

SNS COLLEGE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

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Department of Biomedical Engineering

Course Name: 19BM0302 & WEARABLE TECHNOLOGIES Ide 3

Topic :Sports Medicine Semester :6









- Background
- > Cases & presentations of common pediatric sports medicine injuries
- Physical exam findings

Vision Tit 2

Vision Title 3

- ➤ Imaging
- ➤ Treatment
- Prevention





PEDIATRIC SPORTS MEDICINE



- Estimated that over 30-45 million children ages 6-18 participate in athletics annually
- ➤ Nearly ¾ of households have at least one child that participates in organized sports
- Sports participation is more accessible with increased variety
 - ➢ Increasing sports specialization
 ✓ Vision Tit
 - ➢ 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

ision Title 3









➢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
 Vision Tit 2
- ≻ 62% of injuries occur during practice

>Over 1 in 10 will have an emergency room visit for a sports related injury



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





- 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

≻Treatment

≻ Rest, activity modification

►Ice

- ➢ Patellar tendon strap
- Increase flexibility of hamstrings & quadriceps
- ≻ Closure of apophysis



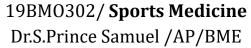




- > 10 year old female with anterior knee pain x 2 weeks
- > Pain occurs with running, kneeling, climbing
- > Pain is located at inferior aspect of patella (superior to tender area in Osgood Schlatter)

CASE 3







UPPER EXTREMITY INJURY PREVENTION

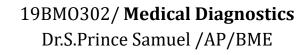


➢ Prevention

- 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
- \succ Address deficits in the off season

Vision Title

- \triangleright 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







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