

Course Title: Sports Nutrition
Board Approval Date: 04/14/14
Credit / Hours: .5 credit

Course Description:

This course focuses on mastery of the PA Academic Standards for Family & Consumer Science. Sports Nutrition is a course designed to be useful for students who are considering health or coaching careers. A nutrient-based approach will be used as we consider each of the leader nutrients and their effects on the individual. Throughout the semester, the students will identify their own nutritional practices and discuss ideas regarding the correction of any poor practices. They will explore issues including dietary guidelines, MyPlate Food Guide, food labels, healthy cooking, healthy weight and weight loss plans. They will discuss nutritional means of disease prevention, nutrition as it relates to physical activity, and facts and myths of nutrition. Special diets of the young and elderly will be included as well as health claims and current nutrition controversies.

Learning Activities / Modes of Assessment:

Large group instruction	Lab Journals / Write ups
Small group instruction	Tests and Quizzes
Small group work	Projects with Rubrics

Instructional Resources:

Various appropriate and relevant periodicals, websites, videos, and teacher made power point related to the units of study in Sports Nutrition.

Food Models

Nutrient Analysis Charts

Course Pacing Guide

Course: **Sports Nutrition**

Course Unit (Topic)	Length of Instruction (Days/Periods)
1. Overview of Nutrition	7 days
2. Digestion	5 days
3. Dietary Guidelines	6 days
4. Training Diet	6 days
5. Hydration	6 days
6. Carbohydrates	12 days
7. Protein	12 days
8. Fats	12 days
9. Vitamins	10 days
10. Minerals	<u>10 days</u>
Total Days	86 Days

Topic: Unit 1 ~ Overview of Nutrition
 Subject(s):

Days: 7
 Grade(s):

Know:	Understand:	Do:
<p>11.3.6.C – Essential Analyze factors that effect food choices.</p> <p>11.3.6.E – Essential Explain the relationship between calories, nutrient and food input versus energy output; describe digestion.</p> <p>Know the 6 essential nutrients Amino acids are the building blocks of proteins Carbs come in three forms: sugars, starches, fibers Vitamins are either fat or water soluble Saturated fats are typically from animal sources Unsaturated fats are typically from plant sources "GO, GLOW, GROW" (fats and carbs help us go, vitamins and water help us glow, protein helps us grow) Know the 55-30-15 rule</p> <p>Know that 1g of carb = 4 cal, 1 g of protein = 4 cal, 1 g of fat = 9 cal.</p> <p>Know which diseases are 'modern diseases' (diet related)</p>	<p>Our daily dietary choices affect our long-term health and fitness. Small changes in a person's diet on a daily basis make a huge difference over time</p> <p>The guidelines of basic nutrition are generally the same for all people, but specific needs vary based on individual differences.</p> <p>Nutrition is a relatively new science; we are constantly learning new information from research.</p> <p>There is no such thing as a 'bad food.' Variety and moderation are critical to a healthy diet.</p>	<p>11.3.6.C – Essential Analyze factors that effect food choices.</p> <p>11.3.6.E – Essential Explain the relationship between calories, nutrient and food input versus energy output; describe digestion.</p> <p>Calculate % of a whole number Calculate % of carb, fat, and protein calories Calculate grams of carb, fat, and proteins a person should be eating based on daily caloric intake 11.3.9.E - Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.</p>

Topic: Unit 10 ~ Minerals
 Subject(s):

Days: 10
 Grade(s):

Know:

Understand:

Do:

11.3.9.D – Important

Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

Minerals are trace elements scratched from Earth's surface, which are need in the diet in small amounts compared to fats, carbs, and proteins
 Functions of Minerals
 Sources for various minerals.
 The best time to get calcium in the bones is during times of growth and during weight bearing exercise.

the relationship between flouride and tooth decay
 the relationship between iron and hemoglobin
 how to reduce risks of osteoporosis
 minerals often don't work in isolation, they do pair up with other nutrients to do various functions in our bodies.

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

Topic: Unit 2 ~ Digestion
 Subject(s):

Days: 5
 Grade(s):

Know:

Understand:

Do:

11.3.9.D – Important

Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

11.3.6.E – Essential

Explain the relationship between calories, nutrient and food input versus energy output; describe digestion.

Fats take the longest to digest (satisfy hunger longer). Carbs digest easily.

Which foods are simple carbs and which foods are complex carbs
 That simple carbs digest quickly, complex carbs take longer
 Eating foods high in soluble and insoluble fiber can help prevent constipation, lower blood cholesterol, prevent diverticulosis, and help people feel fuller longer (prevent over eating)
 Peristalsis
 Bile from the gall bladder dissolves fats to make absorption through the intestinal wall possible.

Enzymes are needed in the process of digestion

Nutrients are absorbed through the intestinal wall.

Water/Hydration in critical for the digestion and elimination process

Digestion of begins in the mouth & ends in the rectum
 Digestion is a process that breaks nutrients down into their smallest structures to allow for absorption through the intestinal walls.
 Bile from gall bladder (acts as an emulsifier to digest fats)
 Pancreatic juices break proteins into amino acids and break down carbs)
 Nutrients are absorbed through specialized cells of the intestinal walls & then water is absorbed out of the intestines.

11.3.6.E – Essential

Explain the relationship between calories, nutrient and food input versus energy output; describe digestion.

11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

Topic: Unit 2 ~ Digestion
Subject(s):

Days: 5
Grade(s):

Know:

Understand:

Do:

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Topic: Unit 3 ~ Dietary Guidelines
Subject(s):

Days: 6
Grade(s):

Know:

Understand:

Do:

11.3.12.C – Essential

Evaluate sources of food and nutrition information.

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

How to find your ideal weight.

How many calories are appropriate for you as an individual

Know where to access dietary guidelines on choosemyplate.gov

55-30-15 for your personal daily caloric intake

Understand that when calories in don't equal what we burn weight is either gained or lost.

Fatigue effects an athlete's speed, performance, and precision

11.3.12.C – Essential

Evaluate sources of food and nutrition information.

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

Topic: Unit 4 ~ Training Diet
 Subject(s):

Days: 6
 Grade(s):

Know:	Understand:	Do:
<p>11.3.9.E – Important Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.</p> <p>The recommended diet for the average person and the average athlete is 55% carbohydrates, 30% fat, and 15% fat.</p> <p>What to eat for pre- and post-competition</p> <p>The body converts carbs into glucose. Glucose is stored in the form of glycogen as a fuel reserve for competitions.</p> <p>Excess amounts of carbs will be stored as fat</p> <p>Carb loading</p> <p>Carb loafing</p>	<p>Lifetime fitness can be achieved by eating balanced meals that offer variety and by staying active continually.</p> <p>An athlete's diet MUST replace the glycogen used in training.</p> <p>Carbs are our best source of energy (fuel)</p> <p>Understand the difference in how complex and simple carbs digest</p> <p>Since proteins don't burn cleanly as a fuel (byproduct), eating excessive amounts of proteins is difficult on the kidneys</p>	<p>11.3.9.E – Important Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.</p>

Topic: Unit 5 ~ Hydration

Days: 6

Subject(s):

Grade(s):

Know:

Understand:

Do:

<p>11.3.9.D – Important Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).</p> <p>The symptoms of dehydration; heat cramps, heat exhaustion, heat stroke</p> <p>How much water to drink for every pound lost during exercise to rehydrate</p> <p>Water is the preferred drink for hydration, even among athletes</p> <p>The purpose of sweating</p> <p>Electrolytes</p> <p>Hyponatremia</p>	<p>The importance of hydration</p> <p>The pros and cons of sports drinks</p> <p>Thirst is not always a good indicator of how much water to drink</p> <p>Dangers of exercising in 'rubber suits'</p>	<p>11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).</p>
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Topic: Unit 6 ~ Carbohydrates
 Subject(s):

Days: 12
 Grade(s):

Know:

11.3.9.D – Important

Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

11.3.12.C – Essential

Evaluate sources of food and nutrition information.

"hitting the wall"

simple carbs

complex carbs

nutrient dense carbs

3 forms of carbs: sugars, starches, fiber

importance of fiber in the diet

Know the difference between hypoglycemia and hyperglycemia

The difference between whole grain and refined grain

how to calculate carb calories and grams of carbs

Types of sugars, monosaccharide, disaccharides

Carbs are converted into glucose, which is stored

Understand:

Carbs include fruits and vegetables, not just grain products

The purposes and differences between carb loading and carb loafing

Eating simple carbs prior to athletic events increase the risks of becoming hypoglycemic

Do:

11.3.12.C – Essential

Evaluate sources of food and nutrition information.

11.3.12.E – Important

Analyze the breakdown of foods, absorption of nutrients and their conversion to energy by the body.

11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

Topic: Unit 6 ~ Carbohydrates
Subject(s):

Days: 12
Grade(s):

Know:

Understand:

Do:

as glycogen: a great fuel
reserve for endurance

Topic: Unit 7 ~ Protein
 Subject(s):

Days: 12
 Grade(s):

Know:

Understand:

Do:

11.3.9.D – Important

Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

11.3.12.C – Essential

Evaluate sources of food and nutrition information.

proteins are made of amino acids

Some amino acids are non-essential (our bodies can synthesize these) so we don't have to consume them

Some amino acids are essential = we must consume them to have them in our bodies.

Incomplete proteins do not contain all of the essential amino acids

Complete proteins do contain all of the essential amino acids.

Our bodies best utilize proteins when consume in small amounts throughout the day, rather than all in one meal.

Americans tend to consume too much protein.

When the body burns protein, it does not burn cleanly. The by-product is very difficult on the body's kidneys. Too much protein can lead to weigh gain.

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

11.3.12.C – Essential

Evaluate sources of food and nutrition information.

11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

Topic: Unit 7 ~ Protein
Subject(s):

Days: 12
Grade(s):

Know:

Understand:

Do:

Some foods that are incomplete can be paired up with other incompletes to become complete in our bodies = complimentary proteins

Plants are typically incomplete, Animals are complete, Some plants are complete (soybeans)

A serving of cheese can count as a protein serving.

Definitions of:
vegetarian, vegan, ovo-lacto vegetarian, flexitarian

Topic: Unit 8 ~ Fats
 Subject(s):

Days: 12
 Grade(s):

Know:

Understand:

Do:

11.3.9.D – Important

Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

There are two main types of fats:

SATURATED, typically animal sources, solid at room temperature, not heart healthy

UNSATURATED, typically from plant sources, liquid at room temperature, heart healthier

lipo-proteins

hydrogenationtransfats

sources for the different

types of fats, including

mono and poly

unsaturated fats

The difference between

HDL and LDL

The relationship between

dietary fiber and

cholesterol

If a food item once had a liver, it contains cholesterol

Cholesterol is produced by our livers (for this reason alone, some people are genetically more likely to struggle with cholesterol levels)

Cholesterol can be controlled with diet and exercise. Medicines for severe cases of high cholesterol.

Many foods have hidden saturated fats (processed foods)

The less processed a food is, the more healthy it is likely to be

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

Topic: Unit 9 ~ Vitamins
 Subject(s):

Days: 10
 Grade(s):

Know:

Understand:

Do:

11.3.9.D – Important

Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

11.3.12.G – Important

Analyze the relevance of scientific principles to food processing, preparation and packaging.

Water soluble vitamins (B and C) are absorbed into the water of our bodies. What isn't used leaves the body with the urine.

Fat soluble vitamins (ADEK), are stored in the fat when not needed.

It is possible to have toxic levels of some fat soluble vitamins
 Water soluble vitamins should be consumed every day, Fat soluble vitamins should be consumed every other day.

Functions and food sources for the different vitamins.

Nutritionists and doctors advise that nutrients (including vitamins) are best utilized when consume in our foods.

The darker and more colorful a vegetable is, the more nutrient dense it is.

Water soluble vitamins are easily destroyed by light, heat, and air exposure. Certain cooking methods can minimize the loss of vitamins.

11.3.9.E – Important

Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

11.3.12.G – Important

Analyze the relevance of scientific principles to food processing, preparation and packaging.

11.3.9.D - Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).

Topic: Unit 9 ~ Vitamins
Subject(s):

Days: 10
Grade(s):

Know:

Understand:

Do:

Vitamin D can be synthesized by sterols in our skin when exposed to sunshine. Deficiency diseases associated with the different vitamins.		
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