



Sports Medicine

Flexible Instruction Day

Assignment #2

Learning Standard	Standard CC.3.5.11-12. B Determine the central ideas or conclusions of a text; etc.
Task # & Description	Standard 302: Identify signs and symptoms, prevention and treatment of weather-related illnesses.
	Standard 603: Evaluate basic and sport nutrition needs, including hydration
	Standard 804: Identify and discuss types of disordered eating

CONTACT INFORMATION/ASSISTANCE

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I will be available by email and the Remind app from 7:40-12, and 12:30-3:10 to answer your questions. Please reach out if you are having difficulty completing your assignments.

If you are not receiving messages go here to join ➡ <https://www.remind.com/join/bcavts-sm>

INSTRUCTIONS

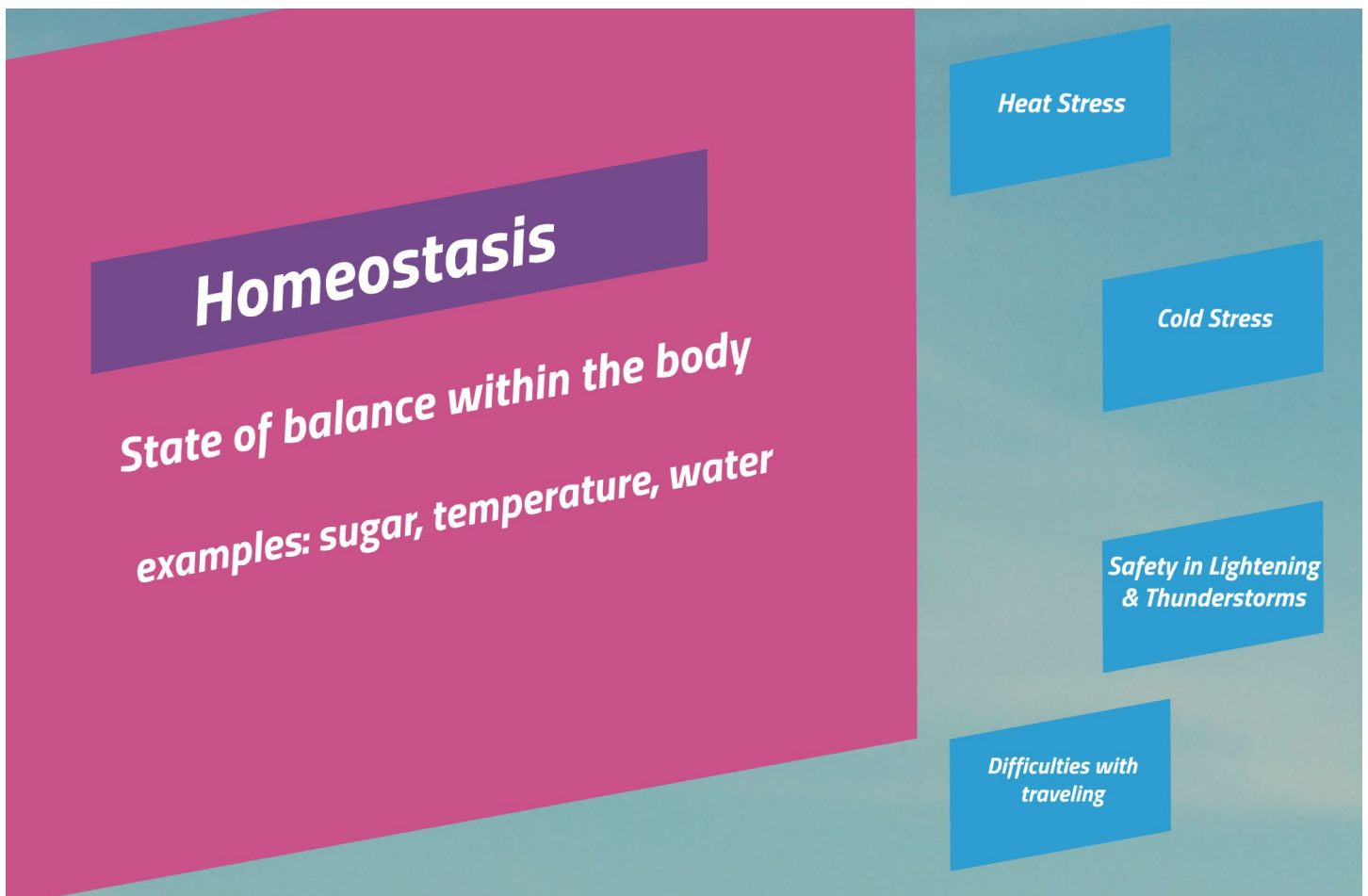
✓ All work is due on the day we return to school. This is counted towards your attendance **and** as a classroom assignment.

✓ Please review the presentation provided and complete the attached activities.

Name: _____

Session: _____

_____/26 points



Heat Stress

The inability to maintain homeostasis due to high temperatures

Hyperthermia

Condition when body temperature rises above normal

Thermoregulation

Process by which body temperature is maintained at 98.6 °F; diencephalon is the temperature regulating center of the brain

HEAT EXHAUSTION OR HEAT STROKE	
Faint or dizzy	Throbbing headache
Excessive sweating	No sweating
Cool, clammy skin	Red, hot, dry skin
Nausea or vomiting	Nausea or vomiting
Rapid, weak pulse	Rapid, strong pulse
Muscle cramps	May lose consciousness
	
- Get to a cool shaded area or air-conditioned place - Drink water if fully conscious - Take a cool shower or use cold compresses	
 - Call 9-1-1 - Take immediate action to cool the victim by any means until help arrives (ice bath, cold towels, etc.)	

Other heat related injuries

Heat Index



Heat Cramps: involuntary muscle spasms, common in the calf muscles (gastrocnemius), caused by rapid water & electrolyte loss with sweating

		Relative Humidity (%)															
		40	45	50	55	60	65	70	75	80	85	90	95	100			
Air Temperature °F	110	136															
	108	130	137														
	106	124	130	137													
	104	119	124	131	137												
	102	114	119	124	130	137											
	100	109	114	118	124	129	136										
	98	105	109	113	117	123	128	134									
	96	101	104	108	112	116	121	126	132								
	94	97	100	103	106	110	114	119	124	129	135						
	92	94	96	99	101	105	108	112	116	121	126	131					
	90	91	93	95	97	100	103	106	109	113	117	122	127	132			
	88	88	89	91	93	95	98	100	103	106	110	113	117	121			
	86	85	87	88	89	91	93	95	97	100	102	105	108	112			
	84	83	84	85	86	88	89	90	92	94	96	98	100	103			
	82	81	82	83	84	84	85	86	88	89	90	91	93	95			
	80	80	80	81	81	82	82	83	84	84	85	86	86	87			

Heat Index (Apparent Temperature)

With Prolonged Exposure and/or Physical Activity

Extreme Danger
Heat stroke or sunstroke highly likely
Danger
Sunstroke, muscle cramps, and/or heat exhaustion likely
Extreme Caution
Sunstroke, muscle cramps, and/or heat exhaustion possible
Caution
Fatigue possible

Heat Syncope: Fainting that occurs when the body attempts to cool itself by dilating the blood vessels

Sunburn: Injury to the skin from UV light

Cold Stress & How does the body lose heat?

- 1) Respiration--> Through exhalation
Solution=Keep mouth & nose covered
- 2) Evaporation-->Through perspiration/sweating
Solution=Wear well ventilated clothing
- 3) Conduction --> Through transfer to a cooler object
Solution= Avoid getting wet or sitting on cold surface
- 4) Radiation--> The loss of heat through the transfer of infrared rays into the cooler environment
Solution=Keep skin covered
- 5) Convection--> Heat loss through currents passing by a warm surface
Solution= Windproof clothing

Hypothermia

Wind Chill

Frost bite

4 Factors contribute to cold stress

- 1) Cold Temperatures
- 2) High or cold winds
- 3) Dampness
- 4) Cold Water

Hypothermia: A condition in which the body temperature drops below normal

98.6 Fahrenheit is normal core temperature

S&S: Shivering, slurred speech, lack of coordination, memory loss. As the condition worsens, they will stop shivering

When the body temperature falls to 85* they may become unconscious

Death can occur at a body temp of 78*

Damage to skin tissue & blood vessels due to prolonged exposure to temps below 32*

Signs & Symptoms:

- 1) pins & needles, skin turns white & becomes soft
- 2) Blistering may occur. Skin feels numb, waxy, frozen
- 3) Blood vessels, muscles, & nerves freeze, this can cause permanent damage

Prevention:

Wear several layers of clothing
Limit alcohol & tobacco
Avoid going outdoors in extreme cold weather/wind
Shield the face
Wear waterproof skin moisturizer on exposed areas

Treatment:

Seek shelter
Apply warm towels around the area, or in lukewarm water for 20 minutes
DO NOT use hot water or rub skin
DO NOT hold the area near a fire
Offer warm fluids but no alcohol
Keep the affected area raised
Avoid infection while the skin heals



Safety in Lightning & Thunder Storms

- ~110 deaths per year
- Develop an emergency action plan

What should you do if you are caught in a storm?



- If you hear or see thunder/lightening seek shelter immediately, indoors is best
- Avoid open areas
- If inside, do not use plumbing to decrease risk of electrocution
- All outdoor activities should be suspended until 30 minutes has passed **AFTER** the last strike of lightening is seen or thunder is heard.
- If you feel your hair stand up or skin tingle, crouch down and make yourself as small as possible-do not lie flat

Circadian Dysrhythmia (Jet Lag)

Traveling between different time zones
Causes fatigue, headache, problems with GI system

How to help:

- Start your trip well rested
- Start going to bed 1 hr earlier for each time zone when traveling east and vice versa for traveling west
- Drink plenty of fluids to stay hydrated when in a plane
- If traveling east, get as much sunshine as possible
- Avoid alcohol



Altitude Illnesses

- Higher altitude=less oxygen
- Take 2-3 weeks to accommodate
- S/S: headache, nausea, vomiting, sleep disturbance, cough,
- Athlete's with Sickle Cell dz-Can be life threatening

DEHYDRATION: Signs & Symptoms



Mild: dry, normal pulse, urine is yellow, mildly thirsty



Moderate: pulse is weak & rapid, urine is very dark, feels very thirsty



Severe: disoriented, drowsy, no urine output, rapid breathing, no tears, pale skin

Treat

Prevent Dehydration



- Drink 17-20 oz. 2-3 hours prior to activity/game
- Drink 7-10 oz. 15 minutes prior
- Drink 28-40 oz. for every hour of activity
- Replace fluids within 2 hours

Skin Conditions

Acne Mechanica



Form of acne that results from heat, pressure, occlusion, and friction

Plantar Warts



Small, hard growths on the bottom of the foot

Herpes Gladiatorum



Skin to Skin Contact
Frequent in wrestlers

Fungal Infections-
ringworm, jock itch,
athlete's foot



- 1) tinea pedis
- 2) tinea cruris





Female Athlete Triad

- Disordered Eating
- Amenorrhea (lack of menstrual period)
 - Due to decreased fat storage & decreased fuel
- Osteoporosis

Warning Signs

- Frequent injuries (especially stress fx)
- Excessive/compulsive exercise
- Change in performance
- Use of weight-loss products
- Restrictive Eating
- Decreased concentration



Epilepsy: condition when seizures occur regularly

- Seizure is a sudden attack or convulsion due to involuntary electrical activity in the brain
- Seizures can be caused by high fevers, drug use, physical injury (concussion, stroke, blood clot, tumor), toxic chemicals, low blood sugar, genetic conditions

Types of Seizures

Petit Mal vs. Grand Mal

Petit Mal (simple partial): jerking motion begins in one part of the body; patient is awake & aware

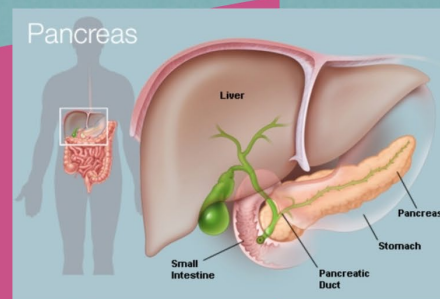
Grand Mal (generalized tonic-clonic): sudden cry & fall, rigidity, jerking of muscles, shallow breathing, loss of b&b control, lasts a few minutes

What do you do?

- Loosen shirt collars
- Protect their head
- Do they have emergency meds? >5 minutes
- Turn them on their side to keep airway open in case of vomiting

Diabetes quick facts

- 1 Body doesn't produce enough insulin
- 2 Insulin hormone that helps the body absorb glucose
- 3 Pancreas-> Organ produces insulin
- 4 Beta Cells -> cells that make insulin



Types of Diabetes

Diabetic Emergency

Insulin Reaction v.s. Diabetic Coma

Insulin Reaction: Body's response to too much insulin, causes the sugar in the blood to drop too low. Medical Emergency!

S/S: fast breathing & pulse, dizziness, weakness, vision difficulties, sweating, headache, numbness in hands/feet, hunger

Treatment: Provide food or drink with sugar (candy, OJ)

Diabetic Coma: Condition when there is too much sugar and too little insulin in the blood. Cells do not get proper nourishment.

S/S: drowsiness, confusion, thirst, dehydration, fever, fruity/sweet smelling breath, change in level of consciousness

Treatment: Check sugar levels, get medical attention to regulate sugar and monitor vitals

Why do we care about insects?

ALLERGIC REACTIONS

2 types of reactions

- 1) Local-pain, swelling, redness, itching, weal at site
- 2) Systemic-generalized reaction, wheezing, vomiting, nausea, itchy rash, heart palpitations



Epinephrine

Bee stings

Epinephrine: medication that dilates the airway & constricts the blood vessels

How do you give epinephrine outside of the hospital?

Epi-Pens

- Push pen into leg, hold for 10 seconds
- Remove pen & massage site
- Continue to E.R. since epi-pens last 15-20 minutes

First Aid for Bee Stings

- Immediately remove the stinger by scraping it out of the skin
- Apply ice, to help reduce pain & swelling

PREVENTION:

- Avoid sprays that attract bees
- Carry epi-pen if known allergy



400-INJURY PREVENTION AND PROTECTION

INSTRUCTIONS: Your athletes are going to be playing a late fall game this weekend. The forecast for Saturday is 20 degrees with wind at 15 mph.

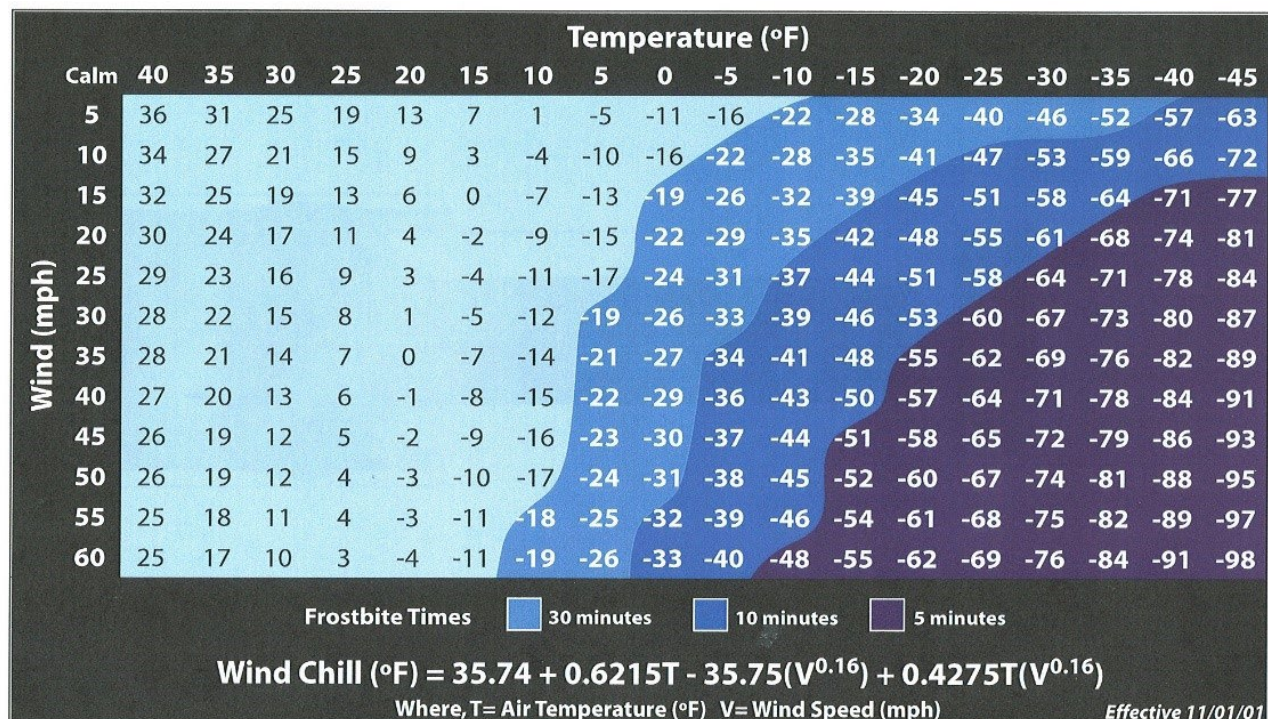
If conditions are right, how long could it take to develop frost bite? _____

What is the predicted "real feel" temperature? _____

How could you best prepare your athletes for this type of weather?



Wind Chill Chart



Question 1

Which organ located near the stomach produces insulin?

- ☐ pancreas
- ☐ liver
- ☐ gallbladder
- ☐ kidney

Question 2

The temperature of the human body necessary to maintain homeostasis is _____ degrees.

- ☐ 98.6
- ☐ 95.5
- ☐ 97.3
- ☐ 99.8

Question 3

Frostbite occurs at what temperature?

- ☐ 32
- ☐ 42
- ☐ 52
- ☐ 62

Question 4

_____ is a condition in which the body temperature rises above normal.

- ☒ hyperthermia
- ☐ hypothermia
- ☐ epilepsy
- ☐ homeostasis

Question 5

Which of the following describes the loss of heat transfer to a cooler object?

- ☐ conduction
- ☐ evaporation
- ☐ convection
- ☐ radiation

Question 6

Fainting that occurs when the body attempts to cool itself by dilating the blood vessels is known as heat _____.

- ☐ syncope
- ☐ exhaustion
- ☐ stress
- ☐ seizure

Question 7

The cause of _____ is still unknown.

- ☐ epilepsy
- ☐ tinea pedis
- ☐ herpes gladiatorum
- ☐ diabetes

Question 8

Which of the following is not in the female athlete triad?

- ☐ diabetes
- ☐ disordered eating
- ☐ amenorrhea
- ☐ osteoporosis

Question 9

Which of the following is characterized by bone loss?

- ☐ osteoporosis
- ☐ herniation
- ☐ tinnitus
- ☐ amenorrhea

Question 10

The loss of heat through air currents passing by a warmer surface is called _____.

- ☐ convection
- ☐ radiation
- ☐ conduction
- ☐ evaporation