PROSES TERAPI

dr Rachmah Laksmi Ambardini
FIK Universitas Negeri Yogyakarta
Email: rachmah_la@uny.ac.id

Langkah-langkah Terapi

- Anamnesis (history): informasi terkait keluhan pasien →
  - Identitas
  - Keluhan utama
  - Riwayat Penyakit Sekarang (RPS)
  - Riwayat Penyakit Dahulu

Pemeriksaan Fisik

- Inspeksi (observasi)
- Palpasi → cek, misal tanda radang, krepitasi, ROM (range of motion) →rentang gerak sendi berkurang atau tidak?
- Perkusi
- Auskultasi

Pemeriksaan Penunjang/Tambahan

- Laboratorium → periksa darah, urine
- Radiologi → Foto Rontgen, CT Scan, MRI (magnetic Resonance Imaging), USG

Diagnosis

- Diagnosis utama/ Diagnosis pasti
- Diagnosis banding (diagnosis alternatif)

Terapi

- Non farmakologi
- Farmakologi: NSAID (obat anti rasa sakit, anti-radang, dll).

- Non Farmakologi:
  - RICE pd cedera akut
  - Berbagai modalitas terapi
  - Terapi Latihan (*Physical Therapy*): *Loosening, Stretching, Strengthening,* latihan untuk kembali ke aktivitas semula

Follow up

- Mengevaluasi hasil terapi

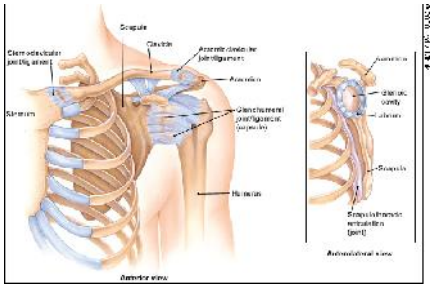
Anamnesis
Keluhan Nyeri Bahu

dr Rachmah Laksmi Ambardini
FIK Universitas Negeri Yogyakarta
Email: rachmah_la@uny.ac.id

Tujuan

- Memahami anatomi sendi bahu
- Memahami bagaimana mengevaluasi keluhan nyeri bahu
- Mendiskusikan tes provokasi yg digunakan untuk evaluasi nyeri bahu.
- Menguasai temuan anamnesis dan pemeriksaan fisik yg dapat membantu diagnosis masalah-masalah pada bahu.
- Mendiskusikan kelainan yg umum terjadi pada bahu dan penanganannya.

Shoulder Anatomy



Reference 1

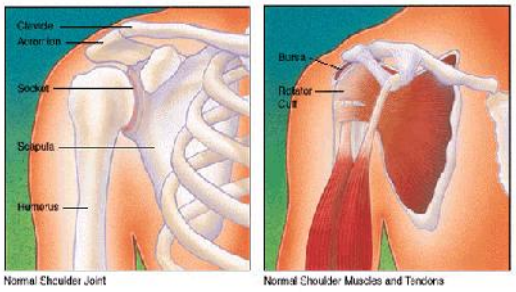


Figure 1: Normal anatomy of the shoulder

Anatomi Bahu

- Bahu mrp salah satu sendi yg paling kommpleks.
- Terdiri atas:

1.Struktur Tulang:
- Humerus
- Glenoid
- Acromion
- Clavicle

2. Struktur Jaringan Lunak:
- Otot-otot Rotator cuff dan elemen penyokongnya.

3. 4 Sendi :
- Glenohumeral joint
- Acromioclavicular joint
- Sternoclavicular joint
- Scapulothoracic joint/pseudoarticulation

Sendi Glenohumeral (GH)

- Bagian sendi yg paling sering mengalami dislokasi.
- Prinsip-Prinsip Dasar:
  - GH joint a ball and socket joint
  - Fossa glenoid datar dan jauh lebih kecil daripada caput humeri yg melekat padanya (persentuhan hanya 25-30%).
  - Cartilaginous labrum menyediakan fungsi socket, tetapi bukan stabilitas.
  - Stabilitas didapat dari struktur yg menstabilkan sendi bahu.

Static Stabilizers

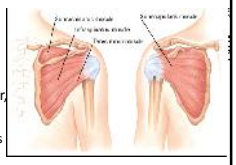
- Terdiri atas:
  - Struktur Tulang
  - Labrum
  - GH ligaments (superior, middle, inferior)
  - Kapsul sendi
- Membantu menjaga harmoni
- Tetap berfungsi walaupun ada gangguan saraf maupun otot intrinsik.

Dynamic Stabilizers

- Terdiri atas:
  - Rotator cuff
  - Scapular stabilizers (teres major, rhomboids, serratus anterior,trapezius and levator scapula)
- Tidak bisa berfungsi jika terjadi cedera neuromuskular dan kerusakan otot intrinsik.
- Malfungsi menyebabkan kelonggaran sendi GH dan nyeri bahu.

The Rotator Cuff

- Main function- depress the humeral head against the glenoid & stabilize
- Composed of 4 muscles:
  1. Supraspinatus- abduction helper to deltoid, pulls humeral head towards glenoid
  2. Infraspinatus- external rotation helper, pulls humeral head inferiorly
  3. Teres minor-external rotation helper, pulls humeral head inferiorly
  4. Subscapularis-internal rotation helper to pectoralis and latismus dorsi
- When damaged, humeral had can move upward within the joint 2/2 to unopposed deltoid action



Anamnesis

- Tanyakan umur pasien, tangan yg dominan, olahraga, pekerjaan.
- Tentukan keluhan utama pasien (mis. Nyeri, kelemahan, instabilitas, ROM yg terbatas).
- Bagaimana & kapan masalah dimulai?
- Apakah gejala yg dirasakan terkait dg cedera/kejadian tertentu sebelum gejala timbul?
- Apakah aktivitas/gerakan lengan tertentu menyebabkan gejala timbul?

Anamnesis

- Gejala yg terkait:
  - Instability/longgar (mis. Instabilitas sendi GH di segala arah)
  - Menurunnya kekuatan otot (mis. Impingment, gangguan pd rotator cuff).
  - Bengkak (mis. Trauma akut, robekan pd rotator cuff)
  - Mati rasa/kesemutan (misal gangg pd tl cervical)
  - Hilangnya gerakan/kekakuan (mis. Adhesive capsulitis, dislokasi atau instabilitas sendi GH)
- Terapi apa yg sebelumnya sudah dilakukan, mis: es, panas, obat-obatan.
- Tindakan Intervensi sebelumnya, mis terapi fisik, suntikan, pembedahan.

Pemeriksaan Fisik

- Dilakukan secara sistematis
- Jangan mengabaikan bahu yg sehat (krn hal ini akan memberi informasi sisi normal pasien).
- Perhatikan kedua bahu dan lakukan:
  - Inspeksi
  - Palpasi
  - Periksa ROM: pasif dan aktif
  - Tes kekuatan
  - Tes khusus sesuai indikasi

Inspeksi

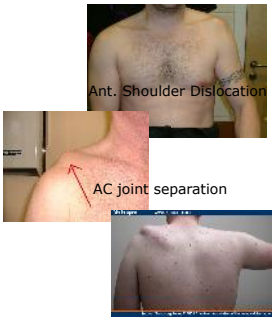
- Cari adanya:
  - Bengkak
  - Asimetri
  - Atrofi Otot
  - Adanya bekas luka
  - Ecchymosis

Inspeksi

- Look for:
  - Bengkak
  - Asimetri
  - Atrofi Otot
  - Adanya bekas luka
  - Ecchymosis
  - Dsitensi vena

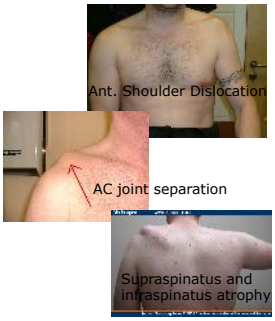
Inspeksi

- Look for:
  - Bengkak
  - Asimetri
  - Atrofi Otot
  - Adanya bekas luka
  - Ecchymosis
  - Distensi vena



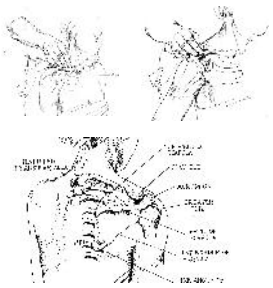
Inspeksi

- Look for:
  - Bengkak
  - Asimetri
  - Atrofi Otot
  - Adanya bekas luka
  - Ecchymosis
  - Distensi vena



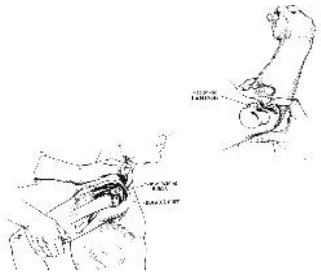
Palpasi

- Sendi Sternoclavicular
- Clavicula
- Prosesus Coracoid
- Acromion
- Sendi Acromioclavicular
- Scapula



Palpasi

- Tendon biceps
  Subacromial Bursa
- Spina Cervical



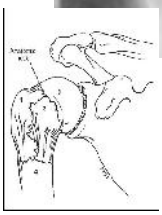
Kelainan Akut dan Kronis Pada Sendi Bahu

Fraktur Clavicula (patah tulang)

- Umum terjadi, paling sering di bag tengah 1/3 clavicula
- Anamnesis:
  - Jatuh dg menumpu pd tangan atau benturan langsung.
- Pemeriksaan fisik:
  - Nyeri tajamP dan/ ada deformitas (gangg.bentuk).
  - Selalu lakukan uji neurovascular.
- Foto Rontgen:
  - Xray- AP and cephalic tilt views
- Penanganan: siku difiksasi bentuk angka 8 selama 2-4 minggu
- Follow up: lihat dlm 4-6 minggu dg foto rontgen
- Rujuk ke dokter bedah tulang:
  - Jika fungsi bag distal clavicula terganggu (kena lig sendi AC)

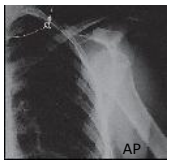
Proximal Humeral Fractures

- Anamnesis:
  - Jatuh menumpu pd tangan atau benturan langsung
- Pemeriksaan fisik
  - Crepitus pd sisi yg terkena
  - Ecchymosis dalam 48 jam setelah cedera.
- Foto Rontgen:
  - AP and Lateral Xray.
- Penanganan:
  - Imobilisasi bahu utk mencegah rotasi eksternal dan abduksi.
- Rujuk ke dokter bedah jika:
  - Fraktur komplels
  - Melibatkan bag leher
  - Pergeseran lebih dari 1 cm
  - Evaluasi cedera neurovascular



Glenohumeral Dislocation

- Most dislocations are anterior
- Ant. Dislocation:
  - pt holds arm in external rotation/abduction
  - Humeral head palpable anteriorly/ dimple below acromion
- Posterior Dislocation:
  - Arm in abduction/internal rotation
  - Dx often delayed
- Imaging
  - Need two views:
    - AP- can miss posterior dislocation
    - Axillary or Y view

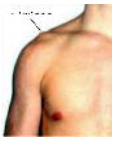


Dislokasi Glenohumeral

- Komplikasi:
  - Dislokasi GH berulang:
  - Cedera Tulang:
    - >50 % ada deformitas-gangg di posterolateral caput humeri.
  - Robekan Rotator Cuff
    - 50% usia <40, 80% >60
- Penanganan:
  - Reposisi
  - Latihan ROM exercises lebih awal
  - Operasi jika diperlukan.

Sprain Sendi AC

- Cedera yg biasa tjd pada atlet atau pasien yg aktif.
- Mekanisme:
  - Benturan langsung pd aspek superior bahu.
  - Benturan di sisi samping daerah deltoid
  - Jatuh menumpu pd tangan
- Pemeriksaan Fisik:
  - Bengkak terlokalisir & nyeri di atas sendi AC.
  - Selalu periksa pasien dalam posisi duduk.
  - Palpasi deformitas antara acromion & clavicula mengindikasikan cedera yg lebih berat.
- Rontgen:
  - Xray:
    - AP- confirms dx
    - Axillary- if suspect grade 4-6 injury



Klasifikasi Cedera AC

- Grade 3 atau lebih besar – rujuk ke dokter bedah utk perbaikan lebih lanjut.

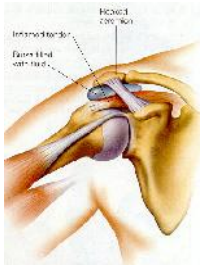
Ligaments or joint	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Acromioclavicular Ligaments	Sprained	Disrupted	Disrupted	Disrupted	Disrupted	Disrupted
Acromioclavicular joint	Intact	Disrupted or slight vertical separation	Disrupted	Disrupted	Separated	Ruptured
Coracoclavicular Ligament	Intact	Sprained	Disrupted or slight vertical separation	Disrupted	Disrupted	Disrupted

Robekan Rotator Cuff

- Paling sering dialami pd usia di atas 40 tahun. Anamnesis:
  - Pasien yg lebih muda → terkait dg trauma
  - Usia pertengahan→impingment kronik mengakibatkan ruptur rotator cuff.
- Rontgen:
  - AP view GH joint- may show calcific tendonitis of cuff +/- superior migration of humeral head-→ should be f/u with further imaging
  - MRI= gold standard
- Penanganan:
  - Surgical repair in young and selected older patients within 3 weeks of injury preferably
  - Rehabilitasi pasien yg tidak perlu operasi.

Impingement Syndrome

- Mekanisme:
  - Tendon rotator cuff terkena impinged antara lengkung coracoacromial dan abduksi humerus.
- Supraspinatus paling sering terganggu.
- Ada 2 jenis:
  - Primer
    - Pasien lebih tua, overuse kronis dan degenerasi
  - Sekunder
    - Usia lebih muda, atlet pelempar, instabilitas GH menyebabkan impingment.

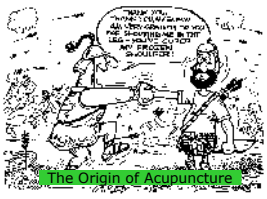


Impingement Syndrome

- Anamnesis:
  - Nyeri di atas bahu anterolateral, bisa menjalar ke siku.
  - Dipicu karena aktivitas yg melibatkan gerakan overhead, terasa memburuk di malam hari.
- PE: +Hawkins, + Neer
- Penanganan:
  - Konservatif:
    - Fase akut: NSAIDS, Injeksi, es, istirahat
    - Mengatasi nyeri: latihan penguatan Rotator cuff
  - Xrays- get if 2-3 mo of conservative Rx fails- may show hooked acromion, AC spurring.
  - MRI sesuai indikasi
  - Pembedahan Operasi jika terapi konservatif gagal.

Frozen Shoulder

- Mekanisme: penebalan dan kontraktur kapsul di sekitar sendi GH.
- Etiologi:
  - Imobilitas (operasi, nyeri)
  - Autoimun
- Imaging:
  - X-rays- normal
  - Arthography- constriction of joint capsule
- Penanganan:
  - Physical therapy
  - Terapi nyeri (NSAIDS)
  - Corticosteroids occasionally
  - Surgical referral if conservative fails



Biceps Tendonitis

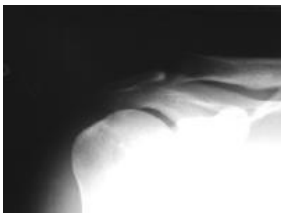
- Inflammation of sheath around long head of biceps
- Hx:
  - Pain and tenderness in bicipital groove
  - Often associated with impingement syndrome or rotator cuff tear
- PE: +Yergason's, +Speeds
- Rx:
  - Conservative: Rest, ice, NSAIDs, Injection
  - Surgical: Transfer of tendon

Labral injury

- SLAP lesion (Superior Labrum Anterior Posterior) common in throwing athletes
- HX: Painful shoulder that clicks or pops with motion
- PE: +clunk test, +O'Brien's, +/-laxity signs
- Rx:
  - Often will need surgical repair, especially if athlete.

Osteolysis of Distal Clavicle

- If atraumatic, most common in weight lifters
- Begins as stress fx & bone remodeling cannot occur due to continual stress on joint
- Hx:
  - Dull Pain over AC joint
  - worst in beginning of exercise period
  - Aggravated by abduction of shoulder
- Dx:
  - Xrays- osteopenia and lucency of distal clavicle
- RX:
  - D/C load-bearing activity
  - Surgical: Resection of distal clavicle



Case 1

- 42 yo Male comes to your office complaining of Rt shoulder pain. He does not remember any specific injury, but has been playing tennis a lot over the past 4 months and tells you that "opposing players no longer fear his serve". It is difficult and painful for him to reach overhead and behind him. Even rolling onto his shoulder in bed is painful.
- PE shows full ROM, but with discomfort at end ranges of Flexion, abduction and internal rotation. There is significant pain when you place the shoulder in position of 90 degrees of flexion and then internally rotate. There is also moderate weakness on abduction and external rotation. The rest of the MS exam is normal.

1. The most likely diagnosis is:

   a) Acromioclavicular sprain
   b) Rotator Cuff tear
   c) Adhesive Capsulitis
   d) Rotator Cuff impingement
   e) Cervical Radiculopathy

1. The most likely diagnosis is:

   a) Acromioclavicular sprain
   b) Rotator Cuff tear
   c) Adhesive Capsulitis
   → d) Rotator Cuff impingement
   e) Cervical Radiculopathy

2. The best initial treatment is:

   a) Corticosteroid injection
   b) Arthroscopic subacromial decompression
   c) Strengthening and ROM exercises
   d) Elbow sling
   e) Cervical collar

2. The best initial treatment is:

a) Corticosteroid injection
b) Arthroscopic subacromial decompression
c) Strengthening and ROM exercises
→ d) Elbow sling
e) Cervical collar

3. Predisposing factors for this problem include:

a) Repetitive motion of the shoulder above the horizontal plane
b) Hooked acromion
c) Acromioclavicular spurring
d) Shoulder instability
e) All of the above

3. Predisposing factors for this problem include:

a) Repetitive motion of the shoulder above the horizontal plane
b) Hooked acromion
c) Acromioclavicular spurring
d) Shoulder instability
→ e) All of the above

References

1. Woodward, T.W & Best, T.M; *The Painful Shoulder: Part I. Clinical Evaluation*. American Family Physician. May, 15 2006;60:3079-88.
2. Woodward, T.W & Best, T.M; *The Painful Shoulder: Part II. Acute and Chronic Disorders.* American Family Physcian. June 1, 2000; 61:3291-300. http://www.aafp.org/afp/20000601/3291.html
3. Hoppenfield, M. *Physical Examination of the Spine and Extremities.* New Jersey:Prentice Hall 1976.
4. Thompson, J.C. *Netter's Concise Atlas of Orthopedic Anatomy*. Philadelphia:Elselvier Inc 2002

???

Pemeriksaan Fisik Ekstremitas Bawah

dr Rachmah Laksmi Ambardini
FIK Universitas Negeri Yogyakarta
Email: rachmah_la@uny.ac.id

Prinsip Pemeriksaan Fisik

- Minta izin
- Hargai Privacy
- Dilakukan dg sopan
- Dilakukukan dg runtut

Prinsip Pemeriksaan Fisik

- Jangan lupakan kondisi umum pasien dan vital sign
- Two sides: kanan dan kiri
- Two joints: atas dan bawah
- Two surfaces: depan dan bawah

Pendekatan Pemeriksaan Fisik

- Penampilan umum dan gait
- Look, Feel & Move
- Special Tests
- Pemeriksaan neurovaskular

Pemeriksaan Umum

- Penampilan baik atau terlihat sakit
- Vital signs: demam, stabilitas hemodinamik

Gait

- Antalgic gait: nyeri terlihat dari cara berjalan
- Trendelenburg (abductor lurch) gait: weak abductors
- Waddling gait: bilateral weak abductors, bilateral DDH
- Steppage gait: foot drop
- Toe-walking

HIP: Look

- Prinsip:
  - Enough exposure
  - Compare both sides
  - Examine joint above (back) and joint below
- Look for:
  - Leg length discrepancy: blocks vs. tape
  - Alignment & Asymmetry (wasting)
  - Swelling, Skin changes (erythema), Scars

Hip: Feel

- Prinsip:
  - Dimulai dari area yg tidak nyeri
  - Dirasakan adanya bagian yg hangat, bengkak, nyeri
- Sites:
  - From the front: ASIS, pubic tubercle
  - From the side: GT, iliotibial band
  - From the back: SI joint, PSIS

Hip: Move

- Prinsip:
  - Periksa gerakan aktif, kmd pasif
  - Diperiksa adanya crepitus, excessive movement (laxity), limited movement (contracture), painful limitation
  - Do the motor neurological exam now
- Movements:
  - Flexion & Extension
  - Abduction & Adduction
  - IR & ER in flexion & extension

Hip: Special Test

- Trendelenburg test: for abductor strength
- Thomas test: for hip flexion contracture
- Ober's test: for iliotibial band tightness
- Patrick's (FABER) test: for SI joint
- Labral tear test

Knee: Look

- Prinsip:
  - Lihat kondisi secara umum
  - Bandingkan kedua lutut
  - Periksa sendi di atas dan bawah lutut
- Look for:
  - Leg length discrepancy
  - Alignment (varus, valgus, Q-angle)
  - Asymmetry (wasting)
  - Swelling, Skin changes (erythema), Scars

Knee: Feel

- Prinsip:
  - Dimulai dari area yg tidak nyeri
  - Rasakan hangat, bengkak, efusi, nyeri
  - Jangan lupakan bagian belakang lutut
- Sites:
  - Patella: margins and surfaces, quadriceps & patellar tendon & its insertion, bursae
  - Ligaments, tendons, & ITB attachment
  - Joint line: medial & lateral
  - Effusion: milking test, balloon test, ballotment

Knee: Move

- Prinsip:
  - Periksa gerakan aktif, kmd pasif
  - Rasakan adanya crepitus, excessive movement (laxity), limited movement (contracture, locked knee), painful limitation
  - ? Do the motor neurological exam now
- Movements:
  - Extension: quadriceps by femoral nerve
  - Flexion: hamstrings by sciatic nerve

Knee: Special Test

- Patellar tests:
  - Patellar apprehension test
  - Patellofemoral grind test
- Meniscal tests:
  - McMurray test
  - Apley's test
- Ligaments tests: ACL, PCL, MCL, LCL, PLC

Knee: Ligament special test

- ACL: Lachman's, Anterior drawer, Pivot shift
- PCL: posterior sag sign, Posterior drawer
- MCL: valgus stress in neutral & 30 flexion
- LCL: varus stress in neutral & 30 flexion
- PLC: dial test

Foot & Ankle: Look

- Prinsip: Lihat scr keseluruhan, bandingkan kedua sisi
  - Periksa sendi bagian atas dan bawah
- In hindfoot, midfoot & forefoot, look for:
  - Leg length discrepancy
  - Alignment:
    - Ankle: valgus or varus,
    - Foot: pes planus or cavus,
    - Big toe: hallux valgus or varus
    - Toes: claw, hammer, mallet
  - Asymmetry (wasting)
  - Swelling, Skin changes (erythema), Scars

Foot & Ankle: Feel

- Prinsip:
  - Dmul;ai dari area yg tidak nyeri
  - Rasaka hangat, bengkak, efusi, nyeri
- Sites:
  - Bones: malleoli, bones of the hindfoot, midfoot and forefoot
  - Ankle joint
  - Tendons: Achilles, posterior tibial, peroneal
  - Interdigital neuroma

Foot & Ankle: Move

- Prinsip:
  - Periksa secara aktif, kmd pasif
  - Rasakan adanya crepitus, excessive movement (laxity), limited movement (contracture), painful limitation
  - ? Do the motor neurological exam now
- Movements:
  - Ankle: dorsiflexion & plantarflexion
  - Subtalar joint: inversion & eversion
  - Forefoot: abduction & adduction
  - Toes: extension & flexion

Foot & Ankle: Special Test

- Tendons:
  - Achilles Tendon: Thompson test
  - Posterior Tibial Tendon: Heel raise test
- Instability:
  - Anterior drawer test
  - Inversion stress test
  - Peroneal tendon instability test
- Morton's test: Mulder's click

Pemeriksaan Neurological

- Jika diduga ada patologi perifer, tes motorik dan sensoris saraf tepi.
- Jika diduga ada patologi spina:
  - Sensasi dermatom, refleks tendon.

Pemeriksaan Vaskular

- Inspeksi:
  - Pucat
  - Distribusi rambut
- Palpasi:
  - Rasakan denyut nadi: dorsalis pedis, posterior tibial, popliteal, femoral
  - Temperatur
  - Isian kapiilerl
  - Sensasi
- Special Tests:
  - Compartments check
  - Ankle-Brachial Index

TEKNIK PALPASI

dr Rachmah Laksmi Ambardini
FIK Universitas Negeri Yogyakarta
Email: rachmah_la@uny.ac.id

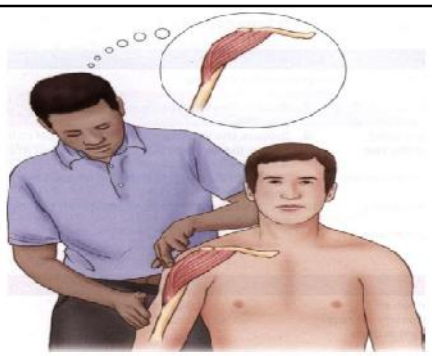


Figure 1-1 Palpation is as much an act of the mind as it is of the palpating fingers. Sensory stimuli entering through the therapist's hands must be correlated with a knowledge base of anatomy.

How to palpate?

- Move slowly
- Use appropriate pressure

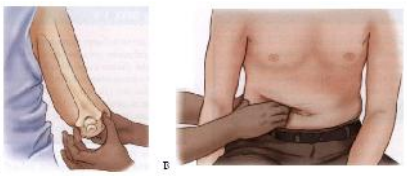


Figure 1-2 This figure illustrates the idea of using pressure that is appropriate to the structure being palpated. When the medial and lateral epicondyles of the humerus are being palpated, only light pressure is needed (A). However, when the pectoralis major muscle is palpated, deeper pressure is required (B).

Palpasi Deltoid

Figure 2-1 The deltoid is a superficial muscle and can be palpated by simply placing our palpating hand on the muscle between its attachments. Therefore knowing the attachments of the target muscle is the first necessary step when looking to palpate it.

Palpasi Deltoid

Figure 2-2 The precise location of the deltoid is more easily palpated if the deltoid is contracted. In this figure, the client is asked to abduct the arm at the shoulder against the force of gravity. When a muscle contracts, it becomes palpably harder and is easier to distinguish from the adjacent soft tissues. Therefore knowing the actions of the target muscle is the second necessary step when looking to palpate a muscle.

Palpasi otot

- Know the attachments of the target muscle
- Know the actions of the target muscle
- Choose the best action of the target muscle to make it contract
- Look before you palpate
- First find the target muscle in the easiest place possible
- Strum perpendicularly across the target muscle

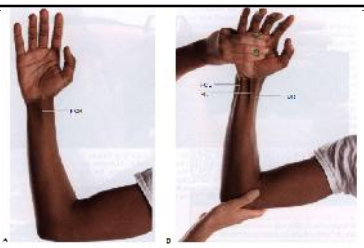


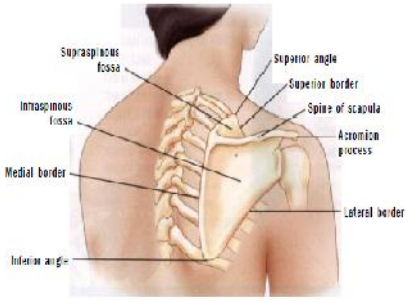
Figure 2-5 It is important to visually look for the presence of the target muscle before placing your palpating hand over the target muscle and blocking possibly useful visual information. A shows that the distal tendon of the flexor carpi radialis (FCR) muscle might be visible even when it is relaxed. B shows that when contracted (in this case against resistance), its distal tendon tenses and becomes even more visually apparent. Note: the palmaris longus (PL) and flexor carpi ulnaris (FCU) tendons are also visible.

Figure 2-7 The pronator teres muscle is palpated in "baby steps" toward its distal attachment. Palpating in baby steps means that the muscle is palpated with successive feels, each one immediately after the previous one. This helps ensure that the therapist will successfully follow the course of the target muscle.

Figure 7-2 Sternoclavicular joint: Start by first locating the suprasternal notch of the manubrium of the sternum; then press laterally, feeling for the **sternoclavicular (SC) joint** between the sternum and the medial (proximal) end of the clavicle. To better palpate the SC joint, ask the client to actively move his or her arm in various ranges of motion while palpating the SC joint.

Figure 7-3 Clavicle: From the SC joint, slide along the shaft of the **clavicle** from medial to lateral (proximal to distal) to feel its entire length. Notice that the medial end of the clavicle is convex anteriorly and the lateral end of the clavicle is concave anteriorly.
PLEASE NOTE: The sternocleidomastoid and upper trapezius muscles attach to the superior side of the clavicle. The pectoralis major, anterior deltoid, and subclavius muscles attach to the inferior side of the clavicle.

Figure 7-4 Coracoid process of the scapula: From the concavity at the lateral (distal) end of the clavicle, drop inferiorly off the clavicle to find the **coracoid process of the scapula** (which is located deep to the pectoralis major muscle). When palpating the coracoid process, notice that its apex (tip) points laterally. (If it is difficult to locate the coracoid process in this manner, then try to palpate it by first locating its apex. To do this, drop down from the far lateral end of the clavicle onto the head of the humerus and then press medially to find the apex of the coracoid process.)
PLEASE NOTE: Three muscles attach to the coracoid process: the short head of the biceps brachii, coracobrachialis, and the pectoralis minor.



Posterolateral view

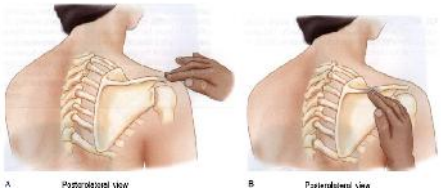


Figure 7-8 Acromion process and spine of the scapula: The **spine of the scapula** is the posterior continuation of the acromion process. To locate the spine of the scapula, begin on the acromion process **(A)** and continue palpating along it posteriorly. The spine of the scapula **(B)** can be palpated all the way to the medial border of the scapula. The spine of the scapula can be best palpated if you strum it perpendicularly by moving your palpating fingers up and down across it as you work your way posteriorly.

PLEASE NOTE: The posterior deltoid and trapezius muscles attach to the spine of the scapula. The rhomboid minor muscle attaches to the root of the spine of the scapula.

Figure 7-9 Supraspinous fossa: To palpate the **supraspinous fossa of the scapula,** locate the spine of the scapula and drop just off it superiorly. Palpate along the superior border of the spine of the scapula within the supraspinous fossa.

PLEASE NOTE: The supraspinous fossa is covered by the upper trapezius and the supraspinatus muscles. The supraspinatus muscle attaches to the supraspinous fossa.

Figure 7-10 Infraspinous fossa of the scapula: To palpate the **infraspinous fossa of the scapula,** locate the spine of the scapula and drop just off it interiorly. The infraspinous fossa is larger than the supraspinous fossa.

PLEASE NOTE: The infraspinatus muscle attaches to the infraspinous fossa.

Figure 7-9 Supraspinous fossa: To palpate the **supraspinous fossa of the scapula,** locate the spine of the scapula and drop just off it superiorly. Palpate along the superior border of the spine of the scapula within the supraspinous fossa.

PLEASE NOTE: The supraspinous fossa is covered by the upper trapezius and the supraspinatus muscles. The supraspinatus muscle attaches to the supraspinous fossa.

Figure 7-10 Infraspinous fossa of the scapula: To palpate the **infraspinous fossa of the scapula,** locate the spine of the scapula and drop just off it interiorly. The infraspinous fossa is larger than the supraspinous fossa.

PLEASE NOTE: The infraspinatus muscle attaches to the infraspinous fossa.

Figure 7-11 Medial border of the scapula (at the root of the spine of the scapula): Continue palpating along the spine of the scapula until you reach the **medial border of the scapula.** Where the spine of the scapula ends at the medial border is called the **root of the spine of the scapula.** It is helpful to have the client protract and retract the scapula (at the scapulocostal joint) to bring out the medial border of the scapula. Passively retracting the client's scapula makes it much easier to locate the medial border.

PLEASE NOTE: The levator scapulae and rhomboid muscles attach to the medial border of the scapula on the posterior side. The serratus anterior muscle attaches to the medial border on the anterior side.

Posterolateral view

Figure 7-12 Superior angle of the scapula: Once the medial border of the scapula has been located, palpate along it superiorly until you reach the **superior angle of the scapula.** It can be helpful to have the client elevate and depress the scapula as you palpate for its superior angle.
PLEASE NOTE: The levator scapulae muscle attaches to the superior angle of the scapula.

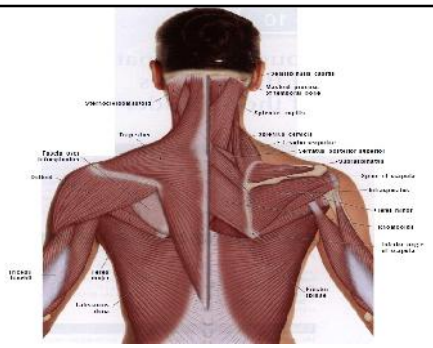


Figure 10-1 Posterior view of the posterior shoulder girdle region. The left side is superficial. The right side is deep (the deltoid, trapezius, sternocleidomastoid, and infraspinatus fascia have been removed).

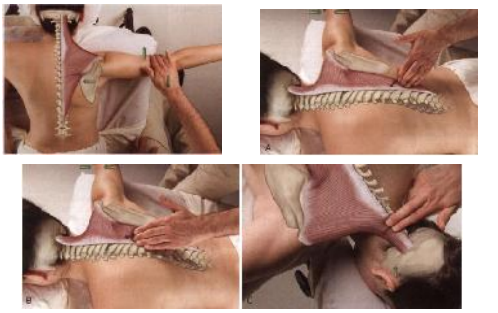


Figure 10-9 Palpation of the right trapezius. A shows palpation of the lower trapezius. B shows palpation of the middle trapezius. C shows palpation of the upper trapezius. Palpation of the upper trapezius is facilitated by asking the client to slightly extend the head and neck at the spinal joints. For all three parts of the trapezius, palpate by strumming perpendicular to the fiber direction as shown.

ROM & Tes Khusus Bahu

dr Rachmah Laksmi Ambardini
FIK Universitas Negeri Yogyakarta
Email: rachmah_la@uny.ac.id

Range of Motion- Aktif

- "Scratch" Test is the quickest way to evaluate:
  - External rotation/ abduction (Fig 1)
  - Internal rotation/ adduction (Fig 2)
  - Internal rotation/ adduction (Fig 3)

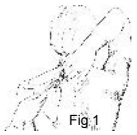


Fig 1


Fig 2

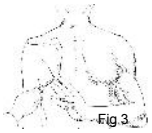
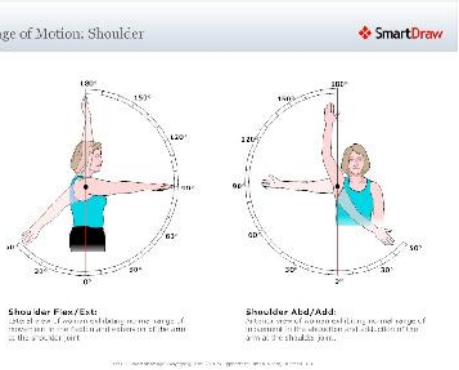
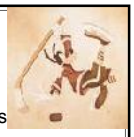


Fig 3



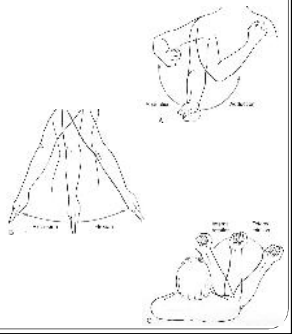
Range of Motion- Pasif



- Jika pasien tidak mampu melakukan gerakan s penuh pd tes aktif, tes ROM pasif harus dilakukan.
  - Jika ROM pasif normal tetapi ROM aktif normal terbatas, kelemahan otot karena keterbatasan.
  - Jika ROM pasif dan aktif terpengaruh, blokade struktur tulang (intra-articular) atau jar.lunak (di luar sendi) . Mis. Adhesive capsulitis

Range of Motion- Pasif

- Abduksi- 180 degrees
  - Isolate the GH joint
  - 1st 20-30 degrees of abduction don't require ST motion.
  - Arm internally rotated 1st 120 degrees (palm down)
  - Arm externally rotated (palm up) >120 degrees
- Aduksi- 45 degrees
- Flexi- 90 degrees
- Extensi- 45 degrees
- Internal Rotation- 55 deg
- External Rotation- 40-45 deg.

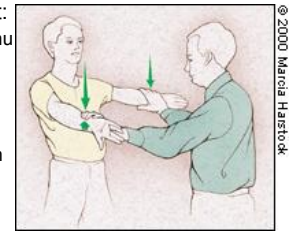


Tes Kekuatan- Evaluasi Rotator Cuff

- Selalu bandingkan kedua ekstremitas.
- Isolasi kelompok otot rotator cuff
- Masalah rotator cuff adalah nyeri disertai kelemahan otot.
- Kelemahan otot yg sebenarnya harus dibedakan dengan kelemahan otot karena nyeri.

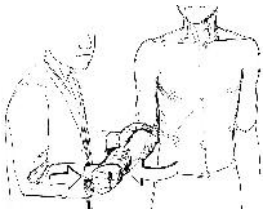
Supraspinatus

- The “Empty can” test:
  - abduksikan sendi bahu 90 degrees dalam posisi flexi, dg ibu jari menunjuk ke bawah.
  - Pasien mencoba mngelevasikan lengan melawan tahanan pemeriksa.



Infraspinatus dan Teres Minor

- Posis lengan pasien di sisi badan, flexi kedua siku 90 derajat sementara pemeriksa menahan melawan gerakan rotasi eksternal.



Subscapularis

- Lift off test:
  - Patient rests dorsum of the hand on the back in the lumbar area.
  - Inability to move hand off the back by further internal rotation of the arm, suggests injury to subscapularis muscle

Tes Provocative

- Fokuskan evaluasi pd masalah khusus yg diduga dialami pasien berdasarkan anamnesis & pemeriksaan fisik.
- Termasuk:
  - Impingment signs:
    - Neer’s Sign, Hawkin’s Test
  - Rotator cuff tear
    - Drop Arm Test
  - AC joint Arthritis:
    - Cross-arm test
  - Cervical Nerve disorder:
    - Spurling’s Maneuver
  - GH instability:
    - Apprehension test, Relocation (Jobe), Sulcus Sign
  - Biceps Tendon instabillity/tendonitis:
    - Yergason test, Speed’s maneuver
  - Labral Disorders
    - Clunk Test, O’ Brien’s

Impingement Signs

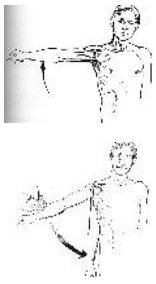
- Neer Sign
  - Arm in full flexion with arm fully pronated
  - Stabilize scapula
  - Pain= subacromial impingment- Rotator cuff tendons pinched under coracoacromial arch
- Hawkins Test
  - Forward Flex shoulder to 90 deg., elbow@ 90 deg., then IR
  - Pain= suprapinatus tendon impingement or tendonitis
  - ? More sensitive for impingement than Neer’s


Neer


Hawkins

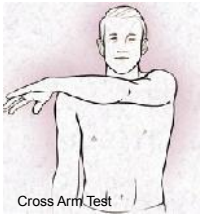
Rotator Cuff Tear

- Drop Arm Test:
  - Passively abduct patient’s shoulder to 90 degrees & have patient lower slowly to waist
  - Weakness or arm drop indicates rotator cuff tear/dysfunction
  - Note: the patient may be able to lower the arm slowly to 90 degrees (deltoid fxn) but will be unable to do so as far as the waist



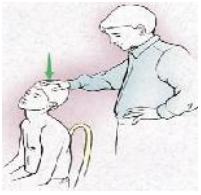
AC joint pathology

- Cross Arm Test:
  - Shoulder in 90 degrees forward flexion, then abduct arm across body
  - Pain indicates AC joint pathology
  - Decreased ROM indicates tight posterior capsule
- AC Shear
  - Cup hands over clavicle/scapula: then squeeze
  - Pain/movement= AC pathology


Cross Arm Test

Cervical Nerve Pathology

- Pain that originates from the neck or radiates past elbow, is suspicious for neck disorder
- Spurling Maneuver
  - Extend neck and rotate head of patient to affected shoulder. Then apply axial load.
  - Reproduction of sx indicates cervical disk pathology



Biceps Tendonitis

- Yergason's
  - Patient's elbow flexed at 90 deg with thumb up
  - Examiner grasps wrist, & resists patient attempt to supinate the arm and flex elbow
  - Pain= biceps tendonitis
- Speed's Maneuver
  - Flex pt's elbow to 20-30 degrees w/ forearm in supination and arm in 60 degrees of flexion
  - Examiner resists forward flexion and palpates biceps tendon

Labral Disorders

- Clunk Test
  - Patient supine
  - Patient's arm is rotated & loaded from extension thru forward flexion.
  - "clunk sound" or clicking sensation, may indicate labral tear
- OBrien's
  - 90 deg FF, max IR, then adduct and flex

Modalitas Terapi: CAM

dr Rachmah Laksmi Ambardini
FIK Universitas Ngegeri Yogyakarta
Email: rachmah_la@uny.ac.id

Domain Complementary & Alternative Medicine (CAM)

- Energy Medicine
- Manipulative & Body-based practiced
- Mind-body connection
- Biologically based practised

Manipulative & Body-based practiced

- Chiropractic Medicine
- Masssage Therapy
- Body work: Shiatsu

Sejarah Chiropractic

- Chiropractic berarti “dikerjakan dg tangan” → merujuk pada manipulasi tulang belakang (spinal).
- Bahasa Yunani, cheir (tangan), praxis (kerja).
- Chiropractic mrp bentuk manipulasi spinal & mrp salah satu bentuk pengobatan tertua

Konsep Dasar Chiropractic

- Tubuh mpy kemampuan menyembuhkan dirinya sendiri.
- Struktur tubuh sangat terkait dg fungsinya dan hubungan ini dpt mempengaruhi kesehatan.
- Terapi Chiropractic diberikan dg tujuan menormalisasi hubungan antara struktur dan fungsi tubuh.

Kondisi yg umum diterapi

- Nyeri punggung, termasuk low-back pain
- Nyeri leher
- Nyeri kepala, termasuk migrain
- Cedera olahraga
- Strain yg berulang

Terapi Energi

- Biofields
- Qigong
- Reiki
- Therapeutic touch

- **Acupuncture**
  - Jarum ditusukkan pd titik kritis (meridian).
  - Butuh kualifikasi tertentu
- **Acupressure**
  - Menggunakan tekanan sbg pengganti jarum

Dasar Terapi Energi

- Terapi Energi didasarkan atas kepercayaan bahwa perubahan dalam "life force" tubuh, termasuk medan listrik, magnetik dan electromagnetic , mempengaruhi kesehatan manusia dan dapat mendorong penyembuhan.

Apa yg dimaksud dg terapi energi?

- Terapi Energi termasuk domain pengobatan komplementer & alternatif yg berdasar pd interaksi medan energi manusia dg medan energi lain (manusia atau non-manusia).
- Berbagai medan energi dikaitkan dg tubuh manusia, termasuk listrik, magnetik, cahaya, dll.
- Perubahan medan energi ini dapat mempengaruhi kesehatan manusia dan mendorong kesembuhan.

Penamaan "inner energy"

- Qi-Traditional Chinese Medicine
- Ki-Japanese Kampo system
- Doshas-Ayurvedic medicine
- Etheric energy
- Fohat
- Orgone
- Odic Force
- Mana
- Homeopathic Resonance
- Prana

Mind-body medicine

- **Psychoneuroimmunology (PNI)**
  - Stres berlebihan dapat menurunkan kekebalan tubuh.
  - Aktivitas yg dpt menenangkan pikiran.

Mind-body medicine

- Mind-body medicine fokus pd interaksi antara otak, pikiran, tubuh, serta perilaku dan faktor emosional, mental, spiritual, serta perilaku dpt secara langsung mempengaruhi kesehatan.

Teknik mind-body medicine

- Cognitive-behavioral therapies
- Relaxation
- Hypnosis
- Imagery
- Meditation
- Yoga
- Biofeedback
- Tai Chi
- Qigong
- Group Support
- Autogenic Training
- Spirituality

Mind-body medicine

- Ada bukti bhw intervensi mind-body berefek positif thd fungsi psikologis & kualitas hidup.
- Risiko fisik & emosional minimal.
- Mind-body interventions can be taught easily
- Mind-body medicine harus digunakan bersamaan dg pengobatan modern sbg pendekatan terpadu utk meningkatkan kesehatan.

Meditasi

- Latihan kewapadaan & konsentrasi
- Deep relaxation
- Gelombang otak berubah-ubah sepanjang waktu
- Memperpanjang usia, meningkatkan kualitas hidup, mengatasi nyeri, kecemasan dll

Biologically based practised

- **Most controversial**
- **Many claims do not have evidence**
- **Herbal remedies**
  - Tinctures
  - Ginkgo biloba
  - St. John's wort
  - Echinacea
  - Ginseng
  - Green tea
  - Ephedra (Ma Huang)

Biologically based practised

- **Special supplements**
  - Muscle enhancers
  - Glucosamine
  - Antioxidants
- **Foods as healing agents**
  - Functional foods
  - Nutraceuticals

Biologically based practised

- **Common healing foods**
  - Plant sterol
  - Oat fiber
  - Sunflower
  - Soy protein
  - Garlic
  - Ginger
  - Yogurt

Terapi Manipulatif: Massage

dr Rachmah Laksmi Ambardini
FIK Universitas Negeri Yogyakarta
Email: rachmah_la@uny.ac.id

Efek Fisiologis Massage

- Stimulasi mekanik jaringan oleh penerapan tekanan & stretching scr ritmik.
- Efek massage : reflektif, mekanis.

Efek Massage

- Reflektif: efek saraf sensoris & motoris scr lokal & beberapa respon saraf pusat.
- Mekanis: membuat perubahan mekanis atau histologis pd struktur myofascial mll sentuhan langsung.

Efek Reflektif

- Efek yg diperoleh mll kulit & jaringan ikat superfisial.
- Kontak langsung menstimulasi reseptor kulit → mekanisme refleks dipercaya mrp fenomena sistem saraf otonom
- Stimulus refleks menyebabkan sedasi, mengendorkan ketegangan, & melancarkan aliran darah.

Efek Reflektif (Lanjutan)

- Efek thd nyeri: pelepasan β-endorfin.
- Efek thd sirkulasi: meningkatkan aliran darah & limfe.
- Efek thd metabolisme: membantu membersihkan asam laktat.

Efek Mekanis

- Teknik meregangkan otot, memperpanjang fascia atau memobilisasi jaringan lunak yg mengalami adhesi atau restriksi.
- Diarahkan pd jaringan yg lebih dalam, spt adhesi atau restriksi otot, tendon, & fascia.

Efek Mekanis

- **Efek thd otot**:
  - Stretching mekanis jaringan ikat intramuskular
  - Utk menghilangkan nyeri & rasa tidak nyaman terkait dg trigger point myofascial.
  - Utk memperlambat atrofi otot akibat cedera.
  - Meningkatkan aliran darah ke otot skelet
  - Meningkatkan ROM
  - Tidak meningkatkan kekuatan maupun tonus otot.

Efek Mekanis: terhadap kulit

- Meningkatkan suhu kulit
- Meningkatkan kemampuan berkeringat
- Menghilangkan adhesi (perlekatan) dan melunakkan scar
- Meregangkan & merusak jaringan scar fibrosa
- Menghilangkan perlekatan antara kulit & jaringan bawah kulit.

Panduan Terapi

- Pengetahuan anatomi
- Memahami proses patologi
- Memahami prinsip-prinsip massage

Posisi masseur

- Posisi yg memungkinkan relaksasi, mencegah kelelahan, memungkinkan pergerakan bebas lengan, tangan, & tubuh.
- Berat badan didistribusikan seimbang, bertumpu bergantian kaki kanan dan kiri.
- Tangan sebaiknya hangat.

Teknik terapi

- Pengaturan tekanan ditentukan oleh kondisi pasien.
- Durasi tergantung pd patologi, daerah yg diterapi, kecepatan gerakan, umur, & kondisi pasien.
- Apabila ada bengkak, mulai dari proksimal utk memfasilitasi aliran limfe (“uncorking effect”).

Teknik Terapi Massage (Lanjutan)

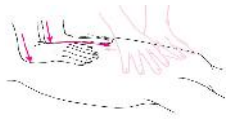
- Massage seharusnya tidak menyakitkan
- Arah kekuatan harus paralel dg serabut otot
- Dimulai & diakhiri dg effleurage
- Pastikan pasien hangat & dalam posisi nyaman dan relaks.
- Menggunakan pelumas
- Mulai dg stroking superfisial utk meratakan pelumas.

Teknik Terapi Massage (Lanjutan)

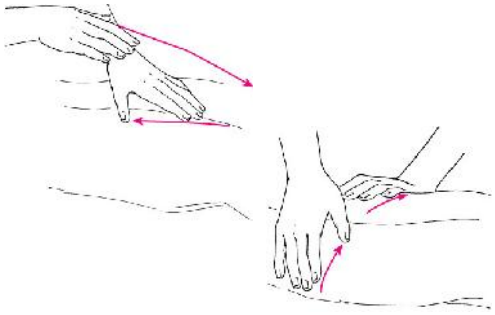
- Stroke sebaiknya overlap
- Tekanan yg diberikan segaris dg aliran vena, diikuti dg return stroke.
- Semua stroke sebaiknya ritmik

Effleurage (Stroking)

- Setiap massage dimulai & diakhiri dg effleurage
- Meningkatkan aliran vena & limfatik
- Meningkatkan sirkulasi ke permukaan kulit
- Mulai dg tekanan ringan, gerak scr sentripetal atau sentrifugal scr konsisten.

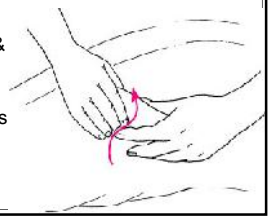


Stroking Variations



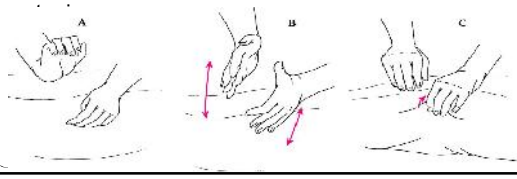
Petrissage (Kneading)

- Manipulasi kneading → menekan & menggulung (*press & roll*) otot di bawah jari atau tangan.
- Otot pelan-pelan diremas (*squeezed*), diangkat, & direlaksasikan.
- Tujuannya utk meningkatkan aliran kembali vena & limfatik & utk menghilangkan sampah metabolisme.
- Dpt juga utk melepaskan adhes (perlekatan) antara kulit & jaringan di bwhnya.



Tapotement (Percussion)

- Menggunakan berbagai variasi teknik perkusi atau memukul.
- Digunakan untuk meningkatkan sirkulasi aliran darah
- Digunakan untuk menstimulasi akhiran saraf



Tapotement (Percussion)

- Hacking

Digunakan untuk otot-otot besar.

Tapotement (Percussion)

- Slapping

Tapotement (Percussion)

- Beating

Tapotement (Percussion)

- Tapping

Tapotement (Percussion)

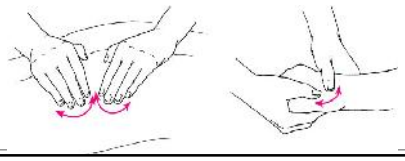
- Clapping or cupping
  - Produces invigorating and stimulating sensation
  - Series of percussion movements rapidly duplicated at a constant tempo

Vibration

- A fine tremulous movement, made by hand or fingers placed firmly against a part causing a part to vibrate
- Hands should remain in contact and a rhythmical trembling movement will come from arms

Friction

- Used around joints and in areas where tissue is thin
- Areas w/ underlying scarring, adhesions, spasms and fascia
- Goal is to stretch underlying tissue, develop friction and increase circulation



Guidelines for an Effective Massage

- Make the athlete comfortable
  - Positioning, padding, temperature, privacy
- Develop confident, gentle approach to massage
  - Good body positioning (clinician and athlete) an develop good technique
- Stroke towards heart to enhance lymphatic and venous drainage
- Know when to avoid massage
  - Acute conditions, skin conditions, areas where clots can become dislodged

Sports Massage

- Usually confined to a specific area - rarely given to full body
- Full body massage is time consuming, generally not feasible
- Five minute treatment can be effective
- Massage lubricants
  - Enables hands to slide and move easily over body, reducing friction
  - Rubbing dry area can irritate skin
  - Mediums include powder, lotion, oil or liniments
- Positioning of Athlete
  - Area must be easily accessible and must be relaxed
- Exhibit Confidence

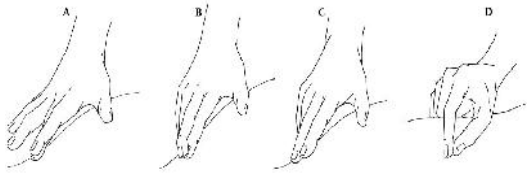
Transverse Friction Massage

- Teknik utk mengobati inflamasi tendon kronis
- Tujuannya utk meningkatkan respon inflamasi & mempercepat proses penyembuhan
- Menggunakan tekanan kuat dg arah tegak lurus ke arah serabut selama 7-10 menit setiap hari selang seling.

Deep Transverse Friction Massage

- Transverse or Cyriax method used to treat muscle, tendon, ligaments and joint capsules
- Goal is mobilization of soft tissue
- Generally precedes activity
- Movement is across the grain of the affected tissue
- Avoid treatment with acute injuries
- Treatment will produce numbing effect allowing for exercise mobilization

Gambar



Indikasi Massage

- Meningkatkan koordinasi
- Mengurangi nyeri
- Mengurangi ketegangan neuromuskular
- Stimulasi sirkulasi
- Memfasilitassi penyembuhan
- Mempertahankan mobilitas sendi
- Menghilangkan asam laktat
- Menyembuhkan kram otot Meningkatkan aliran darah
- Meningkatkan aliran kembali vena
- Memperlambat atrofi otot
- Meningkatkan ROM Mengurangi edema
- Myofascial trigger points
- stretching scar tissue

Lanjutan Indikasi Massage

- adhesions
- muscle spasm
- myositis
- bursitis
- fibrositis
- tendinitis
- revascularization
- dysmenorrhea
- headaches
- migraines

Contraindications For Massage

- arteriosclerosis
- thrombosis
- embolism
- severe varicose veins
- acute phlebitis
- cellulitis
- synovitis
- abscesses
- skin infections
- cancers
- acute inflammatory conditions

Acupresure, Shiatsu, and Myofascial Trigger Points

- Acupressure and Shiatsu points berdasarkan pengobatan cina dan acupuncture.
- Myofascial trigger points ditemukan di otot skelet & tendon, di myofascia, di ligamen and capsules sekitar sendi, di periosteum, & di kulit.
- Dapat diaktivasi & menjadi nyeri krn bbeberapa trauma pd otot yg tjd krn trauma langsung atau krn *overuse*.

Acupresure, Shiatsu, and Myofascial Trigger Points

- Nyeri bisa berasal dari respon inflamasi
- Nyeri biasanya dijalrkan ke area tertentu mengikuti pola spesifik.
- Stimulasi titi-titik ini menghasilkan hilangnya nyeri. Titik Acupressure sama dengan myofascial trigger points.

Teknik Massage Acupressure

- Lokasi titik-titik dilihat dari daftar/gambar
- Menggunakan jari atau siku utk melakukan gerakan friction kecil (gerakan memutar)
- Tekanan hrs intens & menimbulkan sedikit nyeri. Pasien merasakan efek mati rasa (spt kesemutan)
- Waktu pengobatan antara 1-5 menit pd beberapa titik.

Myofascial Release

- Sering disebut mobilisasi jaringan lunak.
- Sekelompok teknik stretching yg digunakan utk membebaskan jaringan lunak dari jepitan fascia yg terlalu ketat.
- Terapi pd lokasi restriksi (tarikan) & bergerak ke arah tarikan.
- Menggunakan sedikit pelumas
- Posisi masseur sangat penting utk memaksimalkan efek.

Traction

- Drawing tension applied to a body segment
- Physiological Effects
  - Produces separation of vertebral bodies impacting ligaments, capsules, paraspinal muscles; increases articular facet separation, and relief of nerve root pain; decreases central pressure of vertebral disks; increases proprioceptive changes; relief of joint compression due to normal posture

Indikasi dan Aplikasi

- Indications
  - Spinal nerve root impingement
  - Decrease muscle guarding, treat muscle strain
  - Treat sprain of spinal ligaments
  - Relax discomfort from normal spinal compression
- Application
  - Manual and traction machines can be used
  - Manual
    - Adaptable and allows for great flexibility
    - Changes in force, direction, duration and patient positioning can be made instantaneously

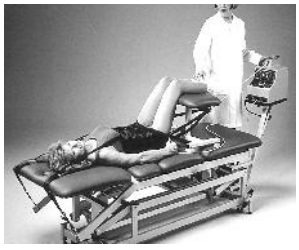
Jenis-jenis Traksi

- Mechanical Traction
  - Can be used to apply cervical or lumbar traction
- Positional Traction
  - Used on trial and error basis to determine maximum position of comfort to accomplish specific goal

Jenis-jenis Traksi

- Wall-Mounted Traction
  - Cervical traction can be accomplished w/ this unit
  - Involves use of plates, sand bags or water bags for weight
  - Relatively inexpensive and effective
- Inverted Traction
  - Utilizes special equipment or simply inverting ones self
  - Weight of trunk lengthens spine, providing a stretch

Traction



Traction