

Nursing of Children Network Newsletter

March 2009

You Are What You Eat

Health Eating

Food enriches our body by providing energy. Nutrients found in food help prevent health problems. Healthy eating along with exercise is a great source of medicine.

Did you know whole grains will fill you up fast. Whole grains will reduce your risk of heart disease and some forms of cancer. Whole grain provide essential nutrients like antioxidants, vitamins, minerals and dietary fiber. Check your labels and look for the words whole wheat or whole rye. If stamped 100 %/ Excellent , these products contain at least 16g of whole wheat per serving. It is recommended to have at least 3 servings a day of whole grains. One serving is equivalent to 16g. Smart choices of whole grain include popcorn, brown rice, whole oats, oatmeal, and whole grain barley.

Reference:

Mayo Clinic Staff. Food and Nutrition *Whole grains: Hearty options for a healthy diet.* July 1, 2008.
<http://www.mayoclinic.com/health/wholegrains/NU00204>

Whole Grain Council. *Whole Grain Stamp.* 2003–2007.
<http://www.wholegrainscouncil.org/whole-grain-stamp>

Related Links:

<http://www.mayoclinic.com/health/weight-loss/NU00595>

<https://www.pedsnurses.org/home.html>



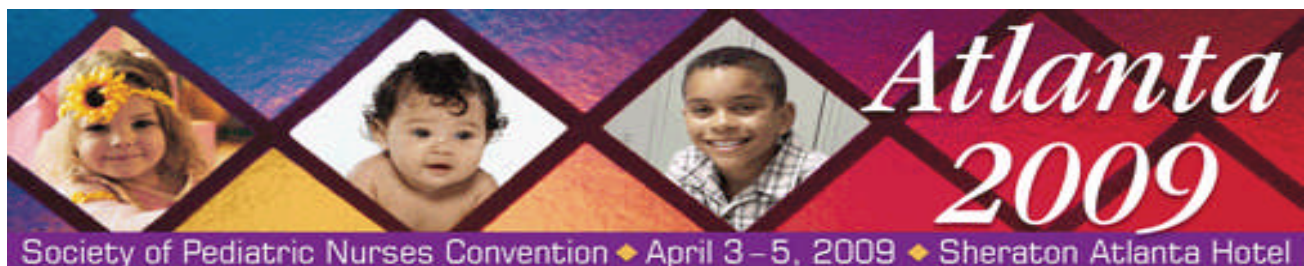
Special Sites to Visit:

Where do you go for help?

- www.cap4kids.org/philadelphia

Patient Safety Links

- www.jointcommission.org/
- www.nlm.nih.gov/medlineplus/
- www.npsf.org/
- www.ismp.org/Newsletters/nursing/default.asp
- psnet.ahrq.gov/



Register at: <https://www.pedsnurses.org/>

MUSCULOSKELETAL TRAUMA

BY: Loreen K. Meyer, RN, BSN, CCRN

OBJECTIVES

- Enhance understanding related to skeletal anatomy and physiology, and blood loss
- Enhance knowledge related to musculoskeletal epidemiology, mechanisms of injury, types of injuries, associated injuries and complications

ANATOMY AND PHYSIOLOGY

- The musculoskeletal system and neurovascular system are comprised of bones, joints, tendons, ligaments, muscles, vessels and nerves that provide support, strength, movement and protection to the body.
- How many bones are in the body and what are the bones composed of?

ANSWER

- 206 Bones
- Composition: 60% mineral and 40% organic
- How many types of bones are there?

ANSWER

- Two Types
- COMPACT: Dense and rigid: shafts of long bones and exterior surface of some bones (I.e. short bones)
- SPONGY: Contain red marrow and is in the interior of bone (increase RBC). By adulthood, the marrow changes to yellow (adipose) except for the vertebrae, sternum, ribs and ileum

BONE CLASSIFICATION

- LONG - femur, ulna, radius, tibia, fibula, humerus
- FLAT - skull, ribs, scapulae (provide protection)
- SHORT - tarsals
- IRREGULAR - vertebrae and facial

EPIDEMIOLOGY

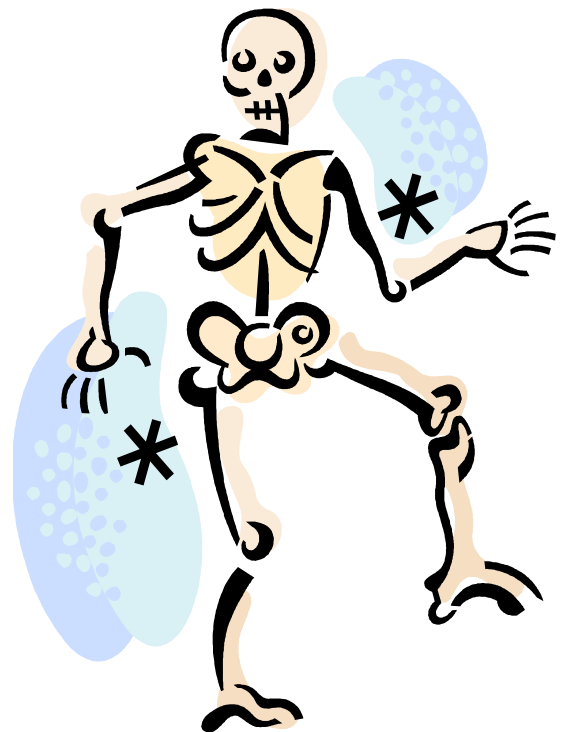
- In 2006, 1,335 children died under the age of 14 who were occupants in motor vehicle crashes
- ½ of hospital admissions are patients with extremity injuries
- Elderly are at greatest risk
- 8,000 deaths per year
- Leading cause of death for children older than 1
- Pelvic fractures account for the 3rd leading cause of death involving MVC

MECHANISMS OF INJURY

- Assault
- MVC
- Sport Related
- Falls
- Environmental (earthquakes)
- Falls
- Single system or combination
- Unintentional or intentional
- Accelerated &/or decelerated

TYPES OF INJURIES

- Penetrating
- Blunt
- Combination such as: fractures, dislocations, strains, sprains, ligamentous tears, tendon lacerations and neurovascular compromise



M/S Trauma Continued

ASSOCIATED INJURIES

- Neurovascular
- Internal Organs
- Soft Tissue Injury
- Extremity Injuries
- Spinal Injuries
- Joint Injuries
- Open Fractures
- Amputations
- Crushing Injuries

COMPLICATIONS

- Blood Loss
- Shock
- Infection
- Compartment Syndrome
- Tissue Damage
- Neurologic/Neurovascular Deficits
- Pain
- Post-Traumatic Stress Syndrome

PATHOPHYSIOLOGY

THE BLOOD LOSS FOR THE FOLLOWING BONES ARE:

- Humerus up to 750 cc's
- Femur up to 1,500 cc's
- Pelvis up to 1,500 cc's

FRACTURES - FEMUR

- Femur Fractures result from major trauma
- Mechanism: falls, abuse, mvc, penetrating wound injury
- Elderly at risk for femoral neck fractures

PELVIC FRACTURES

- Life-threatening
- Pain
- Increased blood loss
- Potential for intra-abdominal and genitourinary injury
- Shortening or abnormal rotation of affected leg

AMPUTATIONS

Partial or Complete
Usually involves digits, foot, lower leg, hand or forearm

*Life over Limb

Reanastomosis has a better outcome in pediatrics along with a guillotine-type amputation

CRUSH INJURIES

- Can be life threatening
- Difficult to treat secondary to cellular destruction and damage to ves-

sels and nerves

- Sequelae: hemorrhage and fluid loss, destruction of muscle and bones, compartment syndrome and infection

Signs and Symptoms

- Obvious crushed area
- Soft tissue swelling
- Pain
- Hypovolemic shock
- Compartment syndrome
- Loss of neurovascular function distal to injury

COMPARTMENT SYNDROME

- Results from increasing pressure inside fascial compartment
- Greater in muscles of lower leg or forearm
- Prolonged Ischemia results in pain and limb without function

NURSING CARE

- What was the mechanism of injury?
- Was there any previous treatment or splinting prior to arrival?
- Is there a history of previous orthopedic problems?

ASSESSMENT

- Inspection: color, appearance, position shape, comparison to other extremity
- Integrity of the injured extremity &/or area
- Note deformities or angulations
- Assess neurological and neurovascular status
- Obtain vital signs
- Assess for pain, pallor, pulses, parasthesia, paralysis

NURSING CARE

- Monitor vital signs
- Obtain IV access
- Administer IV fluids or blood as ordered
- Control bleeding
- Splint and immobilize affected extremity
- Apply ice
- Elevate extremity
- Administer pain medications
- Administer antibiotics

NURSING CARE FOR OPEN WOUNDS

- Obtain wound cultures
- Irrigate wound
- Cover with dry sterile gauze
- Administer antibiotics and tetanus
- Monitor and inspect dressing

NURSING CARE FOR AMPUTATIONS

- Control bleeding with pressure dressing and elevation
- Elevate stump
- Splint stump
- Remove/irrigate any debris
- Wrap amputated part with a saline-moistened gauze, place in a plastic bag, and then place bag on crushed ice with water

NURSING CARE FOR CRUSHED INJURIES

- IV crystalloids are needed to increase urinary output and excrete myoglobin
- Elevate injured extremity
- Gently cleanse wound
- Monitor urinary output and presence of Myoglobin
- Assess and reassess motor and sensory Functions

NURSING CARE WITH COMPARTMENT SYNDROME

- Elevate Extremity but NOT above Heart Level
 - Assist with compartment pressure measurements
 - Prepare for fasciotomy
 - Monitor neurovascular status
- ## NURSING CARE CONT'D.
- Prepare for definitive stabilization
 - Provide psychosocial support
 - Prepare for additional tests, operation, transfer, admission

REFERENCES

- Department of Transportation (US), National Highway Traffic Safety Administration (NHTSA), Traffic Safety Facts 2006 Data: Children. Washington (DC): NHTSA; 2007. Available from URL: www.nrd.nhtsa.dot.gov/Pubs/810803.PDF (574KB, 6 pages). [cited 2008 Aug 1].
- Magnan, Patrick, D.M.D. (2004), *Interactive Spine Trauma Tutorial*; <http://sprojects.mmi.mcgill.ca/spinetrauma/index.htm>
- Trauma Nursing Core Course (TNCC) Provider Manual 6th Edition(2007). Emergency Nurses Association