

# SPORTS MEDICINE

---

**Purpose:** To provide the Health Science student with an opportunity to develop and demonstrate knowledge and skills in the area of sports medicine.

**Description of Event:** This event will consist of two rounds of competition. Round One will be a written, multiple choice test of knowledge and understanding. The top scoring competitors will advance to Round Two for the performance of selected skill procedure(s) identified in a written scenario. The scenario will require the use of critical thinking skills. The performance will be timed and evaluated according to the event guidelines.

**Dress Code:** Competitors shall wear proper business attire or official HOSA uniform, or attire appropriate to the occupational area, during the orientation and written test. Competitors will wear attire appropriate to the occupational area during the skill procedure(s). (For example, khaki pants and polo shirts, and scrubs are permitted; shorts, jeans and sweat pants are not permitted.) Bonus points will be awarded for proper dress.

- Rules and Procedures**
- Competitors in this event must be active members of HOSA in good standing in the category in which they are registered to compete (Secondary or Postsecondary/Collegiate). Competitors should compete in skill events at the highest level of their training.
  - The test shall be developed from the National HOSA test item bank and will consist of fifty (50) multiple choice items. Competitors will be given 60 minutes to complete the test.

Round One: **Written Test Plan**

Infection Control and Vital Signs .....	8%
Careers, Athletic Trainer and Sports Medicine Team .....	8%
Physical Fitness Assessment .....	8%
Ethical and Legal Considerations .....	8%
Nutrition and Weight Management .....	16%
Physical Conditioning (Flexibility and weight training) .....	10%
Common Athletic Injuries.....	34%
Taping, Wrapping and Bracing.....	8%

- All competitors shall report to the site of the event orientation at the time designated. The Round One Test will immediately follow the orientation. **No proxies will be allowed for the orientation.** No study materials are allowed in the room.
- All official references are used in the development of the written test. The specific reference selected for each procedure is listed in the Facilities, Equipment and Materials section of these guidelines.
  - Clover, Jim. *Sports Medicine Essentials*. Delmar /Career Press, Latest edition.
  - Prentice and Arnheim. *Essentials of Athletic Injury Management*. McGraw Hill, Latest edition.

NOTE: States/regions may use a different process for testing, to include but not limited to pre-conference testing, online testing, and testing at a computer. Check with your Area/Region/State for the process you will be using.

5. The test score from Round One will be used to qualify the competitor for the Round Two skill procedures, and will be used as a part of the final score for the event.
6. For national competition, one, two or three skill procedures will be selected and may be evaluated as stand-alone skills, or in combination. The procedures approved for this event are:
 

Procedure I:	Flexibility Exercises	
Procedure II:	Assessment	A. Assess ROM and Strength Testing of Shoulder
		B. Assess ROM and Strength Testing of Ankle & Foot
Procedure III:	Taping	A. Ankle
		B. Arch
		C. Elbow
		D. Thumb
7. The selected procedure(s) for Round Two will be in the form of a written scenario and will be presented to the competitor at the start of the skill to be performed. One or more procedures may be combined in the scenario. The timing for the skill will begin when the scenario is presented to the competitor. The scenario will be the same for each competitor and will include a challenging component that will require the competitor to apply critical thinking skills.
8. The scenario is a secret topic. Professional ethics demand that competitors DO NOT discuss or reveal the secret topic until after the event has concluded. Competitors who violate this ethical standard will be disqualified.
9. In case of a tie, the highest test score will be used to determine the rank.
10. Competitors must complete all steps of the procedure listed in the guidelines even if the steps must be simulated/verbalized. Steps may NOT be simulated/verbalized when the equipment/materials are available.
11. The competitor must earn a score of 70% or higher on the combined skill procedure(s) of the event (excluding the test) in order to be recognized as an award winner at the NLC.
12. Competitors will be stopped at the end of the time allowed for a selected procedure(s).
13. Competitors must bring all items noted with \*\*\* in the materials section of these guidelines to the event.
14. Competitors must be familiar with and adhere to the "**General Rules and Regulations of the National HOSA Competitive Events Program.**"

### Required Personnel

1. One Event Manager per event
2. One Section Leader per section
3. One judge per procedure selected per section (with expertise in the specific skill area)\*
4. Proctors for testing
5. One-two event assistants per section
6. One-two patients as required by the scenario (per section)
7. Timekeepers (if necessary)
  - \* One judge will role-play the athletic trainer.
8. One QA to provide quality assurance for the event by ensuring that the guidelines are followed and all event documents are complete.

**Facilities, Equipment and Materials (Per Section)**

- General**
1. Clinical and/or laboratory stations for selected procedures
  2. Holding rooms or areas for competitors (if needed)
  3. Written scenario (one copy per competitor and judge)
  4. Note pads, pencils for judges
  5. Certificates for each of competitors after Round One.
  6. Event evaluations
  7. Stopwatch(s)
  - \*\*\* 8. Watch with a second hand
  - \*\*\* 9. Pens and Pencils.
  - \*\*\* 10. Print or electronic copy of the event guidelines for the event orientation

**Round One Written Test** (Reference: All resources)

1. One test copy per competitor
2. Scantron forms

**Round Two****Procedure I Flexibility Exercises** (Reference: Clover)

1. Exercise mat
2. Chair
3. Copy of *Sports Medicine Essentials* by Clover, Jim, for use by judges.

**Procedure II Assess ROM and Strength Testing** (Reference: Clover)

1. Exam table or chair
2. Copy of *Sports Medicine Essentials* by Clover, Jim, for use by judges.

**Procedure III Taping** (Reference: Prentice and Arnheim)

- \*\*\* 1. Tape adherent spray
- \*\*\* 2. Underwrap of any size, color or type
- \*\*\* 3. Treatment table or chair(s)
- \*\*\* 4. Athletic tape of any size, color or type
- \*\*\* 5. Elastic wrap (III-C)
- \*\*\* 6. Tape scissors or tape cutter
- \*\*\* 7. Gauze pad coated with friction proofing material (III-A)

\*\*\* Must be provided by student competitor

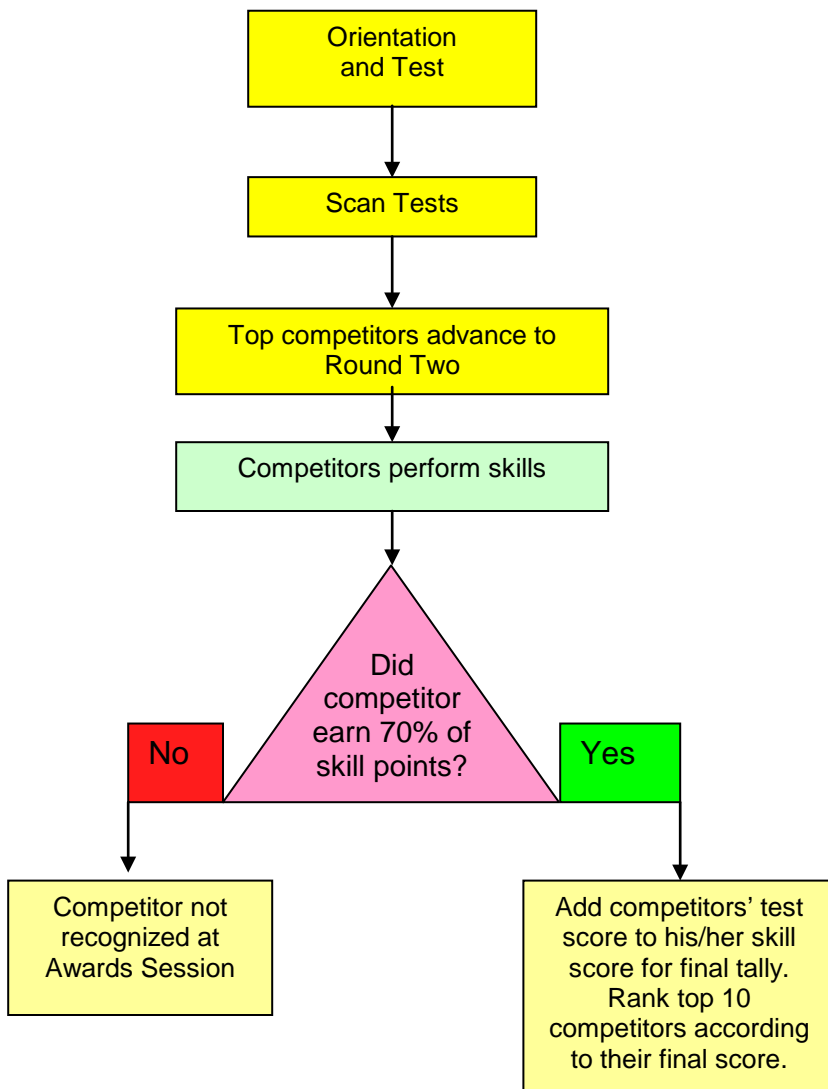
\*\*\* *Note: It is the competitor's responsibility to know what size and type(s) of tape is(are) needed for each taping procedure, and to bring the appropriate materials to the event.*

**Sample Round One Test Questions**

1. The sports medicine team member who gives input to the trainer regarding conditioning techniques, body analysis, and nutrition is the
  - A. equipment specialist.
  - B. exercise physiologist.
  - C. physical therapist.
  - D. physician's assistant.

2. The vitamin found in cereal products, pork, peas, and dried beans that is needed for the release of energy from carbohydrates, fats, and proteins is
  - A. ascorbic acid.
  - B. niacin.
  - C. riboflavin.
  - D. thiamin.
  
3. What precaution should be taken for the athlete with an acute orbital hematoma?
  - A. Do not blow the nose
  - B. Keep head down
  - C. Keep the eyes closed
  - D. Wear eye guards during competition

**Event Flow Chart**



# SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

Procedure I	Flexibility Exercises (Time: 10 minutes)	Possible	Awarded
1.	Performed general warm-up (gentle twisting, bending, joint rotations and jogging in place) (approximately 1 minute)	1	
2.	<p>The athletic trainer will indicate a specific stretch. The competitor will <b>verbalize the involved muscle group</b>, then perform the stretch by moving to a moderate stretch position for 10-15 seconds (One repetition per stretch, stretching one side and then the other), inhaling and exhaling at a relaxed rate.</p> <p>The athletic trainer will inform the competitor of the 10 stretches to be performed.</p> <p><i>Each stretch earns a maximum possible 2 points for executing the stretch correctly.</i></p> <p style="text-align: right;">Stretch Score</p> <ul style="list-style-type: none"> <li>• Lateral neck stretch _____</li> <li>• Chest stretch _____</li> <li>• Anterior deltoid stretch _____</li> <li>• Posterior deltoid stretch _____</li> <li>• Triceps stretch _____</li> <li>• Back extension/abdominals stretch _____</li> <li>• Low back stretch (one knee) _____</li> <li>• Low back stretch (both knees) _____</li> <li>• Cat stretch (low back) _____</li> <li>• Hip flexor stretch _____</li> <li>• Hip/trunk stretch _____</li> <li>• Groin stretch (butterfly) _____</li> <li>• Standing hamstring stretch _____</li> <li>• Standing quadriceps stretch _____</li> <li>• Gastrocnemius stretch _____</li> <li>• Soleus stretch _____</li> </ul>	20	
<b>TOTAL POINTS -- PROCEDURE I</b>		<b>21</b>	

# SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

<b>Procedure II-A Assess ROM and Strength Testing of Shoulder (Time: 8 minutes)</b>		<b>Possible</b>	<b>Awarded</b>
1.	Obtained instructions from athletic trainer	1	
2.	ROM Test for External Rotation of the Shoulder		
a.	Asked athlete to place his or her hands behind his or her head	1	
b.	Instructed athlete to externally rotate the shoulders by reaching down toward the shoulder blades as far as possible.	2	
c.	Stepped behind athlete to evaluate results.	1	
d.	Reported observations to the athletic trainer.	2	
3.	ROM Test for Internal Rotation of the Shoulder		
a.	Asked athlete to grasp his or her hands behind the back.	1	
b.	Instructed athlete to internally rotate the shoulders by raising the hands as high as possible, keeping the hands behind the back.	2	
c.	Stepped behind athlete to evaluate results.	1	
d.	Reported observations to the athletic trainer.	2	
4.	Specific ROM Tests for the Shoulder		
a.	Asked athlete to perform adduction, abduction, flexion, extension, horizontal adduction and horizontal abduction through a pain-free range of motion.	4	
b.	Reported observations to the athletic trainer	2	
5.	External Rotation Strength Test for the Shoulder		
a.	Facing the athlete, placed hands on the lateral sides of the athlete's wrists.	2	
b.	Instructed athlete to externally rotate his or her arms and push against your hands isometrically (increasing the tension of the muscle without movement of the joint).	2	
c.	Reported observations to the athletic trainer	2	

<b>Procedure II-A Assess ROM and Strength Testing of Shoulder</b>		<b>Possible</b>	<b>Awarded</b>
6.	Internal Rotation Strength Test for the Shoulder		
a.	Facing the athlete, placed hands on the medial sides of the athlete's wrists.	2	
b.	Instructed athlete to internally rotate his or her arms and push against your hands isometrically.	2	
c.	Reported observations to the athletic trainer.	2	
7.	Extension Strength Test for the Shoulder		
a.	Placed your hand on the posterior aspect of the athlete's elbow.	2	
b.	Instructed athlete to push backward against your hand isometrically.	2	
c.	Reported observations to the athletic trainer.	2	
8.	Flexion Strength Test for the Shoulder		
a.	Placed your hand on the anterior aspect of the athlete's elbow.	2	
b.	Instructed athlete to push forward against your hand isometrically.	2	
c.	Reported observations to the athletic trainer.	2	
9.	Empty Can Test		
a.	Instructed athlete to extend both arms forward at a 90° angle to the body while horizontally abducting the arm to a 30° angle.	2	
b.	Instructed athlete to internally rotate his or her arms as much as possible, turning the thumbs down, and to hold this position while you push down on his or her wrists.	2	
c.	Reported observations to the athletic trainer	2	
<b>TOTAL POINTS -- PROCEDURE II-A</b>		<b>49</b>	

\* Note: Abduction and adduction strength tests will not be evaluated.

\*\*If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).

# SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

<b>Procedure II-B Assess ROM and Strength Testing of Ankle and Foot (Time: 5 mins)</b>		<b>Possible</b>	<b>Awarded</b>
1.	Obtained instructions from athletic trainer	1	
2.	Asked athlete to remove shoes (if worn) and lie supine or sit on a table with feet hanging over the edge.	1	
3.	ROM Test for Ankle Inversion		
a.	Instructed athlete to turn both ankles in so that the soles of the feet begin to face each other. Observed and compared bilaterally.	2	
b.	Checked passive ROM by applying controlled force to the feet as the athlete repeats step a above.	2	
c.	Reported observations to the athletic trainer.	2	
4.	ROM Test for Ankle Eversion		
a.	Instructed athlete to turn both ankles out so that the soles of the feet face away from each other. Observed and compared bilaterally.	2	
b.	Checked passive ROM by applying controlled force to the feet as the athlete repeats step a above.	2	
c.	Reported observations to the athletic trainer.	2	
5.	ROM Test for Plantar Flexion of the Ankle		
a.	Instructed athlete to extend both ankles so the toes extend as far away from his/her body as possible. Observed and compared bilaterally.	2	
b.	Checked passive ROM by applying controlled force to the feet as the ankles go through the ROM described above.	2	
c.	Reported observations to the athletic trainer	2	
6.	ROM Test for Dorsiflexion of the Ankle		
a.	Instructed athlete to flex both ankles so the toes move closer to his or her body. Observed and compared bilaterally.	2	
b.	Checked passive ROM by applying controlled force to the feet as the ankles go through the ROM described above.	2	
c.	Reported observations to the athletic trainer	2	



<b>Procedure II-B Assess ROM and Strength Testing of Ankle and Foot</b>		<b>Possible</b>	<b>Awarded</b>
7.	Inversion Strength Test for the Ankle <ul style="list-style-type: none"> <li>a. Made hands into fists and placed them together between the athlete's feet, near the toes.</li> <li>b. Applied isometric resistance and instructed the athlete to push medially against your hands at the same time.</li> <li>c. Reported observations to the athletic trainer</li> </ul>	2 2 2	
8.	Eversion Strength Test for the Ankle <ul style="list-style-type: none"> <li>a. Placed hands on the outer aspect of both the athlete's feet, near the toes.</li> <li>b. Applied isometric resistance and instructed the athlete to push laterally against your hands at the same time.</li> <li>c. Reported observations to the athletic trainer</li> </ul>	2 2 2	
9.	Plantar Flexion Strength Test for the Ankle <ul style="list-style-type: none"> <li>a. Placed hands on the underside of both the athlete's feet, near the toes.</li> <li>b. Applied isometric resistance and instructed the athlete to push downward, away from his or her body.</li> <li>c. Reported observations to the athletic trainer</li> </ul>	2 2 2	
10.	Dorsiflexion Strength Test for the Ankle <ul style="list-style-type: none"> <li>a. Placed hands on the distal portion of both the athlete's feet, backs of your hands facing the athlete.</li> <li>b. Applied isometric resistance and instructed the athlete to pull his or her feet back towards the body.</li> <li>c. Reported observations to the athletic trainer</li> </ul>	2 2 2	
<b>TOTAL POINTS -- PROCEDURE II-B</b>		<b>50</b>	

*\*\*If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*

## SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

Procedure III-A	Taping – Ankle (Time: 5 mins)	Possible	Awarded
1.	Obtained instructions from athletic trainer	1	
2.	Assembled equipment	1	
3.	Greeted and identified athlete	1	
4.	Identified self and explained procedure	3	
5.	Positioned athlete sitting on a table with the foot/ankle extended over the edge, or in a chair with the leg on a second chair.	2	
6.	Instructed athlete to hold foot in neutral position (neither turned in nor out) and dorsiflexed (toes to nose) slightly to approximately a 90° angle.	2	
7.	Sprayed area with tape adherent	2	
8.	Applied a gauze pad coated with friction-proofing material such as grease over the instep and to the back of the heel.	2	
9.	Applied underwrap to foot and ankle, one layer thick	2	
10.	Placed an anchor around the ankle approximately 5 or 6 inches above the malleolus, just below the belly of the gastrocnemius muscle.	2	
11.	Placed a second anchor around the instep just proximal to the styloid process of the fifth metatarsal.	2	
12.	Applied the first strip posteriorly to the malleolus and attached it to the anchor strips.	2	
13.	Started the first horizontal strip of the basketweave directly under the malleolus and attached it to the foot anchor.	2	
14.	In an alternating series, placed three vertical strips and three horizontal strips on the ankle with each piece of tape overlapping at least half of the preceding strip.	2	
15.	In the above step, the strips and anchors did not put pressure on the 5 <sup>th</sup> metatarsal.	2	
16.	After applying the basket weave series, continued the horizontal strips up the ankle.	2	
17.	For arch support, applied two or three circular strips lateral to the medial.	2	
18.	After completing the conventional basket weave, applied two or three heel locks to ensure maximum stability. Started the heel lock on the top of the foot at the ankle joint. Angled the tape around the back and above the calcaneus, then, under the heel, then back up over the top of the ankle.	3	
19.	Repeated the same pattern on the other side of the ankle joint moving in the opposite direction.	2	

<b>Procedure III-A</b>	<b>Taping – Ankle (continued)</b>	<b>Possible</b>	<b>Awarded</b>
20	All tape applied snugly but not so tightly as to compromise circulation.	2	
21.	Allowed tape to fit the natural contour of the skin	2	
22.	Upon direction of the athletic trainer, properly used tape scissors (cutter) to remove taping	2	
23.	Disposed of used taping materials	1	
24.	Reported procedure and observations to the athletic trainer	2	
<b>TOTAL POINTS -- PROCEDURE III-A</b>		<b>46</b>	

*\*\*If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*

## SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

Procedure III-B	Taping – Arch	(Time: 4 mins)	Possible	Awarded
1.	Obtained instructions from athletic trainer		1	
2.	Assembled equipment		1	
3.	Greeted and identified athlete		1	
4.	Identified self and explained procedure		3	
5.	Positioned athlete sitting on a table with the foot/ankle extended 6" over the edge, or in a chair with the leg on the second chair.		2	
6.	Sprayed area with tape adherent		2	
7.	Placed one anchor strip around the ball of the foot.		2	
8.	Starting at the third metatarsal head, took the tape around the heel from the lateral side and met the strip where it began.		2	
9.	Started the next strip near the second metatarsal head and finished on the fourth metatarsal head.		2	
10.	Began the last strip on the fourth metatarsal head and finished on the fifth. The technique, when completed, formed a fanshaped pattern covering the metatarsal region.		3	
11.	Locked strips using 1 ½ inch tape and encircling the complete arch.		2	
12.	Upon direction of the athletic trainer, properly used tape scissors (cutter) to remove taping		2	
13.	Disposed of used taping materials		1	
14.	Reported procedure and observations to the athletic trainer		2	
<b>TOTAL POINTS -- PROCEDURE III-B</b>			<b>26</b>	

*\*\*If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*

## SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

Procedure III-C	Taping – Elbow	(Time: 6 mins)	Possible	Awarded
1.	Obtained instructions from athletic trainer		1	
2.	Assembled equipment		1	
3.	Greeted and identified athlete		1	
4.	Identified self and explained procedure		3	
5.	Positioned athlete standing with the affected elbow flexed at 90 degrees.		2	
6.	Sprayed area with tape adherent.		2	
7.	Applied underwrap to the arm over the limits of the taping procedure.		2	
8.	Applied three anchor strips loosely around the upper arm, approximately 2 inches to above the curve of the elbow (antecubital fossa).		2	
9.	Applied 3 anchor strips loosely around the forearm.		2	
10.	Constructed a checkrein by cutting a 10-inch and a 4-inch strip of tape and laying the 4-inch strip against the center of the 10-inch strip, blanking out that portion.		2	
11.	Next, placed the checkrein so that it spans the two anchor strips with the blanked out side facing downward.		2	
12.	Left checkrein extended 1 to 2 inches past anchor strips on both ends, allowing anchoring of the checkreins with circular strips to secure against slippage.		2	
13.	Placed five additional 10-inch strips of tape over the basic checkrein.		2	
14.	Finished the procedure by securing the checkrein with three lock strips on each end.		2	
15.	Applied a figure-eight elastic wrap applied over the taping to prevent the tape from slipping because of perspiration.		2	
16.	Tape is smooth and snug with all pieces overlapped and joined.		2	
17.	All tape applied snugly but not so tightly as to compromise circulation.		2	
18.	Upon direction of the athletic trainer, properly used tape scissors (cutter) to remove taping		2	
19.	Disposed of used taping materials		1	
20.	Reported procedure and observations to the athletic trainer		2	
<b>TOTAL POINTS -- PROCEDURE III-C</b>			<b>37</b>	

*\*\*If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*

## SPORTS MEDICINE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

Procedure III-D	Taping – Thumb (Time: 5 mins)	Possible	Awarded
1.	Obtained instructions from athletic trainer	1	
2.	Assembled equipment	1	
3.	Greeted and identified athlete	1	
4.	Identified self and explained procedure	3	
5.	Positioned athlete sitting on an exam table or in a chair, or standing, with the affected arm extended and the thumb in a relaxed, neutral position.	2	
6.	Sprayed area with tape adherent.	2	
7.	Applied underwrap to the hand and wrist	2	
8.	Placed an anchor strip loosely around the wrist and another around the distal end of the thumb.	2	
9.	From the anchor at the tip of the thumb to the anchor around the wrist, applied four splint strips in a series on the side of greater injury (dorsal or palmar side) and held them in place with one lock strip around the wrist and one encircling the tip of the thumb.	4	
10.	Added three thumb spicas. Started the first spica on the radial side at the base of the thumb and carried it under the thumb, completely encircling it, and then crossing the starting point.	3	
11.	The strip continued around the wrist and finished at the starting point.	1	
12.	Each of the subsequent spica strips overlapped the preceding strip by at least 2/3 inch and moved downward on the thumb.	2	
13.	All tape applied snugly but not so tightly as to compromise circulation.	2	
14.	Upon direction of the athletic trainer, properly used tape scissors (cutter) to remove taping	2	
15.	Disposed of used taping materials	1	
16.	Reported procedure and observations to the athletic trainer	2	
<b>TOTAL POINTS -- PROCEDURE III-D</b>		<b>31</b>	

*\*\*If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*