



SNS COLLEGE OF TECHNOLOGY

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Department of Biomedical Engineering

Course Name: 19BM0302 & WEARABLE TECHNOLOGIES

Topic :Sports Medicine

Semester :6

19BM0302/ **Sports Medicine**
Mr.S.Prince Samuel /AP/BME



OUTLINE



- Background
- Cases & presentations of common pediatric sports medicine injuries
- Physical exam findings
- Imaging
- Treatment
- Prevention

Vision Tit 2

Vision Title 3



PEDIATRIC SPORTS MEDICINE



- Estimated that over 30-45 million children ages 6-18 participate in athletics annually
- Nearly $\frac{3}{4}$ of households have at least one child that participates in organized sports
- Sports participation is more accessible with increased variety
 - Increasing sports specialization
 - More year round and concurrent sports
- Drive for success, college scholarships, going professional
 - NCAA stats demonstrate that less than 0.5-1.6% of high school athletes will earn partial scholarships to D1 schools
 - 1% of college athletes go professional

Vision Tit 2

Vision Title 3



CASE 1

- Over ½ of children under age 14 who seek medical care for injuries are due to overuse injuries
 - Most common injuries
 - Sprains, strains, bone or growth plate injuries, repetitive motion and overuse injuries, heat related illness
 - 62% of injuries occur during practice
- Over 1 in 10 will have an emergency room visit for a sports related injury





CASE 2



- 14 year old male with L knee pain x 1 year
- Pain is located over anterior knee
- Hurts more with running, jumping, squatting
- Front of knee seems swollen at the area of pain





TREATMENT

➤ Imaging

- Xrays demonstrate an open tibial tubercle
- Xrays are not necessary
 - Help to exclude tibial tubercle avulsion, cyst, tumor, infection

Vision Tit 2

➤ Treatment

- Rest, activity modification
- Ice
- Patellar tendon strap
- Increase flexibility of hamstrings & quadriceps
- Closure of apophysis



Vision



CASE 3



- 10 year old female with anterior knee pain x 2 weeks
- Pain occurs with running, kneeling, climbing
- Pain is located at inferior aspect of patella (superior to tender area in Osgood Schlatter)





UPPER EXTREMITY INJURY PREVENTION



➤ Prevention

- Preseason strengthening and graded return to throwing program at least 6-8 weeks prior to 1st practice
- Focus on scapular stabilizing, rotator cuff, hip, trunk, & lower extremity strengthening
- Address deficits in the off season
- Rest from overhead throwing at least 3 months out of the year
- Follow pitch counts & rest days
 - Monitor all teams
- Proper mechanics
 - Close attention to technique & monitored by coaches
 - No high velocity (>80mph), curve balls or sliders until skeletally mature (~14 years old)
- Stop if having pain & get evaluated promptly



COLLECTION OF WEARABLES



19BM0302/ **Medical Diagnostics**
Mr.S.Prince Samuel /AP/BME

A top-down photograph of a white card with the words "Thank you" written in purple cursive. The card is placed on a light-colored marble surface. To the left of the card is a bouquet of small purple flowers with green leaves. To the right of the card is a black pen with a white polka-dot grip. In the bottom right corner, there is a small gift wrapped in white paper with a grey polka-dot pattern, tied with a red and white striped string. A spool of this same string is visible in the top right corner.

Thank
you