Konservativne oblike zdravljenja mišičnoskeletnega sistema

Prof. dr. Matej Drobnič, dr. med.

Ortopedska klinika UKC Ljubljana
Katedra za ortopedijo MF Univerza v Ljubljani

Kaj je konzervativno zdravljenje?

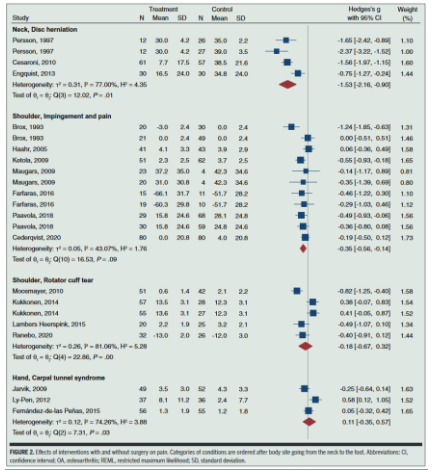
- Conservative management is a type of medical treatment defined by the avoidance of invasive measures such as surgery or other invasive procedures, usually with the intent to preserve function or body parts.

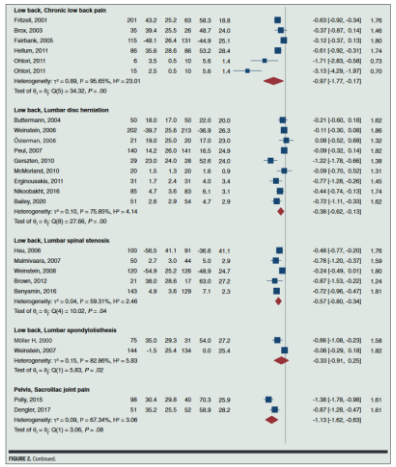
- Medical conservatism means being cautious about implementing unproven new procedures or tests, to prevent overtreatment and harm to patients.

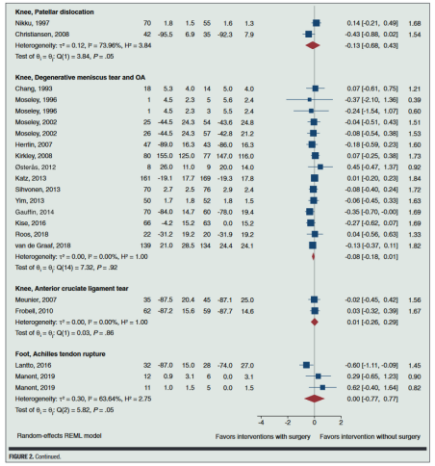
Uspešnost konzervativnega zdravljenja

Journal of Orthopaedic & Sports Physical Therapy
Volume 52, Issue 6
Jun 2022
Pages 303-410

Benefits and Harms of Interventions With Surgery Compared to Interventions Without Surgery for Musculoskeletal Conditions: A Systematic Review With Meta-analysis







OBJECTIVE: To estimate the benefits and harms of interventions with and without surgery for musculoskeletal (MSK) conditions.

DESIGN: Intervention systematic review with meta-analysis of randomized controlled trials (RCTs).

LITERATURE SEARCH: MEDLINE, EMBASE, CINAHL, Web of Science, and CENTRAL, all up to January 7, 2021.

STUDY SELECTION CRITERIA: RCTs (English, German, Danish, Swedish, and Norwegian) of interventions with and without surgery conducted in any setting for any non-fracture MSK condition in adults (mean age: 18+ years) evaluating the outcomes on a continuous (benefits) or count (harms) scale. Outcomes were pain, self-reported physical function, quality of life, serious adverse events (SAEs), and death at 1 year.

DATA SYNTHESIS: Random-effects meta-analyses for MSK conditions where there were data from at least 2 trials.

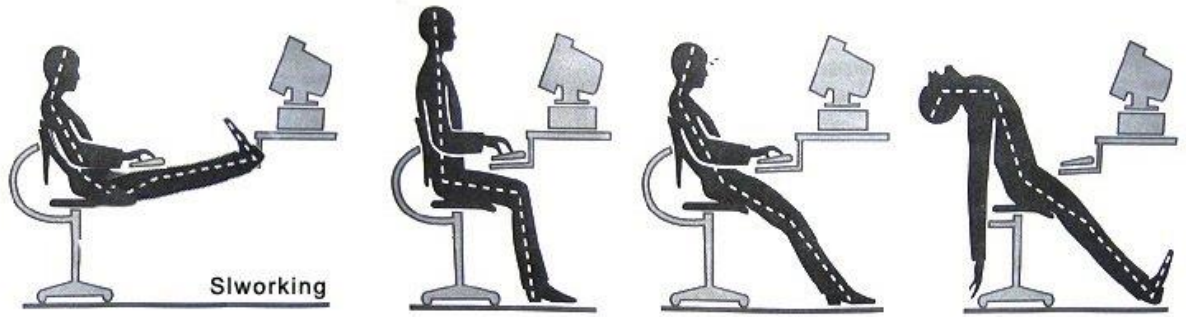
RESULTS: One hundred RCTs (n = 12 645 patients) across 28 different conditions at 9 body sites were included. For 9 out of 13 conditions with data on pain (exceptions include some spine conditions), 11 out of 11 for function, and 9 out of 9 for quality of life, there were no clinically relevant differences (standardized mean difference of 0.50 or above) between interventions with and without surgery. For 13 out of 16 conditions with data on SAEs and 16 out of 16 for death, there were no differences in harms. Only 6 trials were at low risk of bias.

CONCLUSION: The low certainty of evidence does not support recommending surgery over nonsurgical alternatives for most MSK conditions with available RCTs. Further high-quality RCTs may change this conclusion. *J Orthop Sports Phys Ther 2022;52(6):312-344. doi:10.2519/jospt.2022.11075*

KEY WORDS: *exercise, orthopedics, placebos, randomized controlled trials, surgery, therapeutics*

Možnosti konzervative

- imobilizacija, stabilizacija
- razbremenitev
- fizioterapija in kineziologija
- farmakološko zdravljenje
  - površinsko
  - peroralno
  - infiltracijsko
  - intravensko
- aspiracija, biopsija



RICE oz. MEAT za sub/akutne poškodbe

R.I.C.E TREATMENT

1 REST

This is a very important step as an injured muscle is weak and vulnerable to further injury. Refrain from moving it, especially in the first few hours to help it heal.

2 ICE

Icing the injured muscle reduces blood flow which prevents swelling and relieves pain. Apply an ice pack for 15-20 minutes and let the skin return to room temperature in between icing.

3 COMPRESS

Wrap an elastic bandage around the injury. This prevents fluid build-up which in turn minimizes swelling. Compression also helps to partially immobilize the injured area and ease the pain to an extent. If the bandage is too tight, remove and rewrap. We do not want a bandage to interfere with blood the flow or cause any discomfort now, do we?

4 ELEVATE

Elevation is another way to drain out fluid from the injured area and minimize swelling. Elevate your injured area (shoulder) above your heart or keep it at the same level as your heart if you can't raise it higher.

PLAYO

M.E.A.T TREATMENT

1 MOVEMENT

Careful and controlled movement increases blood flow to the affected area and helps in the healing process by providing essential nutrients. Simple ankle circles or very gentle movement stretching can be helpful in the early stages.

2 EXERCISE

Prescribed exercise enhances recovery. It also strengthens the muscles and ligaments which prevents the injury to recur. Exercise increases blood flow, encourage proper collagen alignment, and increase strength and proprioception.

3 ANALGESICS

Pain management is necessary with injury. The use of medications (whether natural or pharmaceutical) helps control acute pain and help assists in the recovery process. Non-traditional treatment methods can also be used for analgesia such as acupuncture, electrical stimulation and so on.

4 TREATMENT

Includes physiotherapy and other similar treatments that stimulate the blood flow and help in faster recovery. Consulting a healthcare professional such as a Physiotherapist, Chiropractor who offer treatment based on your injury.

PLAYO

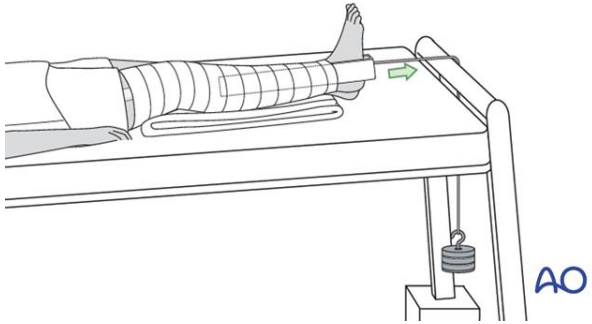
RICE VS MEAT

	RICE	MEAT
Immune System Response	Decreased	Increased
Blood Flow to Injured Area	Decreased	Increased
Collagen Formation	Hindered	Encouraged
Speed of Recovery	Delayed (lengthened)	Hastened (shortened)
Range of Motion of Joint	Decreased	Increased
Complete Healing	Decreased	Increased

RICE Versus MEAT
The RICE protocol hampers soft tissue healing, whereas MEAT encourages healing.

Imobilizacija

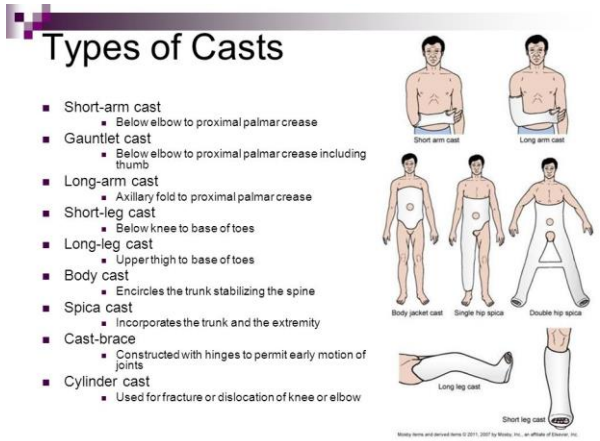
- Imobilizacija je postopek, s katerim zadržimo sklep(e) ali kost(i) v ustreznem položaju z uporabo zunanjih pripomočkov.
- S tem preprečujemo premike in omogočimo celjenje tkiv ter zmanjšamo bolečino.
- Mavec, zanka, opornica, ortoza, ovratnica, ekstenzija s trakcijo



Mavčenje

- materiali
  - klasični mavec (gipsona), fiber glas, soft-cast, termoplastični

- retencijski vs. redresijski
- cirkularni, prerezani, longeta
- hodilni vs. nehodilni
- telesne regije, oblike



Ortotika, taping

- generalna uporaba kontraindicirana
- zgodnje razbremenjevanje (stresni zlom, ruptura)
- zgodnje funkcionalno zdravljenje (zvin gležnja)
- kasneje uporaba med rizičnimi aktivnostmi

- indikacija za ortozo kolena
  - nestabilnost vezi (koleno, gleženj) stranskih ali križnih vezi, PF
  - razbremenitvena ortoza „unloader“
  - trak pod pogačico za vnetja pripenjališč

- bandaža (taping, tejping) - rehabilitacija ali med tekmo
- vložki oz. prilagojeni modeli športne obutve

Razbremenjevanje

- začasno ali trajno
- palice
- bergle
- stojka
- hodulja
- hodulja s kolesi
- invalidski voziček
  - ročni pogon
  - motorni pogon

Fizioterapija

- fizikalna terapija
  - toplota
  - mehano
  - svetloba
- elektroterapija
- kinezioterapija
- manualna terapija
- nevro-fizioterapija

Fizioterapija

- protibolečinsko + protivnetno
- povečanje obsega gibljivosti
- preprečevanje/zdravljenje mišične atrofije
- zmanjšanje spastičnosti
- šola hoje
- nameščanje/prilagoditev MTP
- samostojnost pri transferjih
- vaje: aktivne, pasivne, asistirane, SMV, PNF, BFR

Post-rehabilitacija

- poln obseg giba, brez bolečin oz. šepanja
- namen uravnotežena mišična aktivacija
- športno specifična vadba
- return-to-play, return-to-work
- funkcionalna diagnostika, meritve
- odprava rizičnih dejavnikov

- fizioterapevti, kineziologi, športni trenerji

Akupuntura, suho iglanje

- na prvi pogled enako
- vendar bistvene razlike
- akupunktura
  - TKM, edukacija
  - zdravljenje MSK in številnih drugih bolezni

- suho iglanje (dry-needling)
  - rehab, FT, ŠM terapevtska praksa
  - kronična miofascialna bolečina in napetost

Zdravila - površinska

- rubefaciensi
- NSAR
- heparinska
- "naravna"

Table 2. Select Prescription and Over-the-Counter Topical and Transdermal Agents

Active Ingredient	Examples
Capsaicin	Qutenza 8% topical patch Various products 0.025%, 0.075%, or 0.1% topical cream Castiva Warming 0.035% lotion Various brands 0.15% topical solution
Diclofenac	Flector 1.3% topical patch Voltaren 1% topical gel Solaraze 3% topical gel
Ibuprofen	EnovaRX-Ibuprofen 10% in microderm external cream compounding kit
Ketoprofen	Active-Ketoprofen 5% kit for compounding
Lidocaine	Various brands 3%, 4%, or 5% topical cream Solarcaine 0.5% topical cream Various brands 0.5% topical spray Various brands 5% topical ointment Various brands 5% transdermal patch Various brands 3% topical lotion Various brands 4% topical solution EnovaRX-Lidocaine 5% or 10% in microderm external cream compounding kit
Nitroglycerin	Various brands 0.1 mg/hr, 0.2 mg/h, 0.3 mg/h, 0.4 mg/h, 0.6 mg/h, or 0.8 mg/h transdermal patch Nitro-Bid 2% ointment
Trolamine Salicylate	Various brands 10% topical cream Aspercreme 10% topical lotion
Combination Products	
Capsaicin/Menthol	Capzasin 0.025%/10% quick-relief topical gel Various brands 0.0225%/4.5%, 0.025%/5%, or 0.0375%/5% topical patch Zostrix 0.025%/2% topical cream
Camphor/Menthol/Methyl Salicylate	Various brands 0.5%/0.3%/1% or 1.2%/5.7%/6.3% topical patch Various brands 4%/10%/30% topical cream Flexall Plus Maximum Strength 3.1%/16%/10% topical gel
Ketoprofen/Lidocaine	Vopac 10%/2% topical cream compounding kit
Lidocaine/Tetracaine	Synera 70 mg/70 mg topical patch Pliaglis 7%/7% topical cream
Menthol/Methyl Salicylate	Salonpas 3%/10% topical patch Various brands 1%/15%, 8%/30%, 10%/15%, 10%/30%, or 4%/25% topical cream Various brands 3%/15%, 5%/14%, or 10.5%/8.5% topical lotion Various brands 6%/14% or 7.6%/29% topical ointment

Cochrane Database Syst Rev. 2015 Jun 11;6:CD007402. doi: 10.1002/14651858.CD007402.pub3.

Topical NSAIDs for acute musculoskeletal pain in adults.

Derry S[1], Moore RA, Gaskell H, McIntyre M, Wiffen PJ.

AUTHORS' CONCLUSIONS: Topical NSAIDs provided good levels of pain relief in acute conditions such as sprains, strains and overuse injuries, probably similar to that provided by oral NSAIDs. Gel formulations of diclofenac (as Emugel®), ibuprofen, and ketoprofen, and some diclofenac patches, provided the best effects. Adverse events were usually minimal.Since the last version of this review, the new included studies have provided additional information. In particular, information on topical diclofenac is greatly expanded. The present review supports the previous review in concluding that topical NSAIDs are effective in providing pain relief, and goes further to demonstrate that certain formulations, mainly gel formulations of diclofenac, ibuprofen, and ketoprofen, provide the best results. Large amounts of unpublished data have been identified, and this could influence results in updates of this review.

Topical diclofenac does not affect the antiplatelet properties of aspirin as compared to the intermediate effects of oral diclofenac: A prospective, randomized, complete crossover study.

Rowcliffe M, Nezami B, Westphal ES, Rainka M, Janda M, Bates V, Gengo F.
J Clin Pharmacol. 2016 Apr;56(4):422-8. doi: 10.1002/jcph.615. Epub 2015 Nov 5.

Phys Sportsmed. 2013 May;41(2):64-74. doi: 10.3810/psm.2013.05.2016.

Effectiveness and safety of topical versus oral nonsteroidal anti-inflammatory drugs: a comprehensive review.

Klinge SA[1], Sawyer GA.

CONCLUSION: Overall, topical NSAIDs may be considered as comparable alternatives to oral NSAIDs and are associated with fewer serious adverse events (specifically GI reactions) when compared with oral NSAIDs. Caution should be exercised with the use of both topical and oral NSAIDs, including close adherence to dosing regimens and monitoring, particularly for patients with previous adverse reactions to NSAIDs.

Zdravila - peroralna

- analgetiki
  - paracetamol, metamizol, tramadol, opiati
- antirevmatiki
  - NSAR: salicilat, dikofenak, ketoprofen, ibuprofen, naproksen
  - COX-2: celexocib, etorixocib
  - kortikosteroidi
- antibiotiki
  - antistafilokokni penicilini, ciprofloksacin, rifampicin
- zdravila proti osteoporozi
  - bisfosfonati, hormonalna terapija
- dodatki k prehrani
  - vitamini, minerali
  - nutracevtiki za okvare tkiv

Cochrane Database Syst Rev. 2015 Jul 1;(7):CD007789. doi: 10.1002/14651858.CD007789.pub2.

Oral non-steroidal anti-inflammatory drugs versus other oral analgesic agents for acute soft tissue injury.

Jones P[1], Dalziel SR, Lamdin R, Miles-Chan JL, Frampton C.

AUTHORS' CONCLUSIONS: There is generally low- or very low-quality but consistent evidence of no clinically important difference in analgesic efficacy between NSAIDs and other oral analgesics. There is low-quality evidence of more gastrointestinal adverse effects with non-selective NSAID compared with paracetamol. There is low- or very low-quality evidence of better function and fewer adverse events with NSAIDs compared with opioid-containing analgesics; however, one study dominated this evidence using a now unavailable COX-2 selective NSAID and is of uncertain applicability. Further research is required to determine whether there is any difference in return to function or adverse effects between both non-selective and COX-2 selective NSAIDs versus paracetamol.

Scand J Med Sci Sports. 2012 Aug;22(4):e8-14. doi: 10.1111/j.1600-0838.2012.01463.x. Epub 2012 Mar 26.

Rehabilitation of muscle after injury - the role of anti-inflammatory drugs.

Mackey AL[1], Mikkelsen UR, Magnusson SP, Kjaer M.

damage both myofibers and intramuscular connective tissue. The role of NSAIDs in muscle repair is complicated by differences in injury models used, variables evaluated, and time point(s) selected for evaluations. While the temporal pattern of the influence of NSAIDs on muscle repair is difficult to settle on, it appears that a potential beneficial effect of NSAIDs in the early phase after injury is not maintained in the long term, or is even negated by a long-term repair deficit. At the cellular level, evidence exists for a negative influence of NSAIDs on the muscle stem cell population (satellite cells). At a structural level, it is known that muscle connective tissue

Knee Surg Sports Traumatol Arthrosc. 2013 Mar;21(3):540-9. doi: 10.1007/s00167-012-2095-2. Epub 2012 Jun 29.

The effect of nonsteroidal anti-inflammatory drugs on tissue healing.

Chen MR[1], Dragoo JL.

CONCLUSIONS: Short-term, low-dose use of NSAIDs and COX-2 inhibitors does not appear to have a detrimental effect following soft tissue injury, but is inhibitory in cases involving bony healing. However, additional well-controlled human studies are necessary to draw more definitive conclusions regarding their role. Clinically, the prudent use of anti-inflammatory medications following sports medicine injuries and surgeries appears to be a reasonable option in clinical practice unless bone healing is required.

Curr Opin Rheumatol. 2013 Jul;25(4):524-31. doi: 10.1097/BOR.0b013e32836200b8.

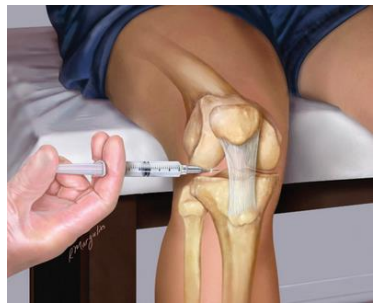
NSAIDs and fracture healing.

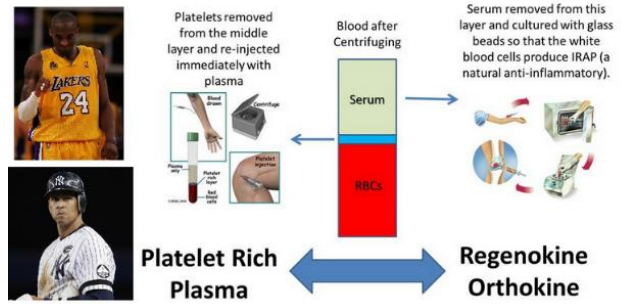
Geusens P[1], Emans PJ, de Jong JJ, van den Bergh J.

SUMMARY: These animal data, together with the view of limited scientifically robust clinical evidence in humans, indicate that physicians consider only short-term administration of COX-2 inhibitors or other drugs in the pain management of patients who are in the phase of fracture or other bone defect healing. COX-2-inhibitors should be considered a potential risk factor for fracture healing, and therefore to be avoided in patients at risk for delayed fracture healing.

Zdravila - infiltracije

- injekcijske terapije
  - intra-/peri-artikularno, burze, peritendineum
  - lokalno visoka koncentracija zdravila
- steroid +/- LA
  - odličen protivneten učinek, za akutno fazo
  - atrofija tkiv (katabolni učinek)
- hialuronati
  - viskosuplementacija kronična, artroza, 9-12 M,
- obogatena trombocitna plazma (PRP, ACP)
  - derivati krvi, centrifugiranje, uporabimo "buffy coat"
  - hrustančne okvare
  - entezopatije, tendinopatije, rupture
- mezenhimske matične/stromalne celice (MSC)
  - celična terapija, aspirat kostnega mozga ali lipo-aspirat
  - artroza
- amnijske membrane
  - artroza, tendinopatije





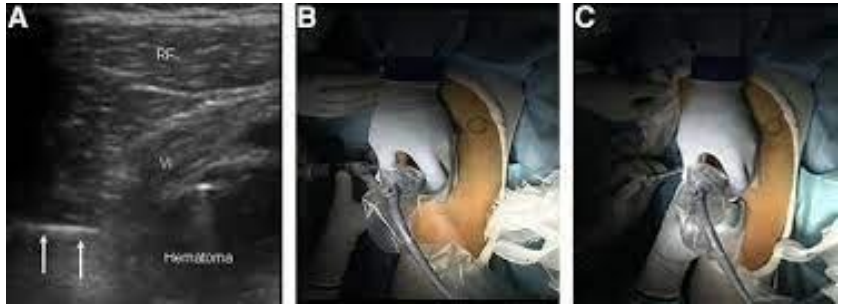
Zdravila – intravensko

- enkratna injekcija, hitra/dolga infuzija
- višje, hitrejše sistemske koncentracije
- analgetiki
  - paracetamol, metamizol, tramadol
- anti-revmatiki
  - diklofenak, ibuprofen
  - kortikosteroidi
- antibiotiki
- bisfosfonati
- …

Punkcija, aspiracija, drenaža

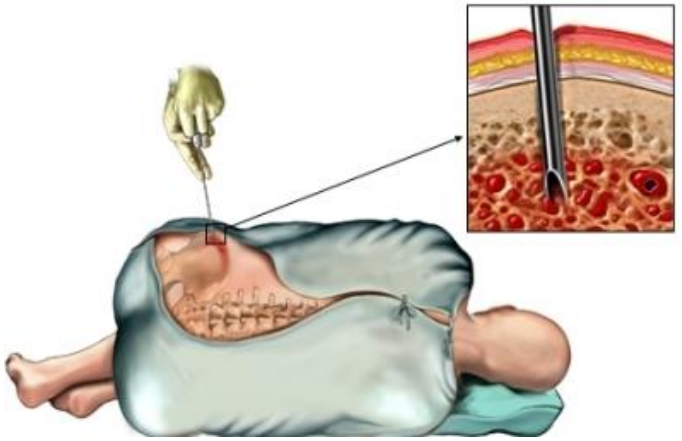
- punkcija – predrtje naravne ali patološke votline
  - sklep, burza, hematom
- aspiracija – odstranitev tekočine iz votline
- drenaža – gosta tekočina, dalj časa
  - organiziran hematom, absces

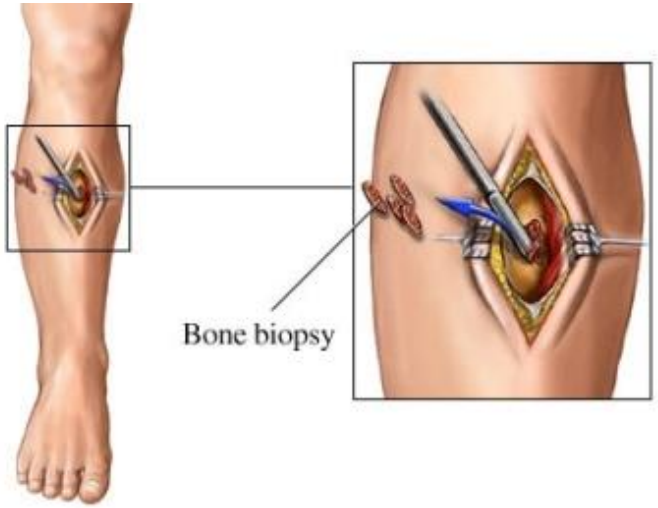
- zmanjšanje simptomov
- diagnostična metoda
  - mikro, kristali, biokemija, celice
- lahko kombinacija z infiltracijo



Biopsija

- malo invaziven diagnostični postopek
- aspiracijska, debelo-igelna, vrtalna, odprta
- pridobitev materiala za mikro + pato-histo





Zaključki

- široka paleta nekirurških terapevtskih metod
- temeljno ortopedsko zdravljenje
- MTP, fizioterapija, iglanje, zdravila, infiltracije

- ortopedija vs. ortopedska kirurgija
- nimamo "internista" za ortopedsko konzervativno zdravljenje
- sodelovanje/prepletanje FT, FRM, MDPŠ, revmatologi, travmatologi, SDM

- ~90% bolnikov z ortopedskimi težavami sploh ne potrebuje OP
- dobro znanje iz konzervativne terapije MSK
- OP sledi šele, ko je konzervativa izčrpana

" I may not have gone where I intended to go, but I think I have ended up where I needed to be. "

Douglas Adams