

Welcome!



CEU Event – Saturday, August 10th 2013

***Keeping Young Athletes in the Game:
Physician Insight for the Athletic Trainer,
Physical Therapist and Coach***



CPTA #(13-226)



Moderator

Seth Pransky, MD

***Chief, Pediatric Otolaryngology (ENT)
Rady Children's Specialists***

DEGREES:

University of Pennsylvania, B.A.

MEDICAL SCHOOL:

Washington University

RESIDENCY: Otolaryngology

University of Pennsylvania

FELLOWSHIP: Pediatric Otolaryngology

Children's Hospital Medical Center

(Washington, D.C.)

RCHSD: 1985



About Rady Children's Hospital - San Diego

- Rady Children's Hospital-San Diego opened in 1954 as a polio hospital
- With the opening of our new Acute Care Pavilion in 2010 we are one of the largest children's hospitals in California with 464 beds
- We take care of children ranging in age from newborn through independent adulthood
- Our primary service area is San Diego, Imperial Valley and Southern Riverside; however patients from across the nation and around the world seek care at RCHSD
- We serve as the Pediatric teaching hospital for the UC San Diego School of Medicine as well as the Naval Residents from Balboa



Introducing 360 Sports Medicine Program

360 Sports Medicine at Rady Children's provides comprehensive, expert care to children and adolescents with injuries or conditions that affect athletic performance. **We are the only sports medicine practice in the region focusing exclusively on young athletes.**

Our goal is to help children, teens and young adults make a rapid and safe return to their athletic endeavors, while promoting musculoskeletal health throughout their lifetimes.



Rady Children's Specialists Sports Medicine Physicians

An Interactive Case Discussion of an Athlete with Exercise Induced Dyspnea

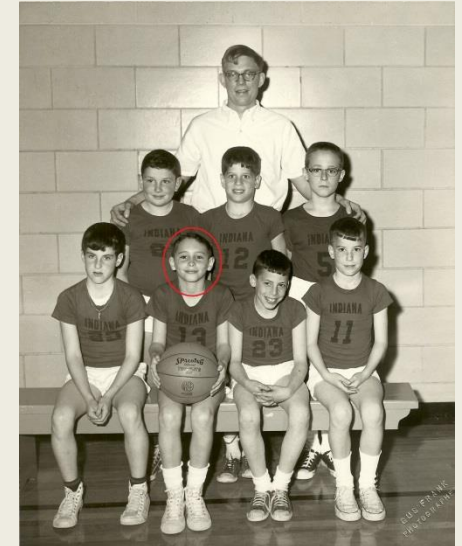


Ray Davis, MD, FAACI
PROFESSOR IN CLINICAL PEDIATRICS
DIVISION OF ALLERGY IMMUNOLOGY & PULMONARY MEDICINE
WASHINGTON UNIVERSITY SCHOOL OF MEDICINE
ST. LOUIS, MISSOURI

MEDICAL SCHOOL: University of Louisville School of Medicine

RESIDENCY: Washington University School of Medicine

FELLOWSHIP: Allergy/Immunology National Jewish Hospital and Research Center, the National Asthma Center, and the University of Colorado Medical Center, Denver, Colorado



**PROBLEM-BASED LEARNING:
AN INTERACTIVE CASE DISCUSSION OF
AN ATHELETE w/ EXERCISE INDUCED
DYSPNEA**

*RAY S. DAVIS, MD
PROFESSOR IN CLINICAL PEDIATRICS
DIVISION OF ALLERGY IMMUNOLOGY & PULMONARY
MEDICINE*



FINANCIAL DISCLOSURES

- NONE RELEVANT TO TODAY'S TALK

OBJECTIVES

- To discuss the differential diagnoses of a patient with exercise-induced dyspnea.
- To understand the evaluation and management of this patient.

HISTORY

- **Vicki D.** is a 15 year-old Caucasian female competitive soccer player who presents to your office with a history of “difficulty breathing and wheezing” occurring during her games over the last few months. Her primary care physician recently placed her on a combination inhaler (fluticasone 250 mcg/salmeterol 50 mcg Diskus), 1 inhalation twice daily after a trial on albuterol inhaler 2 puffs, 10 minutes prior to her games did not help. Despite this new inhaler, she is still being taken out of games due to her breathing problems.

HISTORY (cont'd)

- She is accompanied by both of her parents, who are very concerned that this problem will affect her potential to be recruited for a college soccer scholarship.
- Social History-“well-adjusted” teen ager; A+ student; great athlete.

HISTORY (cont'd)

- Past Medical History, Review of Systems, Family History and Physical Exam are all unremarkable. She's never had breathing problems before and has no Family history of allergies or asthma.

IMPRESSIONS

■ 1.

■ 2.

■ 3.

DIFFERENTIAL DX of DYSPNEA w/ EXERCISE

- EIB
- VCD/EILD
- DECONDITIONING
- LARYNGO or TRACHEOMALACIA
- GERD/LPR
- E.I.ANAPHYLAXIS
- RESTRICTIVE LUNG DZ. (OBESITY, INTERSTITIAL)
- CARDIAC ETIOL.

EVALUATION

- 1.

- 2.

- 3

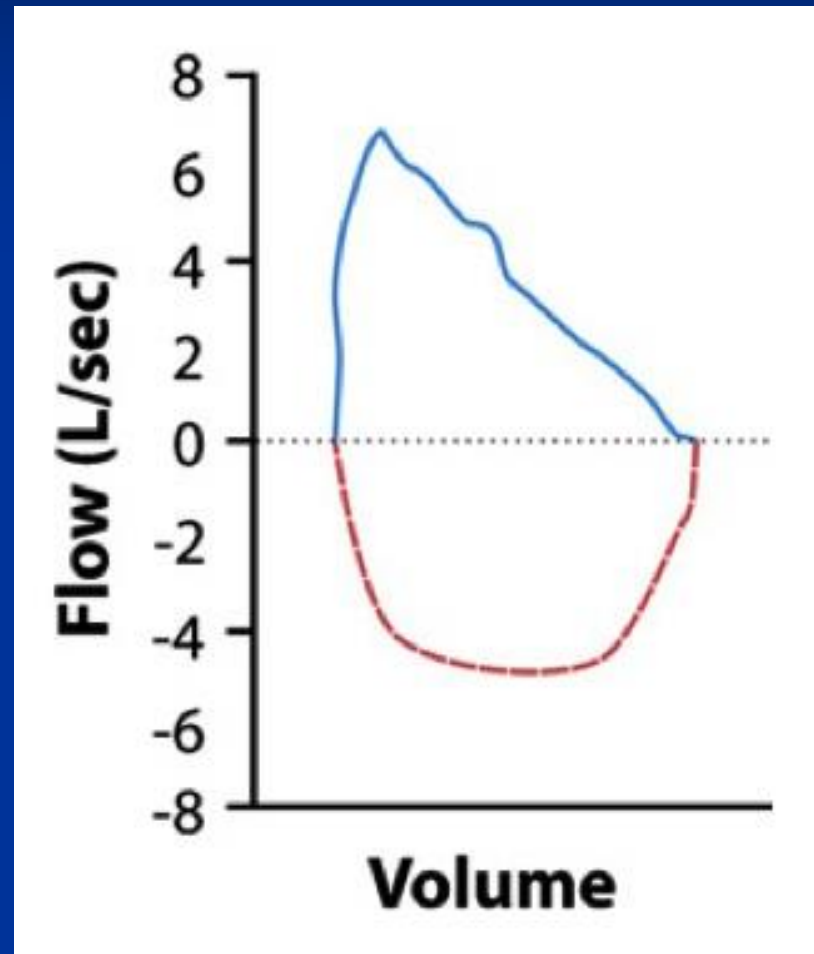
TEST RESULTS

■ CXR- Normal

■ SPIROMETRY

■ BASELINE		POST
B.D.		
■ FVC	100 %(of predicted)	+ 2%
■ FEV1	98% (of predicted)	+ 2%
■ FEV1%	90%	0
■ FEF 25-75	85% (of predicted)	+ 1%

FLOW VOLUME LOOP



EXERCISE CHALLENGE

- EXERCISE CHALLENGE TESTING
w/FLOW VOLUME LOOPS...
- FOLLOWED BY IMMEDIATE
NASOPHARYNGOSCOPY WAS NORMAL.
- METHACHOLINE CHALLENGE TESTING
WAS ALSO NORMAL.
- SO, WHAT DO YOU DO WITH THIS
HISTORY, BUT ALL NORMAL TESTS???

CHARACTERISTICS OF E.I.B.

- OCCURS IN 90% OF ASTHMATICS
- ONSET OF SX USUALLY > 5 MIN.
- MORE DIFFICULTY ON EXHALING
- USUALLY BLOCKED BY ALBUTEROL PRE-TX
- LUNG FUNCTION IS USUALLY NORMAL AT REST
- IF LUNG FCN. IS ABNL, MAY NEED ICS DAILY
- FeNO MAY BE HELPFUL
- GOLD STANDARD DX:
EXERCISE CHALLENGE TESTING ↓ FEV1 ≥ 10%
(MANNITOL TESTING NOW IN YOUR OFFICE)

VOCAL CORD DYSFUNCTION

- a disorder that occurs when the vocal cords paradoxically adduct upon inspiration when they should abduct.
- symptoms can include dyspnea, noisy breathing, inspiratory stridor, chest or neck tightness, cough and sometimes a feeling of panic.
- VCD can co-occur in patients diagnosed with asthma.

VCD



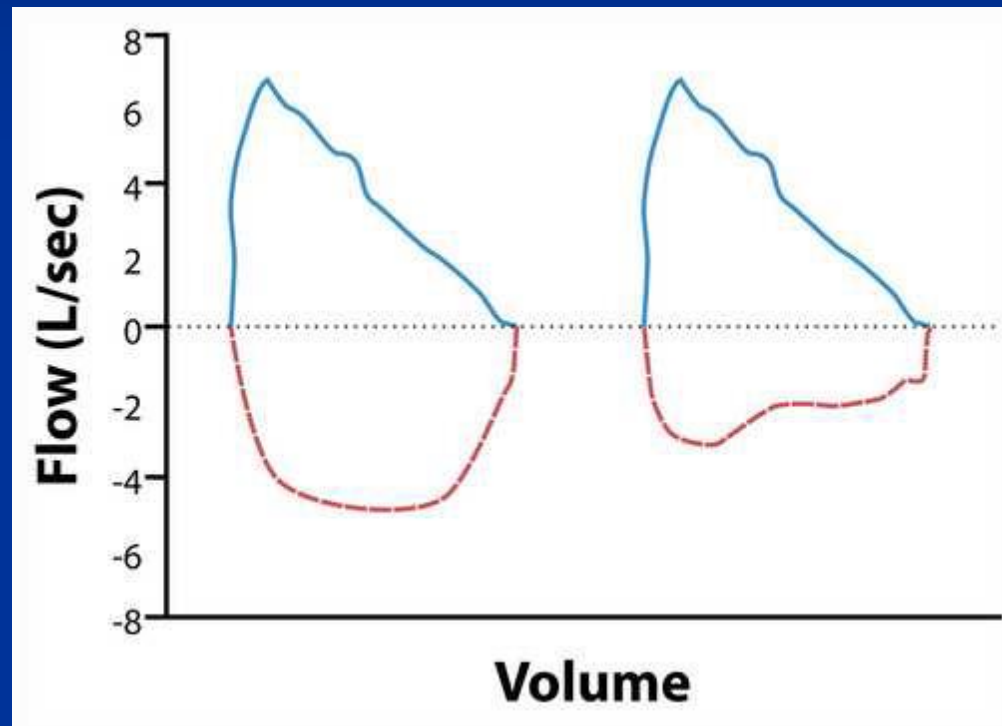
CHARACTERISTICS OF V.C.D

- OFTEN NO HX OF ASTHMA OR ALLERGIES
- ONSET WITHIN SECONDS TO MINUTES
- MORE DIFF. “GETTING AIR IN THAN OUT”
- NOT BLOCKED BY ALBUTEROL PRE-TX
- STEREOTYPE OF “TYPE-A” TEEN-AGE GIRL
- FLOW VOLUME LOOPS MAY BE “CLIPPED”
- LUNG FUNCTION IS USUALLY NORMAL
- GOLD STANDARD DX: EX. CHALLENGE w/
NASOPHARYNGOSCOPY
- MAY BE PERFORMANCE ANXIETY OR A
CONVERGENCE REACTION

TRIGGERS OF VCD

- -exercise
- -stress
- -performance anxiety
- -allergies
- -GERD/reflux
- -asthma
- -laughing/crying
- -fragrances
- -extreme temperatures
- -wind/brass instruments

INSP/EXP FLOW VOL. LOOPS



GOLD STND DX VCD

- EXPENSIVE TO PERFORM EX. CHALLENGE AND COORDINATE AN ENT/ALLERGIST'S NASOPHARYNGOSCOPY IMMEDIATELY FOLLOWING
- TIME CONSUMING
- PARENTS/PATIENTS MISS WORK/OR SCHOOL
- UNPLEASANT EXPERIENCE
- NOT ALWAYS ABLE TO PROVE VCD

GOLD STND DX VCD



VIDEOTAPING FOR DX VCD



Davis RS, et al., Use of Videography in the diagnosis of exercise-induced vocal cord dysfunction: A case report with video clips. *J Allergy Clin Immunol* 2007;119:1329-31.

TREATMENT

- MOST EFFECTIVE IS WITH A QUALIFIED SPEECH THERAPIST
- PROPER BREATHING EXERCISES NEED TO BE PRACTICED REGULARLY
- STRATEGIES TO DEAL WITH ANXIETY/PERFORMANCE ANXIETY
- SOMETIMES PSYCHOLOGIST OR PSYCHIATRIST CONSULTATION

ANY QUESTIONS?



About Rady Children's Specialists of San Diego

Rady Children's Specialists of San Diego has more than 200 pediatric, adolescent and maternal-fetal specialists in 28 different specialties serving San Diego, Imperial and Southern Riverside counties



About Rady Children's Specialists of San Diego

1. Asthma, Allergy & Immunology
2. Cardiology
3. Cardiovascular Surgery
4. Dermatology
5. Dysmorphology
6. Emergency Medicine
7. Endocrinology & Diabetes
8. Gastroenterology, Hepatology & Nutrition
9. Genetics
 - Metabolic & Mitochondrial Medicine
 - Plastic Surgery, Craniofacial , Cleft Palate
10. Hematology/Oncology
11. Infectious Diseases
12. Kawasaki Disease
13. Maternal-Fetal Medicine (High-Risk OB)
14. Neonatology
15. Nephrology
16. Neurology
17. Neurosurgery
18. Ophthalmology
19. Orthopedics, Scoliosis & Sports Medicine
20. Otolaryngology
21. Pathology
22. Pediatric Surgery
23. Pediatrics & Hospital Medicine
24. Respiratory Medicine
25. Rehabilitation Medicine (Physiatry)
26. Rheumatology
27. Urgent Care
28. Urology

Performance Enhancing Drugs in Sports



Suraj Achar, MD, FAAFP
Professor UCSD School of Medicine
Associate Director Sports Medicine
Department of Family and Preventive Medicine



DEGREES: University of California, Santa Cruz, BA

MEDICAL SCHOOL: State University of New York at Buffalo School of Medicine

RESIDENCY: UCSD Family and Preventive Medicine

FELLOWSHIP: Sports Medicine, UCSD

Performance Enhancers UPDATE 2013

Suraj Achar MD

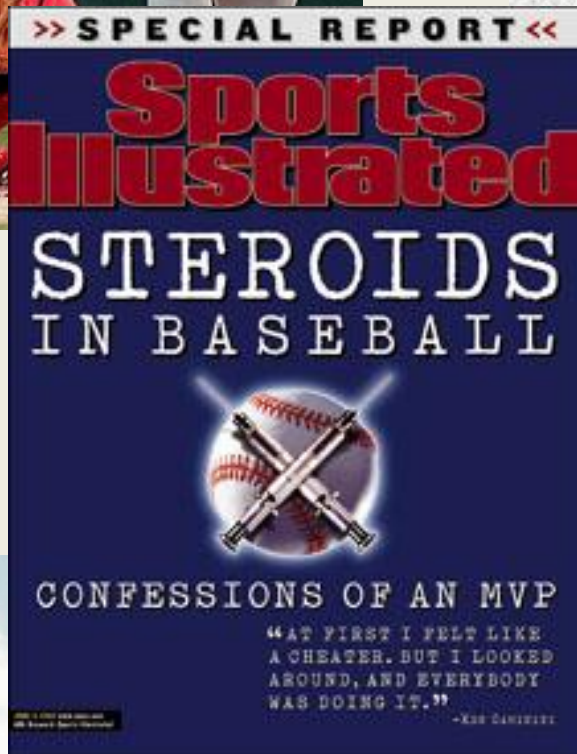
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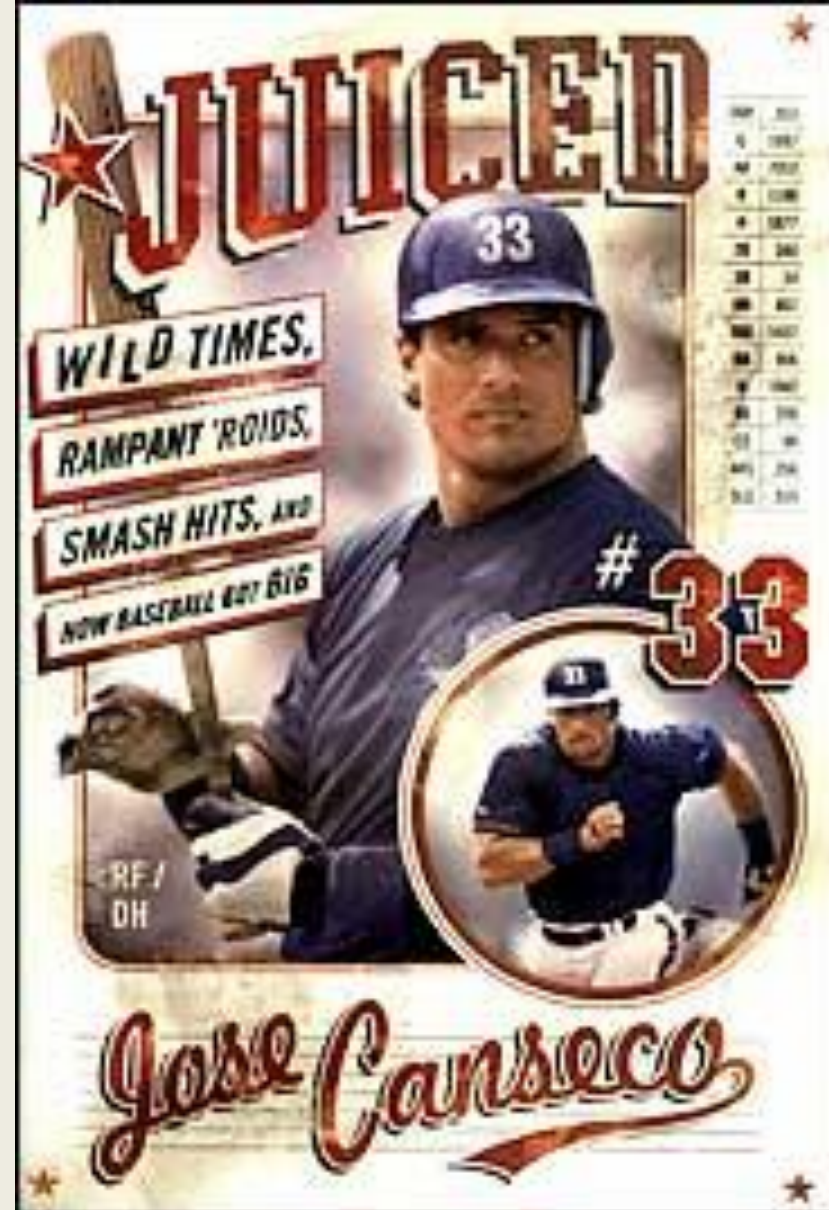
360 Sports Medicine Rady Children's Hospital

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What does Canseco say?

- Days of William Osler
 - huckster selling long-life elixir at a rural county fair?
- Quotes
 - "Steroids, used correctly
 - "will not only make you stronger and sexier, they will also make you healthier,"
 - "can cure certain diseases."
 - "better quality of life and also drastically slow down the aging process."
 - Then he helpfully adds, "I'm forty years old, but I look much younger."



Which of the following is false

1. >250K adolescents use Anabolic steroids in the US
2. >1 million adults abuse AAS
3. 12th grade HS students and 8th junior HS students use AAS nearly at the same level
4. Twice as many girls abuse AAS as boys

IOC list of prohibited substances & methods

I. Prohibited classes of substances

Stimulants, Narcotics

Anabolic agents

Anabolic steroids (testosterone and derivatives)

Beta-2-agonists (e.g., clenbuterol)

Diuretics

Peptide hormones, mimetics and analogues (hGH, IGF-I, EPO, hCG, insulin)

II. Prohibited methods

Blood doping

Administering artificial oxygen carriers or plasma expanders

Pharmacological, chemical and physical manipulation

Gene doping

III. Classes of prohibited substances in certain circumstances

Alcohol, Tobacco, Cannabinoids, Local anesthetics

Glucocorticosteroids, Beta-blockers,

Beta agonists low dose

Salmeterol, formoterol, salbutamol in accordance to manufacturers recs

Finish World Champion:
Where were they at Salt
Lake 2002?

History of “Doping”

- 1935 Testosterone
- 1950’ s -Eastern block Olympians pump more than iron
- Testing
 - IOC banned AAS use in 1975 and began urine testing in 1976
 - The NCAA started testing in 1986



CJ Hunter in Oslo, Norway

July 20, 2000

+ nandrolone x1,000

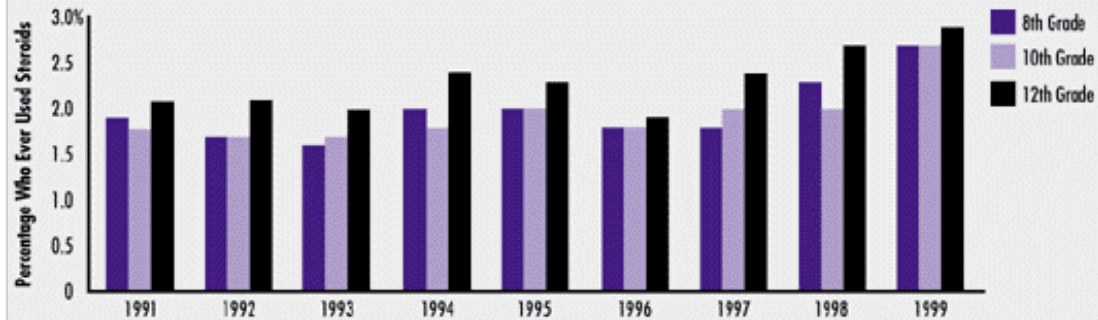
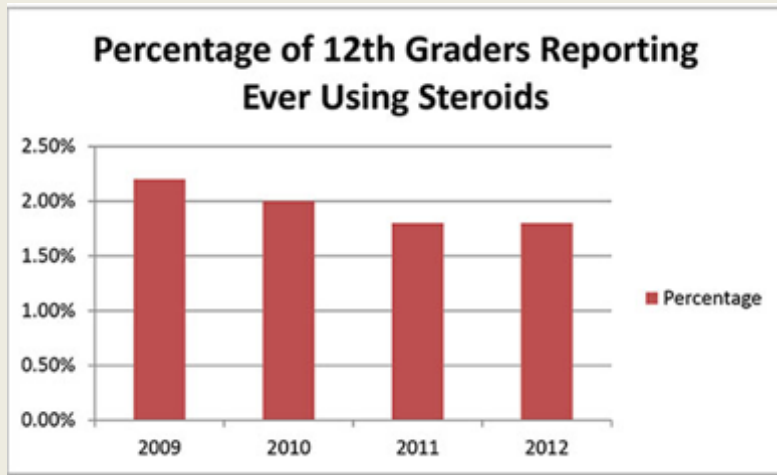
Poll 198 US Olympians

- Athletes were asked whether they would take a banned performance-enhancing substance if they were guaranteed to win and not get caught...??
- Would they take the same undetectable substance if it would contribute to winning every competition for 5 years, then result in *death*...

04/05/2009

Scope of the problem-AAS

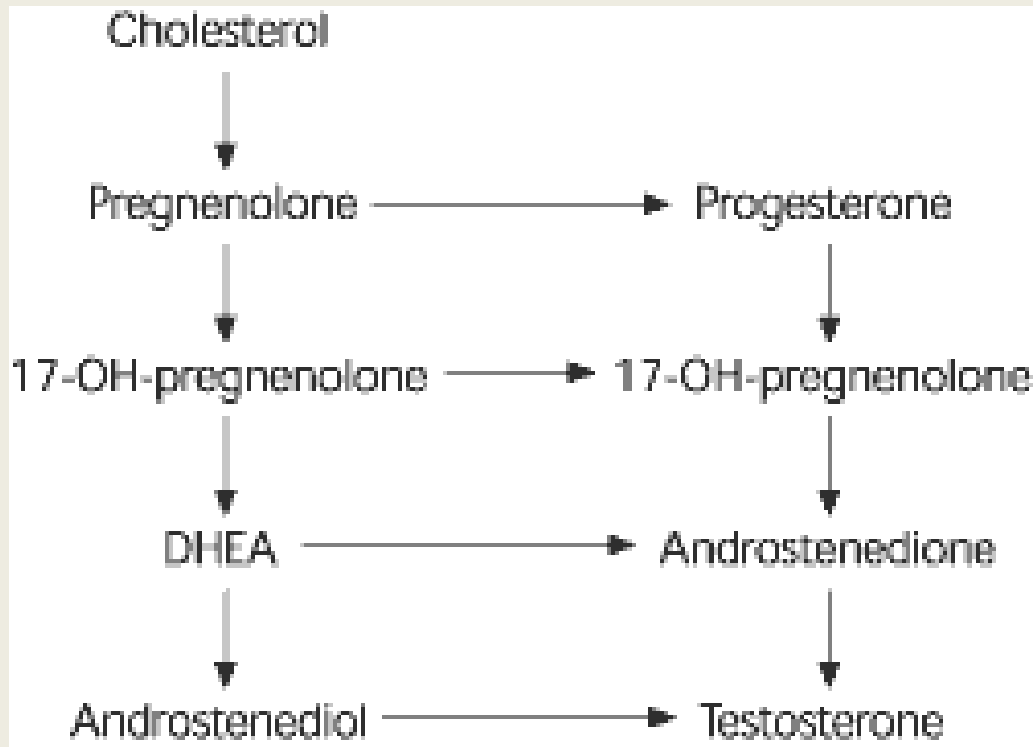
- >1 million Americans, >250,000 adolescents¹



National Institute on Drug Abuse
Research Report Series

Suraj Achar MD

Basic Chemistry & Physiology of AAS



- Males

- 4-10mg of testosterone
- 1-2 mg of androstenedione/day

- Women

- 0.04-0.12mg testosterone
- 2-4mg of androstenedione/day

Estrogen

Mechanism of action of AAS

- ↑ skeletal muscle via
 - ↑ RNA → protein
- Anticatabolic
 - ↓ effect of glucocorticoids
 - ↑ Nitrogen balance
- ***Steroid rush!***



Natural effects of testosterone analogues

- Anabolic: non reproductive effects

- ↑ muscle mass
- ↑ bone growth before epiphyseal closure
- ↑ heart, liver & kidney size
- ↑ erythropoiesis
- ↓ body fat



- Androgenic effects

- ↓ Spermatogenesis
- ↓ testes
- ↑ Axillary, facial & pubic hair

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“Designer Steroids”

- Can we improve the androgenic/anabolic ratio?



Common Drugs

- Oral

- Oxymetholone (Anadrol)
- Oxandrolone (Anavar)
- Methandrostenolone (Dianabol)

- Intramuscular

- Nandrolone decanoate (Deca-durabolin)
- Nandrolone phenpropionate (Durabolin)
- Testosterone cypionate (Depo-Testosterone)
- tetrahydrogestrinone (THG)



MEXICAN ANABOLIC STEROIDS



The Balco Investigation: *The Clear and the Cream!*

FDA Statement on THG: October 28, 2003

- **THG tetrahydrogestrinone:**”
 - synthetic "designer" steroid derived by simple chemical modification, from two other synthetic anabolic steroids, **gestrinone and trenbolone.**
- **FDA is working with other Federal law enforcement agencies to aggressively engage, enforce, and prosecute those firms or individuals who manufacture, distribute, or market THG.**
-



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Patterns of AAS abuse

- Stacking

- Ave = ~5 AAS (oral & injectable)

- Cycling:

- 6 to 12 weeks → then stops for 10 to 12 weeks

- Pyramiding

- ↑ dose over 6-12 w

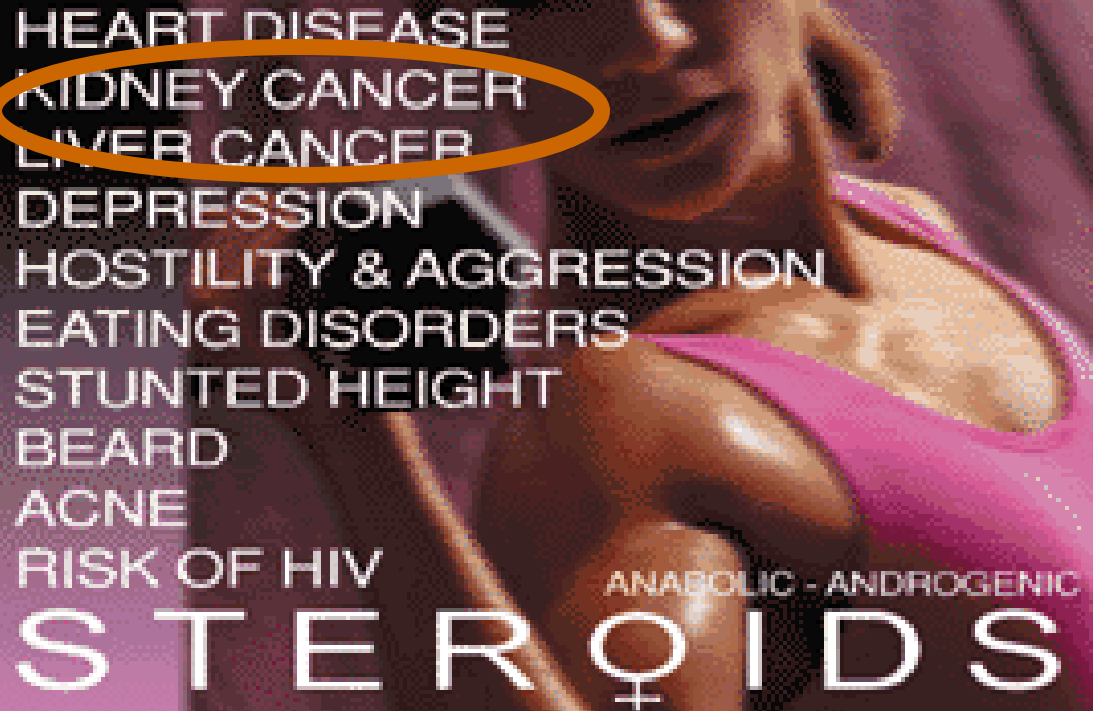
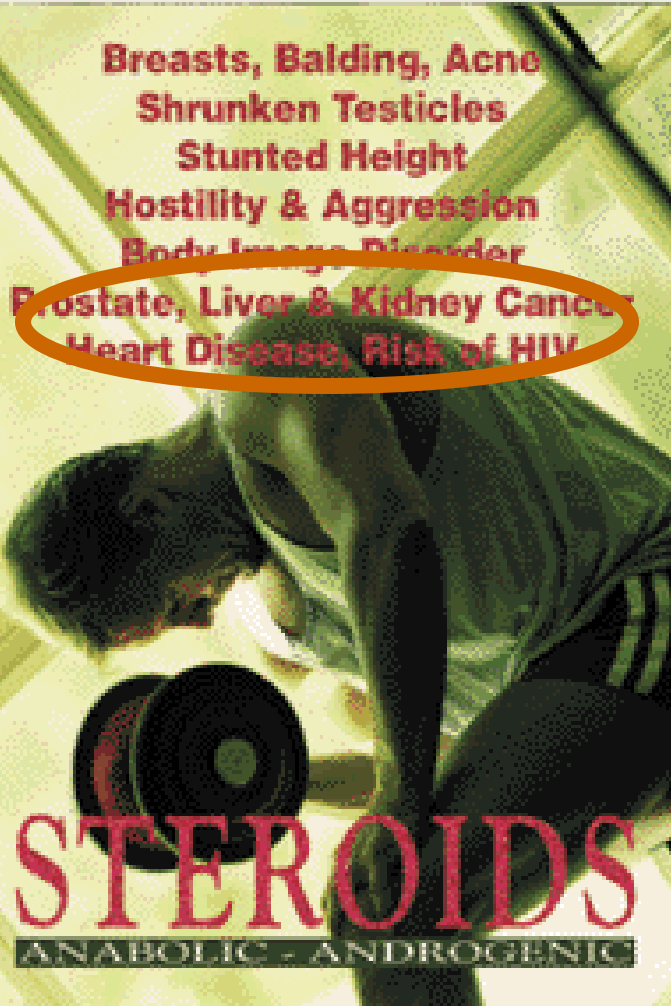


Sustanon 250 pre-stack blend of four testosterone

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Side effects of AAS

(Traditionally overstated?)



Azospemia → duration?

Increased premature Mortality of Competitive Powerlifters suspected to have used anabolic steroids

- Subjects
 - 62 powerlifters who placed 1st-5th in the Finnish championships during 1977-1982
 - Control group
- 12 year follow up
- Results
 - Death rate
 - 12.9% for powerlifters vs 3.1% for controls
- Causes of premature death (8/62)
 - Suicide (3), MI (3), hepatic coma (1),
 - Lymphoma (1)

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Taylor Hooton

16 y/o Plano Texas



In Loving Memory of:

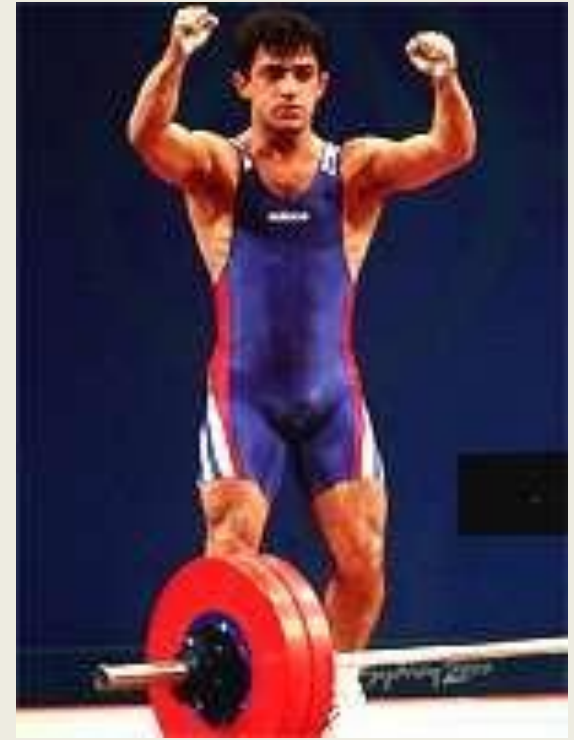
Taylor Edward Hooton

6/10/1986 – 7/15/2003

Ancillary drugs

- hGH-
- HCG/Clomid (BB)
- Insulin
- Stimulants
- Diuretics
- Anti-estrogens
 - The SERM tamoxifen: prevents binding to the estrogen receptor in the breast, reducing the risk of [gynecomastia](#).
- Anti acne medications

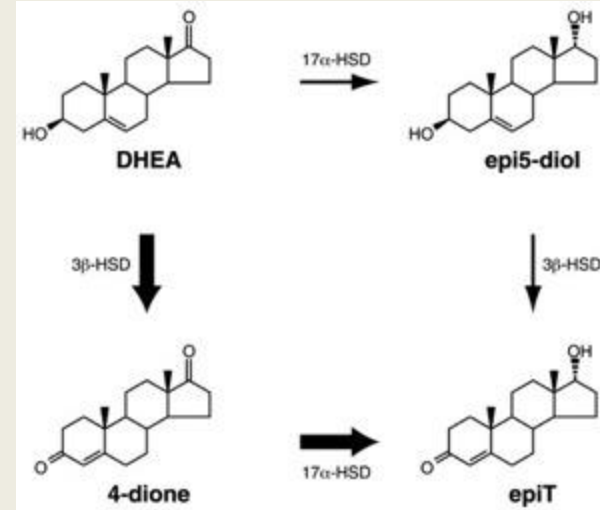
08/12/07



Ivan Oiva-weight lifter
Bulgaria (+) diuretics
2000 Summer Olympics

Detection of Steroids!

- Testosterone level?
 - variable
- Epitestosterone?
 - chemically similar natural steroid produced in the liver
 - **Not performance enhancing**
 - Reasons for $> T/E$
 - low epitestosterone excretion: ethol?
 - androgen producing tumour



T/E ratio: What is the nl ratio?

- The natural ratio of T/E in humans is usually between 1:1 and 2:1
 - WADA rules > 4:1 is +
 - 2004 Tour de France= 6:1.
- Does ethnicity affect it?--↓
Asians



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Detection of banned anabolic steroids

A urine specimen is split into two samples, usually labeled 'A' and 'B', so that a confirmation test can be run if the initial test result shows the presence of a drug. (Photo by Daniel Käsermann.)



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ORIGINAL
The
WHIZZINATOR



Purity?

- DEA: >50% of hGH and AAS products are phony!
- Are nutrition companies adding AAS to supplements?



NEW 100% Pure
HGH "liquid under the
tongue" formula.
Only \$89.50

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Recombinant Human Erythropoietin

The **Chemical** Games

Biotechnical advances and administrative loopholes enable devious athletes to take performance-enhancing drugs without much risk of being caught or sanctioned



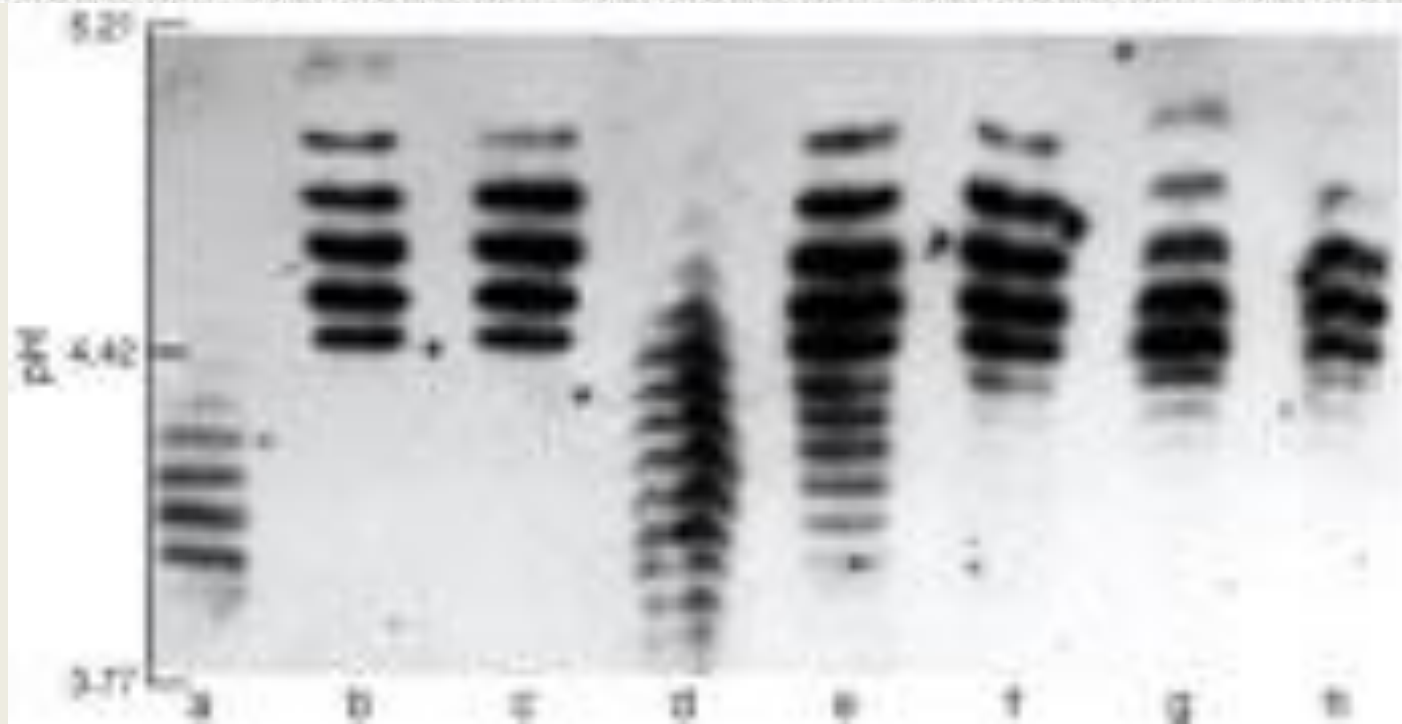
ANGUISHED CYCLIST: A member of the Banesto team tries to hide from the press after his group withdrew from the 1998 Tour de France amid a sprawling scandal linked to the drug erythropoietin.

- Boosts delivery of O₂
- Banned by IOC in 1990
- Detection was a problem until 1998
- Olympic survey results

Recombinant erythropoietin in urine

Lasne F. Ceaurriz J. Nature 405, 635 June 2000

- Autoradiograph of isoelectric patterns of exogenous and endogenous erythropoietin



a) Human natural epo

d) control

b) & c) recombinant epo

e)&f) pts treated with epo for anemia

g)&h) two cyclists from Tour de France

“The Pirate” Patini 1970-2004

- 1995-Takes on Miguel Indurain in the Alps
- 1998: Won Giro d'Italia and Tour de France
- 1999: Thrown out of Giro for failing blood test
- 2001: Syringe of insulin found in Pantani's room during Giro
- 2003-Admitted to hospital for detox and depression
- 14/Feb/2004: Dies of Cerebral & pulmonary edema: **Age 34?**



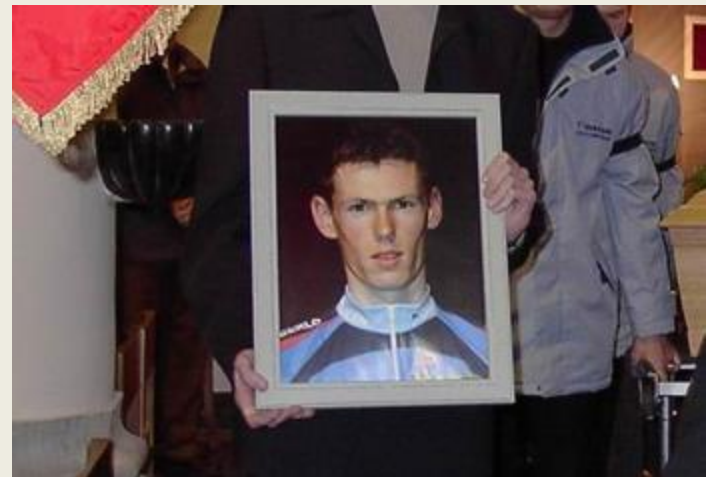
Spinning in Their Graves

The Tour's new scandal: Elite cyclists are mysteriously dropping dead



- ON FEBRUARY 13 2004, an amateur Belgian cyclist named Johan Sermon slipped into bed early, hoping to rest up for an eight-hour training ride the next morning.
- A 21-year-old with strong prospects for a professional career, Sermon had undergone a complete cardiac evaluation a few days earlier, and doctors for his team, Daikin, had deemed him to be in excellent health.
- But shortly after dawn, Sermon's mother found him lifeless in his bed. An autopsy listed the cause as heart failure—an astonishing exit for a young athlete in peak condition.

- Phil Liggett, the veteran cycling broadcaster, “100 international racers have died prematurely during the past decade, most from heart attacks. The likely cause, EPO”



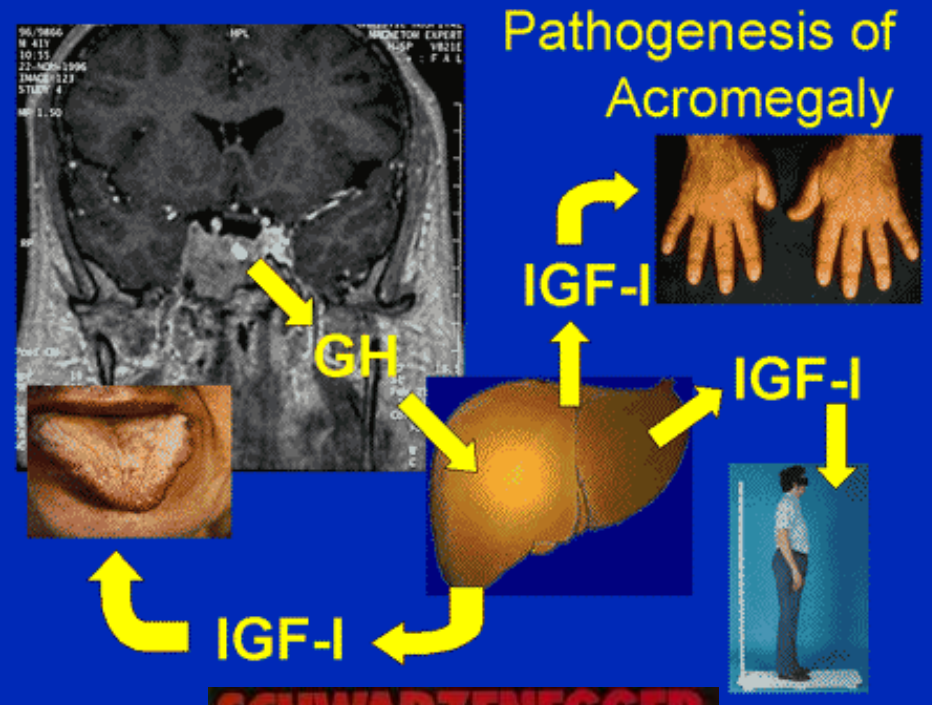
Human growth hormone (HGH), also known as somatotropin



- Peptide hormone of 191 amino acids arranged in a bundle of four α -helices.
- It is synthesized and secreted by cells of the anterior pituitary.

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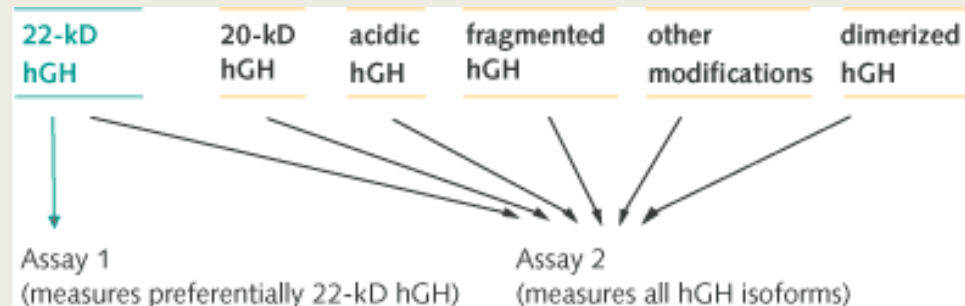
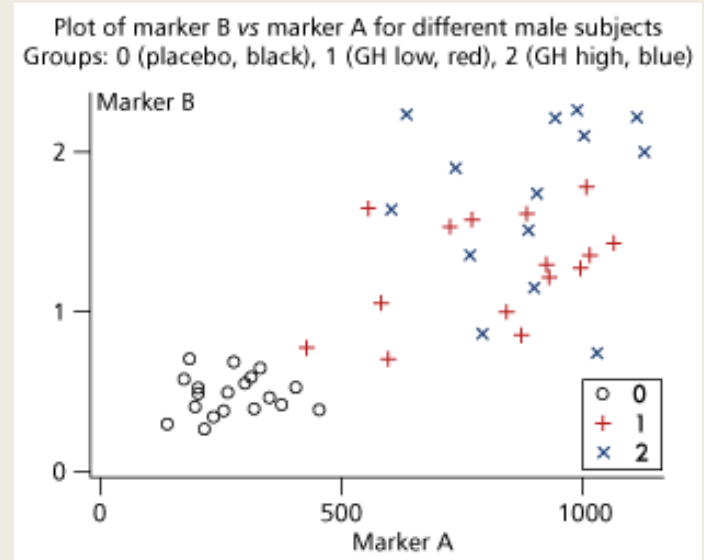
Pathogenesis of Acromegaly



- 1990
 - Claims for GH as an anti-aging treatment date back to 1990 NEJM study where GH was used to treat 12 men over 60.
 - + statistically significant increases in lean body mass, equivalent to 10 to 20 year aging period.
 - No claim that GH had reversed the aging process
 - Results were mis-interpreted as indicating GH was an effective anti-aging agent.
- Between 20,000 and 30,000 people in the United States used growth hormone as an anti-aging therapy in 2004, a tenfold increase since the mid-1990s
- Side Effects
 - Preadolescence, -> gigantism
 - Adults -> Acromegaly
 - DM, Htn, CAD, cardiomegaly , CHF, peripheral neuropathy, impotence amenorrhea, osteoporosis
- Creutzfeld-Jacob?
- 5% (50%AAS)

Detection of doping with recombinant hGH

- 1/2life of HGH = 15 min.
- Two techniques
 - Indirect Method:
 - Detect HGH-dependent variables
 - IGF-1
 - IGF binding protein 3
 - Bone turnover proteinds
 - » PIIP, Osteocalcin
 - Advantage detect up 84days after injection
 - Direct Method: Isoform detection
 - Disadvantage 1-2 days only
- No urine test!



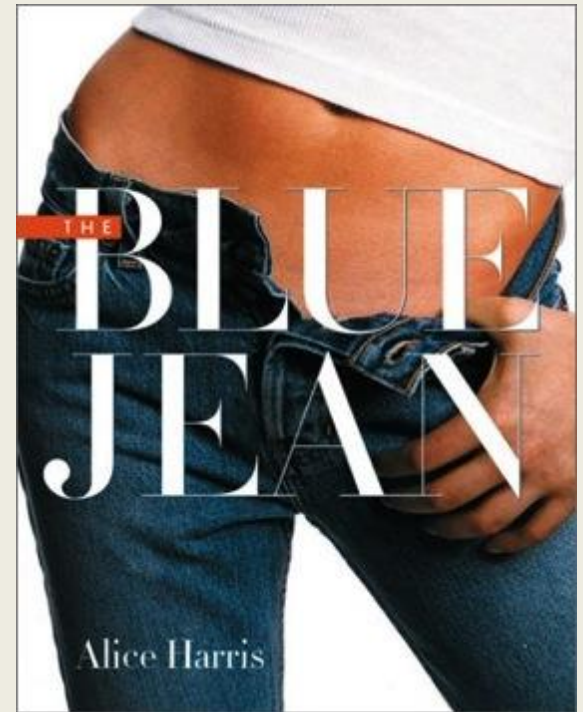
Terry Newton (7 November 1978 – c. 26 September 2010)



- English international Rugby Hooker
 - [Leeds Rhinos](#), [Wigan Warriors](#), [Bradford Bulls](#) and [Wakefield Trinity Wildcat](#)
- In February 2010, two-year ban tested positive for human growth hormone. (targeted testing)
- He was found hanged in his home seven months later.

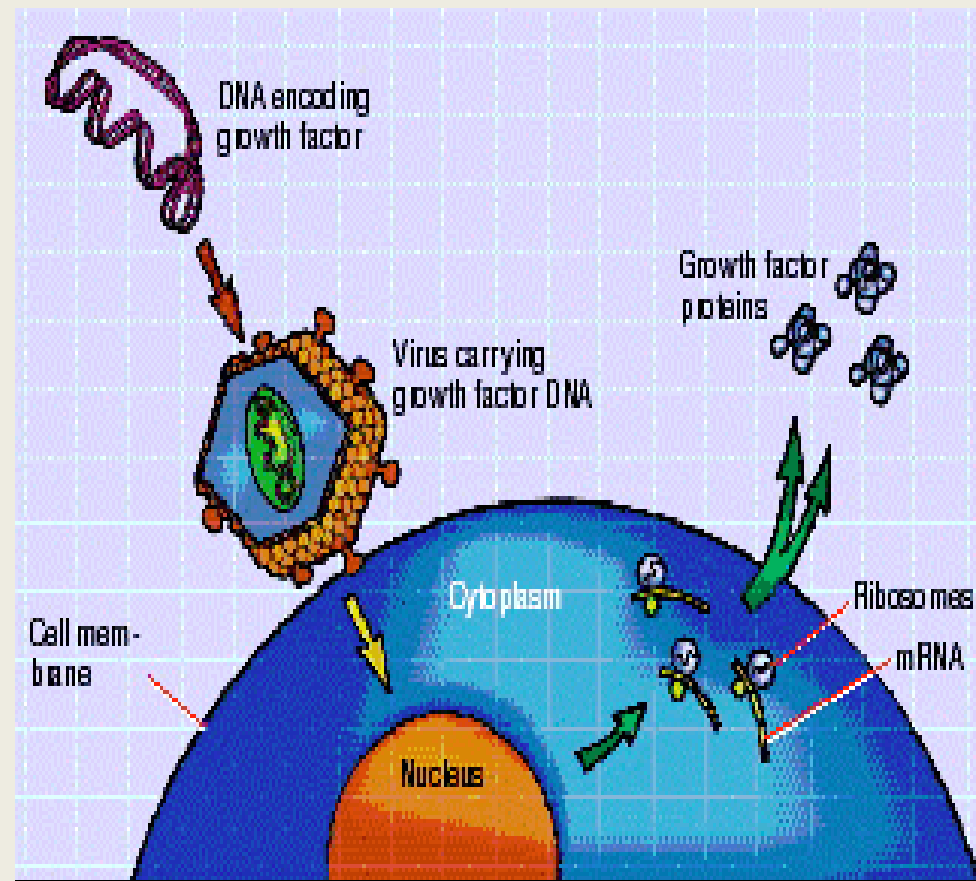
Gene Doping

Will athletes go for the ultimate high?



Jeffrey Leiden 1997
University of Chicago
(*Human Gene Therapy*, vol 8, p 1797)

- **Adenovirus: deliver the epo gene to mice & monkeys**
 - virus injected the into animals' muscles spurring the cells to pump out the protein.
- **HCT→**
 - boosted from 49 per cent to 81 (*Human Gene Therapy*, vol 8, p 1797).
 - A single injection elevated hematocrits
 - over a year in the mice and
 - 12 weeks in the monkeys.

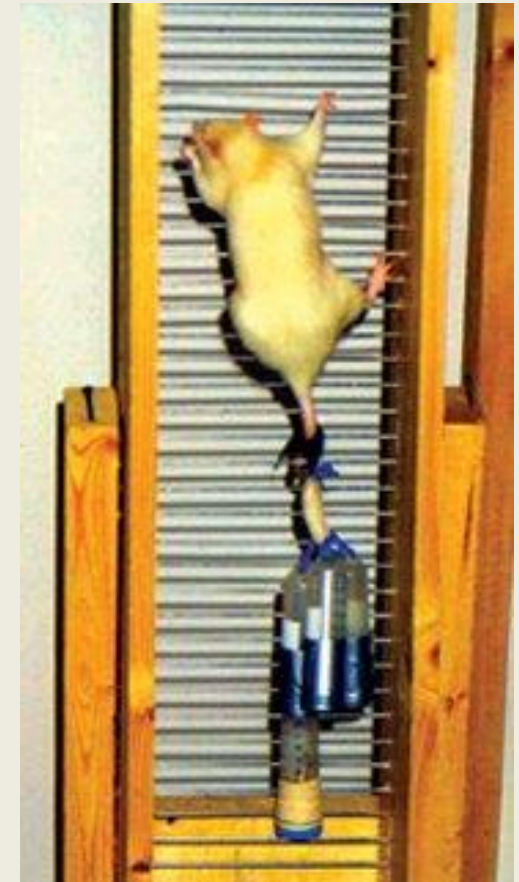


Mary Noyes artist

Suraj Achar MD

Brave New World

Gene Doping



- **HEAVY WORKOUT.** This rat, injected with a muscle-enhancing gene, boosts its strength by lugging weights up a ladder.

Current events & Gene Doping

- In December 2005 → World Anti-Doping Agency: Stockholm.
 - Discouragement on the use of genetic testing for performance.
- The first product to be associated with genetic doping emerged at Torino 2006 Olympic Games, with Repoxygen



Repoxygen™ 1st type of gene therapy preclinical development

- Induces controlled release of (EPO) in response to low oxygen concentration in mice.
- **viral gene delivery vector**
 - carrying the human EPO gene under the control of a so-called "hypoxia control element" ("HRE").
 - HRE: sense low oxygen concentrations & to **switch a gene on in response?**
- **Repoxygen**
 - delivered by injection into muscle
 - induce syntheses of EPO in the muscle tissue. (Normally, EPO is synthesized in the kidneys)

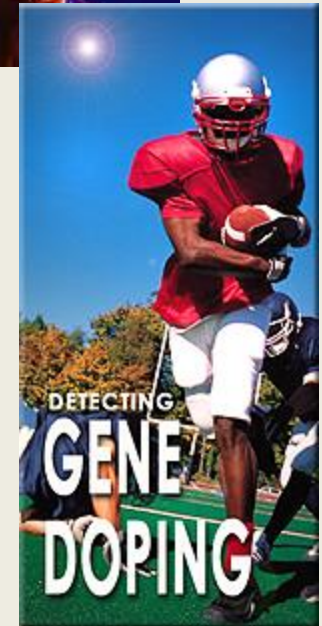
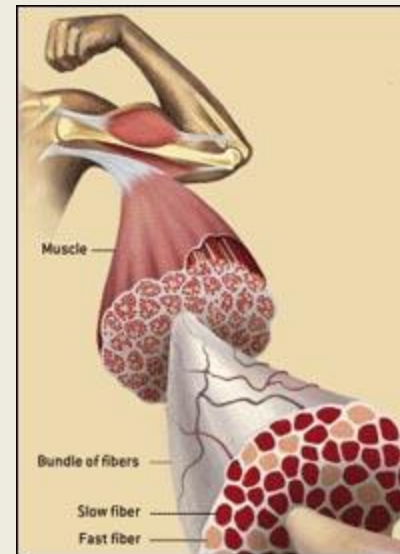


bioMed

Oxford Biomedica

Testing *Gene Doping?*

- Gene doping may be undetectable?



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Therapeutic use exemption

- Form from WADA
- Requirements
 - Athlete would experience a significant health problem if he did not take the prohibited medication
 - The medication would not produce significant enhancement of performance, and there is no reasonable therapeutic alternative.
 - Example is an athlete who takes testosterone because he has had bilateral orchiectomy for testicular cancer.

04/05/2009

Sir William Osler

- “One of the first duties of the physician is to educate the masses not to take medicine”



Suraj Achar MD

Questions?

- sachar@ucsd.edu
- Want to help with research?



Suraj Achar MD

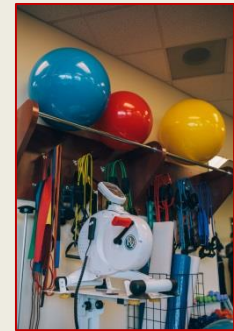


360 Sports Medicine Program

Expert care is provided by the highly skilled physicians of Rady Children's Specialists of San Diego. All of our physicians are specially trained in sports medicine, and have the knowledge and experience to care for young athletes.

Along with providing highly specialized surgery, our program offers:

- Physical therapy
- Risk assessments for sports injuries
- Patient education
- Nutrition counseling



Through our community outreach program, we work with coaches and others involved in competitive sports to prevent injuries in young athletes. We also have an active research program to advance the knowledge of sports injuries and disorders, to develop the most effective treatments, and to optimize current treatments to enhance sports performance.

Chest Pain in Young Athletes



Christopher Davis, MD, PhD

Pediatric Cardiology
Rady Children's Hospital-San Diego



DEGREES: University of Virginia, MA, PhD

MEDICAL SCHOOL: University of Virginia School of Medicine

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RCHSD: 2007

Chest Pain in Young Athletes

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Disclosures

- None

Chest Pain: the good news and the bad news:

- GOOD: Of all children and adolescents with a chief complaint of chest pain, very few have life threatening disease.
- BAD: Chest pain is common in children: you will encounter it.
- GOOD: A history and physical exam are usually all that is needed to approach a diagnosis.

Chest Pain

- In adults, chest pain is a heart attack until proven otherwise
- In children, chest pain is virtually never caused by a heart attack (i.e. a true myocardial infarction)
 - Multitude of causes, most of which are benign

Chest Pain Clues

- Factors associated with “real” disease:
 - Acute onset of pain that is now unrelenting
 - Presence of fever and systemic illness
 - Pain waking the patient at night
 - ONLY during exertion/exercise

Differential Diagnosis

- Major Categories:
 - Idiopathic (~30% of cases) → like headaches
 - Musculoskeletal (~25%)
 - Pulmonary (~15%)
 - Psychogenic (~10%)
 - Gastrointestinal (~5 – 10%)
 - Cardiac (~5%)

Specific Diagnoses

- Musculoskeletal Chest Pain:
 - Costochondritis: *sharp* pain involving 2-4 costochondral junctions, several seconds to minutes, exacerbated by *deep breathing*, and reproducible on exam
 - Tietze Syndrome: Inflammation of a costochondral junction with a *warm, tender, and swollen* area on the chest (rare in children).

Musculoskeletal Causes

- Precordial Catch Syndrome: brief, sharp, stabbing pain in the left chest, often pleuritic (worse with deep breaths).
- Muscle Strain/Trauma
- Acute Chest Syndrome in Sickle Cell Disease

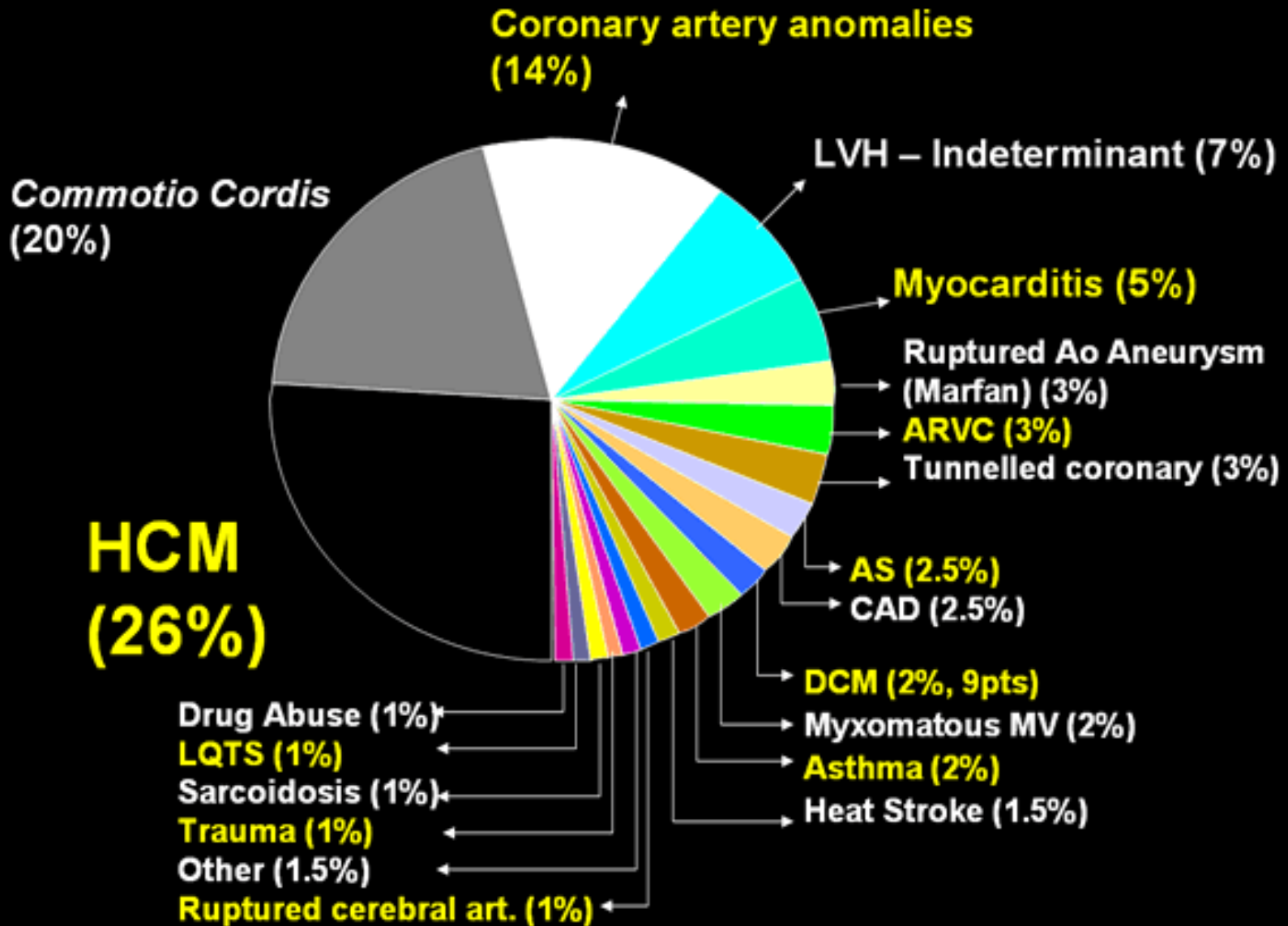
Other Causes

- Asthma, especially exercise-induced (more “tightness” than pain)
- Infection: pneumonia, bronchitis, Shingles
- GE Reflux
- Pneumothorax
- Psychogenic (more common in teenagers, especially with a + FH of chest pain)

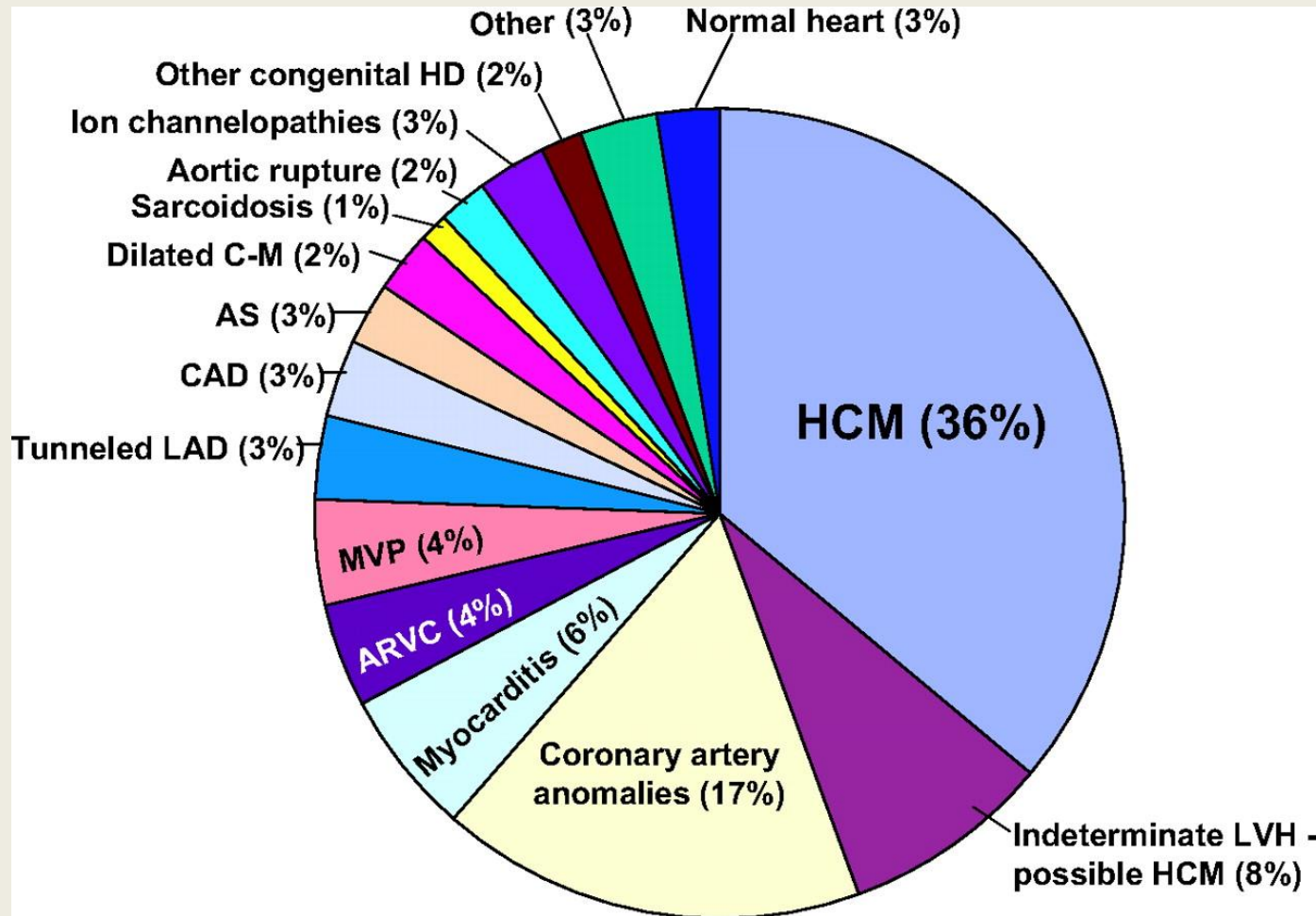
Cardiac Causes

- Hypertrophic Cardiomyopathy
- *Aortic Stenosis*
- *Pericarditis/Myocarditis*
- *Arrhythmias*
- Coronary Disease (usually congenital)
- *Dissecting Aortic Aneurysm* (previous surgery or Marfan Syndrome)

Causes of Sudden Death in 387 Young Athletes



Distribution of cardiovascular causes of sudden death in 1435 young competitive athletes



Maron, B. J. et al. *Circulation* 2007;115:1643-1455

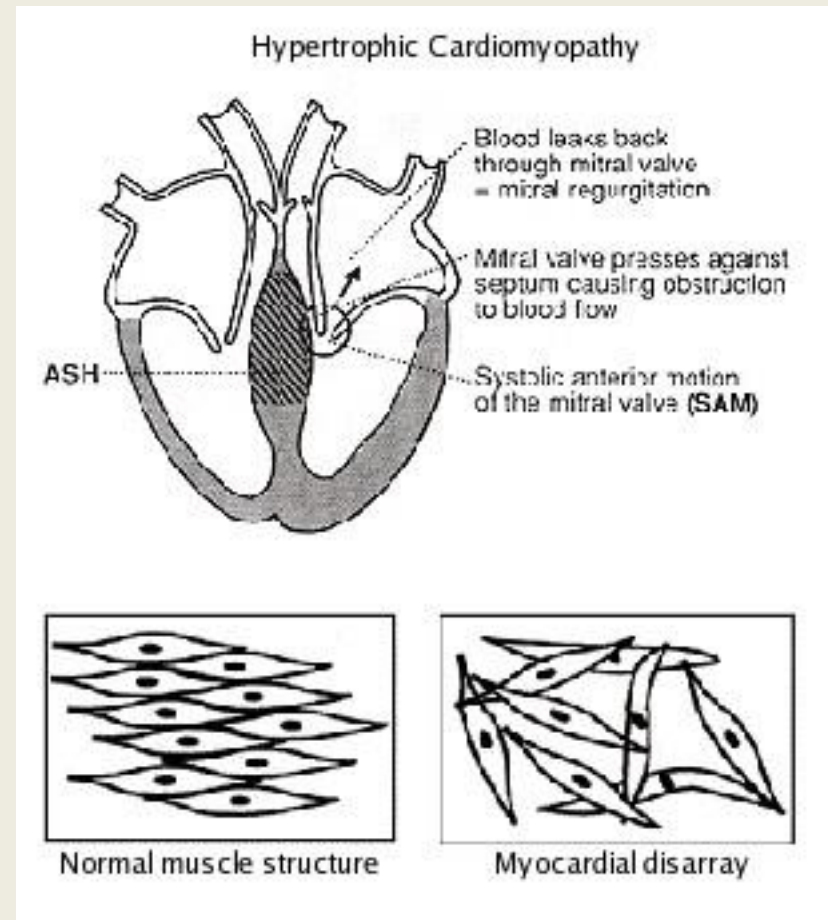
Circulation

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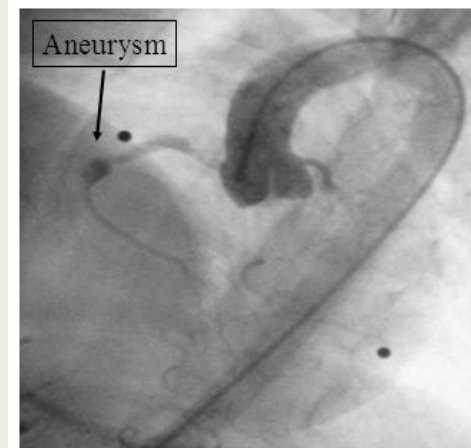
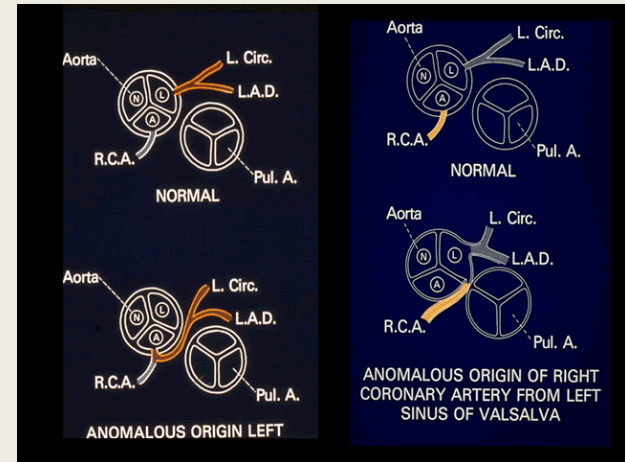
Hypertrophic Cardiomyopathy

- Chest pain and or syncope with exercise
- Characteristic murmur
- Family history of sudden death in young people
- Often no signs or symptoms until sudden death



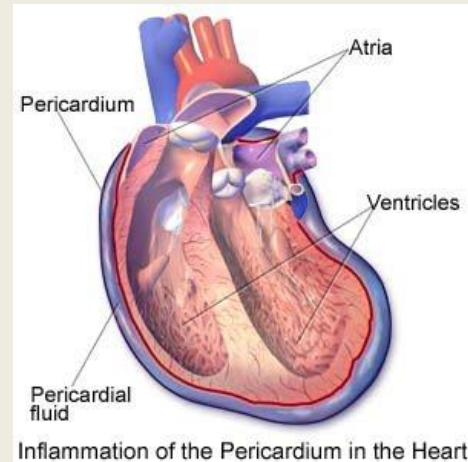
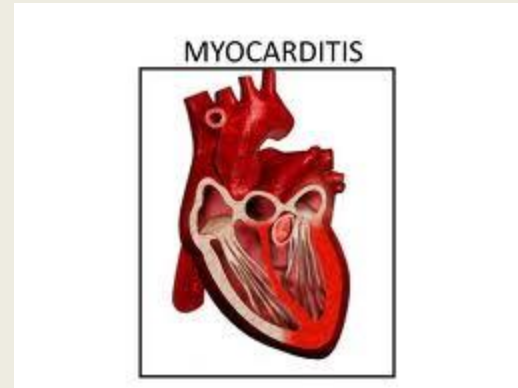
Coronary Abnormalities

- Abnormal origin of either artery
- History of Kawasaki Disease
- Can present with typical angina or with sudden death
- Often no specific PE findings



Myocarditis/Pericarditis

- Infection and/or inflammation of:
- Heart muscle (myocarditis)
- Pericardium (pericarditis)



Cardiac causes of chest pain

- These are the diseases that can cause sudden cardiac arrest and sudden death in the young athlete
 - They cause fatal arrhythmias: ventricular tachycardia, ventricular fibrillation, asystole
- **Exertional chest pain, and/or fainting or nearly fainting during or after exercise, is a red flag warning**

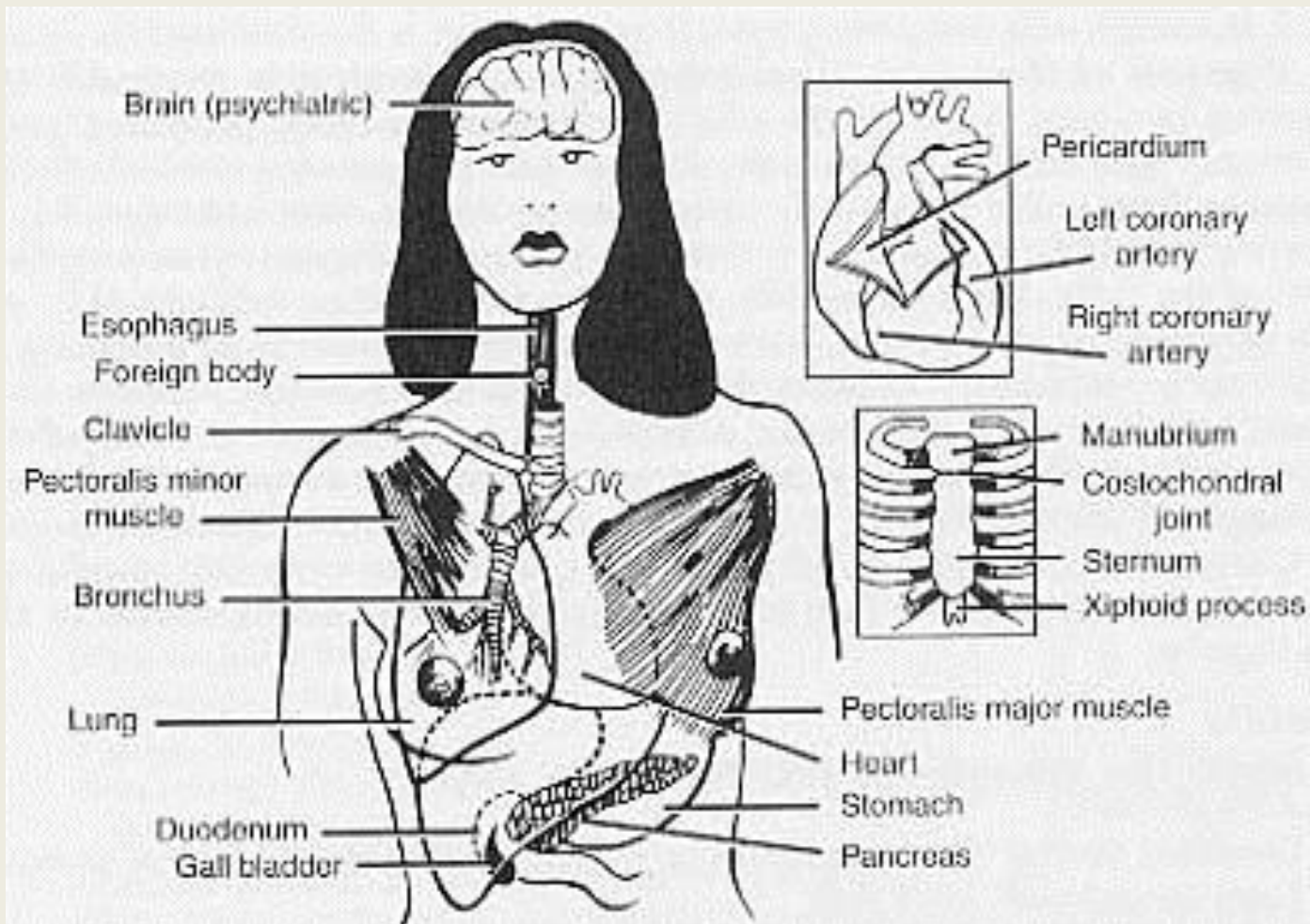
History

- Family History
 - Cardiac disease in children / young adults
 - Sudden Death
- Past Medical History
 - Kawasaki Disease
 - Previous chest pain
 - Previous heart surgery
- Social History
 - Stressors, substance abuse

Physical Exam

- Vital Signs and general appearance
- Inspection and palpation of entire chest wall, muscles, bones, and abdomen
- Auscultation (murmur, click, gallop, rub) and for breath sound abnormalities

Anatomic Approach to the Exam



“Red Flags”

- Exertional pain
- Exertional pre-syncope or syncope
- + Family History of genetic heart disease
- Abnormal cardiac exam
- True angina
- Fever
- Young age (less often psychogenic)

Laboratory Studies

- Generally not needed after thorough H&P
- ECG and CXR if cardiac disease is suspected
 - CXR: heart size, lung opacities, pneumothorax
 - ECG: arrhythmia, ST changes (pericarditis, ischemia, old infarct), WPW (delta wave), abnormal voltages (HCM)
- Cardiac enzymes (CKMB, troponin) tend to be over-utilized to “rule-out” heart disease

The 12-Element AHA Recommendations for Pre-participation Cardiovascular Screening of Competitive Athletes

Medical History

Personal History

1. Exertional chest pain/discomfort
2. Unexplained syncope/near-syncope
3. Excessive exertional and unexplained dyspnea/fatigue, associated with exercise
4. Prior recognition of a heart murmur
5. Elevated systemic blood pressure

Family History

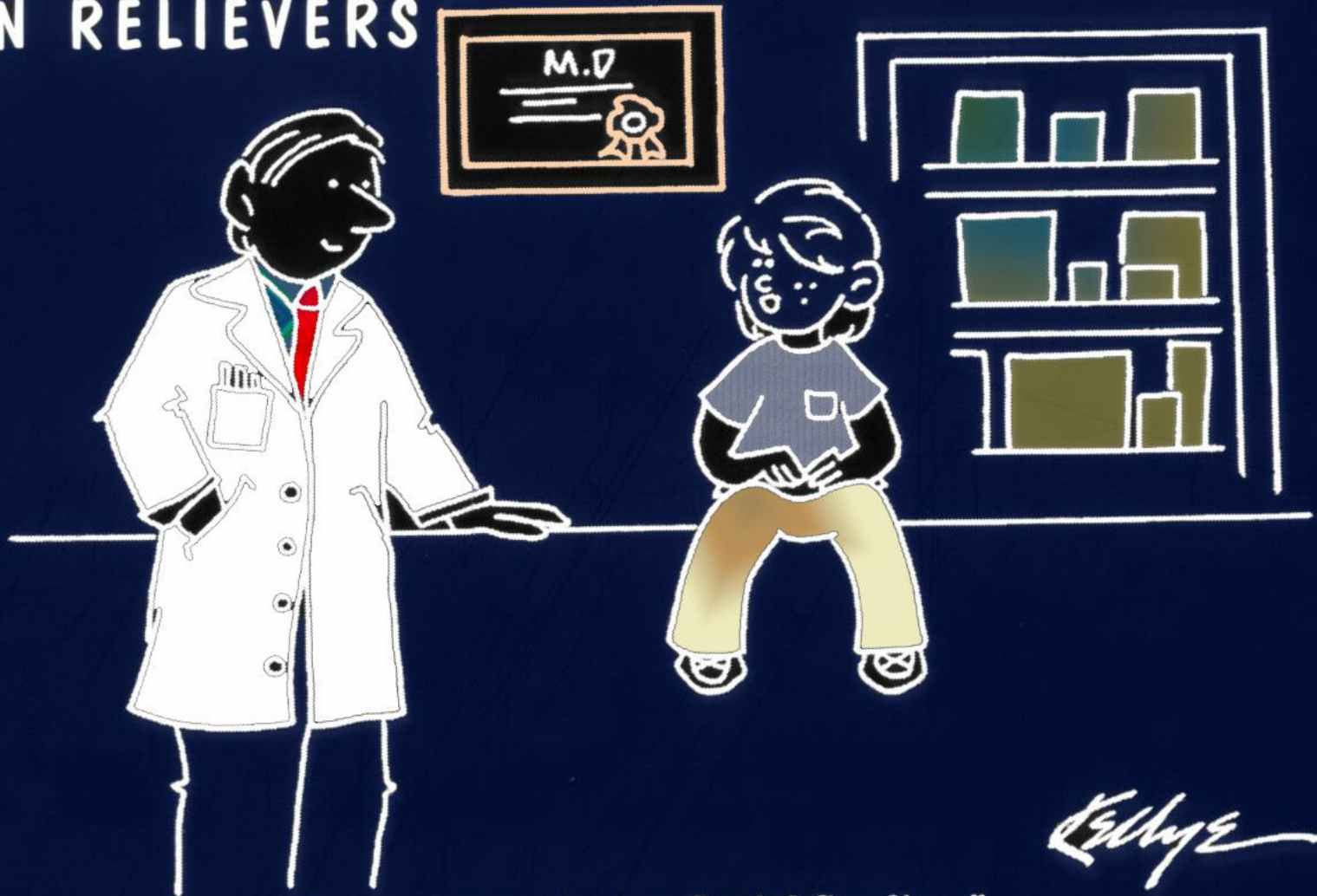
6. Premature death (sudden and unexpected, or otherwise) before age 50 years due to heart disease, in 1 relative
7. Disability from heart disease in a close relative <50 years of age
8. Specific knowledge of certain cardiac conditions in family members: hypertrophic or dilated cardiomyopathy, long-QT syndrome or other ion channelopathies, Marfan syndrome, or clinically important arrhythmias

The 12-Element AHA Recommendations for Pre-participation Cardiovascular Screening of Competitive Athletes

Physical Examination

9. Heat murmur
 10. Femoral pulses to exclude aortic coarctation
 11. Physical stigmata of Marfan syndrome
 12. Brachial artery blood pressure (sitting position)
 5. Elevated systemic blood pressure
- Parental verification is recommended for high school and middle school athletes.
 - Judged not to be neurocardiogenic (vasovagal); of particular concern when related to exertion.
 - Auscultation should be performed in both supine and standing positions (or with Valsalva maneuver), specifically to identify murmurs of dynamic left ventricular outflow tract obstruction.
 - Preferably taken in both arms.³⁷

PAIN RELIEVERS



Edlyne

"It only hurts during Social Studies."

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- Maron, B et al. Recommendations and Considerations Related to Preparticipation Screening for Cardiovascular Abnormalities in Competitive Athletes: 2007 Update: A Scientific Statement From the American Heart Association Council on Nutrition, Physical Activity, and Metabolism: *Endorsed by the American College of Cardiology Foundation*, Circulation 2007.

Break Time!
Please meet our sponsor
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20 Minutes



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Satellite Locations

Reaching the Community:

The scope of Rady Children's commitment to kids extends far beyond the walls of the Hospital. With satellite locations from Murrieta to Chula Vista, we offer specialized programs and services that help kids throughout our region.



- Chula Vista
- El Centro
- Encinitas
- Escondido
- La Jolla
- La Mesa
- Murrieta
- Oceanside
- San Diego
- Solana Beach



Hip Injuries in Young Athletes

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360 Sports Medicine

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MEDICAL SCHOOL: Pritzker School of Medicine
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RESIDENCY: University of California, San Diego

FELLOWSHIP: Pediatric Orthopedic,
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RCHSD: 2010



Adolescent Hip Injuries

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Asst. Clinical Professor UCSD

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858-966-6789



3 years ago...





Common Problem

- 15% of athletes will have experienced hip pain in the last week & 23% in the last year
- 10% hockey injuries
- 3% football injuries w/ average 12.3 days lost



Jonasson P et al. Knee Surg Sports Traumatol Arthrosc. 2011
Feeley BT et al. AJSM. 2008
Nicholas Sj et al. Sports Med. 2002

Misdiagnosis

- “It is just a groin pull...”
- “Just a hip flexor...”
- Average time to diagnosis = **22 months**

Patient Assessment

Acute (Hours/days)

- Avulsion fracture
- Muscle sprain/tear
- Labral tear
- Hip pointer

Chronic (weeks/months)

- FAI (Impingement)
- Snapping hip
- Tendinitis
- Stress fracture
- Dysplasia

Finger Test

1. FAI
2. Labral tear
3. Hip flexor
4. Adductor



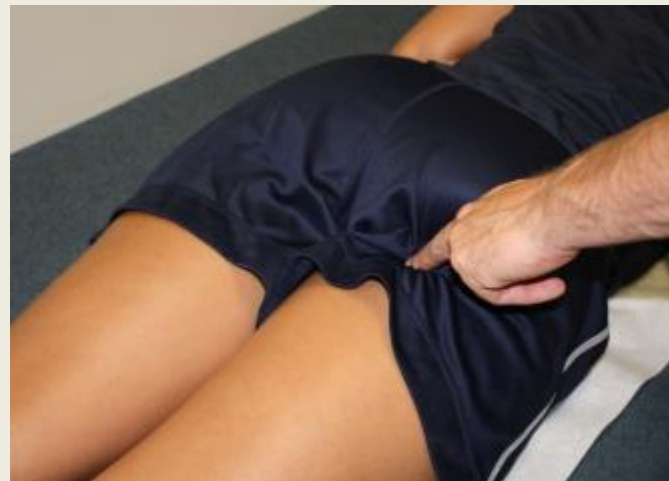
1. Avulsion fx
2. Iliac Apophysitis
3. Hip pointer

1. Snapping hip
2. IT Band syndrome
3. Trochanteric bursitis



1. Hamstring injury
2. Ischial tuberosity avulsion fx
3. Piriformis syn.

Hip Exam - Palpation



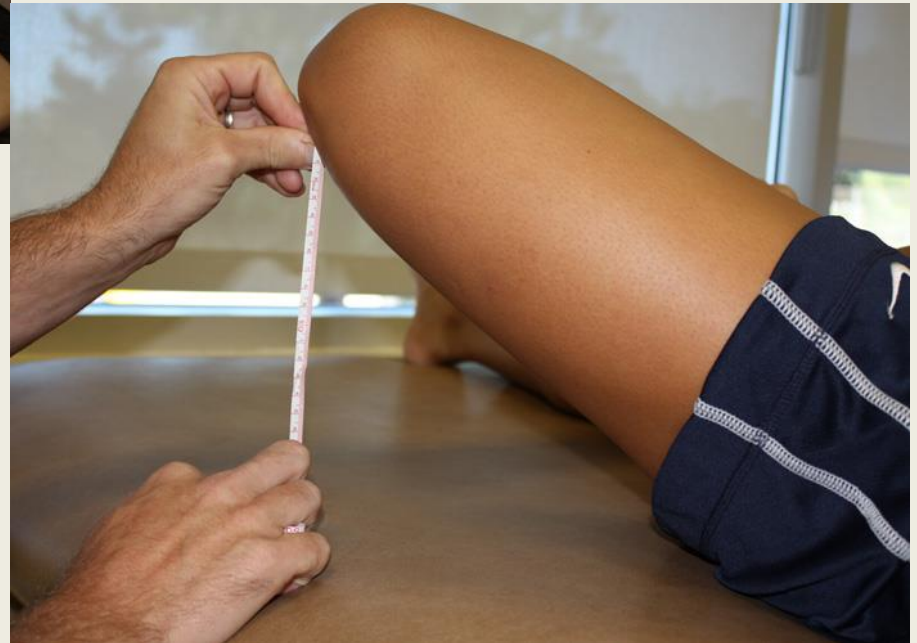
Hip Exam - ROM



Impingement Testing



FABER Test



Resistance Testing



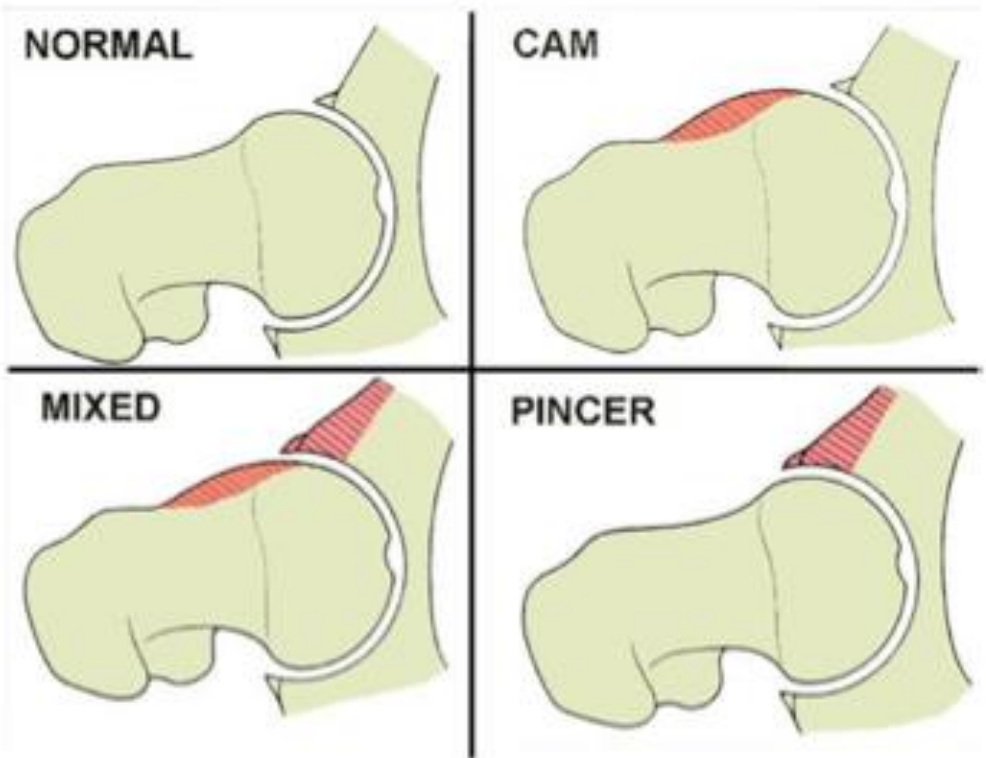
OBER Test



Specific Diagnoses

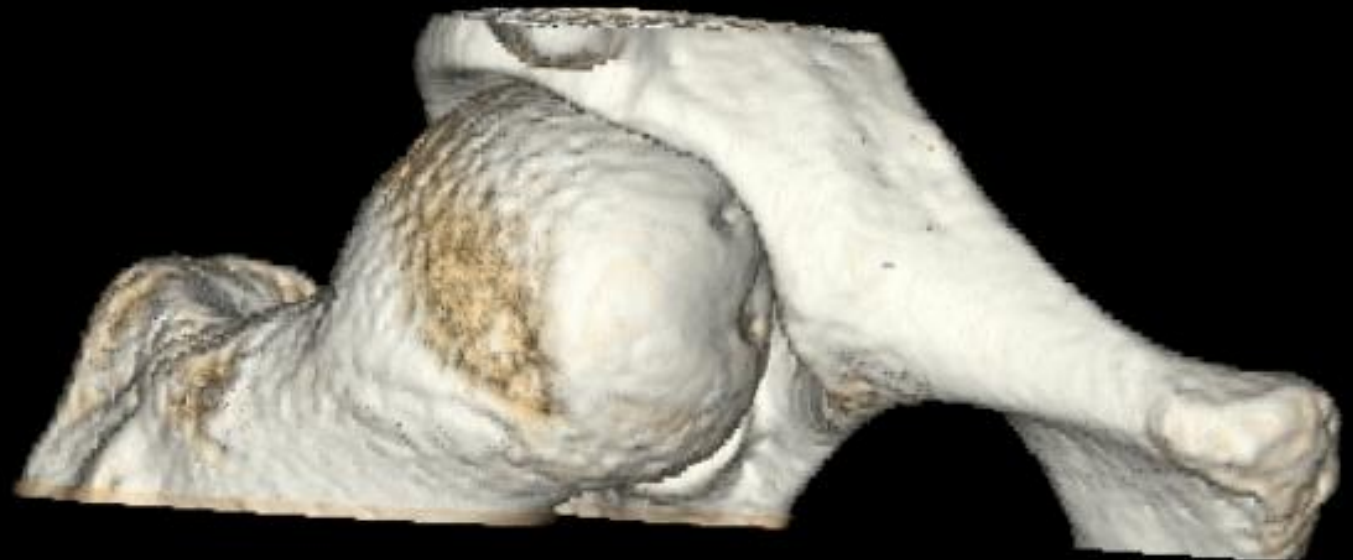
1. FAI
2. Avulsion Fx
3. IT band syndrome/troch bursitis
4. Apophysitis
5. Muscle sprain/tear
6. Hip Snapping
7. Hip pointer

Hip Impingement



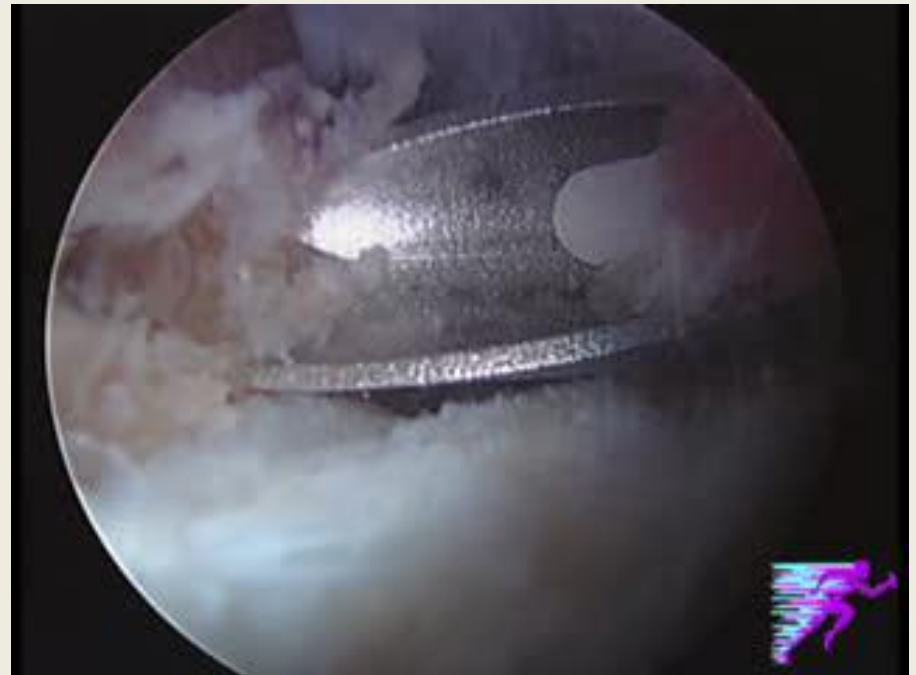
Cam Morphology 2D/3D CT

14yo Male



FAI

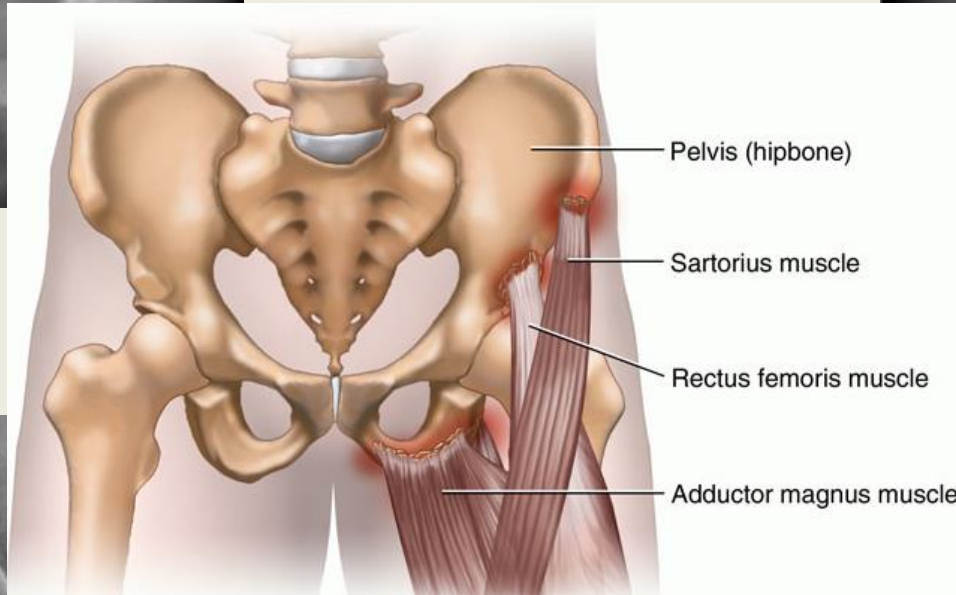
- Extremely common –register (adults) and schmitz studies (kids)
- Develops at age 10
- Siebenrock research association with sports activities
- Treatment: Non-op – avoidance of hip flexion, rest, core strengthening
- Non-op study
- Surgery – My preference for arthroscopy



Avulsion Fractures

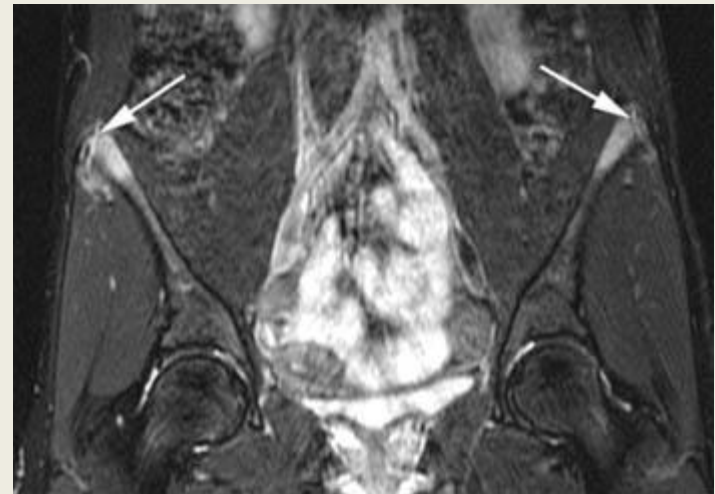
- Key is story. Explosive movement with “pop” and sharp pain
- X-ray is essential
- Non-op. Crutches 4-6 weeks then PT w/ progressive stretching, flexibility,
- *recurrence rate is high so need to go slow

Pelvic Avulsion Fracture



Apophysitis

- Iliac crest & greater troch – similar to osgood schlatter
- Importance of rest and stretching.
- If limping off for 1-2 weeks (may play through pain)

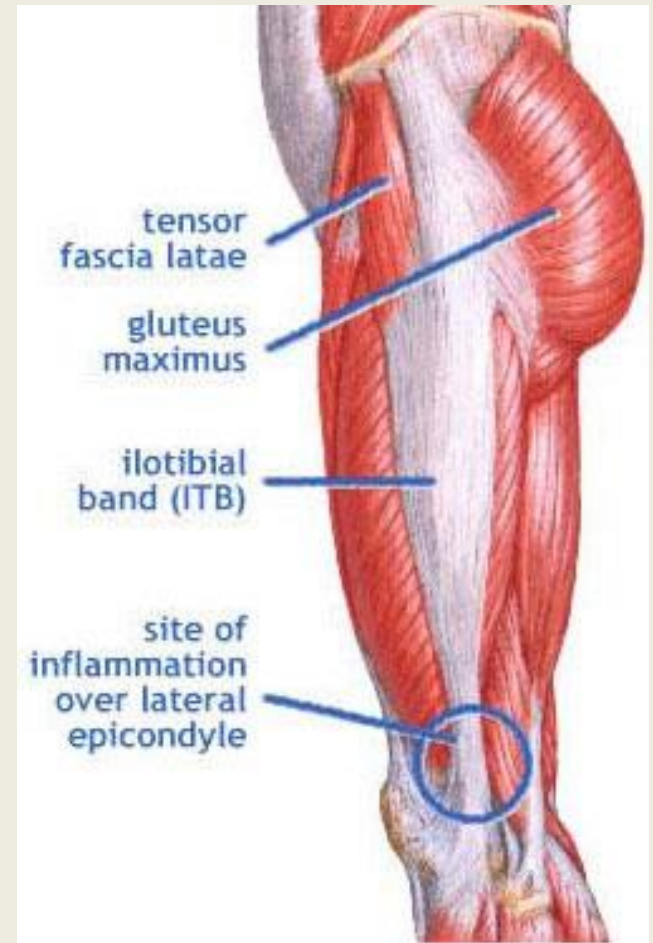
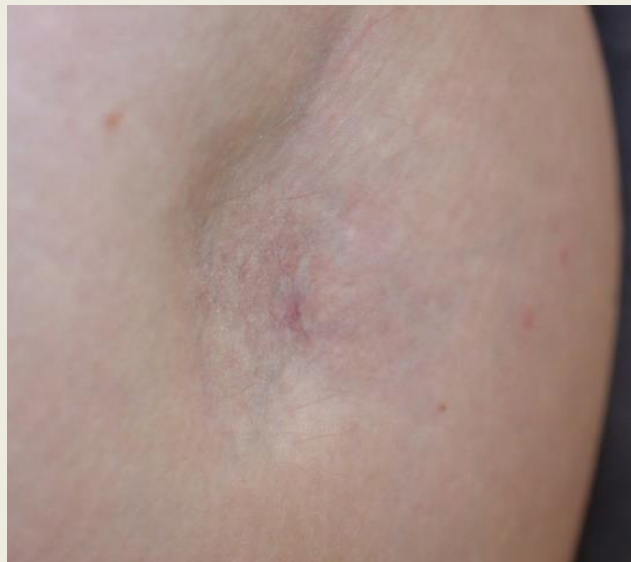


Muscle sprain/tear

- Iliopsoas/hip flexor
- Hamstring
- Adductors
- *key is rest and stretching
- Proper warm-up and flexibility

IT Band syndrome/troch bursitis

- Frequent xc runners, dancers, soccer
- Tight IT band
- Stretching & roller pad
- *Don't inject kids



Snapping hip – Coxa Saltans

- 3 types
- “Hear it when you walk in the room”
- “See it when you walk in the room”
- External – stretching then OR
- Internal – stretching/core strengthening (no evidence in the literature) last resort release my preference for arthroscopic.

Internal Hip Snapping



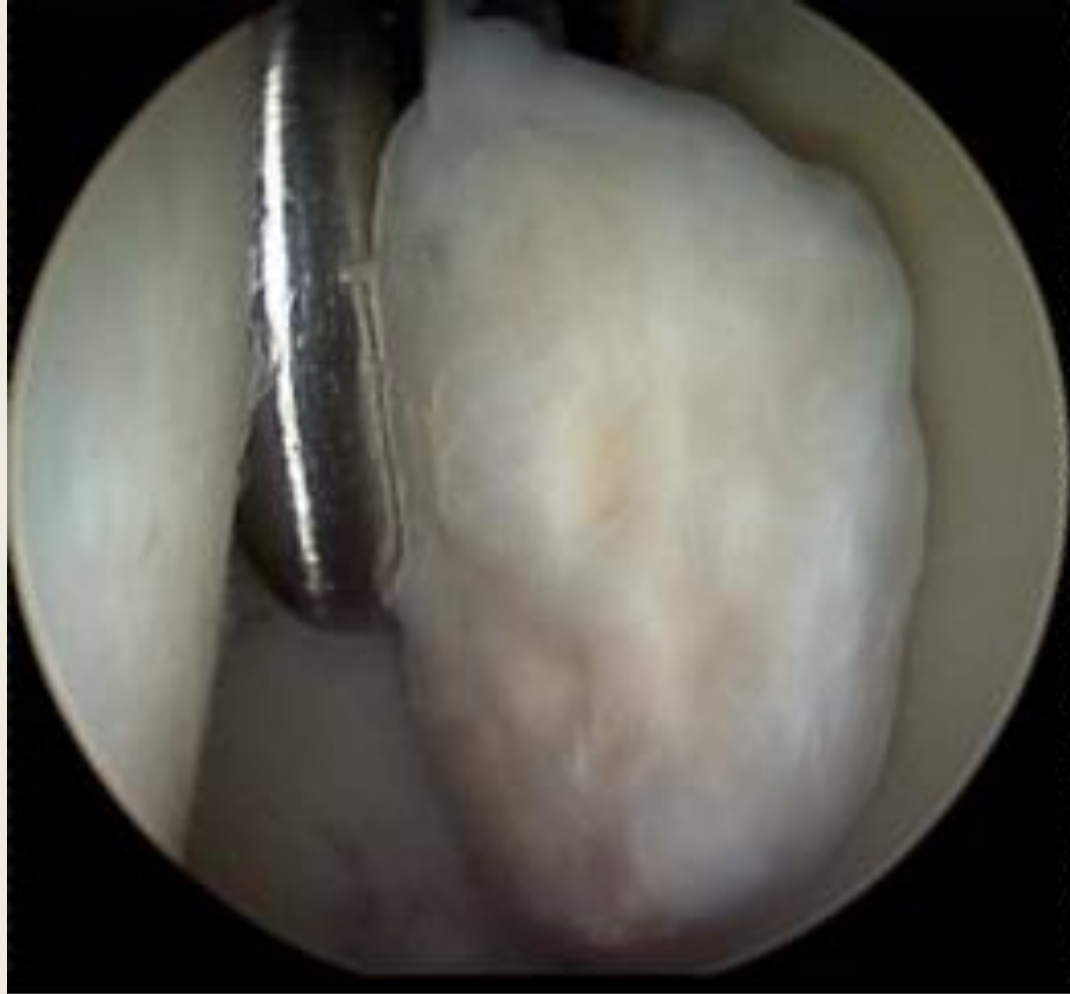
“Hear it when you walk in the room”

External Hip Snapping



“See it when you walk in the room”

Intra-articular snapping



Never let you guard down



Adolescent with knee pain don't forget the hip!!!

Never let you guard down

- Not all sports related injuries are musculoskeletal (hernia, varicocele, testicular torsion, kidney infections/stones, lymphadinitis)

Take Home Points

- Hip problems – Common
- Surgery rare
- “Pop, immediate pain, and limp” – Refer to MD
- If you think it is a muscle pull, rest 1-2 weeks. If no better, refer to MD.
- Chronic groin pain = FAI/labral tear until proven otherwise

360 sports medicine



Quick Facts: 360 Sports Medicine

- **Opened August 2012** at 7910 Frost Street, Suite 190.
- **Providing 360 degrees of care in one comprehensive center** including sports injury care, sports injury prevention, physical therapy, performance training, research and education.
- **Offering a complete understanding of the young athlete** – something adult sports medicine physicians cannot.
- **Visit 360sportsmedicine.org**



Rehabilitation for Hip Pathologies

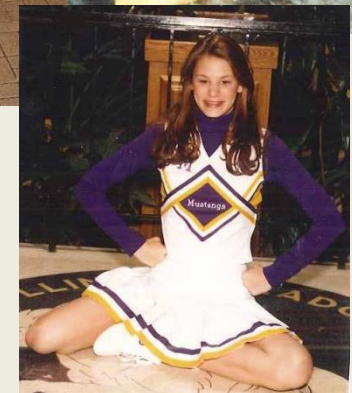
Kelly Heffron, PT, DPT
Physical Therapist
Rady Children's Specialists &
360 Sports Medicine

Dr. Kelly Heffron is a physical therapist at 360 Sports Medicine. She has been a clinician at Rady Children's Hospital since August 2011. Dr. Heffron graduated from the University of Illinois with her Bachelor's degree in May 2004. She then graduated from Midwestern University in January 2007 with her Doctorate of Physical Therapy degree.

Dr. Heffron has many years of experience working with children, adolescents and adults with orthopedic, neurological and sports-related injuries.

Dr. Heffron has participated in karate, swim team, cheerleading, dance team and is an avid Chicago Bears fan!

She has worked with professional sports teams throughout the Chicago land area (i.e. Bears, Cubs, Blackhawks)



A Pain in the Butt: Rehabilitation for Hip Pathologies

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Michelle Fuleky, PT, DPT

Suzi Collins, PT

Laura Johnson, PT, DPT, MTC, FAAOMPT

August 10, 2013



Objectives

- I. Identify differential diagnoses for hip pain
- II. Identify common hip pathologies
- III. Select key elements of a hip pain evaluation/examination
- IV. Understand the relationship between the foot, core and hip as related to hip pain
- V. Explain femoral acetabular impingement
- VI. Introduce protocol for rehabilitation of femoral acetabular impingement

360 Sports Medicine

- Collaborative care for medical, surgical, rehabilitative, preventative and sports enhancement services
- 27 ortho/sports PTs at 5 sites
- Physical therapists' roles:
 - Post-operative rehabilitation
 - First post-operative visit and PT evaluation conducted with surgeon and PT present when possible
 - Non-operative injury rehabilitation
 - Injury prevention workshop
 - Community outreach to educate athletes, parents, trainers and coaches



Differential Diagnosis for Hip Pain

➤ **Sacroiliac dysfunction**¹

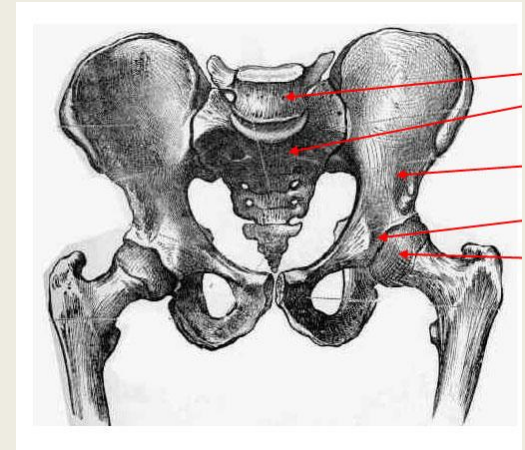
- Anterior or posterior innominate rotation
- Ilium inflare or outflare
- Upslip or Downslip
- Sacral torsion
- Flexed or extended sacrum

➤ **Lumbar spine involvement**¹

- Discogenic pathology
- Spondylolysis or spondylolisthesis
- Radiculopathy and/or neural impingement
- Lumbar paraspinal muscle strain

➤ **Red flags for hip pain related to hip pathology**²

- Presence of a limp
- Groin pain
- Limited internal hip rotation



3

Common Hip Pathologies

- Trochanteric bursitis
- Iliotibial band tightness/friction disorder
- Piriformis syndrome
- Labral tear
- Avulsion fracture
 - Anterior inferior iliac spine
 - Iliac crest
- Muscle strain
- Femoral acetabular impingement



4

Key Elements for Hip Examination

➤ History

- Identify
 - Mechanism of initial injury
 - Movements that reproduce symptoms
 - Sport involvement
 - **Foot wear (shoes, orthotics, etc.)**



Key Elements for Hip Examination

➤ Objective Measures

■ Postural screen

- Sagittal, frontal and transverse plane assessment

■ Palpation

■ Range of motion (ROM)

■ Flexibility

- Hamstrings, quadriceps, piriformis, iliotibial band/tensor fascia lata, gastrocnemius/soleus

■ Strength

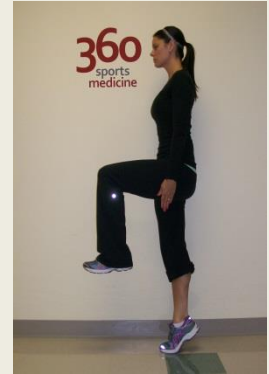
- **Core, gluteus medius, gluteus maximus**, gluteus minimus, quadriceps, hamstrings, gastrocnemius

■ Special tests

- Rule out low back and/or sacroiliac diagnoses
- Determine hip diagnosis

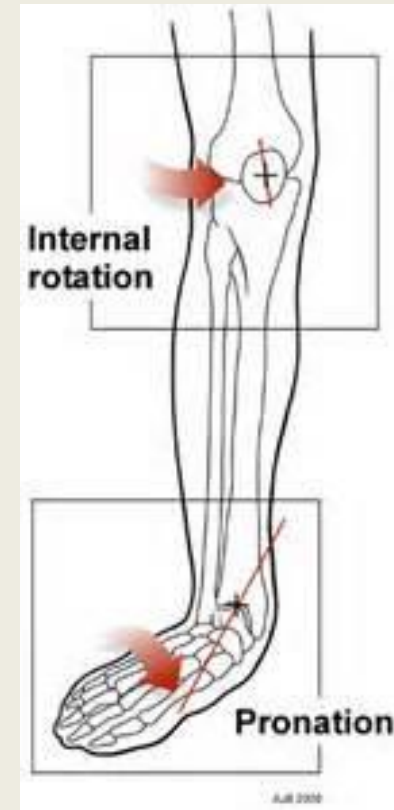
■ Functional screen

- **Double leg squat, single leg squat/dip, heel raise, functional step up, double leg jump, single leg jump, walk, run**



Linking the Foot and Hip

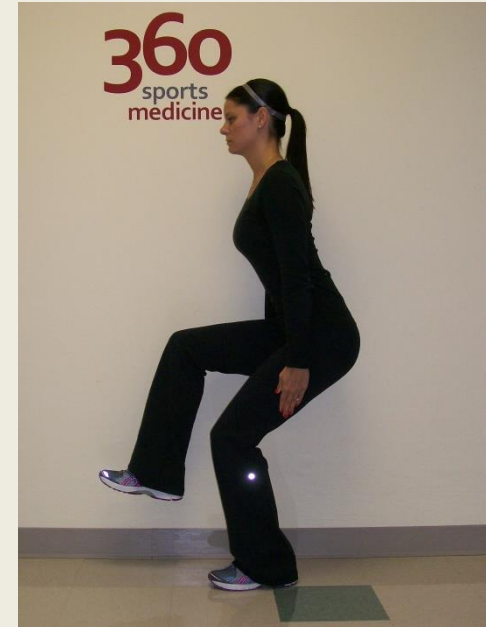
- **Postural assessment finding → Excessive subtalar pronation ⁵**
 - Causes of:
 - Ligamentous laxity at the ankle joint
 - Weak hip abductors
 - Poor mechanical alignment of lower limb during high impact activities
 - Results in:
 - Tibial internal rotation
 - Induces a compensatory femoral internal rotation
 - Genu valgum
 - Increases Q angle
 - Femoral anteversion



6

Linking the Foot and Hip

- **Treatment for excessive pronation**
 - **Orthotic management**
 - Demonstration
 - **Posterior tibialis strengthening (isolated)**
 - Towel curl
 - Wiper
 - Big toe push
 - **Gluteus medius strengthening (isolated)²³**
 - Clam
 - Side-lying hip abduction
 - Single leg bridge
 - Lateral band walk
 - Single leg squat
- **Link increased isolated strength to functional skills to change movement patterns**



Linking the Core and Hip

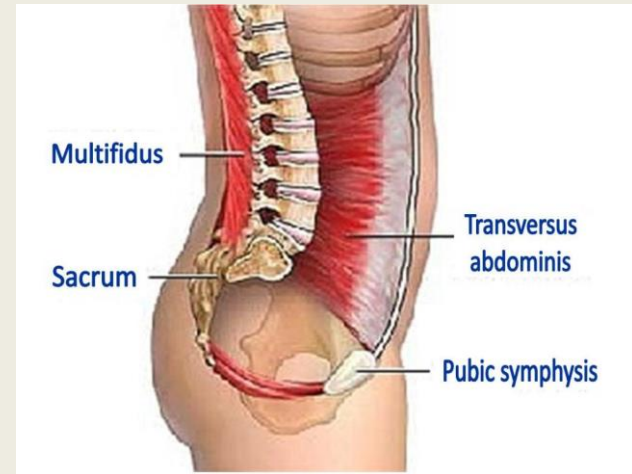
- **“CORE”** does not mean **“Six-pack”**

- Four parts of the core:

- I. Diaphragm
- II. Pelvic floor
- III. Transverse abdominus
- IV. Multifidus

- Function of the core

- Stabilize lumbar spine
 - Increase stability and control for functional skills
 - Generate increased power for functional skills

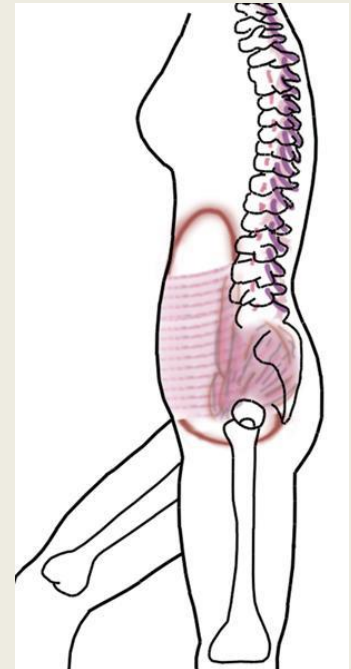


7

Linking the Core and Hip

➤ Core stabilization will:

- Decrease overuse of hip flexor tendons
- Reduce lumbar extension to keep the body operating in neutral
- Improve balance and control
- Reduce asymmetrical loading at the hip joint



Femoral Acetabular Impingement ⁹

“Femoral acetabular impingement is a pathological condition leading to abutment between the proximal femur and the acetabular rim.” ⁹

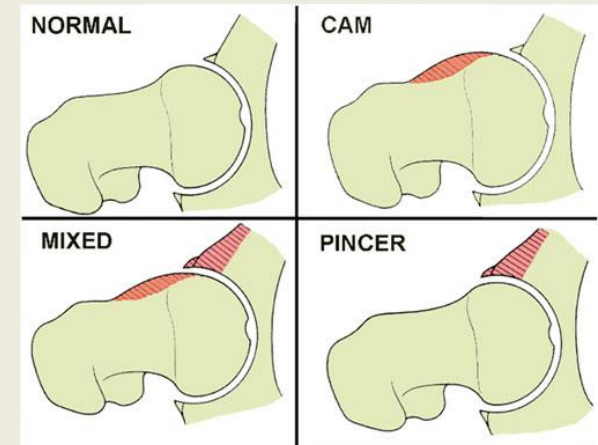
Two Types:

I. Pincer lesion

- Soft tissue abnormality = Excessive coverage of the acetabulum
 - Repetitive contact of the over-covered acetabulum rim and femoral neck with hip flexion and/or internal rotation will create impingement.

II. CAM lesion

- Bony abnormality= Non-spherical femoral head
 - Repetitive contact with hip flexion and/or internal rotation will create impingement due to the abnormal femoral head shape.



10

Femoral Acetabular Impingement⁹

Current non-operative management

- Discontinuation of sport
- Avoid repetitive hip flexion and internal rotation
- Non-steroidal anti-inflammatory agents
- **??? Physical Therapy ???**



11

According to Banerjee, et al.,

*“Surgical intervention is a more realistic option. Physiotherapy has **no role** in the management of FAI and hence not recommended.”*

Protocol for Non-Operative Femoral Acetabular Impingement

Protocol for Non-Operative Femoral Acetabular Impingement

- *Purpose: To determine if physical therapy is effective as a non-operative treatment for FAI*

GOALS:

1. Reduce pain at affected hip to 0-2/10 on the Numeric Pain Scale¹² with:

- *Repetitive transitions from supine → sit, sit → stand and stand → sit over at least 10 minutes*
- *Ambulation on varied terrain (i.e. flat ground, grass, sand or incline) for at least 20 minutes*
- *Seated position for at least 60 minutes*
- *Run and/or jog for at least 30 minutes*
- *Sport specific tasks like cut, jump and pivot for at least 30 minutes*

Protocol for Non-Operative Femoral Acetabular Impingement

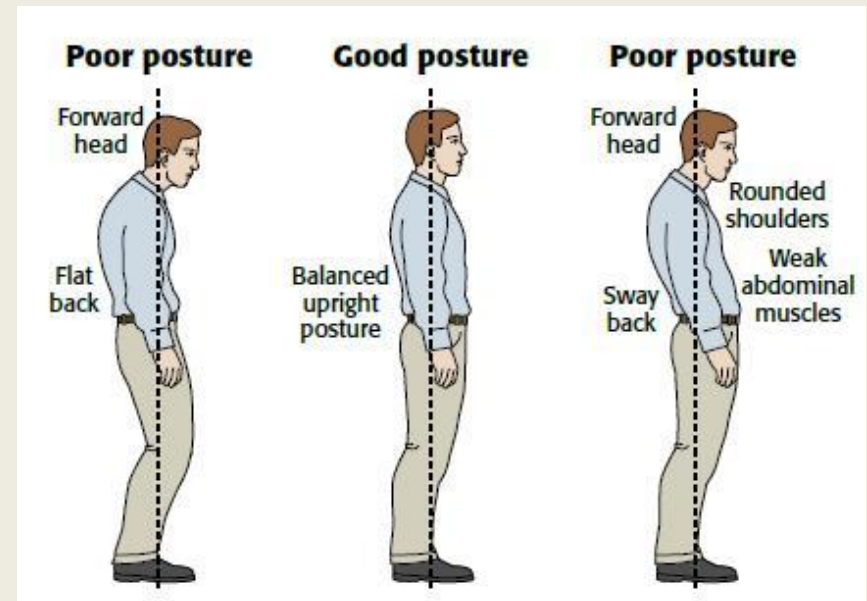
2. Return patient to prior level of function without the need for surgical intervention through:

- *Improved postural alignment to locate neutral spine and improve body awareness*
- *Increased strength and endurance of core stabilizers* ^{13,14}
 - Achieve a 4/5 on the Double Straight Leg Test and maintain neutral alignment for 60 seconds in prone plank
- *Increased strength and endurance of proximal hip muscles (i.e. Gluteus medius, Gluteus maximus, Gluteus minimus)* ^{15,16,17}
 - Achieve a 5/5 on Manual Muscle Testing (MMT) ¹⁸ and perform 10 consecutive single leg dips
- *Increased flexibility of lower extremity muscles that have attachments at the hip and/or pelvis* ¹⁹
 - Meet all standards outlined for the flexibility tests

Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Posture^{13,14}

BEGINNER-ADVANCED

- Train the patient to achieve neutral spine
 - I. Address all postural deviations with home program exercises.
- Lumbo-pelvic mobility training
 - I. Hook-lying pelvic tilt anterior → posterior and posterior → anterior
 - II. Quadruped cat/camel
 - III. Standing pelvic tilt anterior → posterior and posterior → anterior
 - IV. Squat with anterior pelvic tilt



20

Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Core Stabilization^{13,14}

BEGINNER

- Transverse abdominus (TrA) recruitment
 - I. Breathing with abdominal draw in maneuver
- Multifidus (MTF) recruitment
 - I. Prone posterior pelvic tilt with unilateral lower extremity elevation
- TrA & MTF engagement with lower and/or upper extremity movement
 - I. Single knee fall out
 - II. March
 - III. Heel slide
 - IV. Contralateral upper extremity and lower extremity extension



Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Core Stabilization^{13,14}

INTERMEDIATE



- Bird-dog
 - I. Upper extremities only
 - II. Lower extremities only
 - III. Contralateral upper and lower extremity
- Plank
 - I. Weight bear through hands and toes
 - II. Weight bear through elbows and toes
- Swiss ball kneeling upper extremity roll-out

Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Core Stabilization^{13,14}

ADVANCED

➤ Rotational stability activities

I. Seated

- Stable surface
- Unstable surface

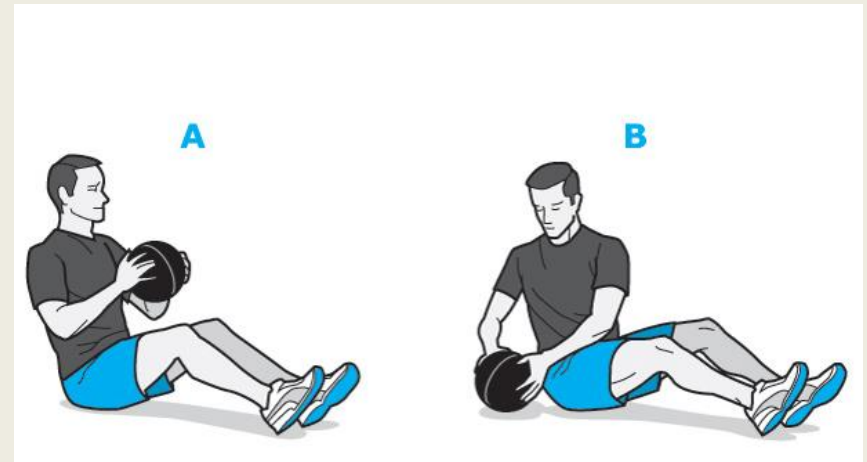
II. Kneeling

- Stable surface
- Unstable surface

III. Standing

- Stable surface
- Unstable surface

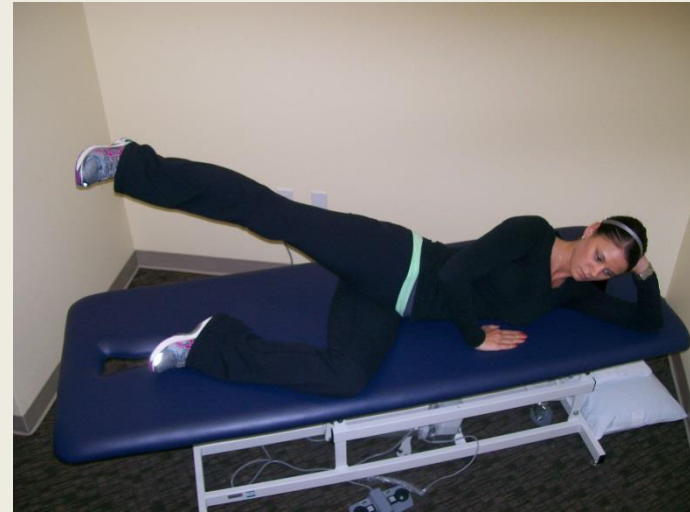
➤ Rotational mountain climbers



Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Proximal Strengthening^{15,16,17}

BEGINNER

- Clamshell
(hip flexed 30 degrees)
- Side-lying hip abduction
(hip extended 30 degrees)
- Double leg bridge



Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Proximal Strengthening^{15,16,17}

INTERMEDIATE

- Standing single leg balance (hip flexed to 20 degrees)
 - I. Maintain neutral pelvis with no movement
 - Stable surface
 - Unstable surface
 - II. Maintain neutral pelvis with hip abduction, extension, and flexion
 - Stable surface
 - Unstable surface
 - Progress to resisted
- Lateral band walks (knees and hips 30 degrees of flexion)
- Lunges (<90 degrees hip flexion)
 - I. Forward
 - II. Lateral
 - III. Transverse
- Single leg bridge



Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Proximal Strengthening^{15,16,17}

ADVANCED

- Single leg squats
- Single leg deadlift
- Double and single limb plyometrics (specific to PLOF)
 - I. Forward
 - II. Lateral
 - III. Transverse
- Agility drills
 - I. Forward
 - II. Lateral
 - III. Transverse



Protocol for Non-Operative Femoral Acetabular Impingement: Therapeutic Exercises for Lower Extremity Flexibility¹⁹

STATIC STRETCHING

- Hamstring
- Gastrocnemius
- Piriformis
- Quadriceps
- Iliotibial band
- Hip adduction
- Double knee to chest



DYNAMIC STRETCHING

- Toy Soldier
- Hip internal rotation
- Hip external rotation
- Butt kicks
- High knees
- Spider walk
- Inch Worm



Thank You for all of Your Contributions

- Dr. Andrew Pennock
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- Nan Haney, PT, Physical Therapy Manager
- Alexa Kratze, Director, Developmental Services Programs
- Linda Heartness, Administrative Associate
- Eric Julienne, Rehabilitation Aide
- Physical Therapy Team



ANY QUESTIONS???

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Rady Children's Providing Quality Care

A hallmark of Rady Children's is its quality of care. In 2013 we were recognized by U.S. News & World Report as one of the best children's hospitals in the nation by achieving rankings in all 10 pediatric specialties surveyed: *Cancer, Cardiology/Heart Surgery, Diabetes/Endocrinology, Gastroenterology, Neonatology, Nephrology, Neurology/Neurosurgery, Orthopedics, Pulmonology, and Urology.*

Our Orthopedic Services **ranked among the top 10 in the nation** out of more than 170 children's hospitals.

(USN&WR does not survey all 27 pediatric specialties.)





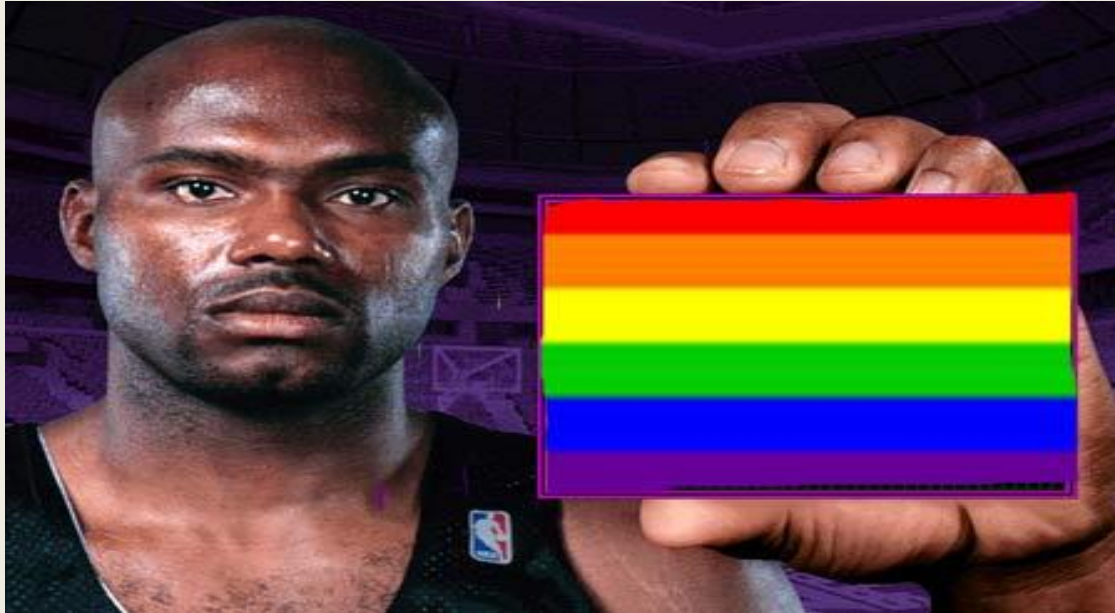
Risk and Resiliency Factors for LGBTQ Youth

Al Killen-Harvey, LCSW

Al Killen-Harvey is a Licensed Clinical Social Worker who has worked for several decades in the field of trauma treatment.

He is the co founder of The Harvey Institute, a training and consultation company whose mission is improving health care outcomes through integrating sexual health. He previously was a clinical supervisor at the Chadwick Center for Children and Families at Rady Children's Hospital where he supervised and trained a staff that worked with children who have been physically, sexually and/or emotionally abused.

Creating a welcoming environment for LGBTQ athletes



Al Killen-Harvey, LCSW

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Goals and Objectives

- To identify issues of risk, challenge and strength specific to LGBTQ youth and young adults and develop strategies that balance personal beliefs with professional responsibilities
- To increase knowledge and empathy regarding the unique stressors experienced by sexual and gender minority youth, their families and caregivers
- To demonstrate increased understanding of the issues around coming out and how they might impact youth

Definition of Terms

- Sexual Orientation- Defined by whom you are emotionally, romantically, erotically and intimately attracted to, for the most part and over a period of time. It exists on a continuum of feelings and attractions. It is NOT necessarily congruent with behavior.
- LGBTQ- An acronym that stands for Lesbian, Gay, Bisexual, Transgender and Queer/or Questioning

Definition of Terms

- Gay/Lesbian- A person who forms their primary loving, emotional, erotic, intimate and social connections with someone of the same sex
- Bisexual- A person who can form their primary loving, emotional, erotic, intimate and social connections with someone of any gender assignment

Definition of Terms

- Transgender- An umbrella term that describes people whose gender identity or gender expression differs from expectations associated with the sex assigned to them at birth. May include pre-operative transsexuals, post-operative transsexuals, cross-dressers, etc.
- Transsexual- A person whose gender identity does not match expectations with the sex assigned to them at birth.

Risk Factors

- Depression and Suicide
- 30% of all completed suicides in the U.S. are by LGBTQ (U.S. Dept. of Health and Human Services)
- LGBTQ Youth are four times more likely to attempt suicide than heterosexual youth

Other Stressors/Risk Factors

- Sexual Abuse
- Physical Abuse
- Homelessness
- School Problems/Drop Out
- Health Related Issues (eating disorders, unwanted pregnancy, HIV/STI's)

Cultural Factors

- Ethnicity
- Race
- Economics
- Cognitive Abilities
- Physical Abilities
- Community Factors (urban/rural,etc.)
- Religion

How to respond when a youth comes out to you

- Anticipate feelings of vulnerability
- Affirm, validate and show acceptance
- Start where the client is
- Avoid labeling
- Follow the youth's lead in terminology
- Provide accurate information that avoids myths and stereotypes
- Do not assume that their problems/issues are necessarily related to their sexual orientation/gender identity

Organizational Culture

- Policies of your organization
 - Formal
 - Informal
- Practices of your organization
 - Forms
 - Intake Procedure
 - Language

Creating a Welcoming Environment

- Posters, showing racially and ethnically diverse, same-sex couples, individuals and/or families
- Books/magazines with the words gay, lesbian, bisexual and transgender visible
- LGBTQ friendly stickers or symbols posted in offices or on doors or bulletin boards (rainbow flag, HRC symbol, etc.)
- A universal, gender inclusive or gender neutral restroom

Community Resources

- Know what's available in your community
- Be sure to ask “specifically” how often a referral source has worked “directly” with l/g/b/t clients
- Utilize the internet
- Utilize “informed” colleagues/peers

Resources

- Family Acceptance Project : (FAP) is a community research, intervention and training initiative to study the impact of family acceptance and rejection on the health, mental health and well-being of lesbian, gay and bisexual and transgender (LGBT) youth
 - **familyproject.sfsu.edu**
- Parents and Friends of Lesbians and Gays : National organization for education, advocacy and support for families and friends of LGBT persons. Chapters are available in all states – check website for local chapters and educational materials for families
 - www.pflag.org

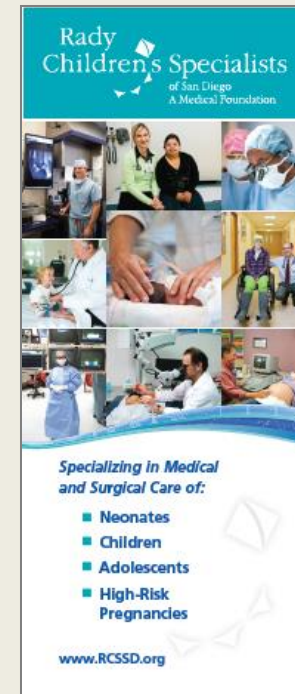
Resources

- Gender Pac: Organization to provide education and promote advocacy to end discrimination and violence caused by gender stereotypes. National conference, training, gender law information, resources for transgender youth
 - www.gpac.org
- GLSEN : Gay, Lesbian, Straight Educators Network
 - National organization for advocacy and information to promote safer schools.
 - www.glsen.org
- GSA Network: Gay, Straight Alliance Network: Youth-led organization to provide networking and support for GSAs
 - www.gsanetwork.org

How To Reach Rady Children's For More Info

If you have a young athlete you recommend be seen by Rady Children's Specialists, please call our Referral Center for assistance. We are here to help. **Phone: 800-788-9029**

In addition, please refer to the Rady Children's Specialists brochure in your packet for specialty services, clinic locations and contact information.



Thank You For Joining Us Today!

Before You Leave, Please Remember To:

- 1) Turn in your opportunity drawing form – must be complete to win!**
- 2) Complete and return your evaluation form**
- 3) Make sure you have signed in to receive CEU credit**
(BOC & CPTA Certificate of Attendance is in your packet for your records)