

Revalidatie na kraakbeenproblemen thv de knie



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- Sportkinesitherapeut
- Orthopedische kine
- Isokinetica
- Heizertrainer
- 10 j. profvoetballer bij RWDM
- 4 j. revalidatietrainer RSCA
- Zelfstandig kine Groot-Bijgaarden
- Stagebegeleider sportkine Vub



INHOUD

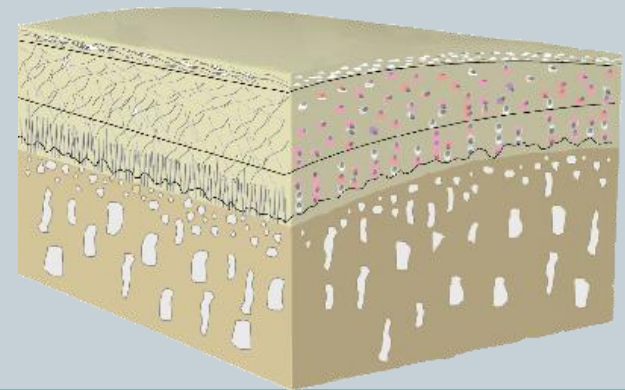


- KB : Hoe gaan we het aanpakken (Complex) ?
- Principes binnen de revalidatie
- Praktische uitwerking revalidatie
- Progressie in sport (voetbal) na knielijden

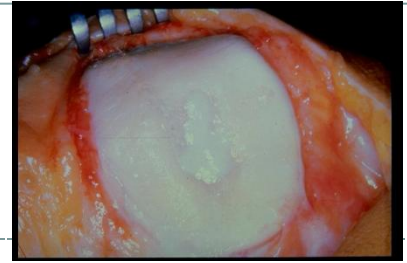
Kraakbeenprobleem – Wat en hoe ?



- Conservatief – Operatief ? (Prof Dr. Handelberg)
- Algemeen
- Belasting * ?
- Open keten – Gesloten keten ?
- Lokale therapie – Algemeen ?
- Schokabsorberende maatregelen *
- Bracing - Unload * ?
- Glucosamines – Hyaluronzuur ?
-



Kraakbeen (hyalien)



- Geen intrinsieke helingscapaciteit (avasculair)
- Kraakbeen kan grote druk weerstaan, maar heeft weinig trekvastheid, in tegenstelling tot bot.
- De kwaliteit van kraakbeen neemt af als het niet belast wordt.
- Kraakbeen geneest door littekenvorming

Functies van het kraakbeen



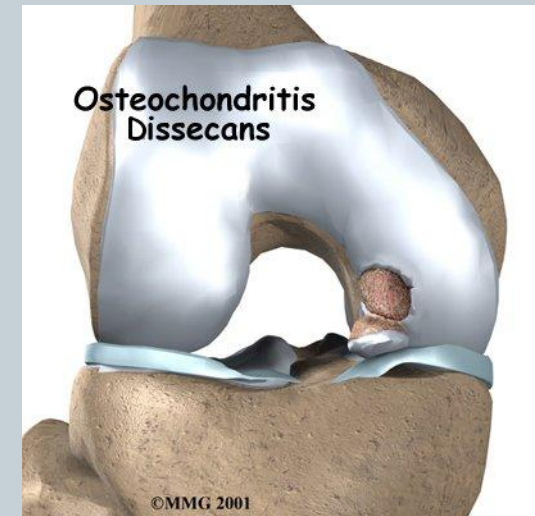
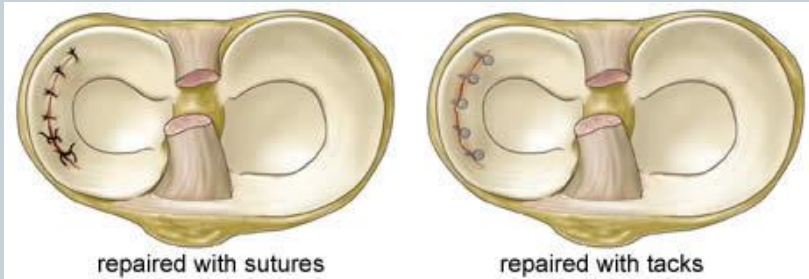
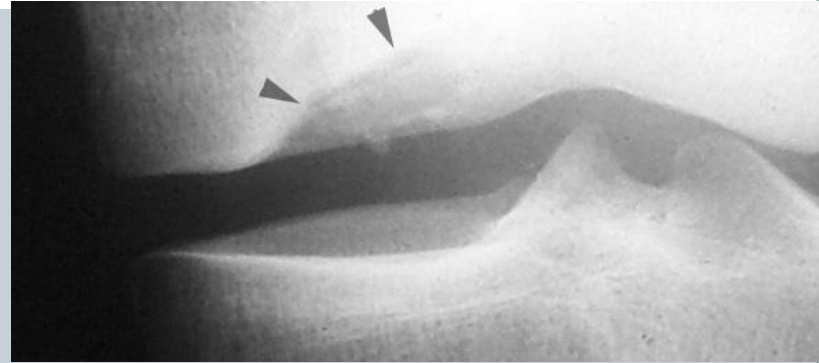
- Opvang van schokken
- Glijdend vermogen van de beenderstukken
- Aanpassing van het oppervlak om het gewicht optimaal te verdelen. Het kraakbeen kan vervormen en zo de verdeling verbeteren om het goed te laten aansluiten.
- “Spons” van collageen dat synoviaal vocht vast houdt. Ideaal, want vocht is glijdend, schokabsorberend en vormmodulerend.



Visie belasting KB conservatief



- Osteochondritis dissecans
- Tibiaplateau #
- Chondropathie patella
- Meniscushechting



Management of osteochondritis dissecans of the knee



We advocate a 3-phase nonoperative management protocol.

The first phase involves knee immobilization for 4 to 6 weeks with crutch-protected, partial weightbearing gait.

In phase 2 (weeks 6-12), weightbearing as tolerated is permitted without immobilization.

If there are radiographic and clinical signs of healing at 3 to 4 months after the initial diagnosis, phase 3 can begin

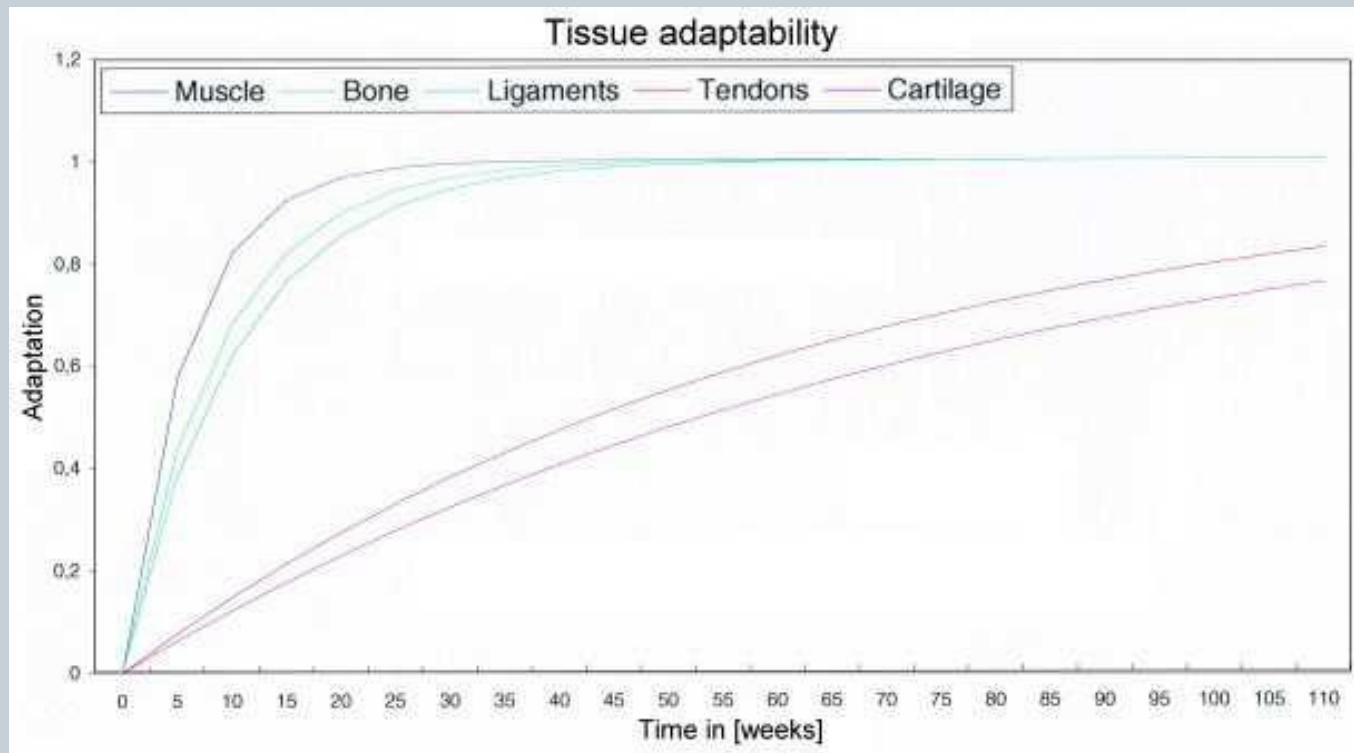
Kocher, M.S., Tucker, R., Ganley, T.J., Flynn, J.M.

Am J Sports Med, date: 2006, volume: 34, issue: 7, startpage: 1181

Cartilage is a slow adapting substance.



Where a muscle takes approximately 35 weeks to fully adapt itself, cartilage only undergoes 75% adaptation in 2 years



Oorzaken KB defecten



- Trauma
- Lig. Instabiliteit
- Malalignement (unloader)
- Menisectomie
- Osteochondritis dissecans
- Spierdefecten
- Overbelasting
- Haemarthrose : 15 % relevante defecten
- Bij A'scopie blijkt 63 % KB schade te hebben



Spieren - Cardio ??



Muscle health and muscle rehabilitation are **key components** for the successful prevention of, and recovery from, joint injury and disease.

Lokaal / Ketting

Algemene conditie



Tensegrity – Needle Tower

Schokabsorberende maatregelen



- Rationeel sporten
- Zolen
- Unloader Knee Brace *
- (Over) Gewicht *
- Stilstaan is achteruitgaan



Unloader Knee Brace ???



The researchers found **significant improvements** in patients in the brace and sleeve groups compared with controls, as well as a significant difference between those in the brace and sleeve groups with regard to pain after functional tests.

The long-term benefits of application of the unloader brace for still need to be assessed.

Current Evidence and Clinical Applications of Therapeutic Knee Braces

Chew KTL, Lew HL, Date E, Fredericson M - Am J Phys Med Rehabil 2007; 86: 678–686.

Does Weight Loss Help



Even modest reductions in body weight can significantly reduce the symptoms of joint pain.

5% to 10% reduction of body weight can dramatically reduce joint pain and improve exercise tolerance.

BMI : < 25

Metabool syndroom



Doel van de revalidatie



- Relieve clinical symptoms
 - Obtain painless full range of motion
 - Obtain good muscle strength
 - Improve function.
-
- Don't overload the healing articular cartilage.
-
- For a successful outcome, **open communication** should exist between the rehabilitation team and the surgeon.

Postoperatief ACI



- Jonge voetballer met KB-letsel mediale femurcondyl

Proliferatiefase : 7 – 21 dagen

Differentiatie : 6 – 9 weken

Maturatie : 9 w – 2 jaar



Buiten fietsen : 3 – 4 maand

Joggen na 6 – 10 maand

Voetbal na 16 maanden

Principes binnen de Revalidatie :



- Individualisering
- Reduceren pijn en zwelling
- Herstel R.O.M.
- Herstel homeostase gewricht
- Beweeg : “ motion is lotion for the joint “
- Herstel neuromusculair en proprio
- Opbouw kracht
- KB : “ Soon ripe, soon rotten “

Individualiseren



Letselgebonden

- Lokatie
- Grootte
- Diepte
- Single of gecombineerd

Patiëntgebonden

- Leeftijd
- BMI
- Alignement
- Verleden
- Sport
- A.D.L

Reduceren pijn en zwelling



- Fysiotherapie
- Drainagetechnieken
- Compressie
- Cryotherapie (Aircast)
- Taping (unload patella)

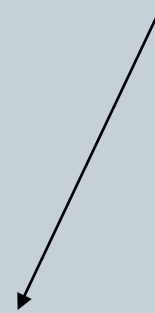


- Reflexinhibitie zoveel mogelijk vermijden

Reflexinhibitie



Intern probleem, zwelling



Atrofie Q-ceps, VMO

VMO bij 20 ml

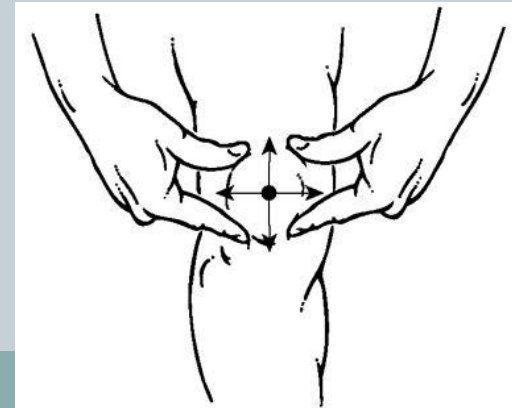
Rectus + VL bij 60 ml

VMO : VL - ratio = $< 1/1$

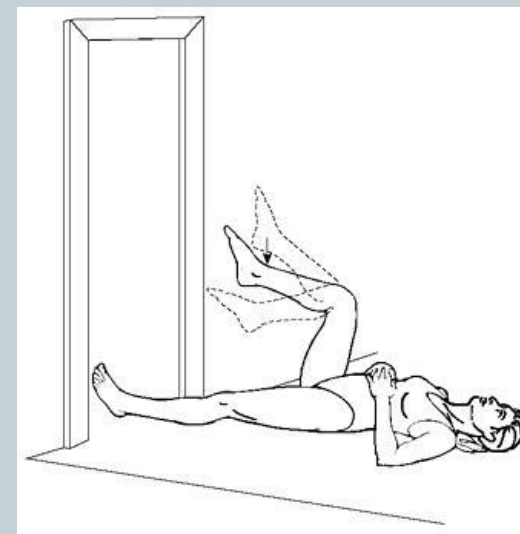
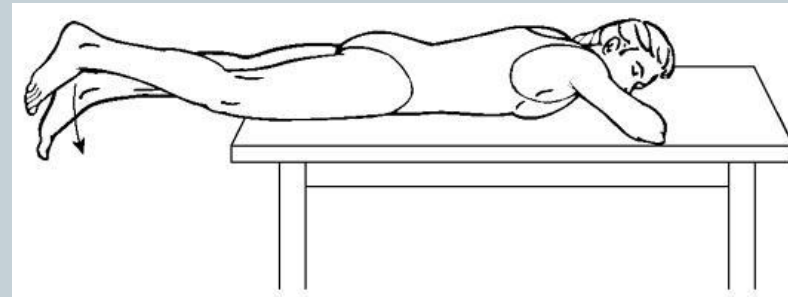
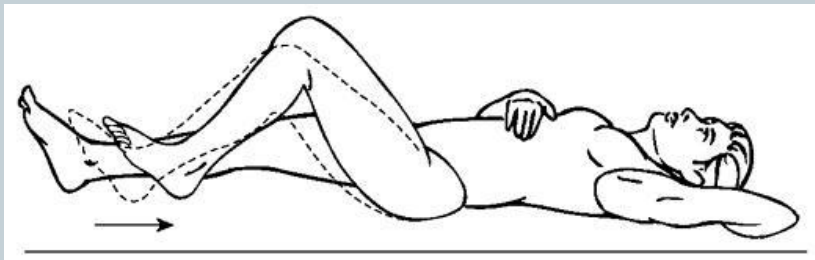
Herstel gewricht



- Komen tot een normale R.o.m.
- Eventueel werken met extensiepostures
- Kapsel moet opnieuw soepel worden
- Stretching : harmstrings, heupspieren + kuiten
- Patella mobilisaties
- Stretch Q-ceps + voorste kapsel kan pas later
- Gewricht moet “ droog ” blijven



Mobiliserende thuisoefeningen

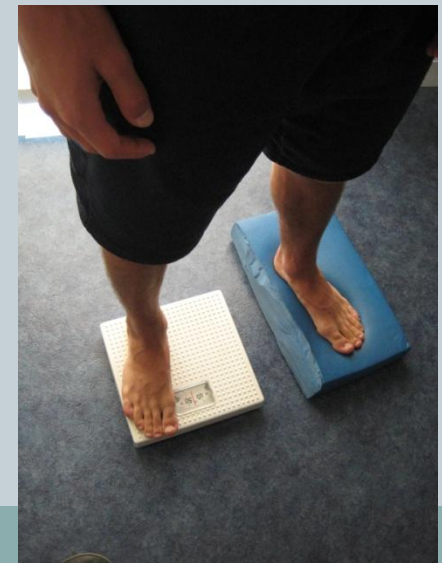


“ Motion is lotion for the joint “



- Beweging is superbelangrijk
- CPM in een vroege fase
- Veel en snel bewegen.
- 30 – 60’ fietsen over **grote range** met **low impact**
- Traag bewegen = risico op plastische deformatie

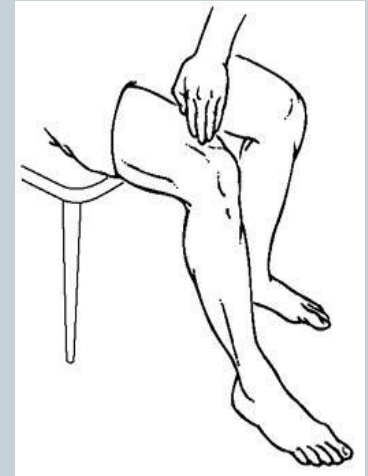
- Progressief meer steunname
- Korte belastingsduur – veel korte sets



Herstel neuromusculair en proprio



- Operatie / lange immobilisatie
- Controle spier → myofeedback
- Dynamische stabiliteit ?



- Positiezin → bewegingszin
- Posturaal evenwicht



Progressie proprio training



- Onbelast → Belast
- Statisch → Dynamisch
- Bipodaal → Unipodaal
- Stabiele ondergrond → Instabiele
- Visus → Geen visus
- Aandacht → Afleiden
- Closed packed → Open

Opbouw kracht

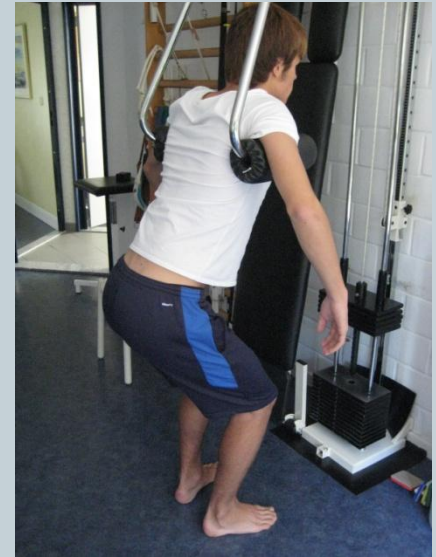


- Starten met éénvoudige settings
- Open keten oefeningen zonder R of gewicht
- Compex of myofeedback kan nuttig zijn
- Halfopen oefentherapie (Fitter / minivector)
- Bilateraal in gesloten keten (conc + exc) na 6 – 12 w.
- R ↑, door toename n. herhalingen en < sets (6 m)
- Krachttraining = functionele training



Praktische voorbeelden opbouw

Onderdosereren, zeker in het begin



PROGRESSIE IN SPORT NA KNIELIJDEN



1. SPORT ZONDER BELASTING
2. KNIEBELASTING ZONDER ROTATIES
3. KNIEBELASTING MET ROTATIES,
ZONDER KONTAKT
4. KNIEBELASTING MET ROTATIES,
MET KONTAKT

Cardiovasculaire opbouw na ACI



- Aquatraining * (3 w) – crawl (6w) – school (4m)
- Fietsen : binnen 6w, buiten 3-6 m.
- Wandelen : 10w.
- Nordic -Walking
- Roeien : 3 m.
- Crosstrainer
- Steppen : 3 – 6 m.
- Lopen : 6 – 10 m.

- Kine-praktijk
- Oefenzaal – Fitness
- Revalidatietraining
- Loopvariaties + Conditietraining
- Coördinatieoefeningen (The 11+ / Fifa)
- Inschakelen bal – inschakelen duel
- Groepstraining (evt. met opdrachten)
- 100 % training + wedstrijdjjes
- Veldtest + evaluatie staf
- Wedstrijdsituatie B kern / A kern



Evolutie na letsel
in het voetbal

CONCLUSIE



- Knierevalidatie waarbij een KB-deficit (beperkende factor) aanwezig is vraagt tijd.
- Druk dient progressief opgebouwd te worden.
- Beweeg veel en snel, over > ROM met low impact
- Gewrichtscirkulatie : minimum 30' – 60' / dag
- Trage bewegingen : risico op plastische deformatie
- Onderdosereren, zeker in het begin
- Zwelling of pijn : therapie terugschroeven
- Hernemen sport : Rationele visie aanhouden

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