ANATOMY TEAM

Lecture 22

HIP, KNEE & ANKLE JOINTS

OBJECTIVES

At the end of the lecture, students should be able to:

- ***List the type & articular surfaces of the hip, knee and ankle joints.***
- ***Describe the capsule and ligaments of the hip, knee and ankle joints.***
- ***Describe movements of hip, knee and ankle joints and list the muscles involved in these movements.***
- ***List important bursae in relation to knee joint.***
- ***Apply Hilton's law about nerve supply of joints.***

تنويه : هذا العمل لا يعتبر مرجع أساسي للمذاكره وإنما هو للمراجعه فقط ، وننصح البنات بتحميل سلايد الأولاد لأنه أشمل ويحتوي على انيميشن مفيده جداً ، سلايد الأولاد كامل ولا يوجد معلومه لدى البنات لم تذكر عند الاولاد

USEFUL LINK

http://www.youtube.com/watch?v=ucVRGTFw7K0&feature=youtube_gdata_player

IMPORTANT NOTES :

Joints

- ✓ **All synovial joints have Capsules, ligaments & hyaline cartilage covering the articular surface.**
- ✓ **ALWAYS !! Intracapsular = Extrasynovial.--> هذي أكدت عليها الدكتورة اكثر من مرة**

Joint name	Joint type	info
Hip joint	Synovial (ball & socket) joint	----------
Knee joint	**Femoro-tibial articulation:** Synovial (modified hinge) joint	Due to slight rotation that fermoro-tibial articulation do.
	Femoro-patellar articulation: Synovial (plane) joint	---------- ----------
Ankle joint	Synovial (hinge) joint	----------

- ✓ **Menisci ((the C-shapes)) are fibro-cartilage help in : 1)Deepen articular surfaces.**

  2) Serve as cushion (مسند).

- ✓ **Any infection can affect bursa affect the joint as well, so as the reverse.**
- ✓ **Medial meniscus has less mobility compared to the lateral, so it is more liable to damage.**

Ligaments

1# Hip joint :

3 Extracapsular ligaments

Iliofemoral ligament+Pubofemoral ligament+Ischiofemoral ligament

2 Intracapsular (Extrasynovial) ligaments

Transverse acetabular ligament+Ligament of femoral head

2# Knee joint :

4 Extracapsular ligaments

Ligamentum patellae (patellar ligament)+Medial (tibial) collateral ligament+Lateral (fibular) collateral ligament+Oblique popliteal ligament

2 Intracapsular ligaments

Anterior+posterior Cruciate Ligaments

3# Ankle joint :

Medial (DELTOID) triangular ligament: divided to 4 parts

Lateral ligaments: 3 separate ligaments

Capsule (cover knee)

✓ 2 openings= POSTERIORLY (for popliteus tendon)+ANTERIORLY (for suprapatellar bursa).

Bursae (knee)

You can know their locations by their name!

1. **Suprapatellar bursa.** (clinical importance?)
2. **Prepatellar bursa.** **3. Deep infrapatellar bursa.**
4. **Subcutaneous infrapatellar bursa.**
5. **Popliteal bursa.**

Movements of joints in general

JOINT	MOVEMENTS
Hip joint	**1)Flexion 2)Extension** **3)Abduction 4)Adduction** **5)Medial rotation 6)Lateral rotation**
Knee joint	**1)Flexion 2)Extension** **3)Active Rotation (flexed knee):** a. **Medial Rotation** b. **Lateral Rotation** **4)Inactive Rotation (dependant):** a. **Locking Of Knee** b. **Unlocking Of Knee**
Ankle joint	**1)Dorsiflexion 2)Planterflexion**
talo-calcaneo-navicular joint	**1)Inversion 2)Eversion <<<NOT *Ankle joint* !**

Nerve supply (HITON'S LAW)

(HITON'S LAW)

"The joint is supplied by branches from nerves supplying muscles acting on it".

GENERAL QUESTIONS

Q1) what the common type of all hip, knee & ankle joints ?

Synovial joint.

Q2) how many ligament hip joint has?

5 : 3 extracapsular + 3 intracapsular (extrasynovial)= 6 ligaments

Q3)what is the outer border for both lateral & medial menisci?

Lateral: separated from lateral collateral ligament by popliteal tendon.

Medial: attached to capsule &medial collateral ligament.

Q4) what are the extracapsular ligaments of knee?

They're 4: a)Ligamentum patellae (patellar ligament).

b) Medial (tibial) collateral ligament. c) Lateral (fibular) collateral ligament

d) Oblique popliteal ligament.

Q5) deep infrapatellar bursa is between?

Tibia & ligamentum patella

Q6) what are the articulation surfaces of ankle joint?

(UPPER) : socket: Lateral malleolus. the lower end of tibia & medial malleolus that articulate with Body of talus.(LOWER)

Q7) what is the muscle that maintain planterflexion of ankle?

Gastrocnemius muscle.

Q8) what is HITON'S LAW?

= "The joint is supplied by branches from nerves supplying muscles acting on it".

MCQs

Q1) Inversion & Eversion Movements are done by:

A. Hip joint.
B. Knee joint.
C. talo-calcaneo-navicular joint.
D. Ankle joint.

Q2) Inactive rotation of knee involves:

A. Medial rotation
B. Locking of knee
C. Lateral rotation
D. Posterior rotation

Q3) Flexion of knee is mainly done by:

A. Sartorius muscle
B. Gracilis muscle
C. Popliteus muscle
D. Hamstring muscles

Q4) Prepatellar bursa is between:

A. Patella & skin
B. Tibial tuberosity & skin
C. Popliteus & capsule
D. Tibia & ligament patella

Q5) Posterior cruciate ligament prevent:

A. Posterior displacement of femure
B. Anterior displacement of femure
C. Posterior displacement of tibia
D. Anterior displacement of tibia

Q6) which one of these ligaments is <u>extension</u> of semimembranosus tendon:

A. Ligamentum patellae
B. Medial collateral ligament
C. Oblique popliteal ligament
D. The Cruciate Ligaments

Q7) which one of these menisci is less mobile & more liable to injury:

A. Lateral meniscus
B. Medial meniscus
C. Anterior meniscus
D. Posterior meniscus

Q8) the anterior opening of capsule is communicated with:

A. Deep infrapatellar bursa
B. Prepatellar bursa
C. Popliteal bursa
D. Suprapatellar bursa

Q9) The menisci is formed of:

A. Fibro-cartilage plate
B. Fibro-osseous plate
C. Hyaline-cartilage plate
D. Hyaline- osseous plate

Q10) Y-shaped ligament:

A. Pubofemoral ligament
B. Ischiofemoral ligament
C. Iliofemoral ligament
D. Transverse acetabular ligament

MCQs	Answer
1	C
2	B
3	D
4	A
5	B
6	C
7	B
8	D
9	A
10	C

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دعواتكم...