Entrées:</u> Small chicken or veal marsala, small Chicken Bryan, Tuscan-grilled chicken/sirloin, wood-grilled tilapia/salmon, linguine Postiano w/ chicken/shrimp <u>Sides:</u> Italian side salad, minestrone soup, steamed broccoli, grilled asparagus, (limit) baked bread
Miller's Ale House (vegetarian options available)	<u>Entrées:</u> Mediterranean flatbread, blackened chicken breast salad, Gardein chipotle black bean veggie burger, grilled chicken sandwich, mahi-mahi sandwich, grilled Zingers, chicken fajitas, sirloin steak <u>Sides:</u> plain baked potato, house salad, rice and beans, steam vegetables
Outback Steakhouse (gluten-free options available)	<u>Entrées:</u> Grilled mahi/salmon, Ahi sesame salad, seared pepper Ahi tuna, Grilled Chicken on the Barbie, 6oz sirloin steak or filet, 6oz sirloin and Grilled Shrimp on the Barbie, The Outbacker Burger/Grass-Fed Burger <u>Sides:</u> plain baked potato or sweet potato, steamed vegetables, chicken tortilla soup, house salad (vinaigrette dressing)
Olive Garden (vegetarian and gluten-free options available)	<u>Entrées:</u> Garden primavera pasta (whole-grain linguine/zoodles primavera, herb-grilled salmon, minestrone soup and salad combo, mini fettuccine alfredo with chicken, citrus chicken Sorrento, mini spaghetti with meat sauce, garlic rosemary chicken <u>Sides:</u> steamed broccoli, house salad (dressing on side or oil & vinegar), breadsticks (limit) <u>Desserts:</u> Dolcini
Chili's (vegetarian and gluten-free options available)	<u>Entrées:</u> Grilled chicken salad, ancho salmon, mango-chili chicken, shrimp fajitas w/ corn tortillas, classic sirloin with grilled avocado, Santa Fe grilled chicken salad <u>Sides:</u> grilled asparagus, broccoli, rice, seasonal vegetable, plain corn on the cob <u>Desserts:</u> Sweet shot key lime pie, sweet shot red velvet cake

Nutrition & Supplementation

Background and Regulations:¹

- 1) In the United States, a dietary supplement is defined by the Dietary Supplement Health and Education Act of 1994 as:

“A product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin; a mineral; an herb or other botanical; an amino acid; a dietary substance for use by man to supplement the diet by increasing the total dietary intake; or a concentrate, metabolite, constituent, extract, or combination of any ingredient described previously”

Key Points:

Make sure before you consume any dietary supplements you review the product and its label with your athletics department staff!

- Dietary supplements, including vitamins and minerals, are not well regulated and may cause a positive drug test
- Many dietary supplements are contaminated with banned substances not listed on the label which have resulted in athletes testing positive
- Any product containing a nutritional/dietary supplement ingredient is taken at your own risk

Information about ingredients in medications and nutritional/dietary supplements can be obtained by contacting Drug Free Sport AXIS, 877-202-0769 or www.dfsaxis.com. Password ncaa1, ncaa2 or ncaa3.

DRUG FREE SPORT AXIS™ RISK LEVEL RATING SYSTEM		
Level 1	Level 2	Level 3
<ul style="list-style-type: none">• Labels list ingredients that are not specifically banned; and• Labels do not contain claims that correlate with banned drug classes (e.g. “anabolic” or “testosterone booster”).• Does not guarantee that the product will not cause a positive drug test.	<p>Labels list ingredients and/or information where one or more of the following apply:</p> <ul style="list-style-type: none">• Label lists ingredients with limited scientific evidence regarding safety, purity or effects in the body; or• Label and/or ingredients make claims related to banned drug classes (e.g. “anabolic” or testosterone booster”); or• Label lists caffeine or source(s) of caffeine. Caffeine is banned under the stimulant drug class, and will cause a positive drug test when total urine concentration exceeds 15 mcg/ml.; or• Product may pose concern due to information related to ingredients or the manufacturer.	<ul style="list-style-type: none">• Labels list ingredients that are specifically banned; or• May be cited for contamination/adulteration issues with banned substances.

2018-2019 NCAA Drug Policies:²

Commonly Abused Substances Impact on Athletic Performance and Eligibility-

Banned substances:

1. Stimulants

- Stimulants (Banned): Stimulants include a variety of compounds including caffeine, ephedrine, Ritalin and Adderall. Stimulant abuse can cause anxiety, panic, paranoia and delusions. Use during exercise can result in an increased body temperature and dehydration.
- Cocaine (Banned): Cocaine is an illegal stimulant that can contribute to agitation, elevated heart rate and increased blood pressure and at toxic levels can result in respiratory failure and heart attack.
- Tobacco (Banned): Tobacco contains nicotine, a stimulant, and numerous other damaging chemicals. Smoking damages lung tissue and reduces lung capacity. Chew and spit tobacco can cause tissue inflammation of the mouth and raises the risk of oral cancer. Tobacco use in all forms is prohibited during practice and competition by athletes and game personnel and can result in ejection from the game.

2. Anabolic Agents

- Anabolic Steroids (Banned): Anabolic steroids are synthetic versions of the hormone testosterone. Steroid use changes the body's hormonal balance and can contribute to increased acne, mood swings, exaggerated secondary sex characteristic and violent behavior. Long term heavy use has been shown to result in organ damage and infertility.

3. Alcohol and Beta Blockers (banned for rifle only)

- Alcohol: Alcohol is a nervous system depressant. At high dosages its effects include mood swings, impaired judgment and an inability to control motor functions. Alcohol can impair performance through dehydration, nutrient depletion and interfering with sleep and recovery.

4. Diuretics and Masking Agents

5. Narcotics

- Narcotics: Narcotic agents block pain and cause sleepiness and at higher doses can depress breathing, heart rate and blood pressure. Narcotics are not banned by the NCAA but are controlled substances and should be obtained only from qualified medical personnel through a prescription.

6. Cannabinoids

- Marijuana (Banned): Marijuana contains the active ingredient THC. Marijuana use is linked to anxiety and panic reactions, respiratory damage, short-term memory impairment and a decreased focus on goals and personal achievement.

7. Peptide Hormones, Growth Factors, Related Substances and Mimetics

8. Hormone and Metabolic Modulators (Anti-Estrogens)

9. Beta-2 Agonists

Substances and Methods Subject to Restrictions:

- Blood and gene doping
- Local anesthetics (permitted under some conditions)
- Manipulation of urine samples
- Beta-2 agonists (permitted only by inhalation with prescription)
- Tampering of urine samples
- Caffeine if concentrations in urine exceed 15 micro- grams/ml

For more information on specific sport regulations and in-competition versus at all time restrictions refer to the to the World Doping Agency Prohibited List³

Exceptions:

- a. The NCAA recognizes that certain banned substances are used for legitimate medical purposes. Therefore, the NCAA allows exceptions to be made for those athletes with a documented medical history demonstrating the need for regular use of such drugs,
- b. Exceptions may be granted for the following classes of banned drugs: stimulants, beta blockers, beta-2 agonists, diuretics, peptide hormones, anabolic agents and anti-estrogens
 - i. Pre-approval is required for the use of peptide hormones or anabolic agents. The institution must submit required documents to the NCAA prior to the athlete competing while using medications containing these substances.
 - ii. For all other drug classes, the institution should maintain documents from the prescribing physician in the athlete's medical record on campus that include the diagnosis, course of treatment and current prescription.
- c. In the event that a Student Athlete tests positive by the NCAA, the institution will be notified of the positive drug test, and at that time the director of athletics may request an exception by submitting required documents to Drug Free Sport.
- d. Requests for exceptions will be reviewed by the chair of the drug-testing and drug-education subcommittee of the CSMAS and reported back to the institution.

Appeals:

The NCAA drug-testing program allows an institution to appeal a positive drug test on behalf of a Student Athlete who has tested positive or who violated NCAA drug-testing protocol.

Understanding the Evidence:⁵

The Australian Institute of Sport (AIS) Sports Supplement Framework was developed during the implementation of the AIS Sports Supplement Program to allow National Sporting Organizations and agencies to develop their own Sports Supplement Guidelines and Programs.

Commonly Used Supplements:³

- For maximizing the creatine phosphate system, the supplement suggested is typically creatine
- For lactic acid buffering capacity, supplements include sodium bicarbonate and beta-alanine
- For increasing lean body mass, supplements include creatine, branched chain amino acids, leucine, protein powders, caffeine, and beta-hydroxy beta-methylbutyrate
- For nitric oxide boosters, supplements include arginine and nitrate. For reaction time and focus, supplements include caffeine, phosphatidyl serine, taurine, tyrosine, and beta-alanine

THINKING OF TAKING A NEW SUPPLEMENT? ASK YOURSELF THESE IMPORTANT QUESTIONS.

IS IT SAFE?	<ul style="list-style-type: none">• Do I recognize all the ingredients on the label and know them to be safe?• Is it produced by a manufacturer with a good reputation?• Am I intending to take the recommended dose?• Have I checked with a sports nutrition expert?• Will it negatively effect my health in any way?
IS IT LEGAL?	<ul style="list-style-type: none">• Is this product and its ingredients permitted for sale in my country?• Are any of the ingredients of this product banned for use in sport?• Is it produced by a manufacturer with a good reputation?• Have I checked with appropriate anti-doping experts?
IS IT EFFECTIVE?	<ul style="list-style-type: none">• Does this product have good evidence to show that it can help me to meet my nutrition goals or specifically assist performance of my event?• Am I intending to take the recommended dose?• Have I checked with a sports nutrition expert?
CAN I AFFORD IT?	<ul style="list-style-type: none">• How much will it cost me and does it fit into my budget?• Is there a lower cost food choice that I can use instead or for some scenarios?• Are there other resources or activities that I should be investing in to improve my sports performance?

References:

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2. *NCAA Drug Policies* [Brochure]. (2019). Retrieved July 16, 2019, from https://www.ncaa.org/sites/default/files/SSI2018-19_Drug_Policies_Brochure_20180706.PDF
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Additional References & Resources

1. USDA Choose MyPlate. <https://www.choosemyplate.gov>
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3. Team USA Athlete Eating Guidelines. <https://www.teamusa.org/nutrition>
4. Academy of Nutrition & Dietetics. <https://www.eatright.org>
5. Sports, Cardiovascular and Wellness Nutrition: General Sports Nutrition Fact Sheets. <https://www.scandpg.org/scan/educational-resources/fact-sheets/sn-fact-sheets>
6. Journal of the Academy of Nutrition & Dietetics. <https://jandonline.org>
7. National Collegiate Athletic Association Sports Science Institute: Nutrition. <http://www.ncaa.org/sport-science-institute/nutrition>
8. American College of Sports Medicine: Nutrition for Exercise Science. <https://www.usp.org/dietary-supplements-herbal-medicines>
9. NCAA Sport Science Institute: Dietary Supplements. <http://www.ncaa.org/sport-science-institute/dietary-supplements>
10. NCAA: Banned Drug List. <http://www.ncaa.org/sport-science-institute/topics/2019-20-ncaa-banned-substances>
11. NSF Certified for Sport Program. <http://www.ncaa.org/sport-science-institute/topics/2019-20-ncaa-banned-substances>
12. The National Center for Drug Free Sport, Inc. <https://www.drugfreesport.com>
13. USP Dietary Supplement Verification. <https://www.usp.org/dietary-supplements-herbal-medicines>