

Emergency Procedures for the Sports Chiropractor

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Module 1

1

Chiropractic Sports Physician

- Identify and perform the tasks required to act as a team physician (on field) and/or a sports physician (in office).
- Be able to identify, triage and manage sports related injuries on an emergent on field basis as well as in a non emergent office setting.

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Course Objectives

- Know how to spot it.
- Know what it is.
- Know what to do for it.



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Uncertain Situations

- Minor symptoms may be early signs of severe illness or injury.
- When in doubt, err on the side of caution.

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Personal Protective Equipment

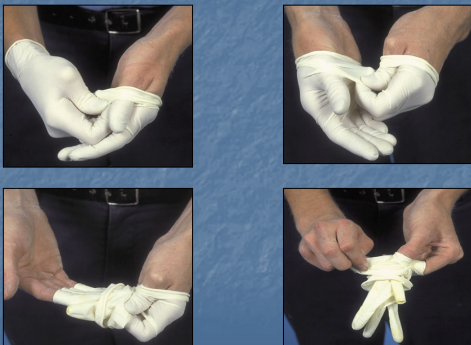
- Assumes all body fluids present a possible risk for infection
- Protective equipment
 - Non-Latex (Nitrile) or vinyl gloves should always be worn
 - Eye protection



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Personal Protective Equipment



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Scene Safety

- Think about safety for yourself and team members.
 - Proper mind set
 - Proper protective equipment
- Determine what additional resources will be necessary.

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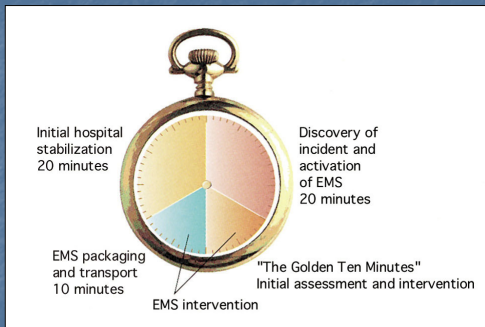
Mechanism of Injury

- Helps determine the possible extent of injuries on trauma patients
- Evaluate:
 - Amount of force applied to body
 - Length of time force was applied
 - Area of the body involved

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The Golden Hour



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No signs of life: AED - CPR



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Initial Assessment

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Components of the Initial Assessment

- Develop a general impression
- Assess mental status
- Assess airway
- Assess the adequacy of breathing
- Assess circulation
- Identify patient priority

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Level of Consciousness

- **A** Alert
- **V** Responsive to Verbal stimulus
- **P** Responsive to Pain
- **U** Unresponsive

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SAMPLE

- **S** Signs and Symptoms
- **A** Allergies
- **M** Medications
- **P** Past Medical History (Pertinent)
- **L** Last oral intake
- **E** Events leading up to the event

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Glasgow Coma Scale

- | | | |
|--------------------------|------------------------------|---------------------------------|
| ■ Eye Opening | ■ Verbal (cont.) | ■ Motor Response (con't) |
| ■ Spontaneous (4) | ■ Inappropriate Words (3) | ■ Localizes Pain (5) |
| ■ To Voice (3) | ■ Incomprehensible Words (2) | ■ Withdraw (4) |
| ■ To Pain (2) | ■ None (1) | ■ Flexion (3) |
| ■ None (1) | | ■ Extension (2) |
| ■ Verbal Response | ■ Motor Response | ■ None (1) |
| ■ Oriented (5) | ■ Obeys Commands (6) | ■ Total 3-15 |
| ■ Confused (4) | | |

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Airway

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Basic Airway Management for the Breathing Victim

- Airway is always assessed first.
- Advanced techniques are used after basic management.
- The first step is opening the patient's airway.
- Once the airway has been cleared, determine the need for an airway adjunct.

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Assessing the Airway

- Look for signs of airway compromise:
 - Two- to three-word dyspnea
 - Use of accessory muscles
 - Nasal flaring and use of accessory muscles in children
 - Rib retraction in children
 - Labored breathing

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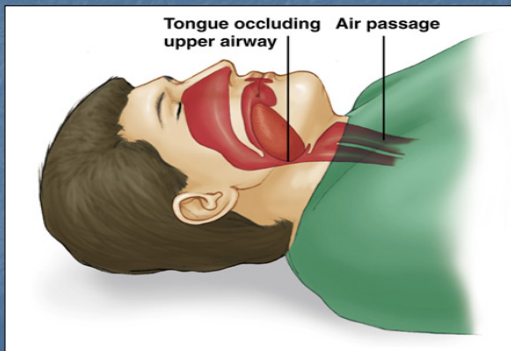
Airway

- Airway may be obstructed by tongue.
- Use head tilt-chin lift technique or jaw-lift maneuver to open the airway.
- Jaw-lift maneuver is safer if possibility of neck injury exists.

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Airway



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Opening the Airway

- Head tilt-chin lift
 - Nontrauma patients, medical patients
- Jaw-thrust
 - Suspected spinal injury



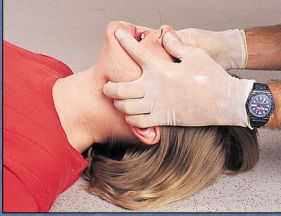
Head tilt-chin lift

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Opening the Airway

- Jaw-thrust maneuver without head tilt



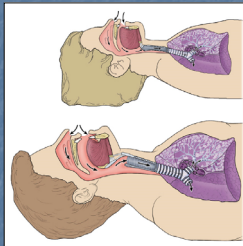
Maintain the head in neutral alignment. Use your index and long fingers to thrust the jaw forward.

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Airway Differences

- Larger tongue relative to the mouth
- Less well-developed rings of cartilage in the trachea
- Head tilt-chin lift may occlude the airway.



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Basic Airway Adjuncts

- Oropharyngeal airways
 - Keep the tongue from blocking the upper airway
 - Allow for easier suctioning of the airway
 - Used in conjunction with BVM device
 - Used on unconscious patients without a gag reflex



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Basic Airway Adjuncts

Inserting an oropharyngeal airway

1. Select the proper size airway.
2. Open the patient's mouth.
3. Hold the airway upside down and insert it in the patient's mouth.
4. Rotate the airway 180° until the flange rests on the patient's lips.



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Basic Airway Adjuncts

■ Nasopharyngeal airways

- Used on conscious patients who can't maintain an airway
- Can be used on patients with a gag reflex
- Should not be used on patients with possible skull fractures



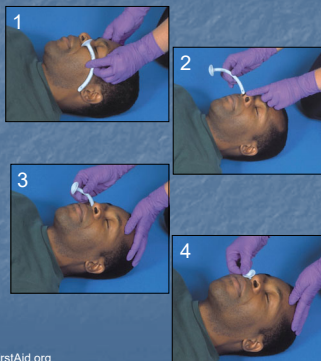
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Basic Airway Adjuncts

■ Inserting a nasopharyngeal airway

- 1. Select the proper size airway.
- 2. Lubricate the airway.
- 3. Gently push the nostril open.
- 4. With the bevel turned toward the septum, insert the airway.



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Mechanical Obstruction of the Airway

- Be prepared to treat quickly.
- Obstruction may result from the position of head, the tongue, aspiration of vomitus, or a foreign body.
- Opening the airway with the head tilt-chin lift maneuver may solve the problem.

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Partial Airway Obstruction

- Breathing is noisy.
- Patient may be able to speak, cough or breath.
- Encourage to patient to cough.
- **DO NOT GIVE BACK BLOWS TO A CONSCIOUS CHILD OR ADULT CHOKING VICTIM.**
- Give 100% oxygen using a non-rebreathing mask.
- Provide prompt transport.

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Signs of Airway Obstruction in the Unconscious Patient

- Obvious trauma, blood, or other obstruction
- Noisy breathing such as bubbling, gurgling, crowing, or other abnormal sounds
- Extremely shallow or absent breathing

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Causes of Foreign Body Obstruction

- Relaxation of the tongue
- Vomited stomach contents
- Blood clots, bone fragments, damaged tissue
- Swelling caused by allergic reactions
- Foreign objects

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Recognizing an Obstruction

- Obstruction may be partial or complete.
- Is patient able to speak, breath or cough?
- If patient is unconscious, attempt to deliver artificial ventilation.

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Removing an Obstruction

- Perform Abdominal Thrust maneuver.
- Use suction if needed.
- If attempts to clear the airway are unsuccessful, begin CPR.
- Transport rapidly.



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Abdominal Thrust Maneuver



Recognize and assess for choking.



Position yourself to perform the Abdominal Thrust Maneuver.

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Obstructed Airway Maneuver

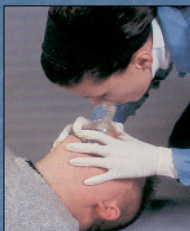


If the patient becomes weak or unconscious, assist to floor.

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Obstructed Airway Maneuver



Attempt to ventilate. If this fails, reposition head and try again. If your not successful begin the process of C.P.R.

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Removing a Foreign Body Airway Obstruction

- In a conscious child:
 - Kneel on 1 knee behind the child.
 - Give the child abdominal thrusts.
 - Continue technique until object comes out.



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Removing a Foreign Body Airway Obstruction

- If the child becomes unconscious bring them to the ground gently.
- Open airway again to try and see object.
- Only try to remove object if you see it.
- Attempt rescue breathing.
- If airway remains obstructed, begin the process of C.P.R.



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Breathing

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Assessing Breathing

- Are the patient's respirations shallow or deep?
- Does the patient appear to be choking?
- Is the patient cyanotic (blue)?
- Is the patient moving air into and out of the lungs as the chest rises and falls?

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Breathing Process: Inhalation

- Active part of breathing
- Diaphragm and intercostal muscles contract, allowing the lungs to expand.
- The decrease in pressure allows lungs to fill with air.
- Air travels to the alveoli where exchange of gases occurs.

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Breathing Process: Exhalation

- Does not normally require muscular effort
- Diaphragm and intercostal muscles relax.
- The thorax decreases in size, and ribs and muscles assume their normal positions.
- The increase in pressure forces air out.

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Respirations

- Rate
 - Number of breaths in 30 seconds x 2 or in 15 seconds x 4
- Quality
 - Character of breathing
 - Hyperventilation
- Rhythm
 - Regular or irregular
- Effort
 - Normal or labored
- Noisy respiration
 - Normal, stridor, wheezing, snoring, gurgling
- Depth
 - Shallow or deep

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Normal Breathing Rates

Adults	12 to 20 Breaths/Min
Children	15 to 30 Breaths/Min
Infants	25 to 50 Breaths/Min

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Normal Breathing Characteristics

- Normal rate and depth
- Regular rhythm
- Good breath sounds in both lungs
- Regular rise and fall movements in the chest
- Easy, not labored
- Adequate depth.

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Abnormal Breathing Characteristics

Slower than 8 breaths/min or faster than 24 breaths/min.

- Irregular rhythm
- Labored breathing
- Muscle retractions
- Pursed lips
- Pale or blue skin
- Cool, clammy skin
- Nasal flaring
- Shallow or irregular respirations.

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Hyperventilation

- Over breathing resulting in a decrease in the level of carbon dioxide.
- Signs and symptoms:
 - Anxiety
 - Numbness
 - A sense of dyspnea despite rapid breathing.
 - Dizziness
 - Tingling in hands and feet.

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Treating Respiratory Insufficiency

- Secure and support the airway.
- Clear airway of any obstructions.
- Ventilate if needed with a BVM device.
- Administer oxygen.
- Transport promptly.

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Dyspnea

- Shortness of breath or difficulty breathing.
- Patient may not be alert enough to complain of shortness of breath.

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Signs and Symptoms

- Difficulty breathing
- Anxiety or restlessness
- Decreased respirations
- Cyanosis
- Abnormal breath sounds
- Difficulty speaking
- Accessory muscles

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Signs and Symptoms

- Altered mental status
- Coughing
- Irregular breathing rhythm
- Tripod position
- Barrel chest
- Pale conjunctivae
- Increased pulse and respirations

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Treatment of Dyspnea

- Perform initial assessment.
- Place the patient on oxygen.
- If patient is in respiratory distress, ventilate.
- Check pulse.

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Artificial Ventilations

Used only when patients can not breathe adequately on their own.

- Use a barrier device.
- Open the airway.
- Take a regular normal breath.
- Give slow rescue breaths.
 - Rate of 10-12 breaths/min for adults



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Rate of Artificial Ventilations

- | | | |
|----------|---|--------------------------|
| Adult | — | 1 breath every 5 seconds |
| Children | — | 1 breath every 4 seconds |
| Infants | — | 1 breath every 3 seconds |

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Mouth-to-Mask Technique

- Kneel at patient's head and open airway.
- Place the mask on the patient's face.
- Take a regular normal breath and breathe into the patient for 1 1/2 to 2 seconds.
- Remove your mouth and watch for patient's chest to fall.



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Mouth to Mask Kneel at the Victims Head



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Ongoing Assessment of Ventilation

- Adequate Ventilation
 - Equal chest rise and fall.
 - Ventilating at appropriate rate.
 - Heart rate returns to normal.
- Inadequate Ventilation
 - Minimal or no chest rise and fall.
 - Ventilations too fast or slow.
 - Heart rate does not return to normal.

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Gastric Distention

Artificial ventilation fills stomach with air.

- Gastric distention is most likely to occur if:
 - You blow too hard as you ventilate.
 - You give breaths too rapidly.
 - The patient's airway is obstructed.

May cause patient to vomit.

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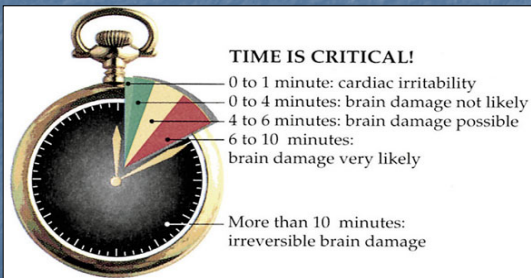
Reassessment

- Support the airway.
- Be aware of sudden onset of shortness of breath.
- 5 minutes after administration:
 - Obtain vital signs again.
 - Perform focused reassessment.
- Transport and continue to assess breathing.

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Oxygen



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Oxygen

How do I know it's oxygen?

- Cylinder is green/white.
- Cylinder is labeled "Oxygen."
- The "P-I-S-S" system.
 - P – Pin
 - I – Index
 - S – Safety
 - S – System



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Hypoxia

Body's cells and tissues not having enough oxygen.

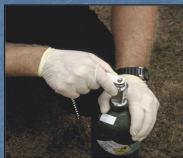
- Signs
 - Nervousness, irritability, and fear
 - Tachycardia
 - Mental status changes
 - Use of accessory muscles for breathing
 - Difficulty breathing, possible chest pain

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Using Supplemental Oxygen

- Inspect cylinder and markings.
- "Crack" the cylinder.



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Using Supplemental Oxygen

- Attach the regulator/flow meter.
- Open the cylinder.
- Attach proper delivery device to flowmeter.



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Using Supplemental Oxygen

- Adjust flowmeter to desired flow rate.
- Apply the oxygen device to the patient.
- When done, discard the delivery device.
- Turn off the flow meter.

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Oxygen Delivery Equipment

- Nonrebreathing mask
 - Provides up to 90% oxygen
 - Used at 10 to 15 L/min
- Nasal cannula
 - Provides 24% to 44% oxygen
 - Used at 1 to 6 L/min



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Artificial Ventilation

- One- or two-person bag-value-mask (BVM)
- Mouth-to-mask ventilation
- Oxygen-powered ventilation device



Bag-valve-mask

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Bag-Valve-Mask Device

- Can deliver more than 90% oxygen
- Delivers less tidal volume than mouth-to-mask
- Requires practice to be proficient
- May be used with advanced airways



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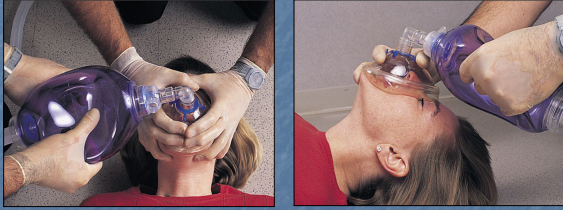
Two-Person BVM Technique for Rescue Breathing

- Insert an oral airway.
- One caregiver maintains seal while the other delivers ventilations.
- Place mask on patient's face.
- Squeeze bag to deliver ventilations.

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Bag Valve Mask (BVM)



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Hazards of Oxygen



- Oxygen supports combustion.
- Keep possible ignition sources away from the area.
- Oxygen tanks are under high pressure.

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Circulation

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Circulation

- Assess circulation after airway is open and two rescue breaths have been given.
- Check for pulses.
- Evaluate for other signs of circulation.
- Do not spend more than 10 seconds trying to find a pulse.

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Normal Ranges for Pulse Rate

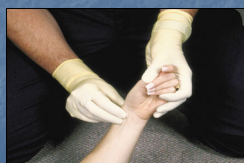
Adults	60 to 100 beats/min
Children	80 to 100 beats/min
Toddlers	100 to 120 beats/min
Newborns	120 to 140 beats/min

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Pulse

- Rate
 - Number of beats in 30 seconds x 2 or 15 seconds x 4
- Strength
 - Bounding, strong, or weak (thready)
- Regularity
 - Regular or irregular



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Assessing Circulation

- Assess the pulse.
 - Rate, rhythm and strength
- Assess and control external bleeding.
 - Direct pressure
- Evaluate skin color.
 - Cyanotic, flushed, pale or jaundiced

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Assessing Circulation

- Evaluate skin temperature.
 - Skin is an organ.
- Evaluate skin condition.
 - Dry or moist
 - Cool or Hot
- Evaluate capillary refill.
 - Should be less than 2 seconds

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Assessing Circulation

- Color
 - Pink, pale, blue, red, or yellow.
- Temperature
 - Warm, hot, or cool.
- Moisture
 - Dry, moist, or wet.
- Evaluate capillary refill.
 - Should be less than 2 seconds.

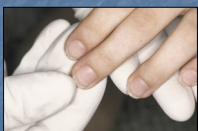
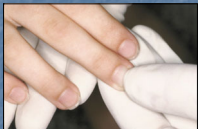


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Capillary Refill

- Evaluates the ability of the circulatory system to restore blood to the capillary system (perfusion).
- Tested by depressing the patient's fingertip and looking for return of blood.



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Circulation Differences

- The heart rate increases for illness and injury.
- Vasoconstriction keeps vital organs nourished.
- Constriction of the blood vessels can affect blood flow to the extremities.

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Perfusion

- Circulation within tissues in adequate amounts to meet the cells' needs for oxygen, nutrients, and waste removal.
- Some tissues and organs need a constant supply of blood while others can survive on very little when at rest.

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Perfusion

- The heart demands a constant supply of blood.
- The brain and spinal cord can survive for 4 to 6 minutes without perfusion.
- The kidneys may survive 45 minutes.
- The skeletal muscles may last 2 hours.

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Restoring Circulation

- Control bleeding and improve oxygen delivery.
- If unresponsive and pulseless begin CPR.
- Apply and operate the AED as quickly as possible.
- Do not use AED on patients with a catastrophic traumatic injury.

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