Primo Congresso
ISPO ITALIA

"Ortesi correttive di ginocchio e plantari"

La nostra esperienza

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Osteoartrosi

L’OMS stima che globalmente il 25% della popolazione al di sopra dei 25 anni soffra di dolore e disabilità associati a questa patologia.

L’osteoartrite colpisce di solito le articolazioni che sostengono il peso del corpo, come le anche e le ginocchia.

Epidemiologia

Negli USA la stima parla di 43 milioni di persone affetta da OA (mani, anca, ginocchia) che saliranno nel 2020 a 60 milioni (18,2%)

Incidenza

- 1/3 di tutti gli adulti tra i 25 – 74 anni mostrano OA radiologica
- Predominanza di donne: 70%
- Età: 50% sopra i 60 anni
- Negli USA il 12% degli ultra 65enni hanno problemi di OA al ginocchio

Ginocchio valgo congenito	Ginocchio varo congenito
20%	80%

Esame obiettivo

Ginocchio valgo bilaterale **Ginocchio valgo monolaterale**

Esame Radiografico

Ginocchio valgo bilaterale

Ginocchio valgo monolaterale

Esame obbiettivo

Ginocchio varo bilaterale

Ginocchio varo monolaterale

Esame Radiografico

Ginocchio varo bilaterale

Ginocchio varo monolaterale

Gradi di severità

Radiografie in proiezione antero-posteriore in ortostasi con gonartrosi mediale di entità crescente evidente
dalla diversa ampiezza della emirima mediale e dalla sclerosi subcondrale del piatto tibiale mediale

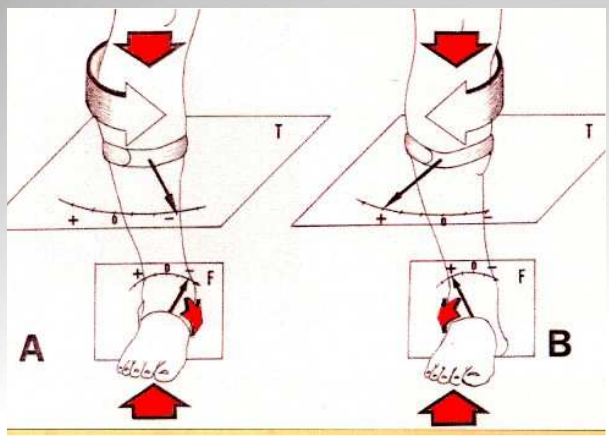
Trattamento

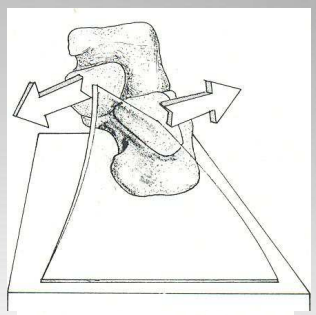
- Chirurgico:
  - Osteotomia
  - Protesi totale o parziale
- Conservativo:
  - Farmacologico
  - Riposo
  - Fisioterapico
  - Suolette valgizzanti o varizzanti
  - Ortesi plantari
  - Tutori per OA monocompartimentali

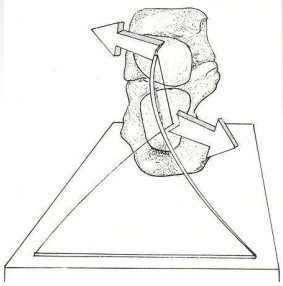
Limiti dei cunei pronatori e supinatori

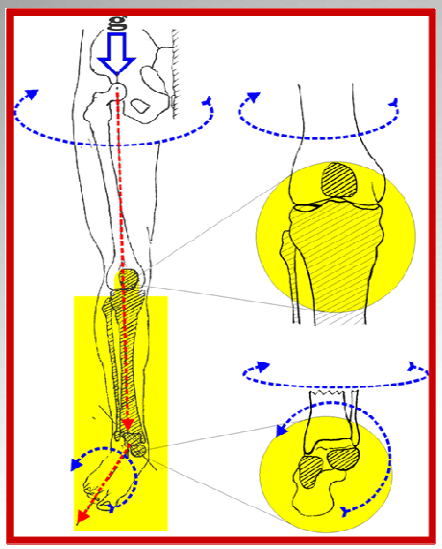
- Inefficaci
- Dannosi: il cuneo pronatore pone in massima pronazione l'articolazione SA determinando un'insufficienza del primo raggio con conseguenti patologie a livello del piede (fasciti, entesiti e tendiniti)

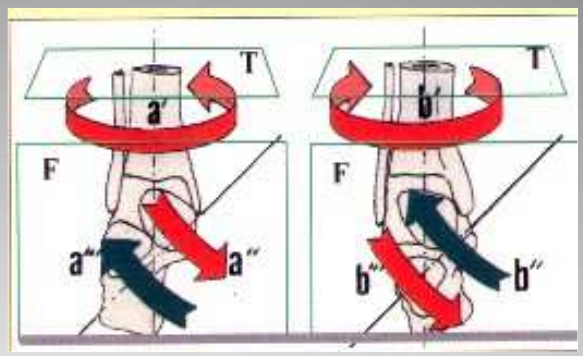
Perché l'ortesi plantare contribuisce alla riduzione della sintomatologia dolorosa a carico del ginocchio







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a'
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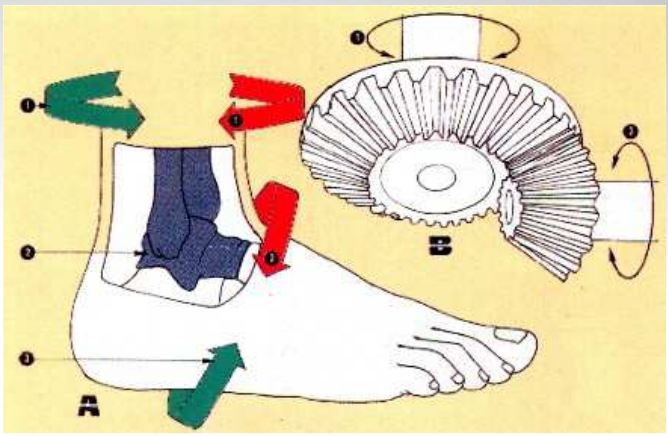
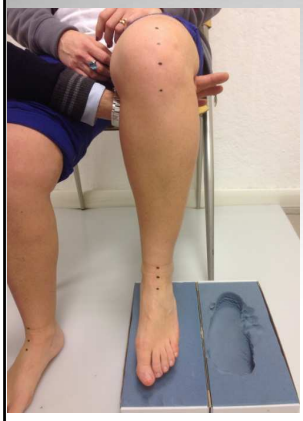

A
B

Corretta presa d'impronta in scarico

1) Con schiuma fenolica

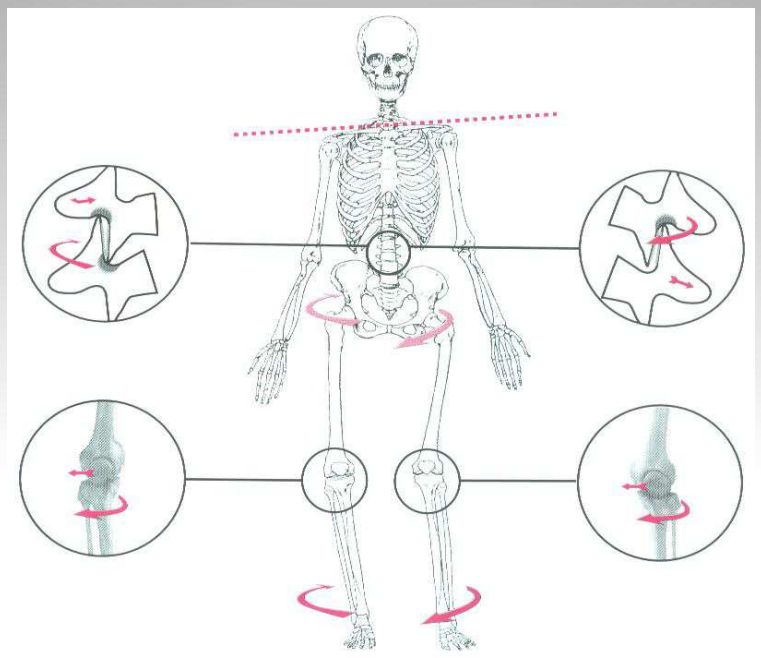



Corretta presa d'impronta in scarico

2) con bende gessate in neutra di SA

La gravità e il tempo

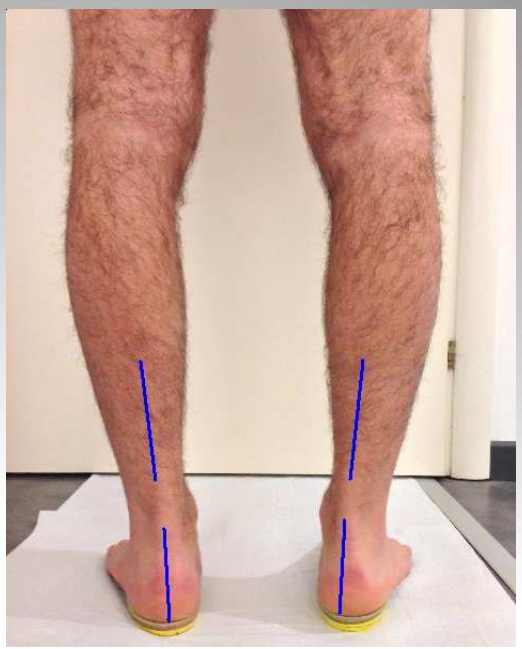
Visione “olistica”



La gravità e il tempo

Visione “olistica”

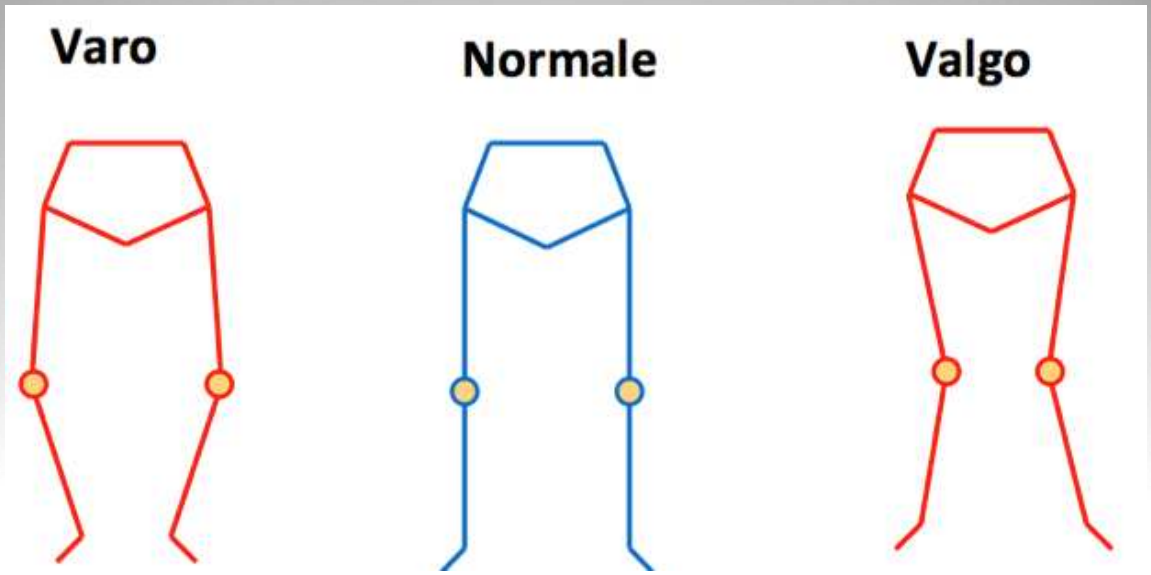
È lecito chiedersi perché spesso troviamo un ginocchio maggiormente varo e valgo dell'altro?

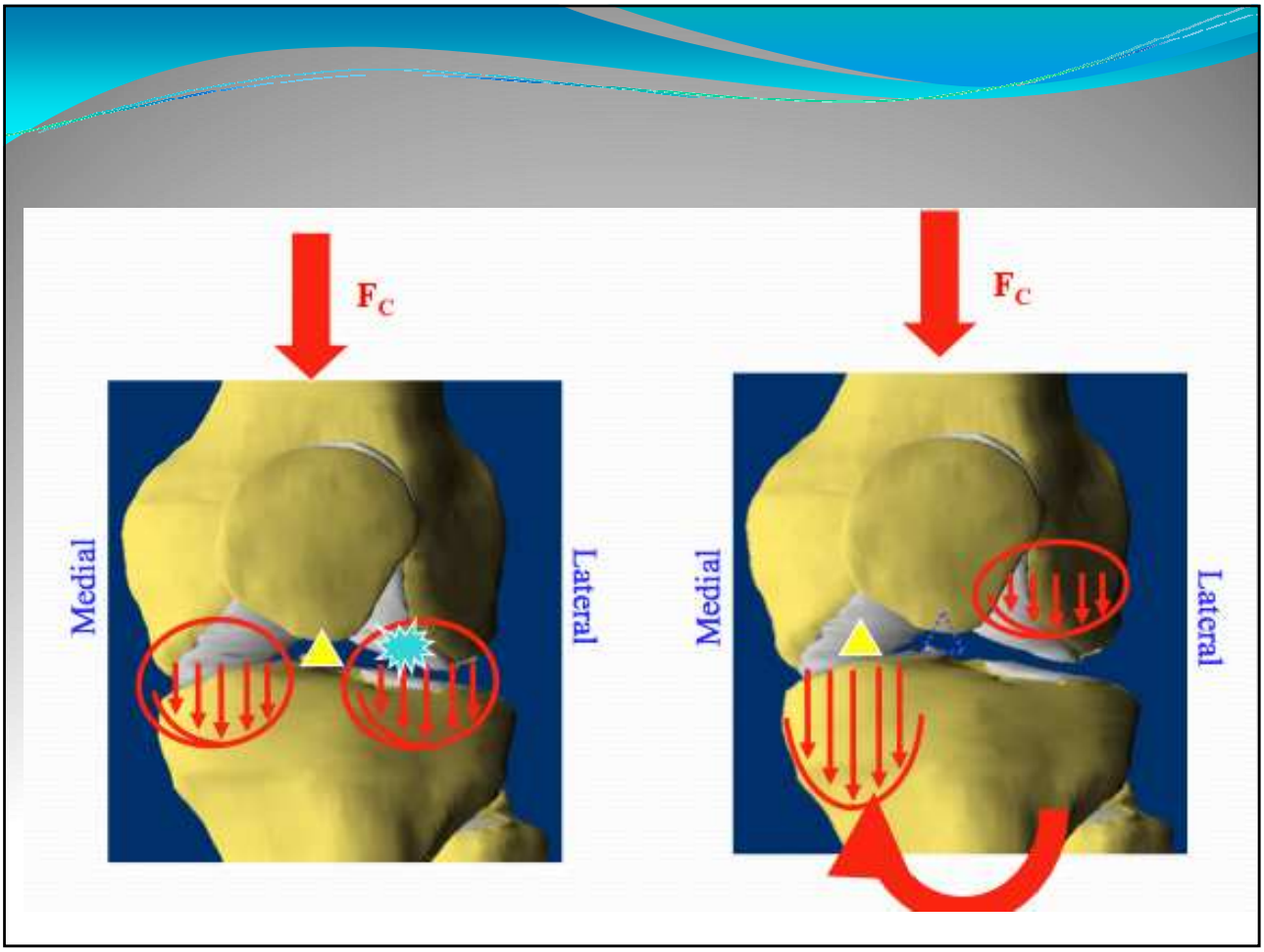


Nella nostra esperienza, la correzione selettiva delle dismetrie dà risultati significativi nella riduzione della sintomatologia dei distretti sovrasegmentari (ginocchio, articolazione coxo-femorale e colonna).

La nascita dei nuovi tutori di ginocchio per osteoartrosi ha aperto nuove soluzioni e considerazioni.

Scelta alla corretta ginocchiera per OA varo/valgo



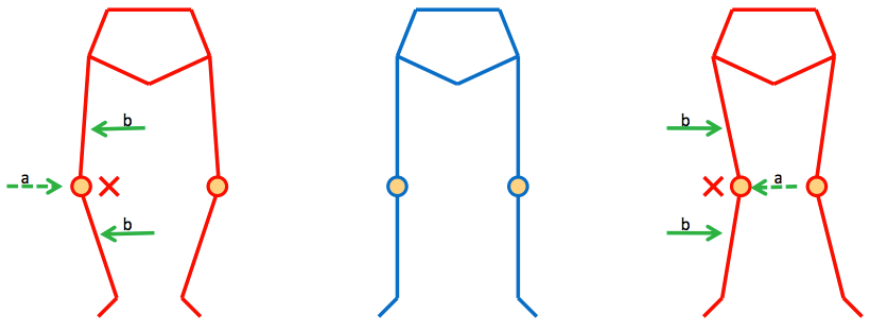

F_C
Medial
Lateral
F_C
Medial
Lateral

Gestione appoggio della spinta

Varo x Comparto MEDIALE (interno) affetto

Normale

Valgo x Comparto LATERALE (esterno) affetto



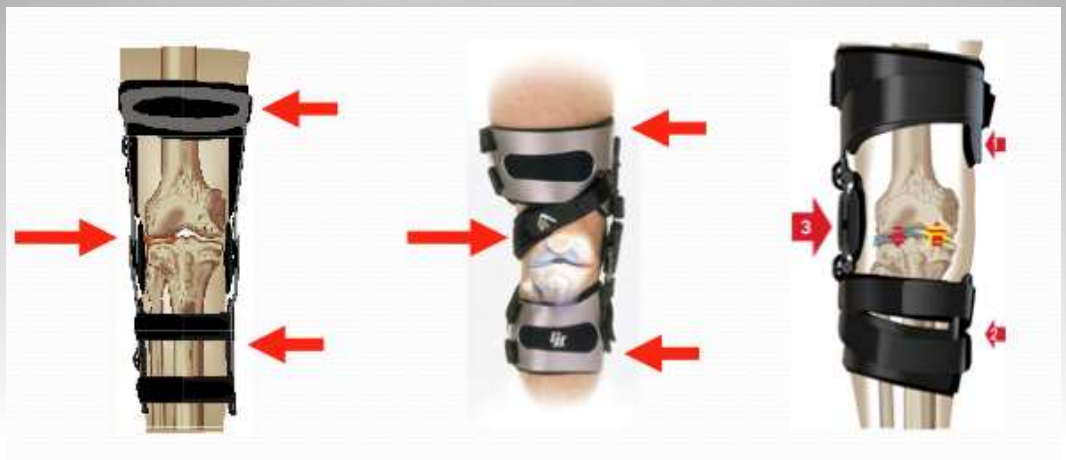
× COMPARTO DEL GINOCCHIO DEGENERATO CHE COMPORTA IL CROLLO IN VARO OPPURE IN VALGO

- - -→ Zona dove deve esserre posto il meccanismo di spinta DONJOY OA ADJUSTER/ OA ASSIST/ OA NANO

→ 3 Punti di Spinta agiscono simultaneamente e in modo contrapposto per ottenere progressivamente il reallineamento alla rima articolare

Spingere vs. Tirare

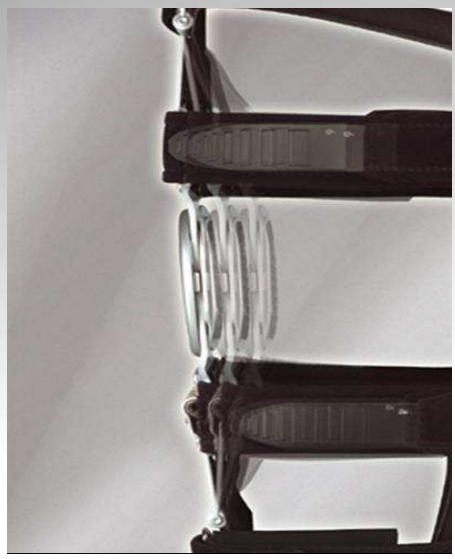
Metodi differenti per raggiungere lo stesso obiettivo



Concetto biomeccanico OA

Nelle versioni OA, il principio su cui si basa la ginocchiera è il famoso 4 punti delle funzionali, con in più l'inserimento di due "innesti" posizionati mediali o laterali, (3 punti) che permettono nel momento della regolazione di creare la "distrazione" necessaria alla riduzione del dolore.

Concetto biomeccanico OA:
Appoggio condilare



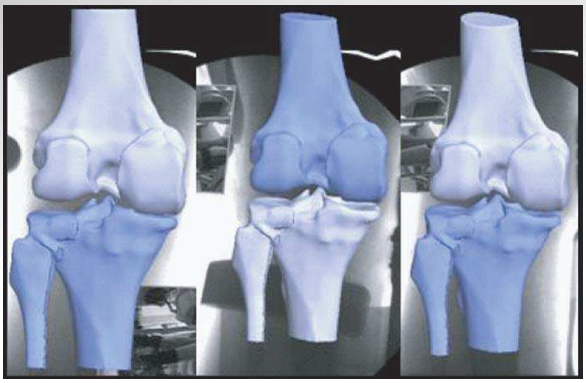
La traslazione dell'appoggio condilare permette di creare una spinta di correzione tale da ridurre il dolore e allineare grazie al principio dei tre punti l'asse femoro-tibiale.

Concetto biomeccanico OA 3 Punti

3 Punti OA

Concetto biomeccanico OA
3 e 4 Punti abbinato

Prova radiografica M4 OA



Applicazione Ginocchiere

Classificazione tutori per OA

Correzioni da 0° a 7°

Arthrofix

OA - Lite

Freestyle OA

Correzioni da 0° a 15°
Tutori monocompartimentali

M3 S

Thruster

Breg Solus

Correzioni da 0° a 20°
Tutori bicompartimentali

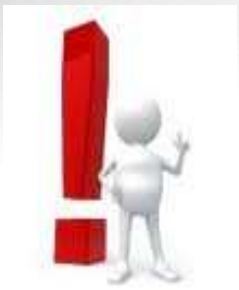
M4 S

OA Adjuster

Fusion OA

Softec OA

Tutori OA



Ortesi plantari

Utilizziamo i tutori in fase acuta con una particolare posologia

I – II settimana: tutto il giorno

II – IV settimana: solo la mattina

IV – VII settimana: giorni alterni

VII - XII settimana: 2 giorni a settimana

SUCCESSIVAMENTE AL BISOGNO, IN CASO DI RIACUTIZZAZIONE DEL SINTOMO

Utilizzando i plantari come mantenimento della posizione in fase sub acuta abbiamo avuto risultati assolutamente significativi

Studi scientifici suffragano la nostra esperienza

•ROLE OF BRACING IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS
AUTHORS: F. Rannou, S. Poiraudeau, J. Beaudreuil
PUBLISHED: Current Opinion in Rheumatology, Volume 22 - Issue 2 - p 218–222
DATE: March 2010
PLACE OF ORIGIN: Paris, France

•THE EFFECT OF VALGUS BRACING ON THE KNEE ADDUCTION MOMENT DURING GAIT AND RUNNING IN MALE SUBJECTS WITH VARUS ALIGNMENT
AUTHORS: Pagani, Potthast, Brüggemann
PUBLISHED: Clinical Biomechanics, Article in press, online Sept. 2009
DATE: 2009
PLACE OF ORIGIN: Institute of Biomechanics and Orthopedics, German Sport University Cologne, Germa

•UNLOADER BRACES FOR MEDIAL COMPARTMENT KNEE OSTEOARTHRITIS: IMPLICATIONS ON MEDIATING PROGRESSION
AUTHORS: Dan K. Ramsey, Mary E. Russell
PUBLISHED: Sports Health - A Multidisciplinary Approach, Volume 1, No. 5, pp. 416-426
DATE: Sep-Oct 2009
PLACE OF ORIGIN: Buffalo, New York, USA

•OARSI RECOMMENDATIONS FOR THE MANAGEMENT OF HIP AND KNEE OSTEOARTHRITIS, PART II: OARSI EVIDENCE-BASED, EXPERT CONSENSUS GUIDELINES
AUTHORS: Zhang W, Moskowitz RW, Nuki G, Abramson S, Altman RD, Arden N, Bierma-Zeinstra S, Brandt KD, Croft P, Doherty M, Dougados M, Hochberg M, Hunter DJ, Kwoh K, Lohmander LS, Tugwell P
PUBLISHED: Osteoarthritis & Cartilage, Volume 16, nr. 2, pp. 137-162
DATE: 2008
PLACE OF ORIGIN: University of Edinburgh, UK

•THE EFFECTIVENESS OF SELF-ADJUSTABLE CUSTOM AND OFF-THE-SHELF BRACING IN THE TREATMENT OF VARUS GONARTHROSIS
•AUTHORS: Draganich, Reider, Rimington, Piotrowski, Mallik, Nasson
PUBLISHED: The Journal of Bone and Joint Surgery (Am.), Vol. 88-A, No. 12, pp. 2645-2652
DATE: December 2006
PLACE OF ORIGIN: University of Chicago, Chicago, Illinois

•KNEE BRACING FOR UNICOMPARTMENTAL OSTEOARTHRITIS
AUTHORS: Pollo, Jackson
PUBLISHED: Journal of the American Academy of Orthopaedic Surgeons, Vol.14, No.1, pp. 5-11
DATE: Jan 2006
PLACE OF ORIGIN: University Medical Center, Dallas

•BIOMECHANICAL CHANGES IN THE CONSERVATIVE TREATMENT OF MEDIAL COMPARTMENT OSTEOARTHRITIS OF THE KNEE USING VALGUS BRACING
•AUTHORS: Richards, Jones, Kim
PUBLISHED: ICRS congress
DATE: Jan 2006
PLACE OF ORIGIN: San Diego

•BRACES AND ORTHOSES FOR TREATING OSTEOARTHRITIS OF THE KNEE (REVIEW)
•AUTHORS: Brouwer, van Raaij, Jakma, Verhagen, Verhaar, Bierma-Zeinstra
PUBLISHED: Cochrane Database of Systematic Reviews 2005, Issue 1. Art. No.: CD004020.
DATE: 2005
PLACE OF ORIGIN: Rotterdam, The Netherlands

•A COMPARISON OF KNEE BRACES DURING WALKING FOR THE TREATMENT OF OSTEOARTHRITIS OF THE MEDIAL COMPARTMENT OF THE KNEE
AUTHORS: Richards, Sanchez-Ballester, Jones, Darke, Livingstone PUBLISHED: Journal of Bone and Joint Surgery (Br) Vol. 87-B, No. 7, pp. 937-939 DATE: July 2005
PLACE OF ORIGIN: University of Central Lancashire, Preston, England

•EFFECT OF FUNCTIONAL KNEE BRACE AND LATERAL WEDGE INSOLE IN MANAGEMENT OF PATIENTS WITH OSTEOARTHRITIC KNEE

AUTHORS: C.J. Hsieh, Kuo, Yang, L.F. Hsieh
PUBLISHED: Journal of Biomechanics, Vol. 40, Suppl. 2, p.S449
DATE: 2007
PLACE OF ORIGIN: National Yang-Ming University, Taipei, Taiwan
BACKGROUND: People with knee OA suffer from excessive varus torque on the knee joint, which induces pain and deformity.
OBJECTIVE: To find out if a combined knee brace and lateral heel wedge insole would effectively reduce knee pain and help increase the walking time and the ability of posture control on different severenesses of OA subjects.
TESTED PRODUCTS: Bledsoe Aligner MA brace
EVA 10° lateral heel wedge
DESIGN & METHODS: • 30 subjects with medial unicompartmental knee OA (divided into mild and severe groups) were evaluated in 4 conditions: wearing base-line shoes
wearing a knee brace
wearing a lateral wedge insole
wearing combined knee brace and lateral wedge insole Evaluation tasks included:
X-Ray evaluation
VAS and WOMAC evaluation
motion analysis on 10m level walking, raising from a chair and squatting
RESULTS: 1) In gait analysis walking speed was significantly increased in the insole and combined condition.
Dynamic knee stability was significantly increased in the insole and combined condition.
The knee brace with or without wedge insole significantly decreased varus moments at the knee.
Pain and functional ability significantly improved in patients with severe OA while wearing the combination of insole and brace.
CONCLUSION: Patients with mild knee OA benifit of wearing a wedge insole or a brace or the combination to reduce knee varus moments and pain;
Patients with severe knee OA need to wear the wedge insole combined with the brace to have a maximum pain control and dynamic stability

KEY MESSAGE: ***Indossando la combinazione di un cuneo laterale nella soletta delle scarpe e di una ginocchiera funzionale si ottiene un significativo risultato nel controllo del dolore e nella stabilità dinamica nei pazienti con severa osteoartrosi al ginocchio.***

IMMEDIATE EFFECTS OF VALGUS KNEE BRACING AND FOOT ORTHOSES FOR THE TREATMENT OF VARUS KNEE OSTEOARTHRITIS

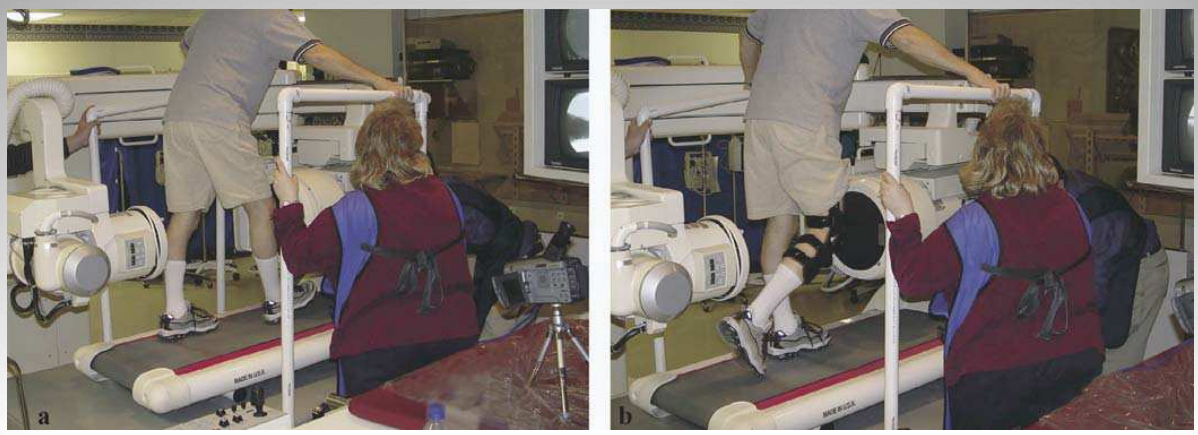
AUTHORS: H.J. Hillstrom, D.J. Brower, B. Heilman, E. Kim, K. Whitney, J. McGuire and H.R. Schumacher
PUBLISHED: Journal of Biomechanics, Vol. 39, Suppl. 1, p. S170
DATE: 2006
PLACE OF ORIGIN: Hospital for Special Surgery, New York
OBJECTIVE: To determine the immediate effects of valgus knee bracing and foot orthoses for the treatment of varus knee osteoarthritis.
TESTED PRODUCTS: knee brace : Ossur-Generation II Unloader Select
foot orthoses : full-length, custom molded, casted in neutral position and posted to vertical.
DESIGN & METHODS: 31 patients with mild to moderate medial knee OA were randomly assigned into one of two treatment groups:
•wearing valgus knee braces only
•wearing valgus knee braces with in-shoe foot orthoses Activities of daily living (ADL), patient self-assessments, and gait analysis variables were collected at baseline and at 12 weeks follow-up as outcome measures for pain and function.
RESULTS: Stair ascendent/descendent, 50' walk at one's comfortable pace and 50' walk at one's fastest pace were all significantly improved after one week accomodation to the conservative realignment therapies.
Self selected walking speed also significantly improved.
In the frontal plane, peak varus moment decreased by 2.5°
Remark : Different results of the two treatment protocols (brace only vs brace + foot orthosis) are not mentioned.
CONCLUSION: Biomechanically based lower extremity realignment therapies (knee braces and foot orthoses) can improve ADL's, pain, and the gait of patients with varus knee OA in as little as one week with continued improvement over 3 months

KEY MESSAGE: ***Le ginocchiere e le ortesi plantari possono migliorare le attività giornaliere, il dolore e il passo di pazienti con ginocchio varo osteoartrosico***

•IN VIVO THREE-DIMENSIONAL DETERMINATION OF THE EFFECTIVENESS OF THE OSTEOARTHRITIS KNEE BRACE: A MULTIPLE BRACE ANALYSIS

AUTHORS: Nadaud, Komistek, Mahfouz, Dennis, Anderle
PUBLISHED: The Journal of Bone & Joint Surgery (Am.), Volume 87, No. 2, pp. 114-119
DATE: 2005
PLACE OF ORIGIN: University of Tennessee
OBJECTIVE: To analyze subjects with symptomatic unicompartmental osteoartritis under in vivo, dynamic, wheightbearing conditions using video fluoroscopy, to determine if off-loading knee braces provide separation of the femoral condyle from the tibial plateau, thus avoiding excessive loads on the degenerative compartment.
The off-loading of the medial condyle was compared for the 5 commercially available OA braces.
Q: Is OA bracing an effective treatment for patients with degenerative knee osteoartritis under weightbearing conditions?
TESTED PRODUCTS: BledsoeThruster 2 - DJO OAjuster - Breg Tradition X2K - Innovation Sports Oasys - Generation II Unloader Spirit
DESIGN & METHODS: In vivo - 5 subjects with substantial unicompartmental osteoarthritis were studied under fluoroscopic surveillance in the frontal plane while performing treadmill gait.
Each subject had to walk without brace, with the 5 different OA braces and with an ACL brace (to evaluate a placebo effect) Each subject performed normal gait under fluoroscopic surveillance and in addition, each subject was asked to undergo a CT scan in order to reconstruct the 3D femoral and tibial bones. This study is the first study to analyze the OA knee in 3 dimensions. Images were captured at 5 instances during stance-phase of gait : heel strike, 33% of stance-phase, mid-stance, 66% of stance- phase and toe-off.
The amount of medial condylar separation was assessed for each subject and compared for all 5 subjects while wearing the 5 different braces to determine which brace is the most effective.
RESULTS: 1) The largest medial condyle separation was observed for all braces at heel-strike, greatest amount of separation with Bledsoe and DJO brace.
2) Off-load of the medial condyle : Bledsoe and DJO brace were most effective in separating the medial condyle >0,3mm during heel-strike, mid-stance and toe-off : between 40% and 80% effectiveness.
CONCLUSION: OA bracing is an effective mode of treating unicompartmental degeneration; articular seperation of a degenerated knee compartment can be achieved consistently with 2 braces : Bledsoe Thruster 2 and DJO OAdjuster.

KEY MESSAGE: ***Sollievo dal dolore mediale con OAdjuster DJO attraverso la separazione del condilo del compartimento degenerato ed assottigliato.***



GRAZIE PER L'ATTENZIONE