**R. GREG HOTT - HUMAN ANATOMY SNOW PACKET 11-15**

ARTICULATIONS

What is a joint?

No, blunt isn’t the right answer. A joint is a place where two or more bones meet.

**HUMAN ANATOMY SNOW PACKET 11**

What vocab word means joint? Arthr

A joint is also known as an articulation

JOINT or ARTICULATION

I. JOINT or ARTICULATION

There are 3 general categories of joints

A. SYNARTHROSIS/ IMMOVABLE

Synarthrosis joints are also known as Immovable Joints or Fibrous Joints.

Plural for synarthrosis is synarthroses. Examples are....

1. SUTURES, GOMPHOSES, ETC.

A suture is found where? Skull

A gomphoses is your tooth socket

B. AMPHIARTHROSIS/ SLIGHTLY MOVABLE

Amphiarthrosis joints are also known as Slightly Movable Joints or Cartilaginous Joints. Examples are......

1. SYNDESMOSIS- INTEROSSEUS, SYMPHYSIS, INTERVERTEBRAL DISCS

Interosseus is between the radius and ulna and between the tibia and fibula.

Where is an example of a symphysis?

And you should know what an intervertebral disc is.

Notice that each joint involves cartilage.

C. DIARTHROSIS/ FREELY MOVING/ SYNOVIAL

These are the joints with which you’re most familiar. Elbows, knees, shoulders, etc.

1. PARTS of a Synovial Joint

a. JOINT CAPSULE or SYNOVIAL CAPSULE

b. SYNOVIAL MEMBRANE - lines the inside of the Joint Capsule. It makes synovial fluid.

c. SYNOVIAL CAVITY- what is a cavity? A hole, an opening. The Synovial Cavity is inside the Joint Capsule. It is filled with Synovial Fluid.

d. SYNOVIAL FLUID - fills the Synovial Cavity. It is thick, viscous. Think of motor oil. It is made of Hyaluronic Acid. This fluid helps to lubricate the joint.

Go to Youtube and watch this video for help. <https://www.youtube.com/watch?v=8hqyQIyenxA> (Watch up to the 5:53 mark)

2. Other Parts Associated with A Synovial Joint

a. BURSA- a fluid filled sac found between bones (in a joint), a cushion.

b. ARTICULAR CARTILAGE - cartilage found at the end of a bone. Acts as a cushion.

c. MENISCUS - a cartilage pad that acts as a protective cushion (knee)

d. LIGAMENTS- tough tissue that attaches bone to bone

(1) Four Common Ligaments found in the Knee.

Anterior Cruciate Ligament (ACL)

Posterior Cruciate Ligament (PCL) Do you know what Cruc means?, Cross Like in crucify. These ligaments cross. Medial Collateral Ligament (MCL) What does medial mean?

Lateral Collateral Ligament (LCL) What does lateral mean?

(Go to Youtube to help: <https://www.youtube.com/watch?v=RTV5Yo3E7VQ>

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3. TYPES OF SYNOVIAL JOINTS

e. BALL & SOCKET- HIP, SHOULDER

f. HINGE- ELBOW, KNEE, FINGERS

g. GLIDING- CARPALS, TARSALS, VERTEBRAE

h. PIVOT-ATLAS & AXIS, ULNA & RADIUS

i. SADDLE- THUMB & METACARPAL

j. ELLIPSOIDAL- PHALANGES W/ METACARPALS/METATARSALS

<https://www.youtube.com/watch?v=HKTJO88-j14>

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II. JOINT MOVEMENTS

A. FLEXION- DECREASE ANGLE BETWEEN TWO BONES

B. EXTENSION- INCREASE ANGLE BETWEEN TWO BONES

1. Hyperextension

C. ABDUCTION- TAKE AWAY FROM MIDLINE

D. ADDUCTION- MOVING TOWARD MIDLINE

E. CIRCUMDUCTION-360 degree MOVEMENT

F. ROTATION - limited rotation

G. PRONATION - THUMB ROTATED TOWARD MIDLINE (palm down)

H. SUPINATION- ANATOMICAL POSTION, THUMB ROTATED AWAY (palm up)

I. INVERSION - SOLE OF FOOT ROTATED INWARD

J. EVERSION - SOLE OF FOOT ROTATED OUTWARD

K. DORSIFLEXION - FOOT LIFTED UPWARD AT ANKLE

L. PLANTAR FLEXION- TOE POINT, FOOT POINTED DOWN AT ANKLE

M. ELEVATION- MOVE A BODY PART IN A SUPERIOR DIRECTION

N. DEPRESSION- MOVE A BODY PART IN AN INFERIOR DIRECTION

O. PROTRACTION- MOVE A BODY PART ANTERIORLY IN A HORIZONTAL PLANE. “UNDERBITE”

P. RETRACTION- MOVE A BODY PART POSTERIORLY IN A HORIZONTAL PLANE. “OVER BITE”

Q. OPPOSITION- GRASPING AN OBJECT W/ YOUR THUMB, THUMB ACROSS YOUR PALM.

<https://www.youtube.com/watch?v=Vy83CrwrQ6g>

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DRAW EACH OF THE 17 JOINT MOVEMENTS. MAKE THE DRAWINGS ON A BLANK PIECE OF PAPER. EITHER COMPUTER PAPER OR DRAWING PAPER. I WANT THE SHEET OF PAPER TO BE FULL WITH YOUR DRAWINGS. I AM ATTACHING EXAMPLES TO GIVE YOU AN IDEA AS TO WHAT TO DO. **DO NOT** COPY DRAWINGS FROM THE WORKSHEETS. DO YOUR OWN WORK.

ARROWS WILL HELP YOU TO SHOW THE DIRECTIONS OF THE MOVEMENT.

FOR THOSE OF YOU THAT AREN’T COMFORTABLE WITH YOUR ART SKILLS CAN DRAW STICK FIGURES TO SHOW EACH OF THE MOVEMENTS.

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III. JOINT PROBLEMS

A. RHEUMATISM- PAIN AND STIFFNESS AFFECTING THE SKELETAL SYSTEM, THE MUSCULAR SYSTEM, OR BOTH

1. ARTHRITIS- ALL THE RHEUMATIC DISEASES THAT AFFECT SYNOVIAL JOINTS.

a. OSTEOARTHRITIS- DEGENERATIVE JOINT DISEASE THAT TYPICALLY AFFECTS PEOPLE OVER 60 IN THE US DUE TO WEAR & TEAR. IN THE US, 25% OF WOMEN & 15% OF MEN OVER 60 HAVE IT.

b. RHEUMATOID ARTHRITIS- AFFECTS 2.5% OF THE ADULT POPULATION. OCCURS WHEN THE IMMUNE RESPONSE MISTAKENLY ATTACKS JOINT TISSUE. MORE COMMON IN WOMEN THEN MEN.

c. GOUTY ARTHRITIS - DUE TO A BUILD UP OF URIC ACID DUE TO A DIET HIGH IN PROTEIN. “DISEASE OF KINGS” URIC ACID CRYSTALS DEVELOP IN THE TOES, ANKLES, KNEES, WRISTS, FINGERS.

B. BURSITIS - INFLAMATION OF THE BURSA. EX) BUNIONS DUE TO TIGHT SHOES.

C. SPRAIN- LIGAMENT STRETCHED UNTIL SOME COLLAGEN FIBERS ARE TORN.

D. LUXATION/DISLOCATION- THE ARTICULAR SURFACES ARE FORCED OUT OF POSITION. EX) SHOULDER SEPARATION

E. SUBLUXATION- PARTIAL DISLOCATION- LESS SEVERE, “DOUBLE JOINTED”. WEAK STABILITY.

F. DISC PROBLEMS

1. SLIPPED DISC - WEAKENING OF VERTEBRAL LIGAMENTS TYPICALLY W/ AGE ALLOWS THE FIBROSUS OF THE DISC TO MOVE INTO THE VERTEBRAL CANAL. COMMON IN C5-C6, L4-L5, & L5-S1. WHIPLASH OR A HARD FALL CAN ALSO CAUSE THIS.

2. HERNIATED DISC- THE PULPOSUS OF THE DISC BREAKS THROUGH THE ANNULUS FIBROSUS INTO THE VERTEBRAL CANAL. CAUSES PAIN & ABNORMAL SENSATIONS.

G. TENDONITIS- INFLAMATION OF A TENDON (TENDON SHEATH)