1 **Primary Care Sports Medicine:**
Principles and Reasons for Referral

Ricardo Guirola MD M Ed
Rheumatology and Sports Medicine

2 **Objectives**

- Discuss basic principles of Primary Care Sports Medicine
- Discuss principles of biomechanics in overuse injuries and prevention of injuries
- Discuss current implications on cardiovascular screening
- Discuss importance of pre participation sports physicals
- Discuss early sport specialization
-
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3 **Primary Care Sports Medicine**

2
- Care of sport related and general medical needs of athletes
  - Weekend Warriors
  - Active individuals

4 **Primary Care Sports Medicine**

1
- Coordination of care of patients
  - Athletic trainers
  - PT
  - Orthopedic surgeons
  - Nutrition
  - Psychologists
- Team Physicians
- Communication

5 **Primary Care Sports Medicine**

1
- Special Populations
  - Youth
  - Geriatric
  - Disabled
  - Pregnancy
-

6 **Biomechanics and Kinematics**

7 **Why is this so useful?**

1
- Affected by our day to day
- Essential for understanding of overuse injuries
- Implicated in other injuries
  - ACL in females
  - Concussions
  - Back pain
  - Hip pain

8

9

10 **Implications of Appropriate Biomechanics**

- Meta analysis on Neuromuscular Education for ACL prevention
  - 6 RCT and 8 cohorts total of 27,000 patients
  - Decreased incidence of ACL by 50 %
- Meta analysis Low Back pain in Children and Adolescents (PT and manual therapy)
  - 11 studies
  - 334 patients (221 treatment, 113 control)
  - Clinical and Statistical improvement in pain and QOL scores
  -
-

11 **Biomechanics in throwing injuries**

1
- Weak serratus anterior
- Scapular dyskinesis
  - Winging
  - Depression
  - Protraction
- Weakness in core

  -

12 **Implications of Appropriate Biomechanics**

1
- Throwing injury prevention
  - Mechanics
  - Throwing restrictions
- Overuse injuries
- Better performance
-

13 **If all else fails**

14 **TO EKG or not to EKG or Cardiac MRI?**

15 **HB 1319**

1
- Mandatory EKG
  - One time before 1st year of participation
  - 2nd before students 3rd year
  - PPE
- UIL Legislation
  - PPE mandatory
  - EKG and Echocardiogram recommended not mandatory
  - Awareness form

16 **Sudden Death Athletes**

- Rare event
-
- Sudden cardiac death is the leading cause amongst young athlete

-
- Exercise is trigger for SCD in athletes
-

17

18

19 **SCD in USA**

20 **Corrado NEJM**

21 **Corrado 49 athletes**

22

23 **Ongoing Studies**

2
- EKG in Athletes
  - Fewer FP than HP and PE
  - Cost effective
  - Recognized HR conditions
- Cardiac MRI
  - School age children
  - Recognized HR-CVC that even EKG missed
  - Increased number of individuals with ACA
  -

24 **AHA**

25 **Role of Team Physician**

26 **Role of team physician**

2
- Leadership
- Provision of medical care
  - Individual
  - Mass events
- Prevention
- Integration of services
  - Athletic care network
- RTP

27 **Being a Team Physician**

1
- Improve the care of adolescent and pediatric athlete participating in Sports
  - MSK conditions
  - Medical
  - Psychological
  - Administrative
  - Ethical
  - Medico/Legal

28 **Role of Team Physician**

1
- Challenging Environment
  - NO $$$$$$
  - High Risk Population

- Health care evolution
-

29 **Role of Team Physician**
- Provide PPE
- Prevention
  - Injuries
  - High risk Medical conditions
- Navigation of Health Care system
  - Provide imaging
  - Specialist care
-

30 **Pre-Participation Sports Physical**

31 **Primary Goals**
- Detect medical conditions
  - present a risk of injury
  - disease
  - death to an athlete or opponent
- Injuries in Particular
  - When did it happen
  - Evaluated?
  - Management
  - Cleared

32 **Primary Goals**
- Detect Medical Conditions
  - Undiagnosed
  - Misdiagnosed medical conditions
-

33 **Primary Goals**
- Detect medical conditions
  - That need further evaluation
  - Rehabilitation prior to participation
-

34 **Primary Goals**
- Guidance for participation
- Patients with known conditions

35 **Primary Goals**
- Meet legal and insurance obligations

36 **Secondary Goals**
- Counsel health related issues
- Assess fitness level
- Injury prevention and treatment
- Determine general health
-

37 **Pre-participation Sports Evaluation Take Advantage of it!**
- 85% of those athletes who get a PSE will not return for a health maintenance visit.

38 **Take advantage!!**
2
- Female Athlete triad
  - Disordered eating
    - Poor energy
  - Low Bone Density
    - Osteopenia
  - Irregular Menses
    - Menstrual Dysfunction
  -

39 **Take Advantage!!**
- Substance Abuse
- Illicit Drugs

40 **Quick Tips…**
2
- Go over questions
- Our patients
  - Rarely see doctors
  - High risk environments
  - All they want is to get cleared
  - Focus on most important conditions
- Legally your name on the paper

41 **Not all Kids are Destined to be these guys!**

42 **Early Sports Specialization**

43 **Do Genetics Play a Role?**
- Very limited data
- Over 200 autosomal gene variants and loci associated with physical performance
- Preferable genotypes are uncommon AND combinations are even more rare
- Chances of a "perfect" sports genotype are 1 in 20 million
-

44 **Early Sports Specialization**
- "Professional Pie"
- 0.2 to 0.5% percent of High School athletes go PRO
  - Higher risk of overuse
  - Higher risk of burnout
  - Isolation?
- Young athletes who participate in multiple sports have lower risk of injury

45 **2004 Olympians**
1 Sport
2
- T & F
- Wrestling

- Basketball
- Hockey
- Rowing
- Volleyball
- BB/SB
- Swimming

3 Age Began Sport

4 14.0
11.2
11.1
8.9
15.4
8.1
10.4
13.8

46 **2004 Olympians**

- Age of onset of training was NEGATIVELY correlated with time lag before competing in an international championship.
- R = - 0.63 to -0.83 p< 0.01
-

47 **German Olympic Athletes**

-

German national athletes in all Olympic sports (N = 1558)

- Older age of initiating training in main sport compared to those who did achieve international level (11.4y vs. 10.2y)
- On average, participated in 2 other sports before or parallel to main sport.
- Internationally successful athletes continued in other sports to a later age.
- Adolescent success did not predict senior level success.
-

48 **Sports Specialization**

- Few Make it Pro
- Early Specialization
  - Success limited
  - Likely detrimental
- Encourage other Sports
- Early success does not mean later success
  -

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50 **Bibliography**

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