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All the Doctors listed below who gave of their time and expertise to help me make this book as accurate and readable as possible.



















Here is what an expert in podiatry says:

QUOTABLE QUOTES (2,p.153)

- 1. "Any condition which prevents normal pronation of the subtalar joint, results in pathologic shock. That shock is transmitted up the leg, into the pelvis, and on to the lumbar spine".
- 2. "This can lead to degenerative joint disease, muscle spasm, and chronic low back pain".
- 3. (Following an adjustment) "A functional orthosis which can re-establish some pronation at heel strike will usually relieve back pain associated with faulty shock absorption".

REVIEW OF ANATOMICAL LANDMARKS:	
A.S.I.S ANTERIOR SUPERIOR ILIAC SPINE:	
That most prominent bone at each side of your lower abdomen directly above your hip socket.	
P.S.I.S POSTERIOR SUPERIOR ILLAC SPINE: The prominent bone where your buttocks and low back meet immediately next to your sacrum. It rocks readily while marching in place.	
ILIAC CREST: The highest point of bone on the pelvis just below the side of the ribs.	
GREATER TROCHANTER: Directly below the iliac crest, the distance from the thumb of an open hand to the tip of the middle finger reaching for the feet, is this bony prominence of the femur.	
PATELLA: The most prominent bone in front of the knee joint that normally glides during motion.	
KNEE MENISCI: With your fingers in the middle of the soft fossa's adjacent to the inferior pole of the patella, move your fingers laterally in the shallow grooves created by the menisci. These are only about an inch in length before they smooth out with other structures. This occurs in both knee flexion and extension.	
MEDIAL MALLEOLUS: The most prominent bone to the inside of the ankle.	
SUSTENTACULUM TALI: Directly below the medial malleolus toward the bottom of the foot, a distance of two finger widths, is this sensitive but small peninsula of bone extending horizontal from the calcaneus.	
LATERAL MALLEOLUS: The most prominent bone to the outside of the ankle that is lower than the medial malleolus.	
NAVICULAR: Feeling along the medial aspect of the foot, below and in front of the medial malleolus, you will find this most prominent bone of the medial tarsal arch.	





CHAPTER THREE

PHASES OF GAIT

(1,p.45-56; 2,p.154-162; 10,p.471,516,527; 17,p.432-435)

The closer the foot, leg, thigh, and pelvis approximates normal motion and position in both time and degree, the better the prognosis for eliminating symptoms caused by abnormal motion or position.

Familiarity with normal motion and position of the foot, leg, thigh, and pelvis during the gait cycle enables the practitioner to appreciate the extent of malfunction when the pathological gait occurs.

A gait cycle is defined as starting when the heel strikes the ground and ending after the swing phase has again found the heel "striking".







DURING STANCE PHASE (15,p.6)

27% Contact (HS to FF) heel strike to foot flat.

40% Midstance (FF to HR) foot flat to heel raise.

33% Propulsion (HR to TO) heel raise to toe off.

MIRROR IMAGE

It can be helpful to view gait as if the patient were walking on a mirror. Ground reaction forces would be the reflection pushing back against the gravitational forces on the body at the same instant of contact.

Think of the contact leg, not so much as the power push off acceleration leg, but rather as the stabilization leg for the swing leg to accelerate its mass forward and thereby pull the body forward.









CHAPTER SIX

LUMBAR SPINE SCREEN (6,p.17,p.374-379, 436-444)

A lumbar spine screen is useful prior to performing lower extremity tests. This procedure will rule out the most frequent spinal subluxations that affect the muscles and joints of the lower extremity. Nerve roots mentioned are the prime innervation to these muscles. These tests were chosen over others for ease and efficiency of testing.

These muscle tests should be performed before range of motion tests or orthopedic tests (if feasible) so that decompression of the nerve root does not occur, rendering a false negative test. If you feel that prior testing has decompressed the nerve, get the patient up and have them walk around about ten steps to allow gravity and body weight to compress the structures, then perform these muscle tests.

		PRE	POST
Foot Plantar Flexion - S1	Tibial N.		
Gluteus Medius - L5	Superior Gluteal N.		
T.F.L L5	Superior Gluteal N.		
Adductor - L4	Obturator N.		
Psoas - L3	Femoral N.		
Rectus Femoris - L2	Femoral N.		
Piriformis - L5	Sacral Plexus		

Gluteus Maximus - L5, S1	Inferior Gluteal N.	 	
Hamstring - L5, S1	Sciatic N.		









PRACTICE

By this point you should have discovered where the problem is in an estimated 80% of the population. If at this point all tests are strong and the patient has low back or leg symptoms, other things need to be ruled out in this patient.

- 1. Sacroiliac Subluxation
- 2. Facet Jamming
- 3. Spondylolisthesis
- 4. Muscle Strain
- 5. Disc Protrusion Or Prolapse
- 6. Referred Organ Pain e.g. prostate, uterus, kidney
- 7. Nutritional Deficiency
- 8. Fracture
- 9. Infection
- 10. Malignancy
- 11. Diabetic Neuropathy

This is a simplistic but valuable overview of the low back. Given that you have ruled out a spine or pelvis problem or you have already corrected the problem, it is appropriate to now search out the lower extremity for its involvement.























































ADJUSTMENTS OF THE HIP INTERNAL ROTATION OF THE FEMUR

SIGNS

A weak tensor fascia lata muscle test with tenderness to palpation at the anterior greater trochanter. Limited external rotation of the femur flexed at ninety degrees.

IMPACT OF INJURY

Direct trauma to the hip is the most obvious; however, probably more common are closed kinetic chain stresses from shoes, terrain, fatigue and congenital anomalies.

STABILIZATION

Standing at the side of the involved hip, facing the feet flex the knee and hip to 90 degrees. Place your forearm closest to the patient to the inside of the knee and under the calf with your wrist extended up to the outside of the shin. Your arm can now act as a lever to take the femur to tension in external rotation.



CONTACT & THRUST

With your pisiform, contact the anterior greater trochanter and move your elbow down until the forearm is at 90 degrees to the shaft of the femur and pointing toward the feet. Take the leg to tension and thrust.

POST CHECKS

Perform the T.F.L. and quadriceps muscle tests and check for increased external rotation of the femur. Palpate the greater trochanter for tenderness. Document your findings.



CONTACT & THRUST

With your pisiform, contact the posterior greater trochanter and move your elbow down until the forearm is at 90 degrees to the shaft of the femur and pointing toward the head. Take the leg to tension and thrust.

POST CHECKS

Perform the T.F.L. and quadriceps muscle tests and check for increased internal rotation of the femur. Palpate the greater trochanter for tenderness. Document your findings.

Alot of athletes, by the time they have reached the age of 35, have developed some hip socket adhesions. This shows up with limited range of motion in the hip with no other indicators. It is good to release these adhesions by thrusting through the axis of the femur in many directions similar to the hip scouring orthopedic test.









CHONDRO-MALACIA PATELLAE This generic name for sub-patellar ache with grinding upon movement is usually the result of a sudden increase in leg exercise. It can be a chronic muscle imbalance that brings it on. In any case, the symptomatic history is very similar. If the condition is advanced, the patient will complain of aching in the knee after sitting for an hour or two in the car, at their desk, or in a theatre where their knee is flexed at ninety degrees. This compresses the patella into the inter condylar groove and becomes uncomfortable. A break of five to ten minutes where walking is involved will usually relieve the pain for an hour or two. More specific tests and terms are used today to diagnose and describe this anomaly. PATELLA SCRATCH/GRINDING TEST **MEDIAL FACET:** Place the web of the hand around the superior aspect of the patella and press it inferior and medially. Now ask the patient to contract their quadriceps while you tap on the muscle with your free hand to indicate the correct muscle. As the patella glides superior, guide it to the medial side. If there is inflammation of the medial facet of the patella, you will feel a grinding sensation and see an apprehension response by the patient due to pain. This is indicative of patello-femoral arthralgia (P.F.A.).



EXCESSIVE LATERAL PRESSURE SYNDROME - E.L.P.S.

A condition that involves pain in the knee from lateral tracking of the patella. This causes the lateral facet of the patella to rub excessively against the lateral femoral condyle, resulting in a break down of the normal hyaline cartilage and a roughened fibrous reaction at the joint surface.

Pain while walking down hill or down stairs is a typical complaint from a patient with E.L.P.S. Their vastus lateralis is pulling the knee cap lateral due to its strength imbalance with the weaker or fatigued vastus medialis. Foot pronation can increase the Q-angle (p. 35) and cause lateral tracking of the patella.

PRACTICAL EXAMPLE:

Let us imagine that a person with E.L.P.S. decided to go for a hike in the mountains early in the spring for their first hike of the year. They initially walked up hill for three miles on a trail at a ten to fifteen degree grade. Going up hill was using their already weaker vastus medialis. By the time they got to the top, their vastus medialis was fatigued. Now they turn around and walk down the mountain using their strong vastus lateralis muscle. The knee cap is pulled laterally more than normal due to the fatigue of the vastus medialis, creating compression on the lateral patellar facet, resulting in pain. The pain is so intense that they decide to turn around and walk down the mountain backwards.

Name	Site of Sub- Patellar Pain	Weak Muscle	Hurts Going	Foot Position During Quadriceps Extension
P.F.A.	Medial	Vastus Lateralis	Up Hill	Toes In
E.L.P.S.	Lateral	Vastus Medialis	Down Hill	Toes Out



REHABILITATION OF P.F.A. OR E.L.P.S.

Strengthening the weaker side of the quadriceps femoris is necessary to pull the patella to the middle of the intercondylar femoral groove. This will result in less stress and pain in this joint. At the same time the quadriceps, through training, may thicken and raise the patella mildly from the groove, lessening its compression on the facets of the patella.

FOLLOW THE "RULE OF THREES" DO THE EXERCISES FOR:

Three minutes. Three times a day. Three days, or until your next visit.

See the patient twice a week for six weeks and teach them the following exercises. Teach the patient one exercise each time they come in and have them do only that one exercise until the next visit. Follow the order set below.

The gradual increase of stress into cartilage and allows a higher quality of c exercises of the legs during this rehabilitat	the patella during these exercises does not overwhelm t artilage to replace the cheaper grade. Avoid other strenuc ion program to avoid further irritation if possible.
in the set of beau at contribution and	FULL EXTENSION
Contract Quadriceps	Start with your legs fully extended w your feet resting on their heels, while sitti on the edge of your chair. Contract and rel your quadriceps muscles while watching t patellae move. Do this following the rule threes.
	Relay Quadricon
15 DEGREES OFF OF FULL EXTENSION

Flex your knees mildly off of full extension just fifteen degrees and contract and relax the quadriceps following the rule of threes.

45 DEGREES OFF OF FULL EXTENSION

Contract and relax your quadriceps at forty five degrees of knee flexion under the rule of threes. It may help to keep your feet flat on the carpet or floor and push out with your feet to get a good contraction.

90 DEGREES OF KNEE FLEXION

Once again contract the quadriceps at ninety degrees of knee flexion during this three day cycle. At this point you should be two weeks into your knee program.



LAST 45 DEGREES OF KNEE EXTENSION

With 5 lbs. on your ankle, extend your knee the last 45 degrees of extension with your toes pointed in the correct position for three minutes, three times a day, for three days.

90 DEGREES OF KNEE EXTENSION

Proceed with 5 lbs. on the ankle to extend the knee a full ninety degrees for a full three minutes. The toes should be in their appropriate position. If fatigued before three minutes, work up to it over the next few days.

90 DEGREES FOR NEXT MONTH

Do this exercise under the rule of threes for the next month. The toes should be directed in the same position as before. If the patient is capable, have them increase the weight 5 lbs. every three days until they reach a training weight where three minutes requires a strong effort.

The patient can do these exercises on their own without having to see you beyond the first six week period.

TOES STRAIGHT

Inform the patient on their last visit to straighten their toes at the end of a month of doing the 90 degree exercise. This will prevent them from getting the opposite patellar tracking problem. This is especially good for your casual athletes.

TOES ALL DIRECTIONS

For the serious athlete, I recommend that at the end of a month of doing 90 degree exercises, they now do sets of at least ten repetitions toes straight, then toes in, then toes out. This will strengthen and define the whole quadriceps group. They are free now to load up on their weight.

MUSCLE	STRENGTH	RATIOS
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Quadriceps 4:3 Hamstrings Soleus - Gastrocnemius 10:1 Anterior tibial, Peroneus, Posterior tibial

PATELLA ALTA: Height of the patella should equal the distance between the lowest pole of the patella and the tibial tubercle. If this distance is greater than 1 cm. above this height = patella alta.

PATELLA BAJA: If distance is greater than 1 cm. shorter than the height of the patella = baja.



ADJ	JSTMENTS OF THE PATELLA (14.p.52)
T	
be tak	en to always thrust through the plane in which it sits.
	Q-ANGER: A time drawn firms the A \$1.5. through the middle of the putolle, that intersects
SIGN	drawn wordcally from the anterior titical faborate brough the middle of the partitions of
1.	General non specific ache in the knee.
2.	Motion palpation fixed or limited, especially if compared to the other knee.
3.	Crepitus upon movement of the patella.
4.	Painful walking up or down stairs.
5.	Knee aches after sitting 1 hour and feels better after walking around a few minutes.
6.	Locked knee immediately after an injury to that knee.
Muscl	e affected: Quadriceps Femoris
DIFF	ERENTIAL DIAGNOSIS: RULE THESE PROBLEMS OUT
1.	P.F.A.
2.	E.L.P.S.
3.	Bursitis
4.	Joint Mouse
	Orgood Schlatter

IMPACT OF INJURY

Direct blows to the patella are more obvious but more frequently quadriceps imbalance, congenital shallow femoral groove, or closed kinetic chain stresses into the knee joint are the cause.

STABILIZATION

Supporting wrist of contact hand.

CONTACT & THRUST

Place web of hand around the superior aspect of the patella and thrust inferiorly through the plane line of the patella, adding medial or lateral as needed. Care should be taken not to grind the patella into the femur which could create chondromalacia.

POST CHECK

Perform medial and lateral glide and superior and inferior translation. Test the quadriceps muscle and document the changes.





KNEE UNLOCKING MANEUVER

During athletic competition, injuries to the knee frequently present with a tight quadriceps spasm which locks the knee in one position. This is often due to the patella being compressed into the intercondylar groove that suffers from some degree of chondromalacia. Following your initial orthopedic tests in this position, release the spasm by doing a superior patella maneuver so that you may perform the rest of your tests. If this fails to release the knee, gently attempt a hyperflexion maneuver identical to the posterior tibia adjustment (p.51). Do not force this if the knee locks before end play of the joint. This would be indicative of a dislodged fragment in the joint, or adhesions from previous injuries, at which time arthroscopy or M.R.I. is indicated to safely evaluate the condition of the joint.









































LACHMAN

This is basically an anterior Drawer test with the knee flexed at only 5 to 20 degrees, making it user friendly because of the relaxed position of the knee. To test integrity of the anterior cruciate ligament, you would stabilize the top of the distal femur with one hand. The other hand would grasp the posterior proximal tibia and then pull anteriorly, looking for excessive translation of the tibia on the femur of 5mm or greater.

The Lachman test should be performed before the pivot shift test due to its greater accuracy.





Plica Syndrome What is plica syndrome of the knee? By Jonathan Cluett, M.D., About.com Guide Updated: July 21, 2008 About.com Health's Disease and Condition content is reviewed by the Medical Review Board

Often called "synovial plica syndrome," this is a condition that is the result of a remnant of fetal tissue in the knee. The synovial plica are membranes that separate the knee into compartments during fetal development. These plica normally diminish in size during the second trimester of fetal development. In adults, they exist as sleeves of tissue called "synovial folds," or plica. In some individuals, the synovial plica is more prominent and prone to irritation.

What is plica syndrome of the knee?

The plica on the inner side of the knee, called the "medial plica," is the synovial tissue most prone to irritation and injury. When the knee is bent, the plica is exposed to direct injury, and it may also be injured in overuse syndromes. When the plica becomes irritated and inflamed, the condition called "plica syndrome" results.

Test	Sensitivity (95% CI)	Specificity (95% CI)	Reference (n)	Diagnostic 'gold standard'
McMurray's Test	70.5% (67.4% to 73.4%)	71.1% (69.3% to 72.9%)	Hegedus et al.26 (meta-analysis pooled data)	Mixed arthroscopy and MRI
Apley's Test	60.7% (55.7% to 65.5%)	70.2% (68.0% to 72.4%)	Hegedus et al.26 (meta-analysis pooled data)	Mixed arthroscopy and MRI
Joint line tenderness Test	63.3% (60.9% to 65.7%)	77.4% (75.6% to 79.1%)	Hegedus et al.26 (meta-analysis pooled data)	Mixed arthroscopy and MRI
Thessaly Test (original paper)	89% <u>a</u> [medial]	97% <u>a</u> [medial]	Karachalios <i>et al.</i> $\frac{25}{25}$ (<i>n</i> = 213 symptomatic and 197 asymptomatic)	Arthroscopy
Thessaly Test (original paper)	92% <u>a</u> [lateral]	96% <u>a</u> [lateral]	Karachalios <i>et al.$\frac{25}{25}$ (n = 213 symptomatic and 197 asymptomatic)</i>	Arthroscopy
Thessaly Test	90% <u>a</u>	98% <u>a</u>	Harrison <i>et al.</i> <u>27</u> (<i>n</i> = 116)	Arthroscopy
Thessaly Test	59% (47% to 71%) [medial]	67% (45% to 83%) [medial]	Konan <i>et al.<u>28</u> (n</i> = 109)	Arthroscopy
Thessaly Test	31% (15% to 54%) [lateral]	95% (87% to 98%) [lateral]	Konan <i>et al.</i> <u>28</u> (<i>n</i> = 109)	Arthroscopy
Thessaly Test in ACL- deficient patients	79% <u>a</u>	40% <u>a</u>	Mirzatolooei <i>et al.</i> <u>29</u> (<i>n</i> = 80)	Arthroscopy

How is plica syndrome diagnosed?

Diagnosis is made by physical examination or at the time of arthroscopic surgery. Plica syndrome has similar characteristics to <u>meniscal tears</u> and <u>patellar tendonitis</u>, and these may be confused. A MRI may be done, but it is often not terribly helpful in the diagnosis of plica syndrome.

What is the treatment for plica syndrome?

Symptomatic plica syndrome is best treated by resting the knee joint and <u>anti-inflammatory medications</u>. These measures are usually sufficient to allow the inflammation to settle down. Occasionally, an <u>injection of cortisone</u> in to the knee will be helpful.

If these measures do not alleviate the symptoms, then <u>surgical removal of the plica</u> may be necessary. This surgical procedure is performed using an arthroscope, or a small camera, that is inserted into the knee along with instruments to remove the inflamed tissue. The arthroscopic plica resection has good results assuming the plica is the cause of the symptoms. Often a plica is seen on <u>arthroscopic</u> <u>examination</u>. Unless symptoms are consistent with plica syndrome and the plica looks inflamed and irritated, the plica is usually left alone. Plica resection during arthroscopy is only performed if the plica is thought to be the cause of symptoms.

Ewing JW, "Plica: Pathologic or Not?" J. Am. Acad. Ortho. Surg., Nov 1993; 1: 117 - 121.



ADJUSTMENTS OF THE TIBIA AND FIBULA (14,p.55-57)

The knee is one of the most traumatized joints in the body.

SIGNS OF KNEE INJURY

- 1. Unstable knee
- 2. Locking of knee
- 3. Inability to squat and stand up
- 4. Bakers cyst
- 5. Fibular heads feel unequal and one is tender
- 6. Loss of fibular head glide upon foot dorsiflexion
- 7. Prominent and sore tibial plateau
- 8. Weak vastus medialis with antero-medial tibial plateau
- 9. Weak vastus lateralis with antero-lateral tibial plateau
- 10. Weak popliteus with posterior tibia
- 11. Ligaments are painful at site of tear

MUSCLE AFFECTED

- 1. Quadriceps
 - 2. Hamstrings
 - 3. Popliteus
 - 4. Sartorius



MEDIAL OR ANTERO-MEDIAL TIBIAL PLATEAU

SIGNS

A weak vastus medialis with pain along the medial meniscus and greater prominence than normal.

IMPACT OF INJURY

A blow to the lateral side of the knee creating a valgus stress, or an object wedged behind the knee while it is being flexed firmly (e.g. body, motor cycle, etc.).

STABILIZATION

Holding the involved leg between your legs and leaning back with traction on the leg involved, place your outside hand on the lateral joint for stabilization of the femur.

















POST CHECKS

Do the popliteus muscle test and it should now be strong. To be sure that the posterior cruciate ligament is not totally torn, have the patient walk twenty feet and then retest the popliteus. If it is weak, they probably have a totally ruptured posterior cruciate. Check for posterior translation of the tibia.

REHABILITATION

Have them do popliteal strengthening exercises for three minutes, three times a day for the next two weeks or more. Ice the back of the knee for fifteen minutes, three times a day for the next two weeks. This should get rid of most Baker's cysts.



Follow up of Posttraumatic Ligamentous and Meniscal Knee Lesions Detected at MR Imaging: Systematic Review

RADIOLOGY: Volume 238: Number 3 – March 2006

649 articles and eleven studies (five on posterior cruciate ligament injuries, five on anterior cruciate ligament injuries).

Between 77% and 93% of the partial or complete PCL ruptures regained continuity. In cases of partial or total ACL rupture, repair of continuity was also possible.

The ACL and PCL can regain continuity after partial or complete rupture.

The New England Journal of Medicine

established in 1812 september 11, 2008 vol. 359 no. 11 A Randomized Trial of Arthroscopic Surgery for Osteoarthritis of the Knee Alexandra Kirkley, M.D.,* Trevor B. Birmingham, Ph.D., Robert B. Litchfield, M.D., J. Robert Giffin, M.D., Kevin R. Willits, M.D., Cindy J. Wong, M.Sc., Brian G. Feagan, M.D., Allan Donner, Ph.D., Sharon H. Griffin, C.S.S., Linda M. D'Ascanio, B.Sc.N., Janet E. Pope, M.D., and Peter J. Fowler, M.D.

Methods

We conducted a single-center, randomized, controlled trial of arthroscopic surgery in patients with moderate-to-severe osteoarthritis of the knee. Patients were randomly assigned to surgical lavage and arthroscopic débridement together with optimized physical and medical therapy or to treatment with physical and medical therapy alone. Of the 92 patients assigned to surgery, 6 did not undergo surgery. Of the 86 patients assigned to control treatment, all received only physical and medical therapy. After 2 years, the mean (\pm SD) WOMAC score for the surgery group was 874 \pm 624, as compared with 897 \pm 583 for the control group (absolute difference [surgery-group score minus control-group score], -23 ± 605 ; 95% confidence interval [CI], -208 to 161; P = 0.22 after adjustment for baseline score and grade of severity). The SF-36 Physical Component Summary scores were 37.0 \pm 11.4 and 37.2 \pm 10.6, respectively (absolute difference, -0.2 ± 11.1 ; 95% CI, -3.6 to 3.2; P = 0.93). Analyses of WOMAC scores at interim visits and other secondary outcomes also failed to show superiority of surgery.

Conclusions

Arthroscopic surgery for osteoarthritis of the knee provides no additional benefit to optimized physical and medical therapy. (ClinicalTrials.gov number, NCT00158431.) Copyright © 2008 Massachusetts Medical Society. All rights reserved.

к	nee Flow Chart of Conservative	Care
	By Kevin G. Hearon, D.C.	
Grade I	Grade II	Grade III
Pain with no instability	Pain with moderate instability	Pain with severe instability
Adjust knee & spine	Adjust knee & spine	Adjust knee & spine
Healing Period: Two weeks	Two to Six weeks	Three months
Taping/mild support	Bracing with activity	Full time brace
Avoid position of pain	Avoid position of pain	Avoid position of pain
This means active motion is recommended and necessary through the non-painful range of motion (ROM) to activate Wolf's Law and Davis' Law of polarity and healing. Avoid repetitive orthopedic testing/ challenging of ligaments of the knee during the healing process until nea the end of the healing period. Allow the new filaments of the ligaments to reattach with-out you disrupting them constantly.		

Grade I	Grade II	Grade III
No Crutches	Crutches 2 days if needed	Crutches for two weeks and wean off 1-2 weeks
Ice 15 min. 3x day	Ice 15 min. 4x day	Ice 15 min. 6x day
R.O.M Weight bearing	R.O.M. Weight as tolerated In water preferred	R.O.M. w/o weight 2 weeks In water tub/pool
Keep upper body active	Keep upper body active	Keep upper body active
Glucosamine to weight. e.g. 100 3,000mg., = 500mg of glucosam then half the dose for maintena in avoiding camps in muscles.	lbs-1,000mg. 150lbs-1,500mg. 200 lbs-2 ine sulfate per 50 lbs. of weight spread nce usage if desired. Increased water in	2,00mg. 250lbs-2,500mg. 300lbs- out per day for a period of six weeks take while takin glucosamine is helpful
	At Two Weeks To Four Weeks	
Full activity	Moderate to full activity	Begin walking with crutches
Taping – Maybe	Wear brace	Wear brace, avoid pain.
		Exercise non weight bearing unless in swimming pool at chest level water

Grade I	Grade II	Grade III
	At Four Weeks to Eight Weeks	
Should be normal	Brace during activity	Brace when weight bearing No crutches
	Full strength workouts	Gradually increase non weight bearing exercise
	At Eight Weeks To Twelve Weeks	
	Should be normal	Brace when weight bearing Start weight bearing exercise non-painful ROM e.g. cycling, run in water chest level, mild to moderate weights
	After Twelve Weeks	
		Now recheck orthopedic tests Do gentile adhesion releases in flexion of the knee to restore complete flexion and extension of the knee Start stretching again Work up to full strength woith booring corprise
		weight bearing exercises
During the course of this co knee injuries if at any point	onservative program, you should utilize ot you feel the knee is not progressing on so	her professionals that specialize in hedule.



IMPACT OF INJURY (16.p. 478)

A blow from the front or side of the lateral knee. Very frequently from inversion ankle sprains that externally rotate the fibula. This can result in a Maisonneuve's fracture (a spiral fracture of the proximal fibula).

STABILIZATION

Facing the lateral knee, grasp the ankle of the involved P leg and flex the knee to 90 degrees.

CONTACT & THRUST

Facing the involved knee, place your thumb behind the fibular head and thrust anteriorly.

POST CHECKS

Compare fibula heads for evenness and good translation. It should be less tender.



ANTERO-LATERAL FIBULA SIGNS A more prominent fibula head that is tender with possible reduced translation. IMPACT OF INJURY A blow from the posterior or a posterior fulcrum forcing the fibula forward (*e.g. limb, motorcycle etc.*). STABILIZATION Facing headward at the knee, grasp firmly the medial knee joint space while keeping the knee in extension. CONTACT & THRUST Facing headward, contact the anterior fibula head with your thenar eminence and thrust posterior. Care should be taken to avoid hyperextension of the knee. POST CHECKS Fibula heads should feel even and less tender with better translation.



SHIN SPLINTS: MEDIAL TIBIAL STRESS SYNDROME (MTSS) (23, p.105-113)

The American Medical Association subcommittee report on the classification of sports injuries defines shin splints as discomfort and pain in the leg resulting from running repetitively on hard surfaces, or from forcible, excessive use of the foot dorsiflexors. The committee says that clinicians should limit the term "shin splints" to musculotendonous inflammations and exclude fractures and ischemic disorders.

RULE OUT STRESS FRACTURES

Use a 128 C vibration tuning fork on either end of the tibia to pick up the location of stress fractures. The patient will point to the location of pain due to fracture and excitation of the periosteum.

TREATMENT

A compression bandage of elastic cloth around the shin usually gives good relief if it is put on with moderate pressure. Exercises through a painless range of motion of the involved muscle are necessary to restore normal strength ratios of the leg. Modification of shoes, equipment, running surface and training habits may be necessary for a permanent resolution.

which is the most enstable partic	Left Tibia and Fibula Anterior View	
This definition could be more specific about medial pain from the plantarflexor and invertor muscle called the posterior tibial, which controls pronation. Other plantar flexors would include the peroneus muscles on the lateral tibia. The dorsiflexor muscle that is stressed most frequently by deceleration is the anterior tibial located on the antero-lateral aspect of the tibia.	Medial Plateau Tibial Tuberosity Hateau	
and Readers Lignmont	Medial Malleolus Lateral Malleolus	

RULE OUT STRESS FRACTURES

Use a 128 C vibration tuning fork on either end of the tibia to pick up the location of stress fractures. The patient will point to the location of pain due to fracture and excitation of the periosteum.

TREATMENT

A compression bandage of elastic cloth around the shin usually gives good relief if it is put on with moderate pressure. Exercises through a painless range of motion of the involved muscle are necessary to restore normal strength ratios of the leg. Modification of shoes, equipment, running surface and training habits may be necessary for a permanent resolution.

Stress Fractures:

Usually occur in the tibia or metatarsals from repetitive stress that is no longer attenuated well from failure of the kinetic chain to absorb shock and act like a shock absorber. The ability to pronate has usually been compromised by fixations of joints in the feet and knee, which holds the foot in pronation and keeps the leg in internal rotation and prevents normal knee flexion. Small cortical breaks occur in the periosteum as a result which are highly painful and can be picked up with a 128 C tuning fork. Careful examination of an X-ray will show increased bone density at the site after a couple of weeks of symptoms. Treatment consists of cutting the mileage in half and restoring function to the kinetic chain with adjustments and functional foot orthotics. It takes about six to eight weeks to be totally healed however the patient will usually feel much better by the two week mark or sooner and want to increase their mileage.

> THIS FINISHES THE SECTION ON THE HIP, THIGH, KNEE AND SHIN.

THE NEXT SECTION IS ABOUT THE ANKLE AND FOOT

WHAT IS THE PRIMARY SHOCK ABSORBER OF THE BODY?

Is it NIKE? Is it ADIDAS? SAUCONY? Z-COIL? BIRKENSTOCK?

WHAT IS THE PRIMARY SHOCK ABSORBER OF THE BODY?

Biomechanically the primary shock absorber of the human body is FOOT PRONATION.

WHAT IS FOOT PRONATION?

Eversion of the foot? Dropping of the medial arch of the foot? Abduction of the foot? Dorsiflexion of the foot? When the heel strikes and the foot flattens out? Is it all of the above?

IS FOOT PRONATION NORMAL OR PATHOLOGICAL?

Does it increase or decrease shock? Can it be excessive? Can it be not enough?

Does it affect anything besides the feet?

Is it congenital?

Is it developmental?

Can it be all of the above?

What are the forces into the feet each time I take a step?

Walking- One to Three times body weight. Running- Three to Five times body weight. Jumping- Five to Seven times body weight.

What are the laws of physics that control shock absorption?

You must increase the surface area of the mass that is striking. Foot length and width.

You must increase the time it takes to bottom out. Joint glide up and down slowed by the posterior tibial muscle through eccentric contraction while lowering the medial longitudinal tarsal arch.








WHAT IS THE ETIOLOGY OF THE FOLLOWING?

- PLANTAR FASCITIS
- CALCANEAL HEEL SPURS
- ABDUCTO HALLUX VALGUS
- BUNIONS
- HAMMER TOES
- CLAW TOES

IS THE ETIOLOGY UNKNOWN AS THE TEXTS SAY?



PLANTAR FASCIA MUST TIGHTEN TO DRAW HEEL FORWARD AND RAISE THE ARCH – THE ARCH JOINTS MUST BE ABLE TO GLIDE FOR THE ARCH TO RAISE.





A Randomized Trial of Arthroscopic Surgery for Osteoarthritis of the Knee - NEJM - Sept 11 2008 -Kirkley-Birmingham - Shortcut (2).Ink
Knee OA connected w HV & pes planus- JBiomech 1008 - Shortcut.lnk
Shortcut to Kneelig-1.lnk