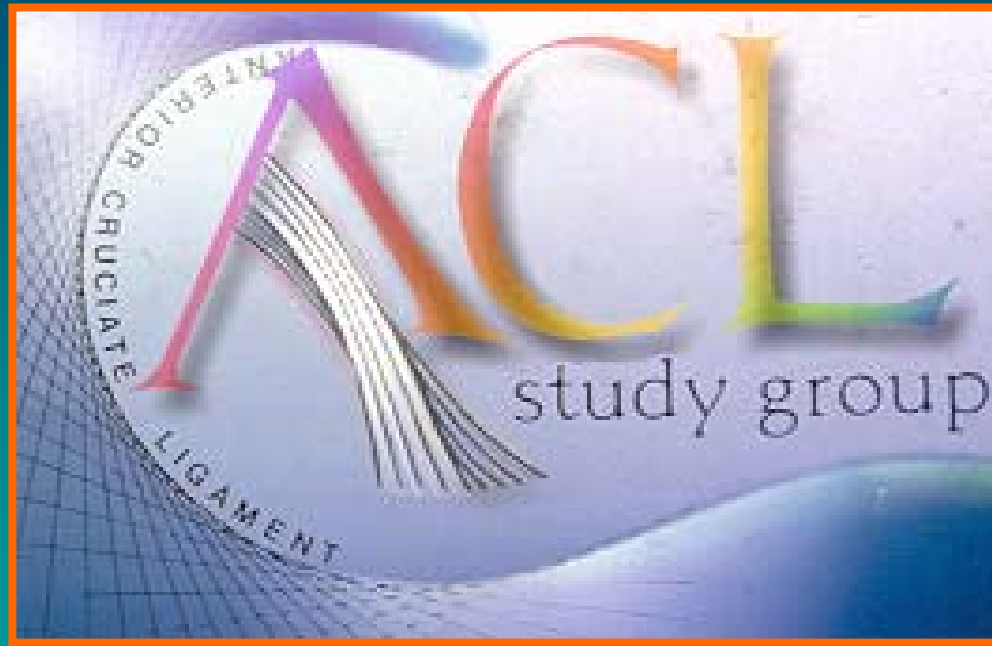
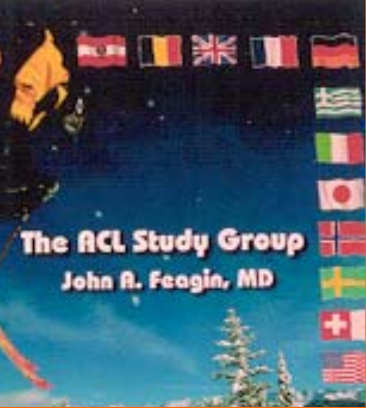
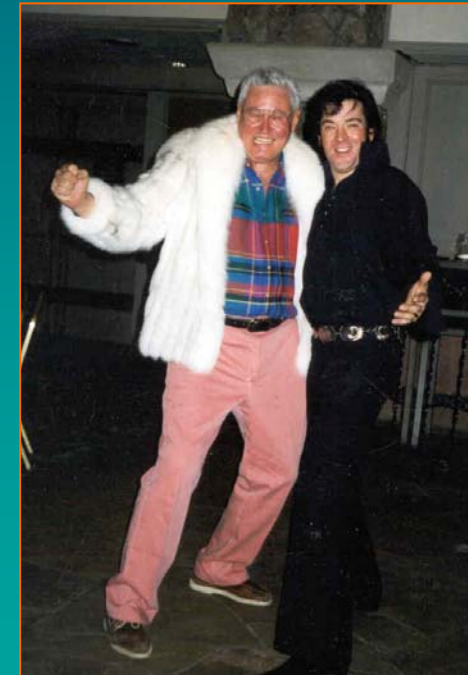


Primary Repair and the ACL SG





- **Who are we and why re-visit primary repair?**
- **This is an important rhetorical question**
- **The Subject and the Presentation are defined by Who we think we are and who we are**





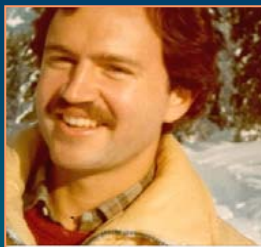
Who are we and why re-visit Primary Repair?

An Important rhetorical question

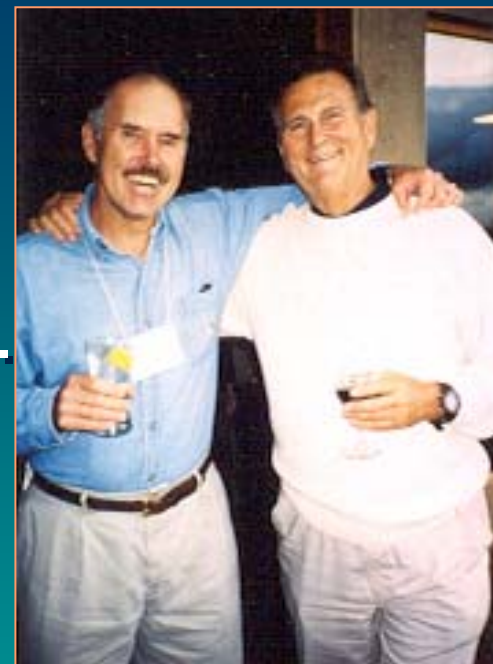
- You are the Standard setters.
- We are scholars who enjoy Socratic debate
- We should serve as an “oversight” committee
- We are the repository for the Historical Perspective
- We should feel the obligation to be judgmental. We are a unique group.
- Prosthetic ligaments will return. Revisiting primary repair is warming up to revisit that discipline.



The way the “re-visitation” began



- We were reminiscing at the last ACL SG and found we were both interested in a “re-visitation”. Reinhold’s support was important to me. We go way back!! We formed a small Study Group. (Lubowitz, Sherman, Boynton, Taylor, Wyman, Potter, Ahmad)
- I have been impressed by the application and success of “the healing response”.
- We have made good progress thanks to Jeff Wyman, **the Group**, and the Arthrex Lab: ie. Suture technique, fixation to the femur, instrumentation etc.





Regarding Primary Repair: I Have often Wondered ?

- Was our **Technique** at fault?
- Did we give up too easily?
- Were West Point Cadets too tough on the Collagen construct?
- How could 1/3 of the results been good?



- John Marshall, Mark Sherman and others were concerned by our poor results. They wrote me that their results of Primary Repair were acceptable in carefully selected cases.
- Perhaps I was deaf to their concerns. My quest was for one operation that would work on all patients all of the time! That operation was augmentation



Cabaud HE, Rodkey WG, Feagin JA

Experimental Studies of Acute Anterior Cruciate Ligament Injury and Repair.

American Journal of Sports Medicine. 7(1): 18-22, 1979 Jan-Feb.

There are 5 specific worries I have about our current concepts of ACL Surgery

1. We never established a “natural history” of the acutely injured ACL. We never graded ACL Tears nor applied “selectivity” to our patient population. We have been slow to understand the mechanism of ACL injury. We do know that all ACL tears are not created equal!!
2. The ACL operation as it has evolved is difficult to master, and has a significant complication rate.
3. John Marshall/Mark Sherman and others had better results at Primary Repair than we did at West Point. They firmly believed in the efficacy of Primary Repair. Suppose John were here to debate the issue today?

Worries... (continued)

- 4. Although I believe through research we explained the reason primary repair failed; (inadequate collagen at the repair site) we did not explain how greater than 30% had satisfactory results in a demanding patient population.**
- 5. The Healing Response of Steadman does work in properly selected and supervised patients. The basic science is supportive of healing potential in proximal tears.**

Arnoczky SP CORR 1983;172:19-25

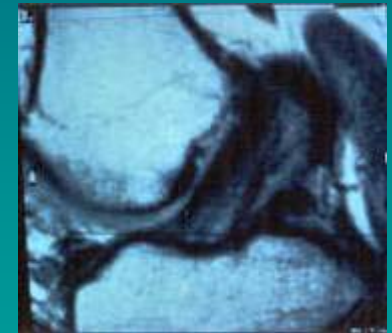
“The vasculature (of the ACL) appears sufficient to support a reparative response & would suggest the preservation & utilization of these soft tissue structures in the repair & reconstruction of the ACL.”

WHY NOW??

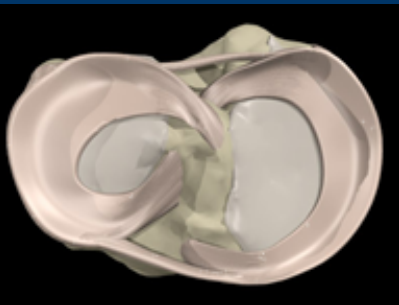
(Re-visit ACL Primary Repair)



- **Basic Science has expanded our knowledge.**
- **We can quantitate the ACL tear and the knee injury better as a result of improved PE, Arthroscopy and MRI. “Isolated” tear is rare but definable.**
- **The IKDC encourages us to integrate the Activity level into the decision making process. Thus encouraging “selectivity”**
- **In acknowledging our progress in the understanding of ACL Injury we recognize a responsibility to tailor the treatment to the Patient and the Pathology.**



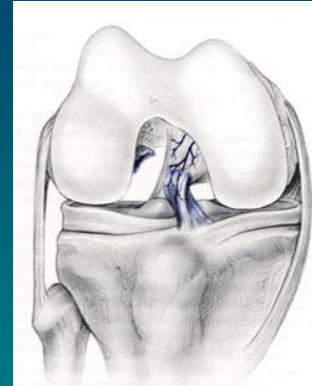
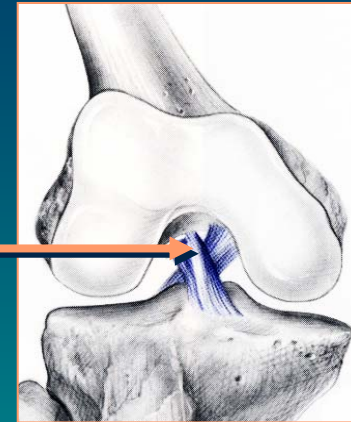
What Do We Know Now That We Did Not Know Then?? (For new Members)



- **The ACL exists to protect the Menisci.**
- **The Pivot shift defines the symptoms and explains the Pathophysiology**
- **The ACL will readily heal to the PCL. (Wittek '38)**
- **The MRI reflects the extent of ACL disruption and can quantitate the amount of injury at the instant of injury (ie bone bruise, meniscal damage, chondral damage, and secondary restraint injury**
- **“Aggressive” Rehab is not for everyone – the ACL can be exposed to significant forces (Johnson et al)**
- **Steadman’s Healing Response does work**

Indications - Primary Repair

- Peel off lesion or tear limited to proximal 1/5th

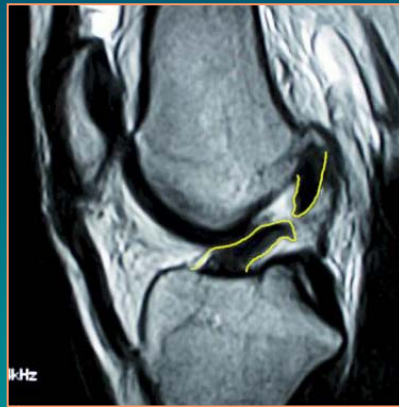


- Diagnose preoperatively by MRI, decreased effusion, limited pivot shift, or at arthroscopy



Contraindications to Primary Repair

- Injury involving more than proximal 1/5th of ACL



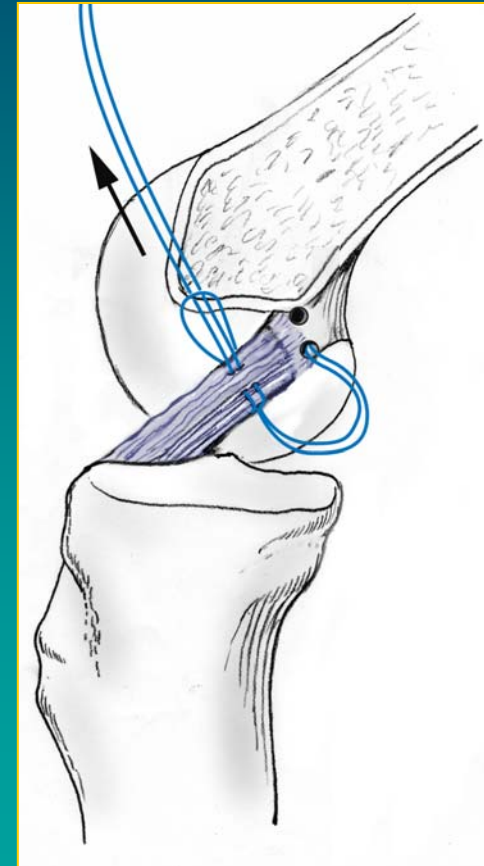
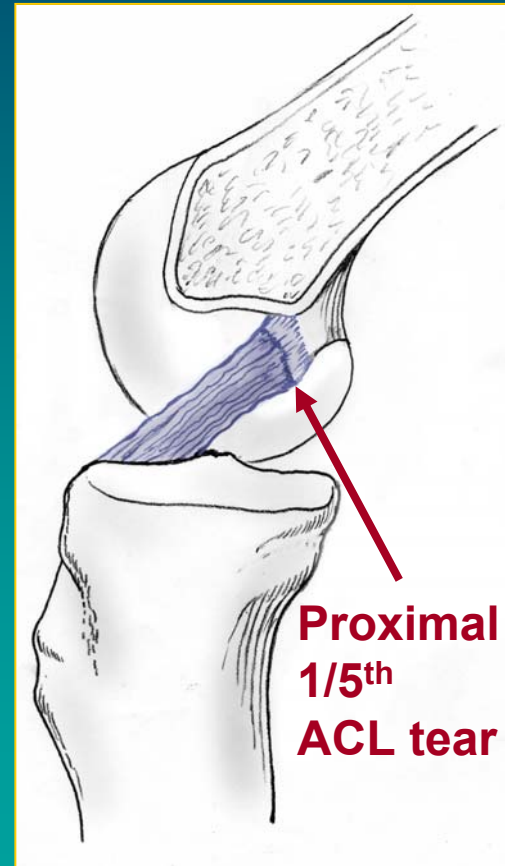
- Patient inability to “follow the program”

- Active Athlete/Patient Expectations



Technique

Primary ACL Repair System

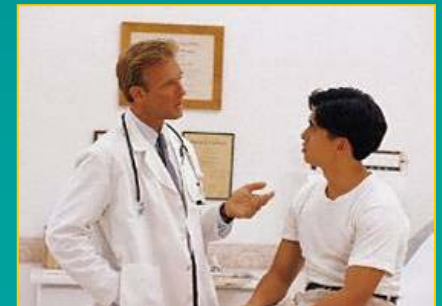


Results

- **Too soon to tell – Too few cases but should be no less satisfactory than the healing response. (Sherman, Lubowitz, Boynton)**

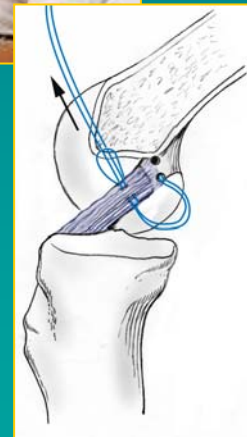
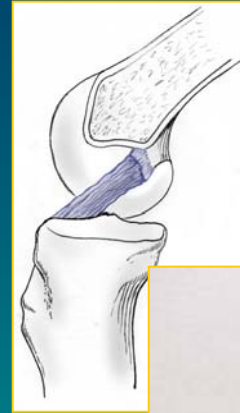


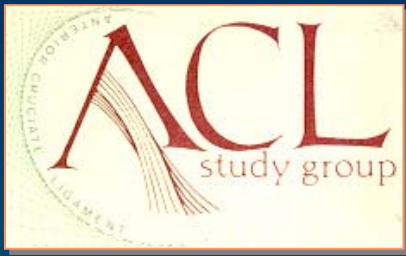
- **The usual patient will be a recreational ski injured patient.**
- **The patient should participate in the decision making and know the options and your “evidence based” thought process.**



Discussion

- ***Be Selective***
- **Tailor the operation to the patient.**
- **Involve the patient in the decision making process.**
Recognize that the patient may control the quality of the result more than you do!
- **Expand your ACL armamentarium.**





In Summary

Why I love the ACL SG!

- *Leadership* is the responsibility of the ACL SG
- Fads, Dead end Roads, and flawed biomechanics are the demons of our craft.
- Self satisfaction, smugness, resting on laurels are anathema to us.
- *Accountability* is the hallmark of the ACL SG.

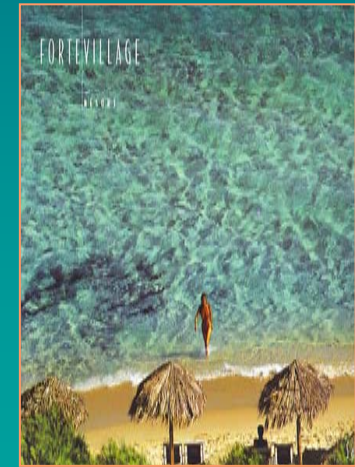


Sardinia



Grazie!

Thank you Matteo and so many more



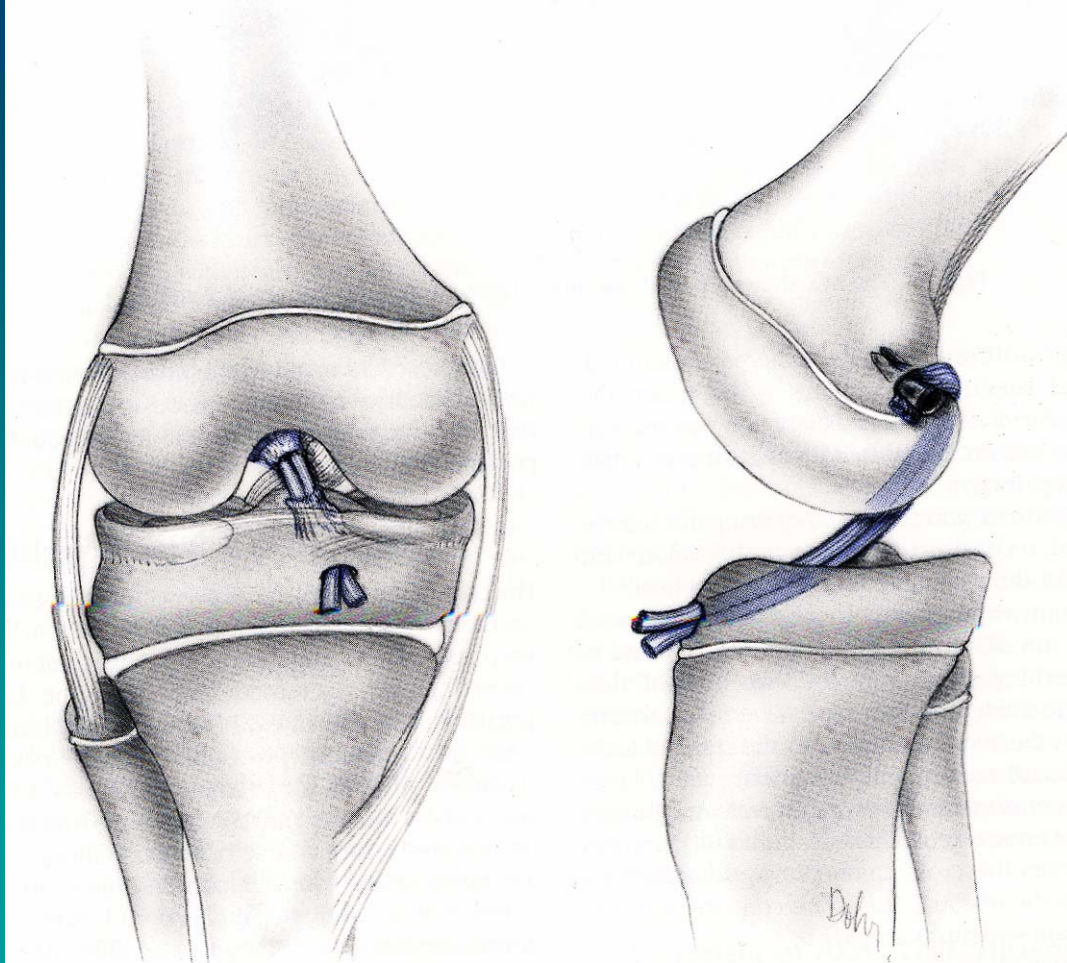
A Tribute to Bergie and Wilma

We Toast to Your



- Leadership and Zest for life
- To your accomplishments both academic and personal
- To your contributions to our lives
- To your “benign dictatorship” over the ACL SG. We have thrived and flourished under your guidance and through your example. Each of us is grateful in some meaningful way for your special dedication and intellectual contributions.
- To your long life and happiness





A Less Invasive Alternative to ACL Reconstruction

The “Healing Response” Technique

**J. Richard Steadman, M.D.
William G. Rodkey, D.V.M.**



“We Were Soldiers Once
and Young”

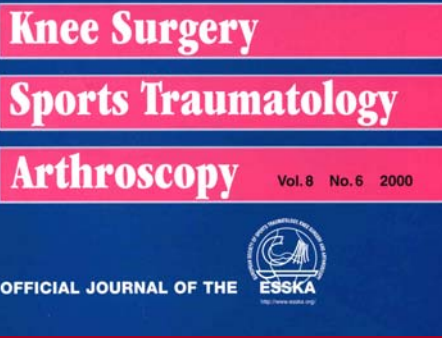
THE ACL SG 1978-2002

Roots/Internationality

Leadership

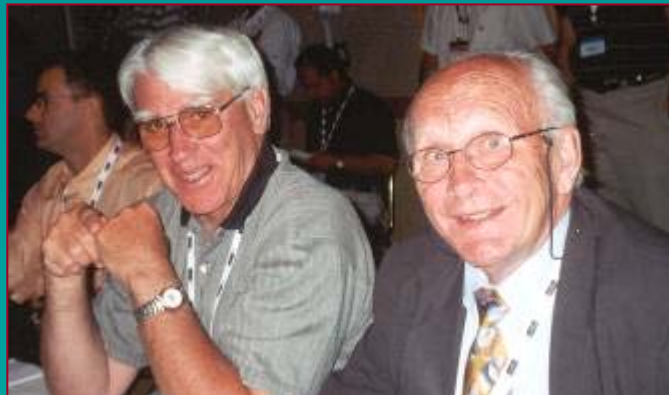
Membership

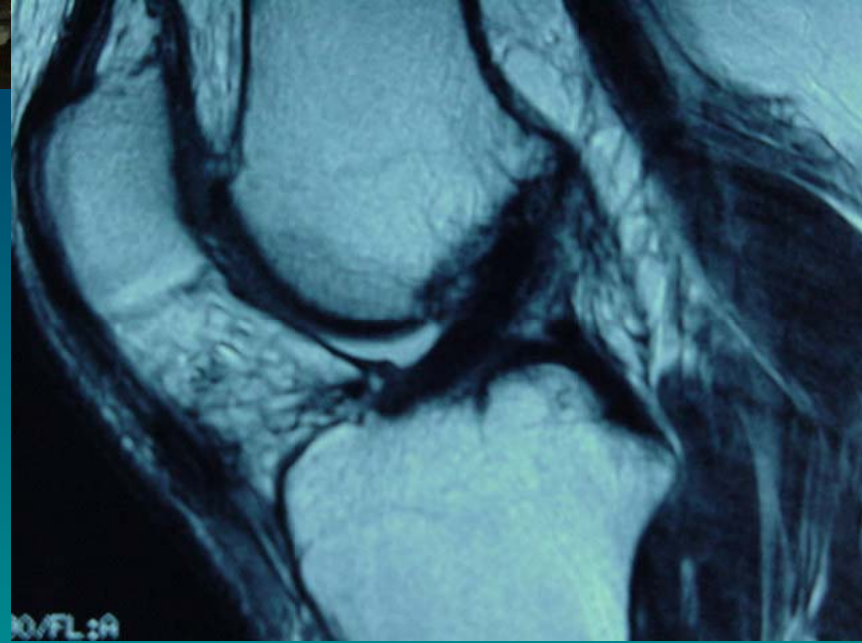
Commercial Colleagues



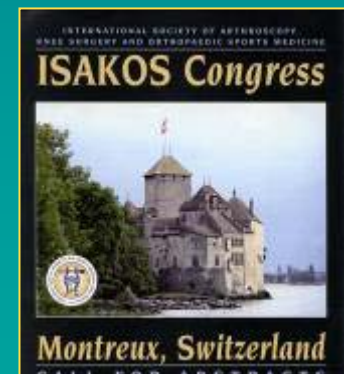
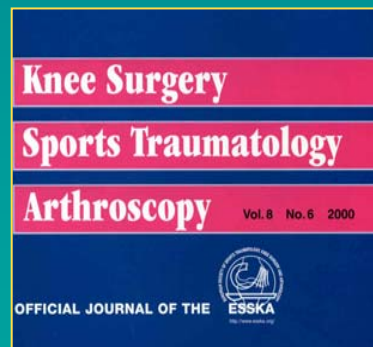
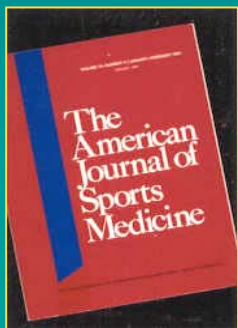
Thank You

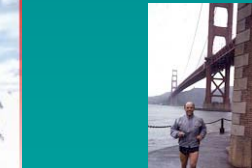
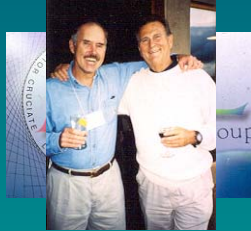
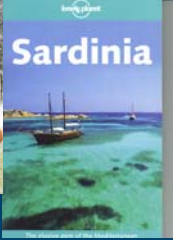
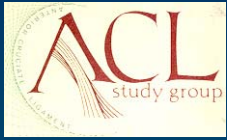
For ESSKA, for AOSSM, for Sports Traumatology, for our long and productive friendship and special thanks to Tassos.





- Over the years, thanks to you, ESSKA, AOSSM, ISAKOS, the IKDC and many others we have made great progress in the understanding of the ACL injury.
- Is it now time to reevaluate our Patient Selection and Treatment regimens based on this improved knowledge base?
- **I think it is** ... the *Purpose* of this paper is therefore to make a plea for **“selectivity”** based on our concerns and our knowledge base





Adachi N, et al Acta Orthop Scand 2002;73(3):330-4

Mechanoreceptors exist in all ACL remnants

Most in subsynovial sheath at superficial ligament edge

Total number of mechanoreceptors has positive correlation with joint position sense

ACL insufficient knee has statistically significant worse proprioception:

NML knee=2.4o (1.1o-6.1o)

P<0.001

ACL insufficient knee=3.9o (1.8o-10.9o)

Biomechanical Evaluation of Arthroscopic ACL Primary Repair Technique

Ahmad CS, et al
unpublished data
personal communication
to be presented at the AOSSM 2004
Annual Meeting

Arnoczky SP CORR 1983;172:19-25

- “The vasculature (of the ACL) appears sufficient to support a reparative response & would suggest the preservation & utilization of these soft tissue structures in the repair & reconstruction of the ACL.”

“We Were Soldiers Once
and Young”

THE ACL SG 1978-2002

Roots/Internationality

Leadership

Membership

Commercial Colleagues

**Develop, and Disseminate New Techniques and Technology for Prevention and Treatment
*and Integrity***

Feagin): 95-100; 1976
, et al AJSM 4(3

Criticisms

Technique

- Absorbable sutures

- Figure of 8 suture not multiple level sutures

Sherman MF, Lieber L, Bonamo JR,
Podesta L, Reiter I The long-term followup
of primary anterior cruciate ligament repair:
Defining a rationale for augmentation
AJSM 19(3): 243-255; 1991.

N=50

F/U= 61.3 mos mean

Age=23 yo mean

Multiple variables correlated

- Marshall JL, Warren RF, Wickiewicz TL, Reider B The anterior cruciate ligament: A technique of repair and reconstruction CORR 143: 97-106; 1979.

>22 yo

Type 1 tear

Podesta L, Sherman MF, et al 1991

Excellent tissue quality

Tight jointedness

Repairable medial meniscal tears

Grade 1 MCL injury

Skiing injury