

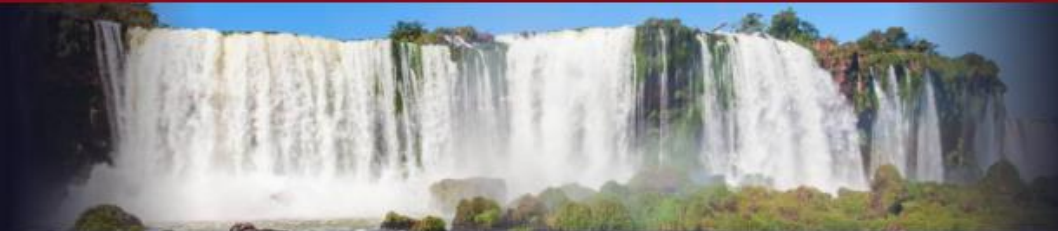
# 40 Years of Reflection on ACL Injuries Surgical Techniques Prevention, RTP, and Rehabilitation 2/02/26



**Mary Lloyd Ireland MD** – Professor  
Dept. of Orthopaedic Surgery and Sports Medicine  
University of Kentucky, Lexington KY  
[www.marylloydireland.com](http://www.marylloydireland.com)



ACL Biennial Meeting  
Iguazu Falls, Brazil  
February 1-5, 2026



# Questions & Answers

**“The older I get the more questions I have”**

**“The stupidest question is the one never asked”**

**Mary Lloyd Ireland, M.D.**

**"A well-educated mind will always have more questions than answers."**

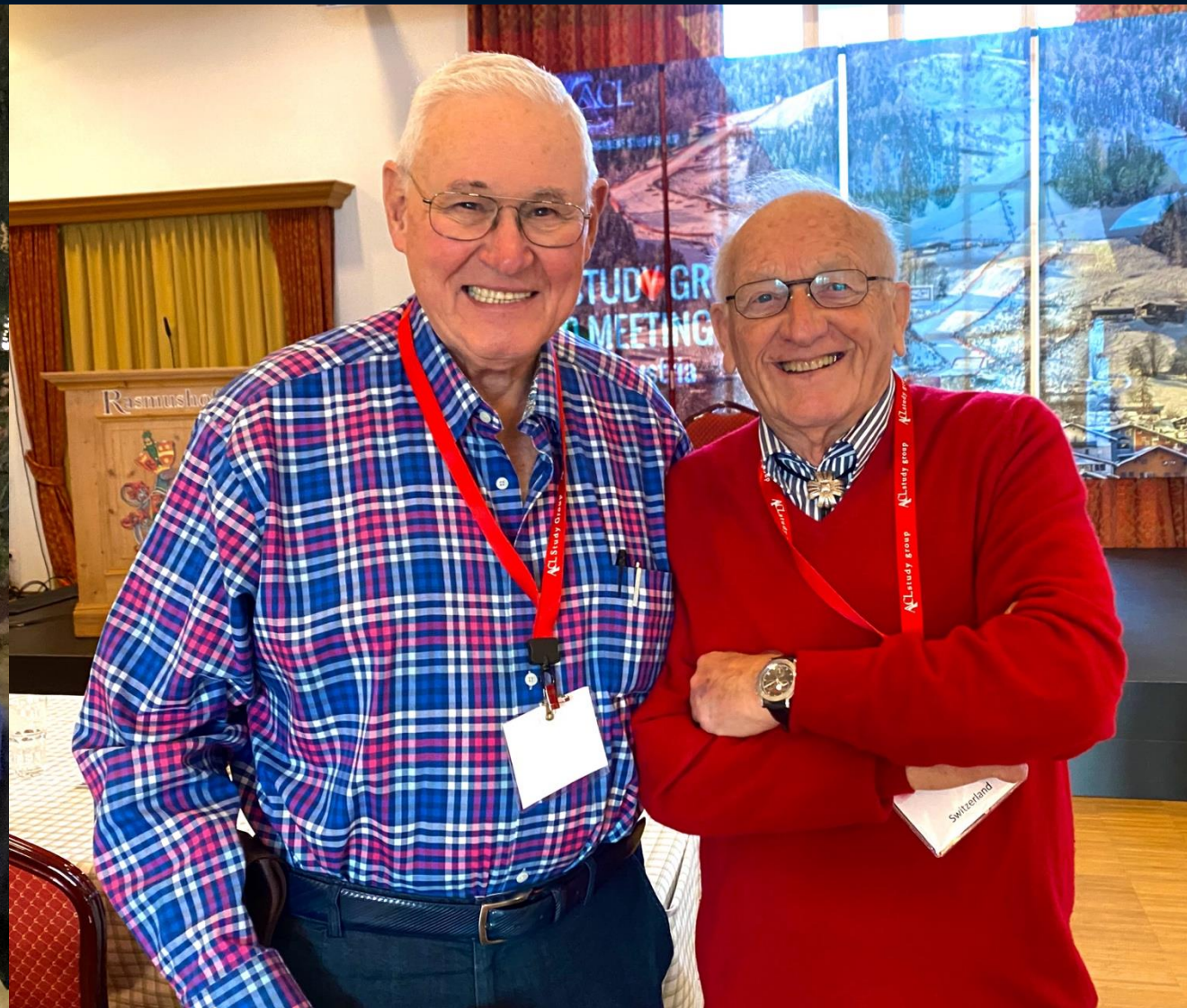
**Helen Keller**

**“The important thing is not to stop questioning. Curiosity has its own reason for existing.”**

**Albert Einstein**

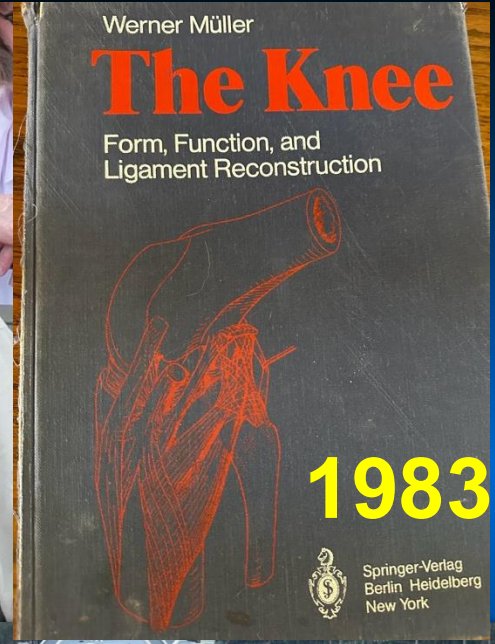


# John Bergfeld





# Happy 80<sup>th</sup> Birthday! Werner Müller



Cape Town ACLSG 2014



**Ejnar Erickson**  
**Chief-Editor KSSTA (1993-2008)**  
**“If you Americans would read European literature  
you know we did the study 30 years ago.”**





# 1985 Fellowship with Dr. James Andrews







# ACL Reconstructions

- 70s to Early 80s:
  - Extraarticular IT band tenodesis
  - Arthrotomy, open ACL reconstruction
- Mid-80s to Mid-90s:
  - Arthroscopic Intraarticular ACL reconstruction
  - Single bundle
- Mid-90s:
  - Anatomic ACL Reconstruction
  - Single / Double bundle
  - Guide, Graft, & Implant
  - Intraarticular & Extraarticular



# Mid 1980's Extraarticular not Anatomic

- My fellowship with JRA
- Many Minireconstructions
- Equipment became available for Arthroscopic ACLR 2 months after my fellowship

 **Hughston Orthopaedic Clinic, P.C.**  
*Practice limited to Orthopaedic Surgery and Sports Medicine* 

6262 HAMILTON ROAD  
P. O. BOX 9517  
COLUMBUS, GEORGIA 31908  
404 324-6661

**OPERATIVE REPORT**

DATE OF ADMISSION: 6/19/85.  
HUGHSTON SPORTS MEDICINE HOSPITAL.

DATE OF SURGERY: 6/19/85.

WHAT: Left knee.

HOW: Softball accident.

WHEN: 6/8/85.

WHERE: Lexington, Alabama.

HISTORY: This is a 17 year old white female to be senior multi-sports enthusiast who was playing softball as a catcher on 6/8/85. She was in a crouch position with her weight on both feet and was blindsided and run over by a baserunner. She sustained an injury to her left knee with immediate swelling and inability to walk, but without pain. She has continued to try to walk and run on her knee, but complains of continued instability. She was evaluated by Doctor Jeffres in Florence, Alabama who suggested reconstruction. The patient was referred by friends and opted for surgery here.

PREOPERATIVE DIAGNOSIS: 1. 3+ anteromedial and antero-lateral rotatory instability, left knee.

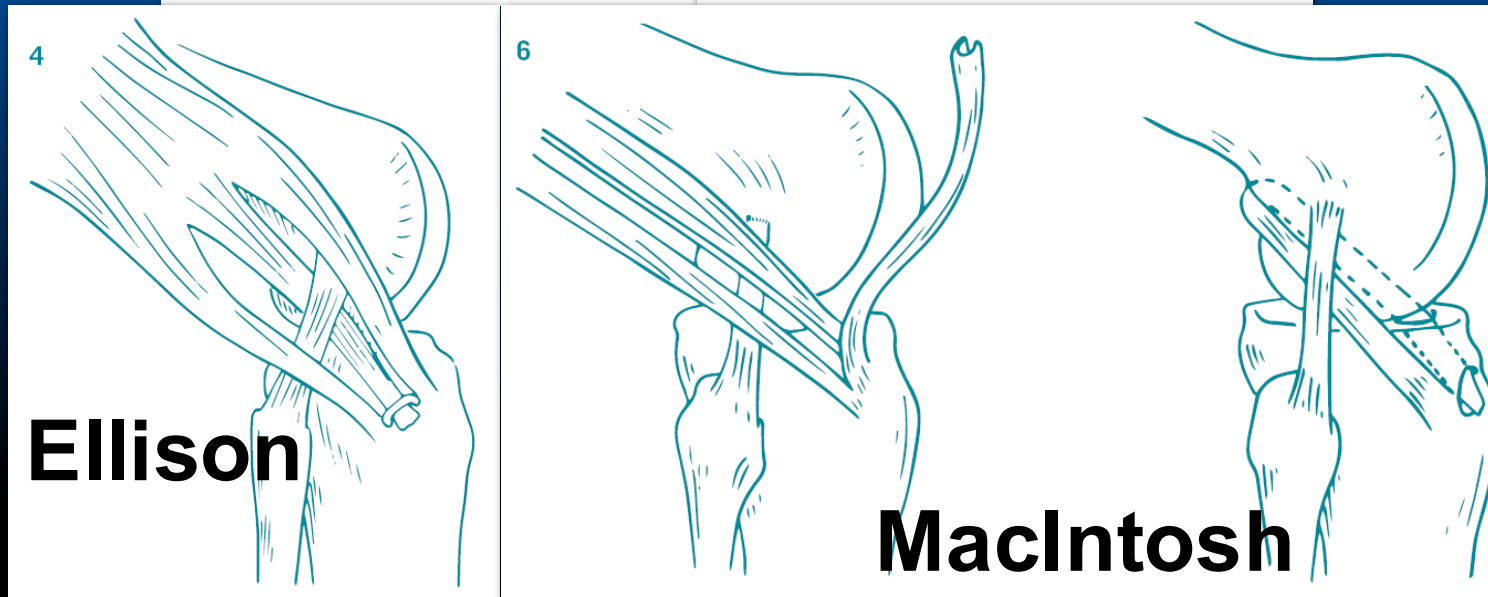
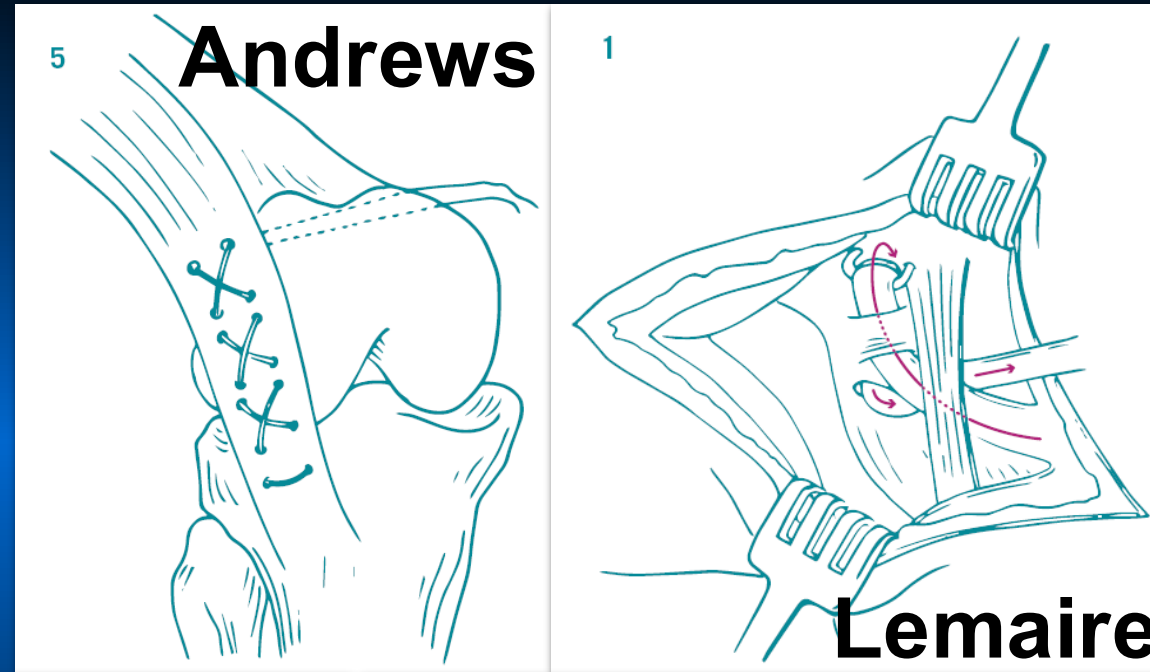
POSTOPERATIVE DIAGNOSIS: 1. 3+ anteromedial and antero-lateral rotatory instability, left knee.  
2. Normal menisci.

SURGEON: James R. Andrews, M.D.

ASSISTANT: Mary L. Ireland, M.D.  
Rick K. St. Pierre, M.D.

PROCEDURE PERFORMED: 1. Exam under anesthesia, left knee.  
2. Arthrotomy and acute repair of medial capsular and tibial collateral ligaments at mini-reconstruction iliotibial tract of left knee.

# Extraarticular IT Band Procedures

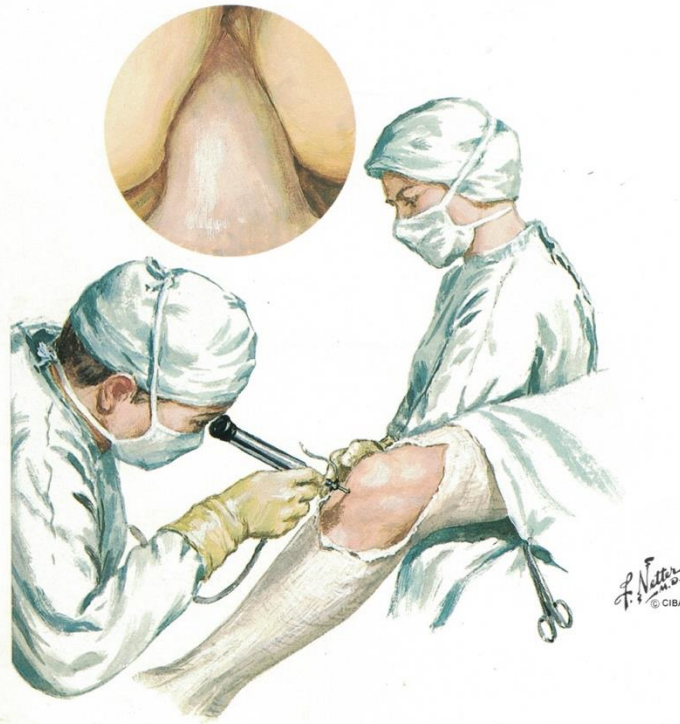




# CLINICAL SYMPOSIA

C I B A

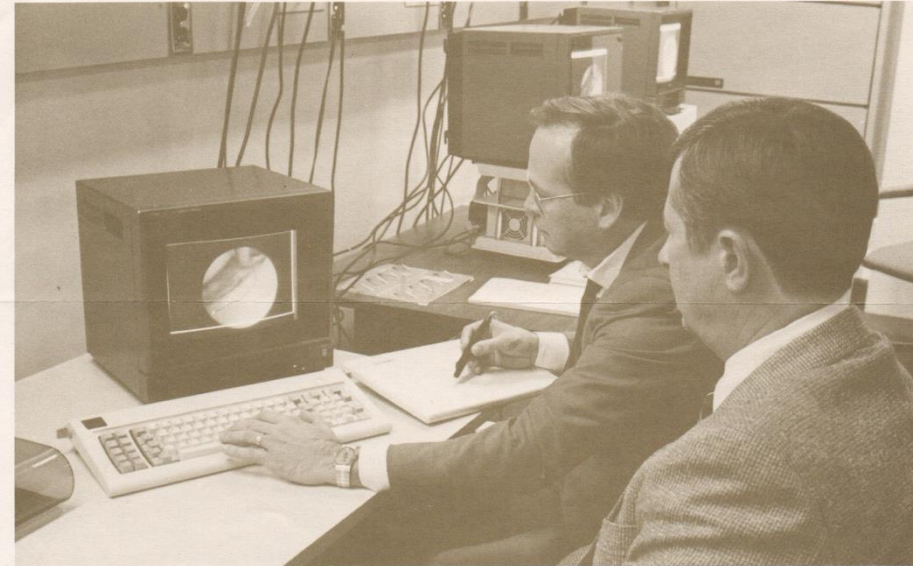
Volume 34 Number 3 1982



## Diagnostic and Surgical Arthroscopy

Lanny L. Johnson, MD

## Laser Videodisc CME for Orthopaedic Surgeons



James R. Andrews, MD, Columbus, Ga., tries out the Academy's new orthopaedic CME videodisc developed with the National Library of Medicine (NLM). Looking on is Newton C. McCollough III, MD, chairman of the AAOS Task Force on Computer-assisted Video Education.

### State-of-the-art Technology

A hands-on demonstration of the Academy's new orthopaedic CME videodisc, developed with the National Library of Medicine (NLM), will be held February 21-24 in the Academy's annual meeting registration area, Hall C, New Orleans Convention Center. Plan to experience this innovative educational technology which will be introduced at instructional course No. 105, moderated by John B. McGinty, MD, Friday, February 21, from 8 to 10 am.

AAOS has produced with the National Library of Medicine (NLM) a prototype for a new generation of CME materials for orthopaedic surgeons. The AAOS Task Force on Computer-assisted Video Education, Newton C. McCollough, III, MD, Chairman, managed the project. The AAOS/NLM development of a two-sided laser videodisc is in keeping with the Academy's tradition of using the best technology available for its continuing education programs.

A laser videodisc is a device capable of storing up to 54,000 individual pictures as still frames, or thirty minutes of continuous action (with audio, if desired), or a combination of still frames and audio. The AAOS/NLM disc contains both.

The knee program by James R. Andrews, MD, and John B. McGinty, MD, on one side of the videodisc is for interactive use under control of a microcomputer. The program contains visuals (radiographs, physical exams, arthroscopy) required for a patient simulation. The simulation runs on an IBM PC-type computer connected to a videodisc player and a video monitor.

In addition to educational uses, the videodisc player can be used as a tool to display contents of any visual database. The second side of the videodisc contains database materials on sectional anatomy by Wolfgang Rauschnig, MD, and MRI and CT images of the knee by William V. Glenn, Jr., MD. The user can access this information without external computer control.

**We have come a LONG Way!**

*Laser Videodisc CME  
for Orthopaedic Surgeons*

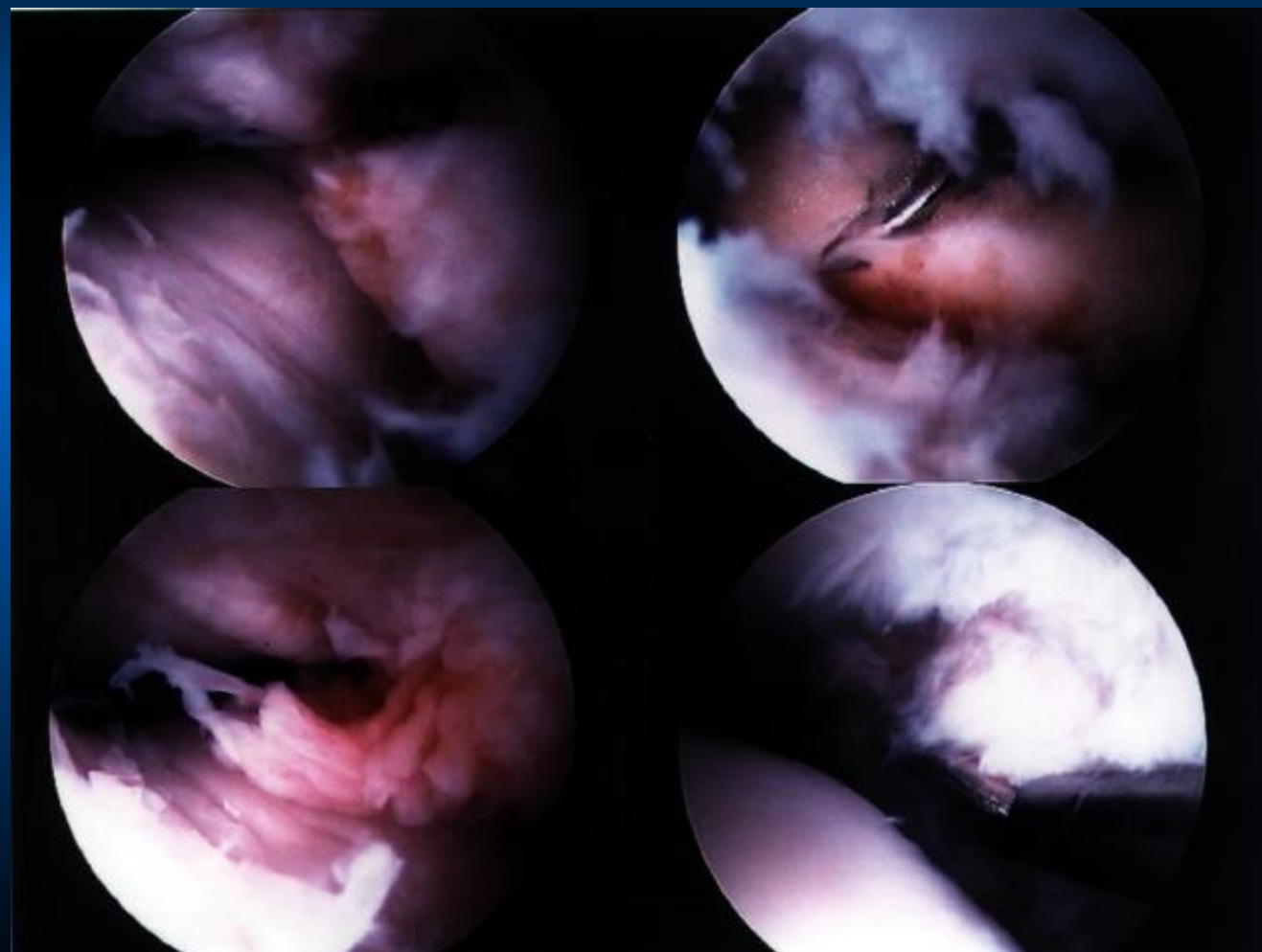
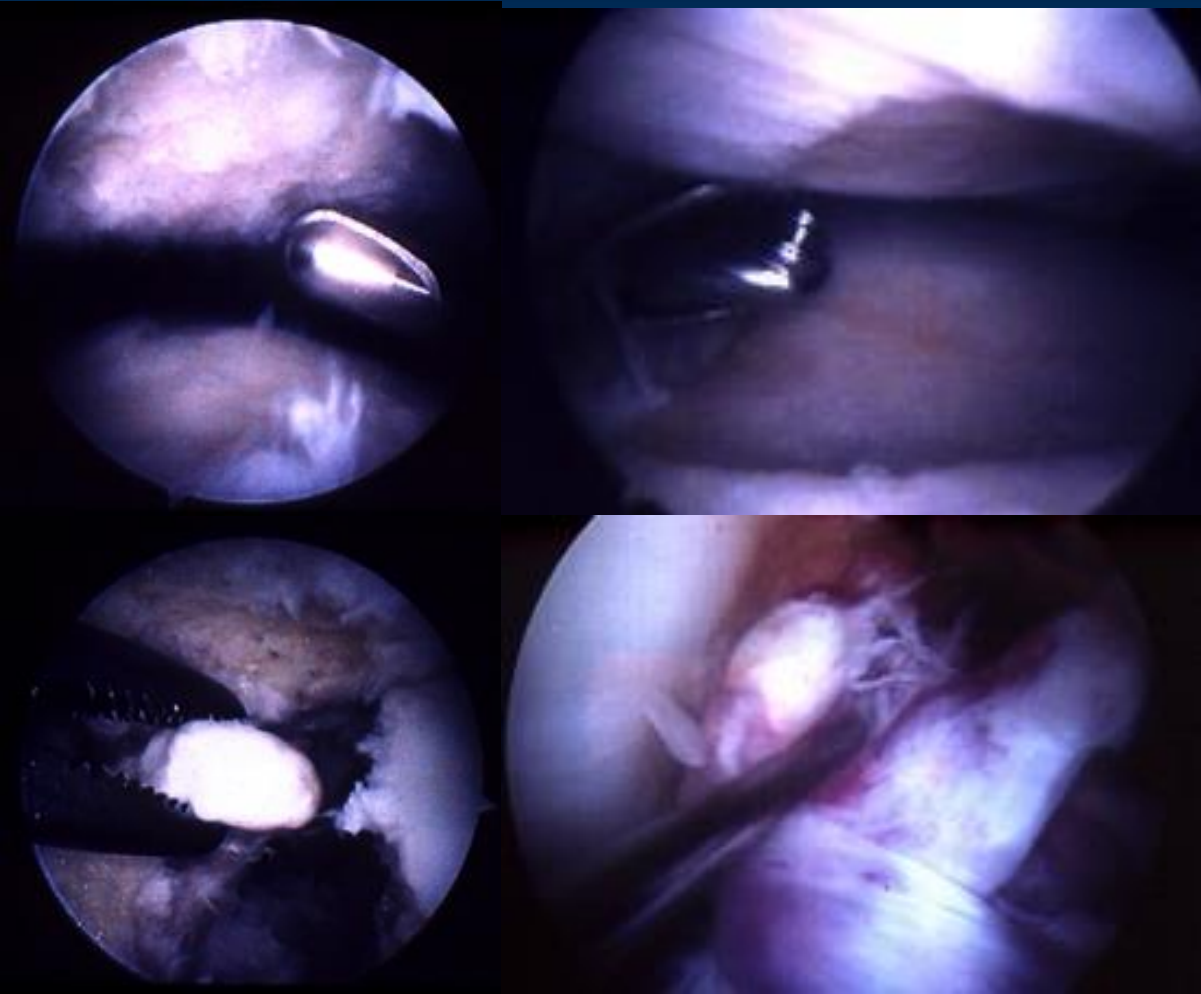


**Extra Articular ITB Reconstruction  
Dr. Andrews Technique**

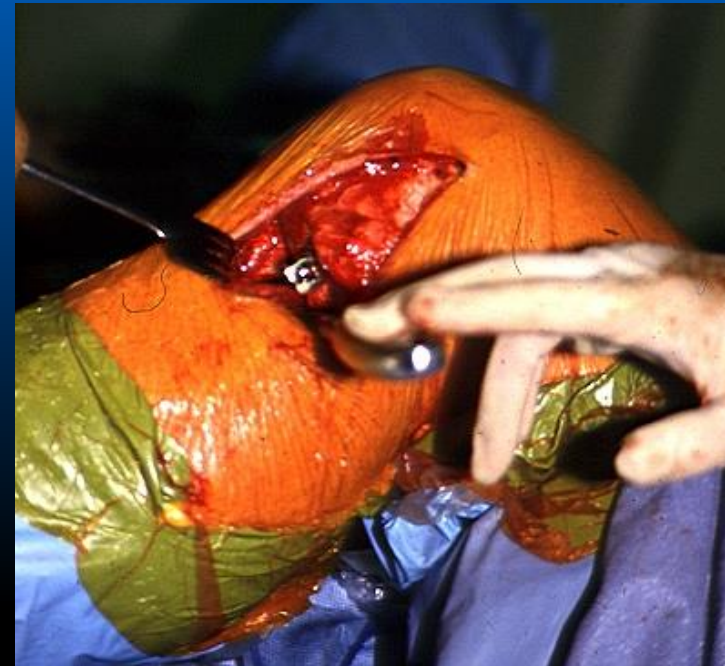
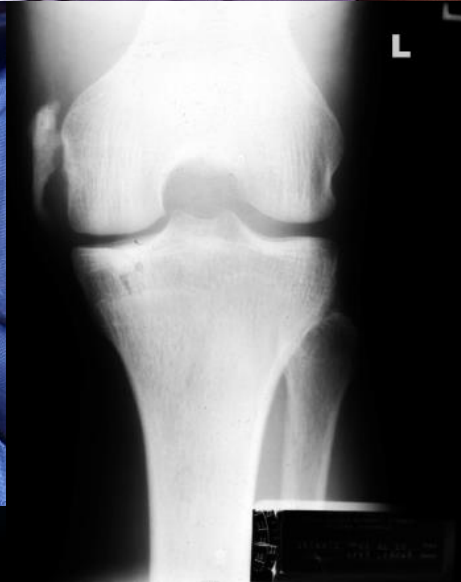


# Arthroscopic view 1990

## Debridement of Arthrofibrosis



# 1985 Hughston Clinic My Fellowship





# **What Doesn't Change**

- **Caring**
- **Doing your best to treat your patients**
- **Doing the Right Thing**
- **Listening**
- **Examining**
- **Knowing the Literature**
- **Don't Make the Same Mistakes Twice**

# **What Does Change**

- **Surgical Techniques**
- **Access to Internet Opportunities**
- **Death of Family, Mentors, and Friends**

# Willem van der Merwe





# John Feagin

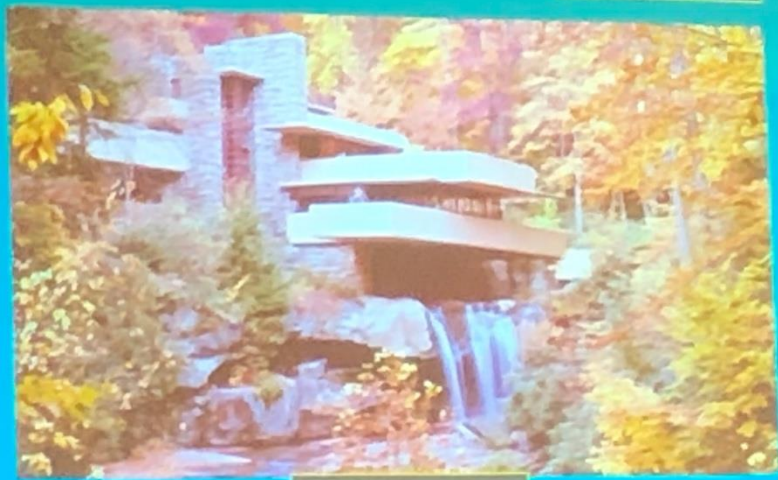




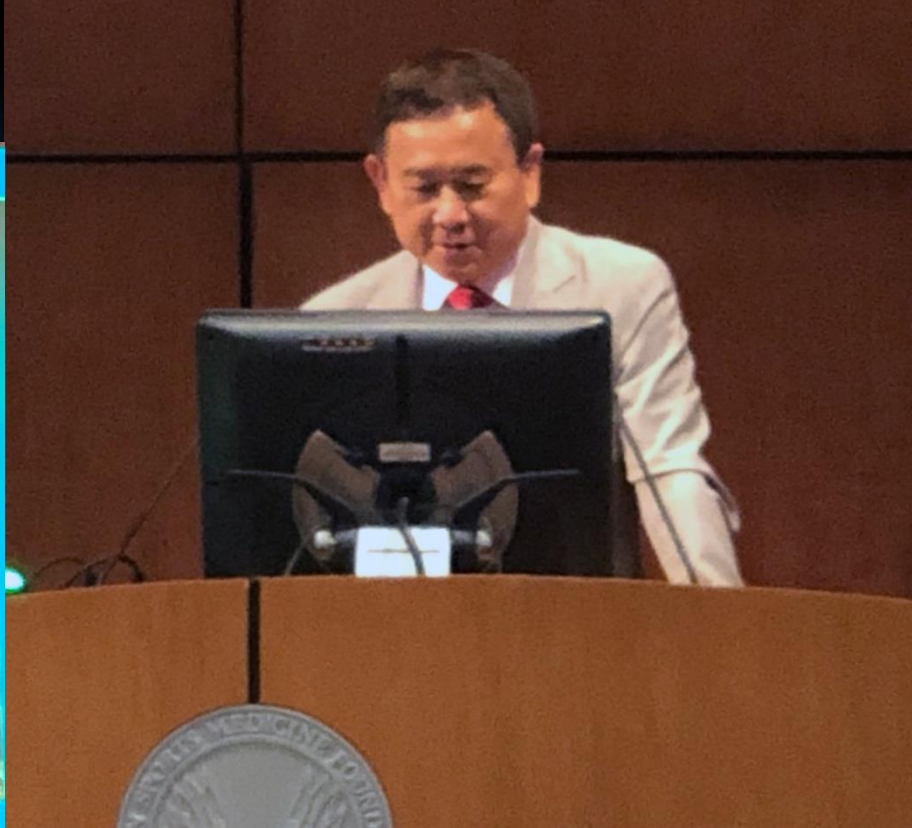
# Freddie Fu

"Study nature, love nature, stay close to nature. It will never fail you."

Frank Lloyd Wright



Fallingwater

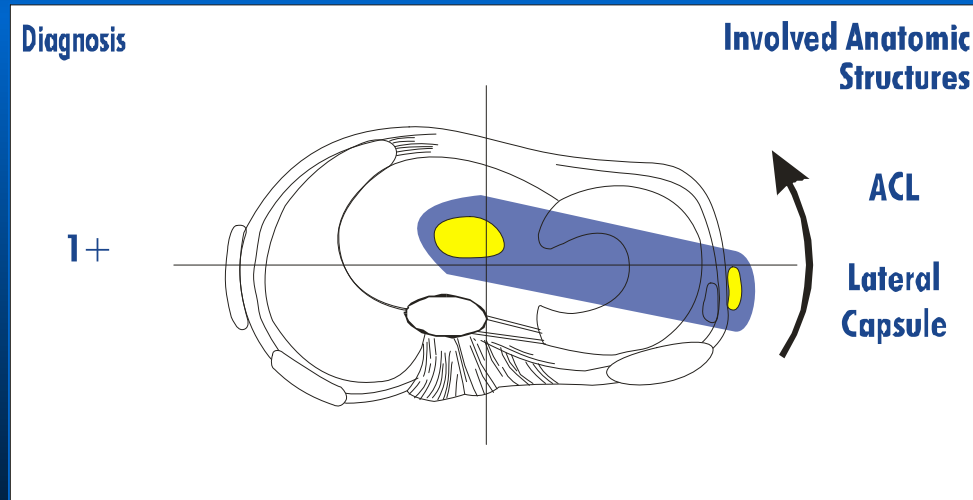




# Concept of Rotatory Instability, Not Cruciate-Deficient Knee

## James Andrews Fellow

- Hughston Clinic, Columbus Georgia, 1984-1985
- I became a better listener & knee examiner



### Antero-Lateral Rotatory Instabilities (ALRI)

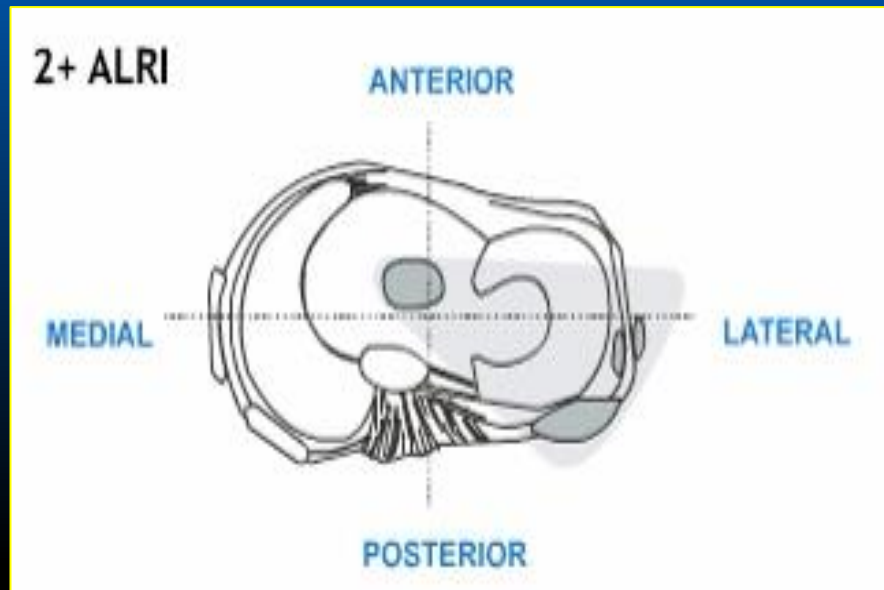


Hughston JC, Andrews JR, Cross MJ, Moschi A: Classification of knee ligament instabilities Part 1. The medial compartment and cruciate ligaments. Part 2: The lateral compartment. J Bone Joint Surg Am 1976;58:173-179.



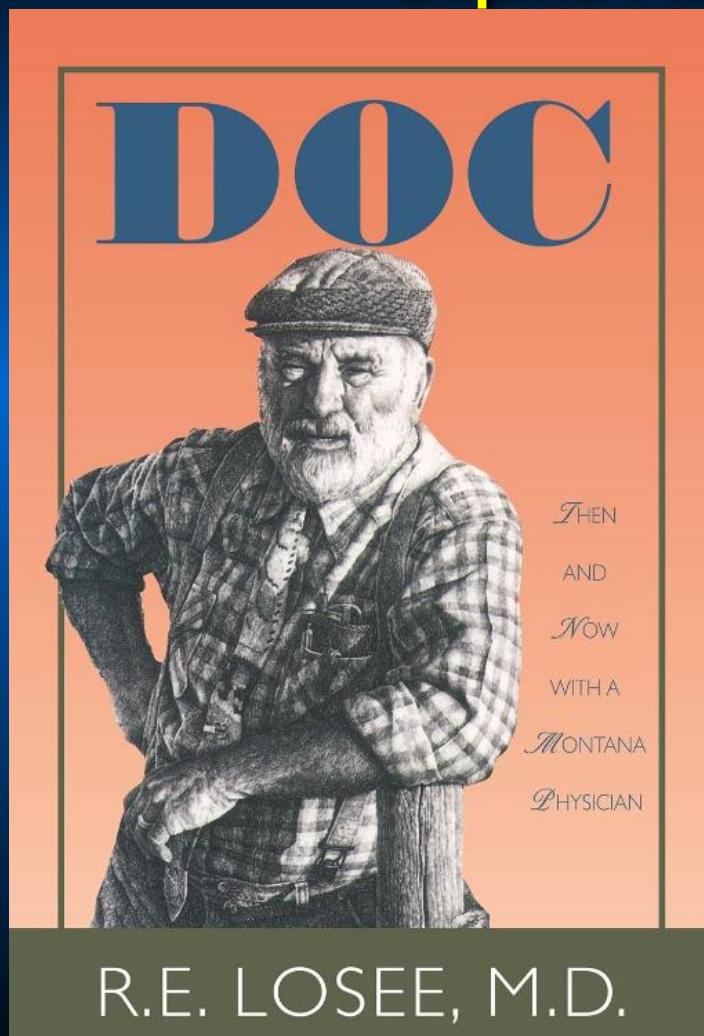
## Pivot Shift

Lateral tibial plateau  
internally rotating, anteriorly  
subluxing at 30 to 0 degrees





# Doc: Then and Now with a Montana Physician Ron Losee, M.D. Supine Pivot Shift Subluxation Test



Losee RE, Johnson TR, Southwick WO. Anterior subluxation of the lateral tibial plateau. A diagnostic test and operative repair. J Bone Joint Surg Am. 1978 Dec;60(8):1015-30. PMID: 721850.



Sweden 1990



Hans Staubli

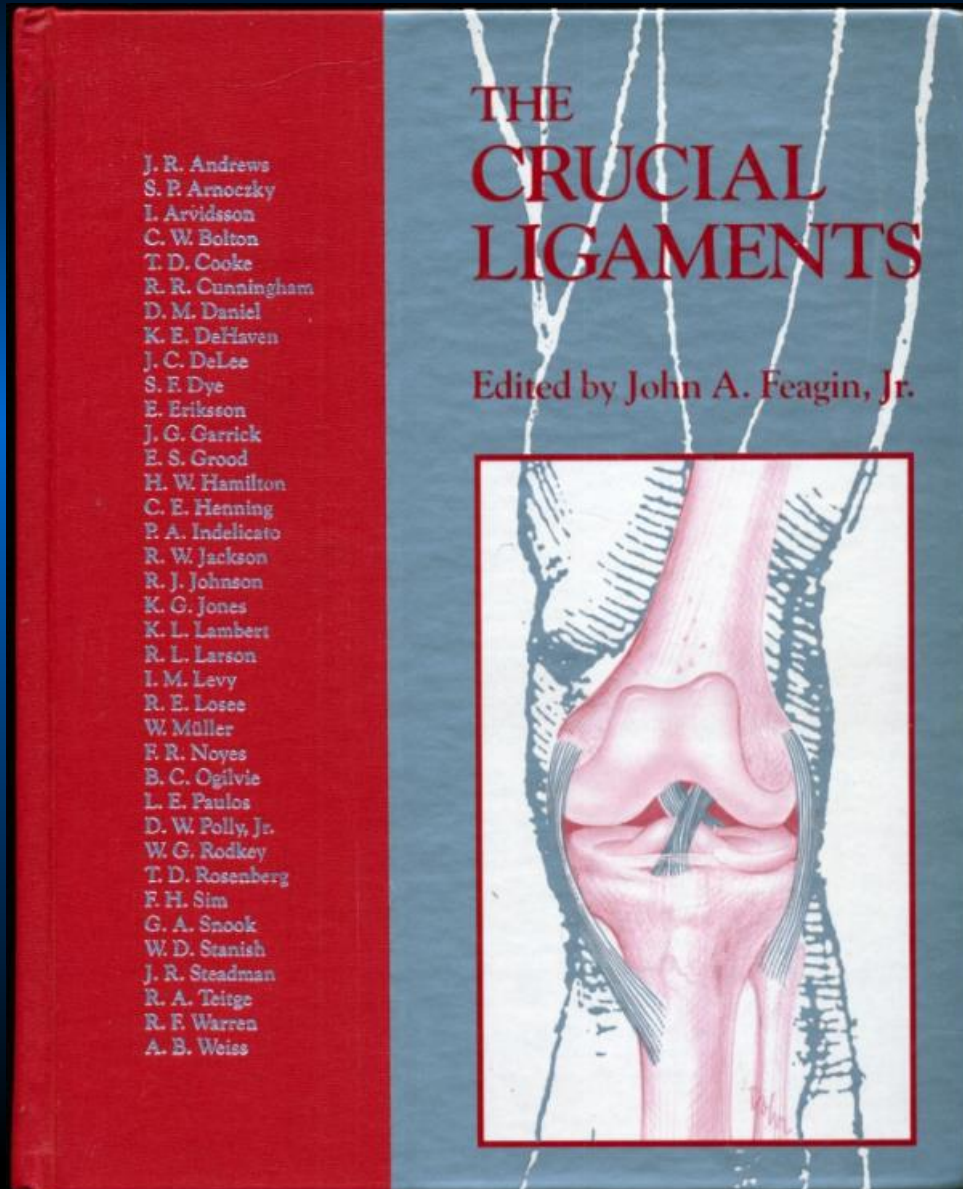
Werner Müller



Roland Jakob

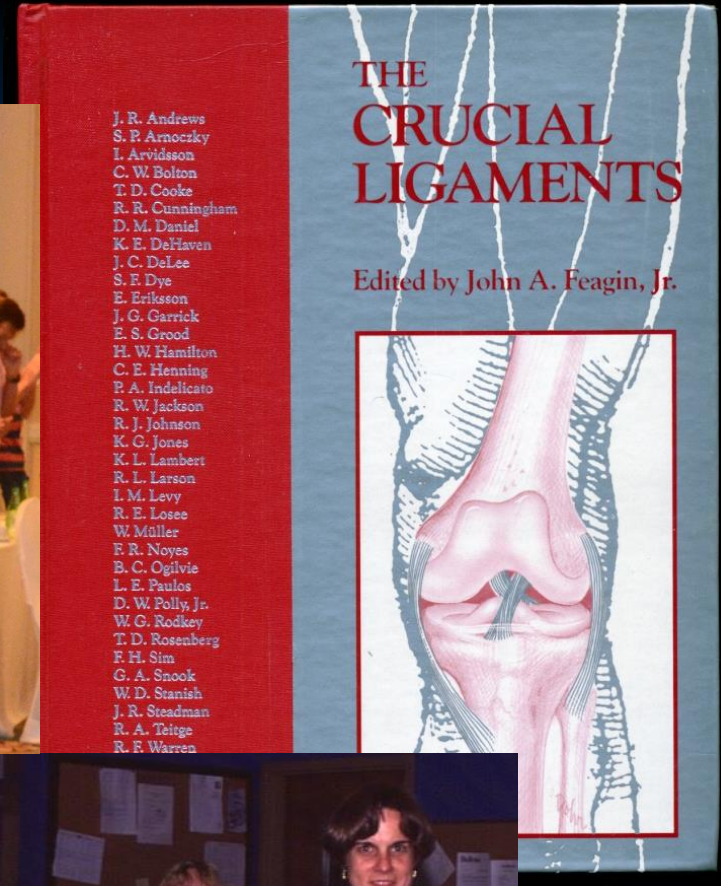


# Published 1988





# John Feagin







**“Inadequate exam is probably the most common cause of failure in care of the knee. It is a discipline that can be taught at all levels.”**



**ACLSG Cape Town 2014**



# Prone Waggle Test John Feagin, M.D.

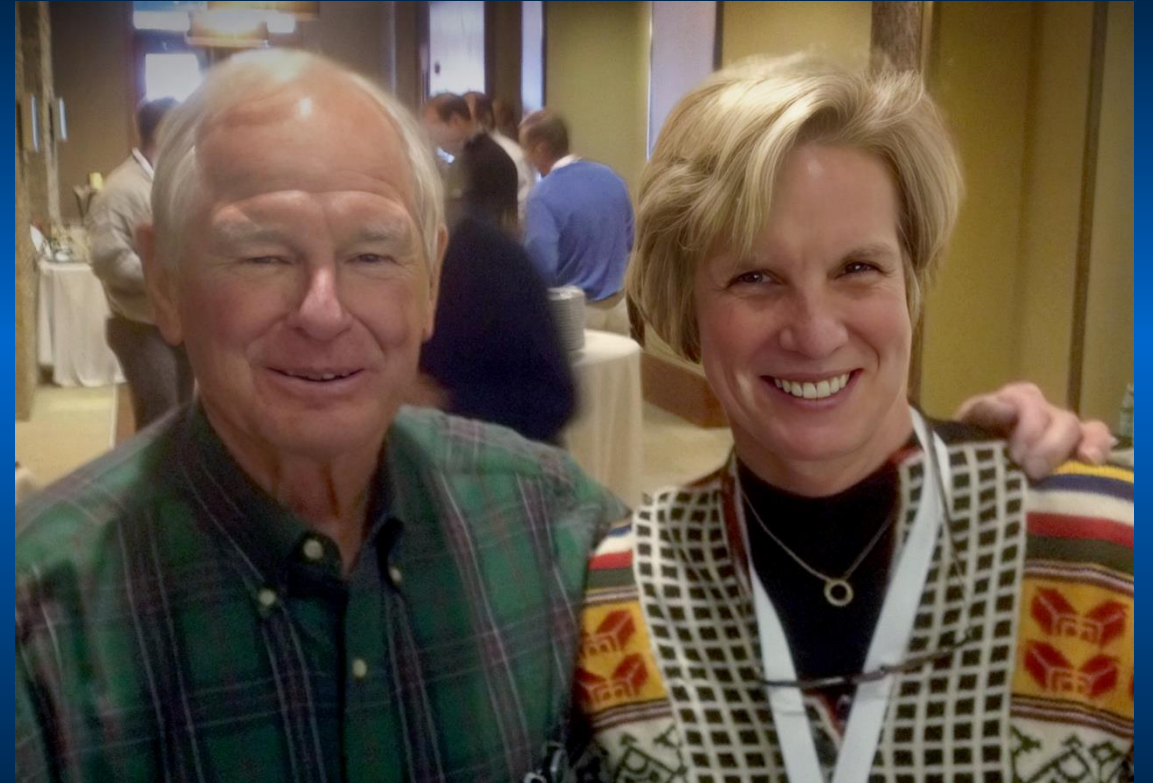


Feagin JA Jr. Physical Examination of the Knee Some Philosophical Thoughts and a New Test. Iowa Orthop J. 1987;7:69–71. PMCID: PMC2328864.



**“Repair doesn’t work.” John Feagin**  
**Isolated tear of the anterior cruciate ligament: 5-**  
**year follow-up study**

**Isolated tears of the anterior cruciate ligament: over 30-year follow-up of patients treated with arthrotomy and primary repair.**



- Feagin JA Jr, Curl WW. Isolated tear of the anterior cruciate ligament: 5-year followup study. Clin Orthop Relat Res. 1996 Apr;(325):4-9. doi: 10.1097/00003086-199604000-00002. PMID: 8998897.
- Taylor DC, Posner M, Curl WW, Feagin JA. Isolated tears of the anterior cruciate ligament: over 30-year follow-up of patients treated with arthrotomy and primary repair. Am J Sports Med. 2009 Jan;37(1):65-71. doi: 10.1177/0363546508325660. Epub 2008 Nov 24. PMID: 19029313.

# **“Repair with BEAR does Work”**

**Martha Murray**

- **2019 BEAR works in humans.**
- **29 Published Bear Articles**
- **5 year follow up**



Fleming BC, Baranker B, Badger GJ, Kiapour AM, Ecklund K, Micheli LJ, Murray MM. Bridge-Enhanced Anterior Cruciate Ligament Restoration: 6-Year Results From the First-in-Human Cohort Study. Orthop J Sports Med. 2024 Aug 13;12(8):23259671241260632. doi: 10.1177/23259671241260632. PMID: 39143986; PMCID: PMC11322937.

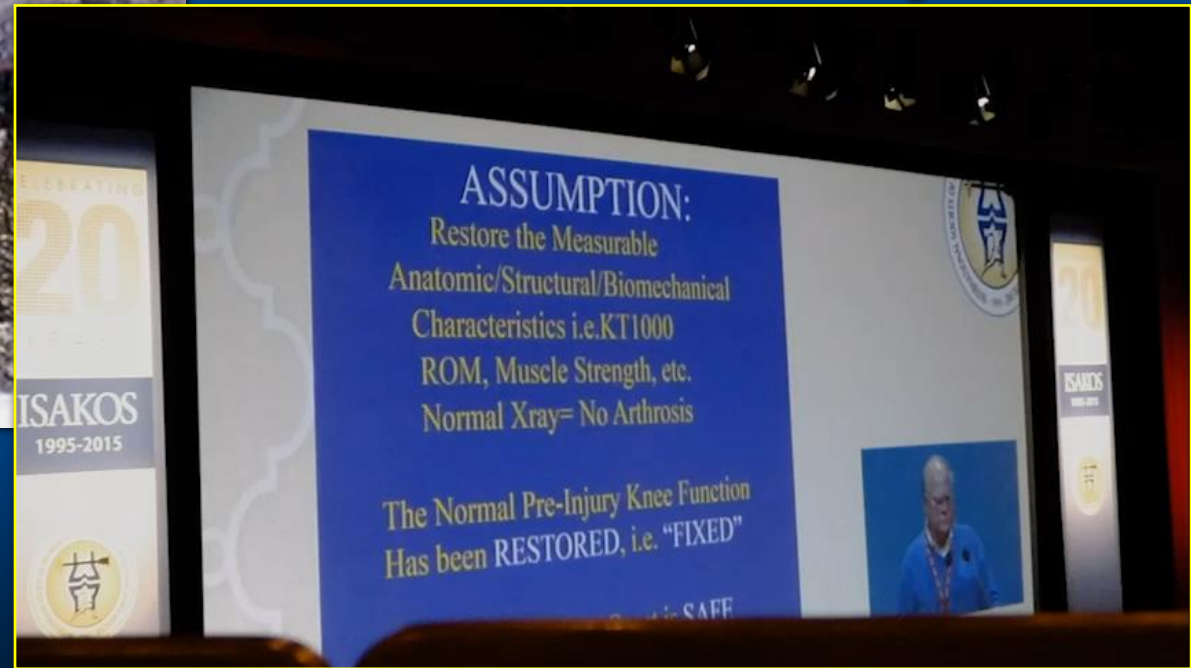




## ACLSG Beaver Creek 1998



## ISAKOS Lyon, France 2015 Scott Dye, M.D.



- Dye SF. The knee as a biologic transmission with an envelope of function: a theory. Clin Orthop Relat Res. 1996 Apr;(325):10-8. doi: 10.1097/00003086-199604000-00003. PMID: 8998861.
- Dye SF, Wojtys EM, Fu FH, Fithian DC, Gillquist I. Factors contributing to function of the knee joint after injury or reconstruction of the anterior cruciate ligament, J.boe Joint Surg 80-A (9) pp1380-1393, 1998.

# Find and Maintain Knee Homeostasis

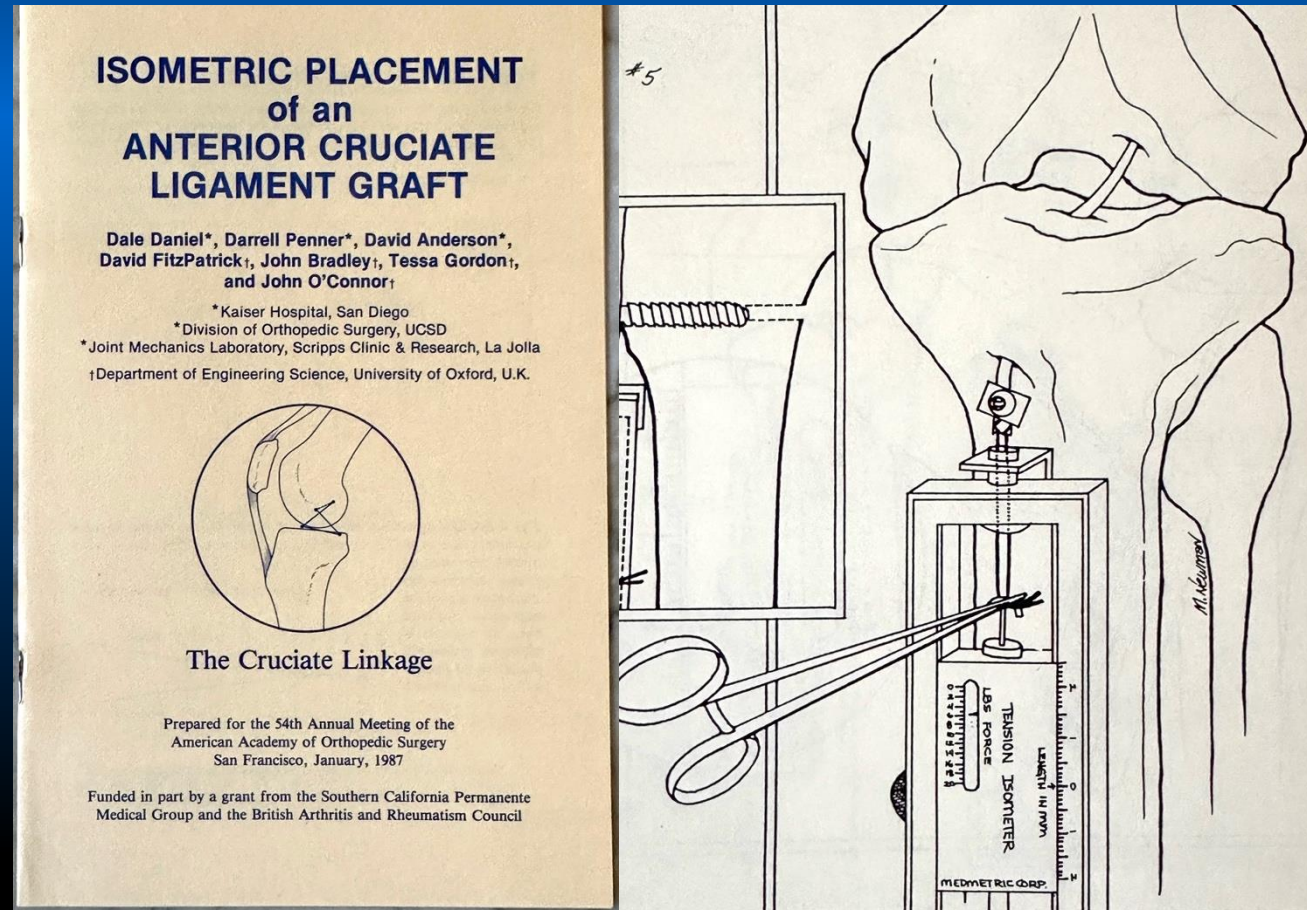


- Avoid leaving your sweet spot
- Stay within your envelope of function



# Isometry and Tension

- Are the grafts too tight?
- Are we over constraining?
- Remember the tension isometer?



# Understanding and Preventing Noncontact Anterior Cruciate Ligament Injuries: A Review of the Hunt Valley II Meeting

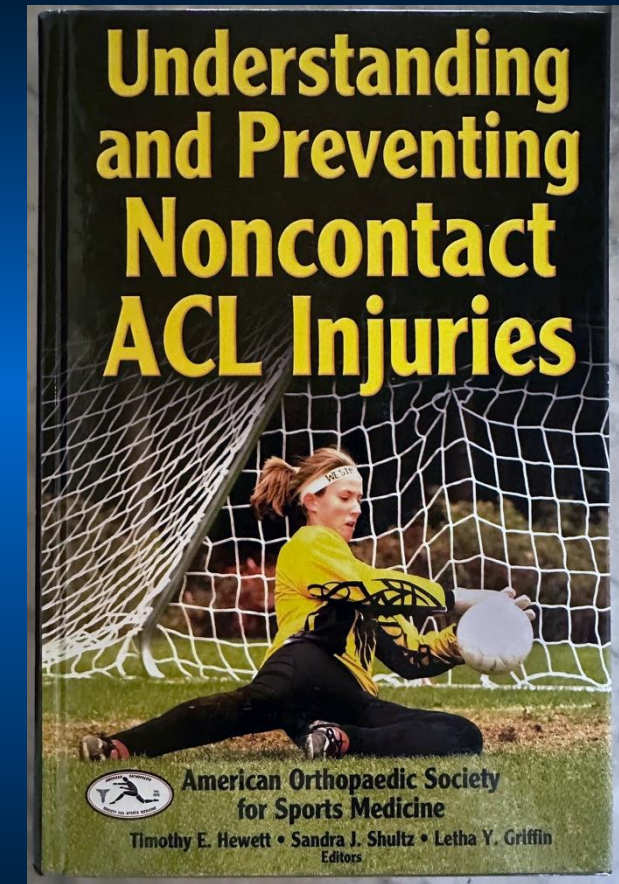
30 Participants in Think Tank in 1999

## Prevention Program Principles

- Land on Flexed Knee and Hip
- Hip Over Knee over Ankle
- Back Neutral Hip Not in ADD or IR
- Soft Landing Well Balanced

**Biomechanical Risk Factors Most Important  
NOT Environmental, Anatomic, or Hormonal**

To scientifically implement Prevention Programs  
**We Must Understand and Rank the Risk Factors.....**



Letha Y. Griffin, MD, PhD [lethagriff@aol.com](mailto:lethagriff@aol.com), Marjorie J. Albohm, MS, ATC, Elizabeth A. Arendt, MD, Roald Bahr, MD, PhD, Bruce D. Beynon, PhD, Marlene DeMaio, CAPT, MC, USN, Randall W. Dick, MSc, Lars Engebretsen, MD, PhD, William E. Garrett, MD, PhD, Jo A. Hannafin, MD, PhD, Tim E. Hewett, PhD, Laura J. Huston, MSc, Mary Lloyd Ireland, MD, Robert J. Johnson, MD, Scott Lephart, PhD, ATC, Bert R. Mandelbaum, MD, Barton J. Mann, PhD, Paul H. Marks, MD, Stephen W. Marshall, PhD, Grethe Myklebust, PhD, Frank R. Noyes, MD, Christopher Powers, PhD, Clarence Shields, Jr, MD, Sandra J. Shultz, PhD, ATC, Holly Silvers, MPT, James Slauterbeck, MD, Dean C. Taylor, MD, Carol C. Teitz, MD, Edward M. Wojtys, MD, and Bing Yu, PhD. Understanding and Preventing Noncontact Anterior Cruciate Ligament Injuries: A Review of the Hunt Valley II Meeting, January 2005. The American Journal of Sports Medicine. 2006;34(9):1512-1532. doi:10.1177/0363546506286866



# Prevention Guardians of the Knee



## Who is driving the ACLR RTP Train?

Physical Therapists  
Athletic Trainers

Young  
Athletes

Parents

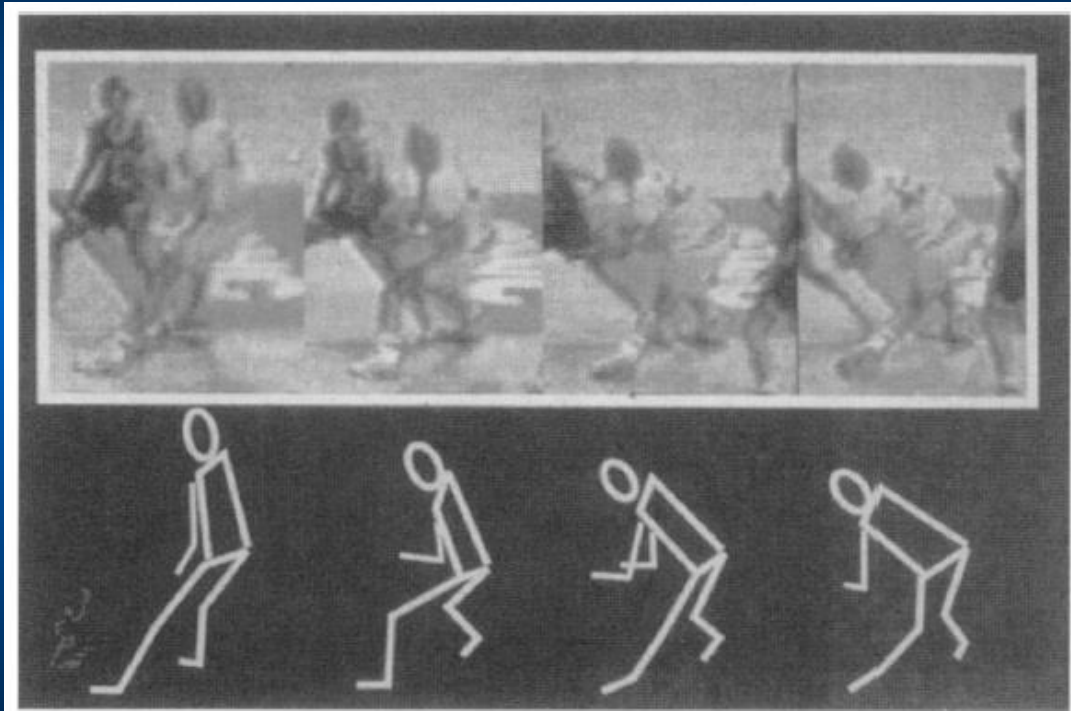
Docs

Coaches

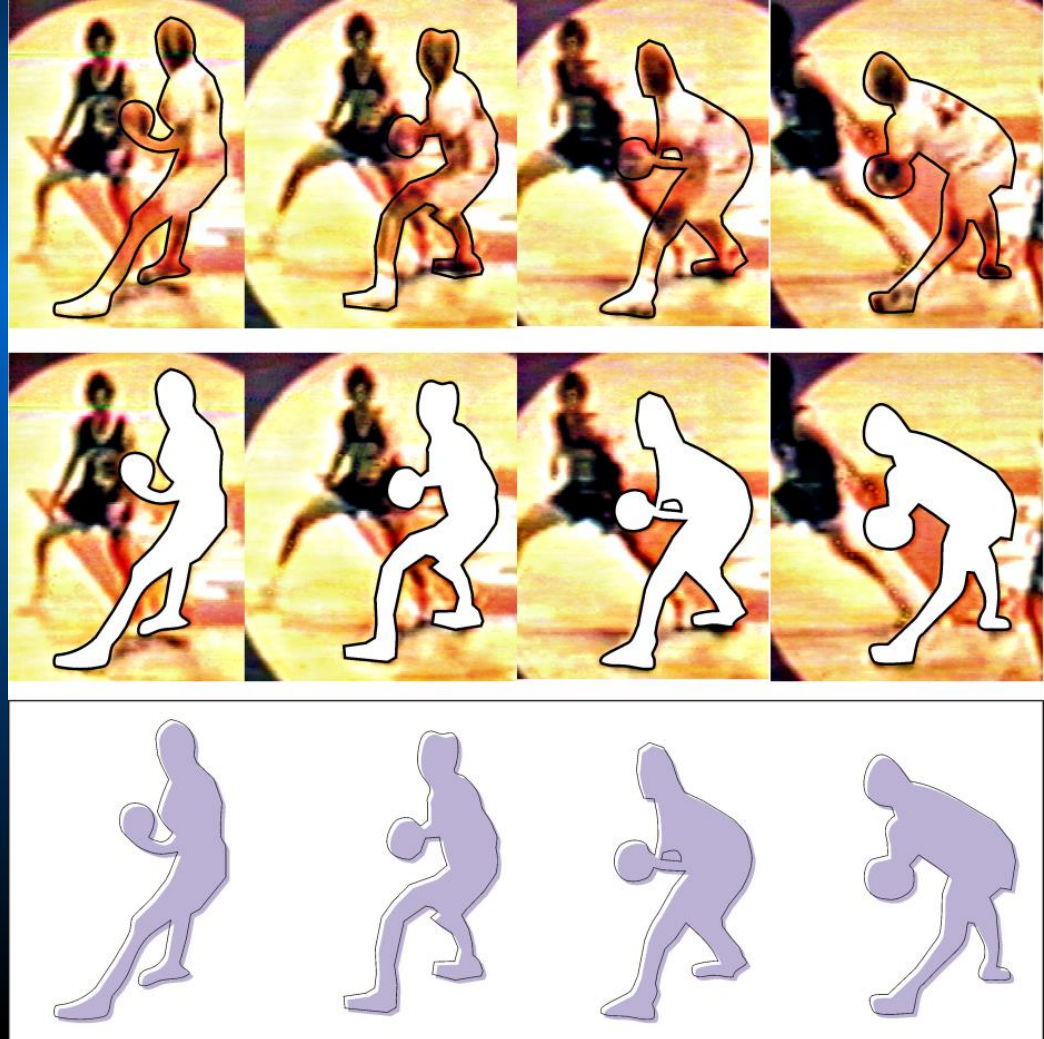




# Ireland, ML. **Anterior Cruciate Injury in Female Athletes: Epidemiology**, in J Athletic Training 1999;34(2), 150-154.



**Figure 3. Injury to the left knee as observed from the back and left side of the athlete. She has just rebounded and stops to change direction to avoid the defending player. She lands in an upright position with less knee and hip flexion and forward-flexed lumbar spine. After the ACL fails, she falls forward, and knee valgus rotation and flexion increase. She is unable to upright herself and regain pelvis control to avoid ACL injury.**

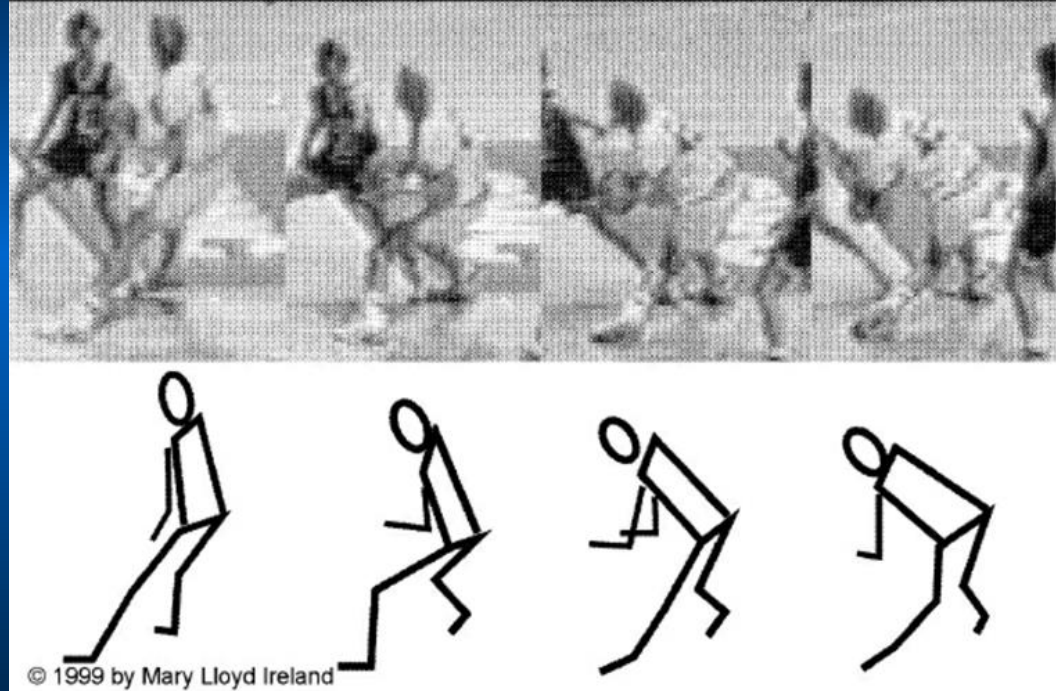




# Injury Prevention-ACL Tear

## Simple as: ABC's

- **A**gility
- **B**alance
- **C**ore
- **S**trength



- Position of No Return vs Position of Safety
- We must teach athletes to land in a safe position?
- Not All ACL Injuries Are Preventable.....

# View Through the Lens: Reflections of A Generation of Orthopaedic Practice





# Fellowships with Lyle Micheli & James Andrews



**Mentors, Peers, & Friends**





The  
F





# Thank You!

**Mary Lloyd Ireland MD** – Professor  
Dept. of Orthopaedic Surgery and  
Sports Medicine  
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[www.marylloydireland.com](http://www.marylloydireland.com)

# Obrigado!



**ACL** Biennial Meeting  
Study Group  
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