

## KNOWLEDGE CHECK

### MOVEMENT MECHANICS

Possible Marks 100

Achieved

50% + Good score  
70% + would be a  
pass

40-50% Getting there, keep  
going - STR-O!!!

# MOVEMENT AND MUSCLES

**MOVEMENT MECHANICS**

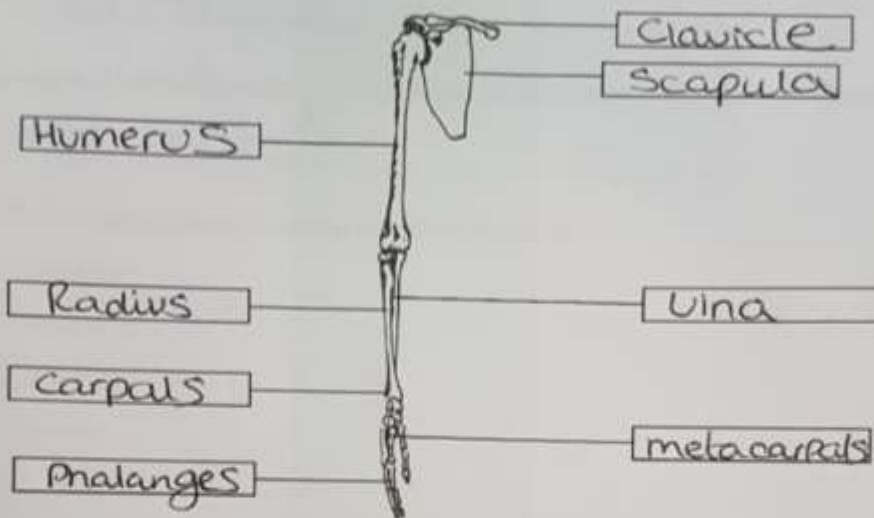
1. List the three PLANES of movement and give one example of a common gym exercise for each (6)

- a. Sagittal example: Seated Row  
Elbows-in Pressup
- b. Frontal example: Shoulder Press / Lat Pull Down
- c. Horizontal example: Bench Press / Bent over Row

2. Label the bones on the diagram below (4)



3. Label the bones on the diagram below (4)



4. List the 9 movements available at the shoulder joint (9)

1. Flexion
2. Extension
3. Abduction
4. Adduction
5. Horizontal Flexion
6. Horizontal Extension
7. Internal Rotation
8. External Rotation
9. Circumduction

5. Flexion and extension take place in which plane? (1)

Sagittal

6. Abduction and adduction at the shoulder occur in which plane? (1)

Frontal

7. Internal and external rotation at the hip and shoulder joint occur in which plane? (1)

Horizontal

8. Skeletal muscles attach to a bone via which structure: (1)

- a. Cartilage
- b. Ligaments
- c. Tendons
- d. Muscle

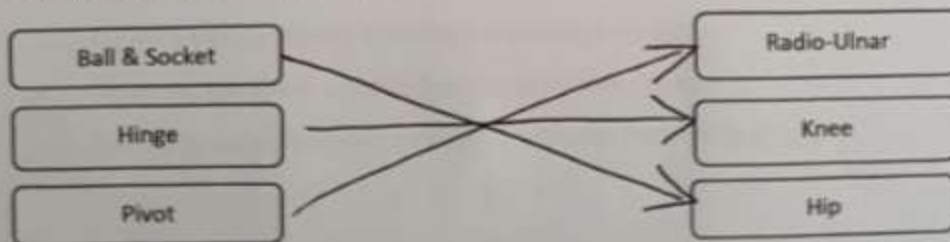
c

9. Ligaments attach: (1)

- a. Muscle to Bone
- b. Bone to Bone
- c. Bone to Muscle
- d. Muscle to Muscle

b

10. Link each type of synovial joint to the correct example in the human body (3)



11. List the muscles that make up the following: (9)

Quadriceps

Hamstrings

Calves

i. Vastus Lateralis

i. Semimembranosus

i. Gastrocnemius

ii. Vastus Medialis

ii. Semitendinosus

ii. Soleus

iii. Vastus Intermedius

iii. Biceps Femoris

iv. Rectus Femoris

12. List the 4 prime movers (agonists) that cross the shoulder joint bringing about movement of the humerus in the shoulder joint? (4)

i. Lats

ii. Teres Major

iii. Pec Major

iv. Deltoids

13. What type of muscle contraction is occurring if the muscle working is getting: (3)

Shorter under load

Concentric

Longer under load

Eccentric

No change in length under load

Isometric

14. Which of the following statements regarding Muscle Fibre Types are TRUE? (1)

a. Type I muscle fibres are also known as fast twitch muscle fibres

b. Type IIb muscle fibres have a high endurance capacity

c. Type I muscle fibres are relatively large muscle fibres

d. Type IIb muscle fibres can produce a relatively high force output

d

15. List three muscles that create movement in the Sagittal plane (3)

i. Lats + Pec Major

ii. Posterior + Anterior Deltoid

iii. Quads + Glut Max + Hamstrings + calves

16. What muscle is the antagonist to erector spinae? (1)

- a. Quadratus Lumborum
- b. Gluteus Maximus
- c. TVA
- d. Rectus Abdominus

d

17. What are the actions of the hamstring group of muscles? (1)

- a. Hip flexion and knee extension
- b. Hip and knee extension
- c. Hip extension and knee flexion
- d. Hip and knee flexion

c

18. Which action is performed by the muscle pictured below? (1)

- a. Hip Flexion and knee Extension
- b. Hip Extension and knee Extension
- c. Hip Abduction
- d. Hip Adduction



a

19. Latissimus dorsi: (1)

- a. Acts at the shoulder joint and its action is extension, horizontal extension and internal rotation
- b. Acts at the shoulder joint and its action is extension, adduction and internal rotation
- c. Acts on the back and its action is extension, lateral flexion and adduction
- d. Acts on the back and its action is extension and lateral flexion

b

20. The Gastrocnemius crosses two joints and is involved in which of the following movement(s)? (1)

- a. Knee Extension and Ankle Dorsiflexion
- b. Knee Flexion and Ankle Dorsiflexion
- c. Knee Extension and Ankle Plantarflexion
- d. Knee Flexion and Ankle Plantarflexion**

d

21. What is the **primary** function of the rotator cuff muscles? (1)

To Stabilise the Shoulder Joint

22. The trapezius muscle is a prime mover of the humerus during shoulder extension, TRUE or FALSE? (1)

True

False

Doesn't cross the shoulder.

23. Complete the following table during the concentric phase of a Squat: (9)

JOINT NAME	MOVEMENT NAME	PRIME MOVER (MUSCLE)
Hip	Extension	Glut Max + Hamstrings
Knee	Extension	Quads
Ankle	Plantarflexion	Calves

24. Complete the following table during the concentric phase of a Bench Press (wide): (7)

JOINT NAME	MOVEMENT NAME	PRIME MOVER (MUSCLE)
Shoulder	Horizontal Flexion	Pec Maj + Ant Deltoid
Elbow	Extension	Triceps

25. Complete the following table during the concentric phase of a Seated Row (narrow): (8)

JOINT NAME	MOVEMENT NAME	PRIME MOVER (MUSCLE)
Shoulder	Extension	Lats + Teres Major + Post Deltoid
Elbow	Flexion	Biceps

26. List 5 muscles that cross shoulder joint: (5)

- i) Lats                                      iv) Rec Major  
 ii) Teres Major                          v) Biceps / Triceps  
 iii) Deltoids

27. Which structures send information from the central nervous system to working muscles? (1)

- a. Sensory neurons
- b. Motor neurons
- c. Proprioceptors
- d. Motor units

b

28. What is the function of Golgi Tendon Organ? (1)

- a. Registers increases in muscle tension / contraction
- b. Registers changes in muscle temperature
- c. Registers change in length of the muscle
- d. Registers speed of movement of a limb

a

29. What is the function of the muscle spindles? (1)

- a. Registers increases in muscle tension / contraction
- b. Registers changes in muscle temperature
- c. Registers change in length of the muscle
- d. Registers speed of movement of a limb

c



30. [a] In a wide grip Lat Pull Down what is the movement at the shoulder when you pull the bar down to the top of your chest? (1)

Flexion | Extension | Abduction | Adduction Adduction

[b] Which of these muscles brings about this movement? (1)

Medial Deltoid | Lats | Traps | Rhomboids Lats

[c] In a Shoulder Press what is the movement as you push the DBs up? (1)

Flexion | Extension | Abduction | Adduction Abduction

[d] What is the muscle that brings about this movement? (1)

Medial Deltoid | Lats | Traps | Rhomboids medial Deltoid

[e] Which one the these 4 quadricep muscles crosses two joints? (1)

Vastus Lateralis | Vastus Medialis | Vastus Intermedius | Rectus Femoris Rec Fem

[f] In a Leg Press what is the movement at both the hips and knee as you push the plate away from you? (1)

Flexion | Extension | Abduction | Adduction Extension

[g] In a Chest Press (narrow grip / elbows in) what is the movement as you push? (1)

Horizontal Flexion | Horizontal Extension | Flexion | Extension Flexion

[h] In a Seated Row what is the movement as you pull the handle towards you? (1)

Flexion | Extension | Abduction | Horizontal Extension Extension

[i] What muscle brings about shoulder extension? (1)

Posterior Deltoid | Anterior Deltoid | Medial Deltoid | Traps Post Deltoid

[j] What muscle brings about shoulder abduction? (1)

Lats | Posterior Deltoid | Biceps | Medial Deltoid medial Deltoid

DONE!