

## **Position Statement**

### **Children and Musculoskeletal Health**

*This Position Statement was developed as an educational tool based on the opinion of the authors. It is not a product of a systematic review. Readers are encouraged to consider the information presented and reach their own conclusions.*

The American Academy of Orthopaedic Surgeons (AAOS) considers childhood musculoskeletal injuries and conditions a major problem around the world. A healthy musculoskeletal system – consisting of bones, joints, ligaments, tendons and muscles – is essential to a child’s growth and development. Decisions made regarding children’s diet and levels of physical activity will not only affect them now, but also as they grow into adults.

Many thousands of children and adolescents nationwide suffer from musculoskeletal conditions each year. In fact, for children younger than age 19, abnormal musculoskeletal conditions accounted for 427,000 hospitalizations and more than 9.5 million physician visits in 2008 alone.<sup>1,2</sup> These conditions, which require orthopaedic care, can range from congenital conditions such as clubfoot and hip dysplasia, to developmental problems like scoliosis, and include other musculoskeletal infections and diseases. In addition, approximately five million children younger than age 19 sustained musculoskeletal injuries in 2008. Other problems requiring care can include sprains, strains, contusions and fractures.

All of the conditions noted above can deprive children of normal development and childhood experiences. Besides the physical and emotional burden these conditions and injuries place on the patient and family, the financial burden the conditions impose on our healthcare system is enormous.

It also is important to note that childhood obesity places undue stress on the developing musculoskeletal system. Childhood obesity is reaching epidemic proportions and has tripled over the past 30 years. Children’s bones are uniquely affected by obesity because of the presence of growth plates. Growth plates are layers of cartilage responsible for longitudinal growth of the bone and, being cartilage, they can be damaged or deformed by excess body weight. The prevalence of obesity among children ages 6-11 years increased from 6.5 percent in 1980 to 19.9 percent in 2008 and for ages 12-19, obesity in adolescents increased from 5 percent to 18.1 percent.<sup>3</sup> Not only does excess weight and inactivity cause stress on a child’s musculoskeletal system, but these factors also increase a child’s susceptibility to additional health problems such as heart disease and diabetes.

***The Academy supports daily physical activity for children to maximize strong bone and muscle potential, and to combat obesity. The AAOS also believes that additional research drawing from evidence-based medicine should be conducted to improve***

***patient care and enhance the treatment and prevention of childhood musculoskeletal conditions.***

In an effort to promote physical activity and minimize the risks of potential injuries and conditions among children, the AAOS recommends the following:

- Make physical activity a part of a child's schedule for at least 30 to 60 minutes per day and reinforce the message that exercise is fun. Choose games, toys and gifts that involve activity.
- Model active behavior. Join children for a bike ride, ball game or long walk. Use physical activity – such as a family canoe trip or a walk to the park – as a reward for positive behavior.
- Encourage physical involvement based upon age and choose size-appropriate activities. This would include participation in team sports like soccer, baseball and basketball or individual participation in activities like dancing, swimming, step aerobics, stair climbing, tennis and other racquet sports, skiing, skating, karate or bowling.
- Make sure children take the time to warm up . Research studies have shown that cold muscles are more prone to injury. Warm ups can include jumping jacks, jogging, walking or stationary cycling for 3 to 5 minutes.
- Encourage your child to keep hydrated by drinking plenty of water before, during, and after activities.
- Do not encourage children to play through pain. Additionally, tell kids it is important to take a break if they are tired.
- Limit the number of teams a child plays on in one season. Kids who play on more than one team are at increased risk for overuse injuries.
- Make sure children get sufficient calcium to keep their bones strong. Children need more Vitamin D than can be obtained by diet, so a multivitamin or Vitamin D supplement is recommended. Speak to your family physician about appropriate dosing for your child, depending on age and body size.
- Keep in mind that exercise alone is not enough to stay healthy– adolescents should consume a healthy diet to maintain strong bones and lower the risk excessive weight gain..
- Be prepared for emergency situations. Adults who supervise kids --especially during exercise and physical play-- must have a plan to reach medical personnel to treat injuries such as concussions, dislocations, contusions, sprains, strains, and fractures.

**References:**

1. National Center for Health Statistics, National Hospital Discharge Survey, 2008.
2. National Center for Health Statistics, National Ambulatory Medical Care Survey, 2008.
3. Centers for Disease Control and Prevention (CDC) Report, 2000.

March 2006 American Academy of Orthopaedic Surgeons.  
Revised September 2011.

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