

Sporting Movements Questions Sport: Running/Cycling

Movement: Cycling

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist		Flexion		

Movement: Cycling

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-ulnar			Pronator Teres	

Movement: Running drive forwards

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow	Hinge			

Movement: Running drive backwards

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder		Extension	Posterior deltoid.	

Movement: Cycling forwards in aero position

Joint	Joint Type	Movement	Agonist	Antagonist
Spine		Flexion		

Movement: Running driving knee upwards

Joint	Joint Type	Movement	Agonist	Antagonist
Hip		Flexion		

Movement: Cycling drive phase

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge			

Movement: Running landing foot

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle				Gastrocnemius

Sporting Movements Answers Sport: Running/Cycling

Movement: Cycling

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist	Condyloid	Flexion	Wrist Flexion	Wrist extension

Movement: Cycling

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-ulnar	Radio-ulnar	Pronation	Pronator Teres	Supinator

Movement: Running drive forwards

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow	Hinge	Flexion	Bicep brachii	Tricep brachii

Movement: Running drive backwards

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder	Ball & Socket	Extension	Posterior deltoid.	Anterior Deltoid

Movement: Cycling forwards in aero position

Joint	Joint Type	Movement	Agonist	Antagonist
Spine	Gliding	Flexion	Rectus abdominus	Erector spinae

Movement: Running driving knee upwards

Joint	Joint Type	Movement	Agonist	Antagonist
Hip	Ball & Socket	Flexion	Quadriceps group	Hamstring group

Movement: Cycling drive phase

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge	Flexion	Hamstring group	Quadriceps group

Movement: Running landing foot

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle	Hinge	Dorsi flexion	Tibialis Anterior	Gastrocnemius

Sporting Movements Questions – Swimming

Movement: Breaststroke Wrist Action in Pull Phase

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist				

Movement: Butterfly Arm Movement (Recovery Phase)

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-Ulnar				

Movement: Initial Pull Phase in Freestyle

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow				

Movement: Backstroke Start

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder				

Movement: Finish on Freestyle (End of Race)

Joint	Joint Type	Movement	Agonist	Antagonist
Spine				

Movement: Breaststroke Kick

Joint	Joint Type	Movement	Agonist	Antagonist
Hip				

Movement: Push Off Wall from Turn

Joint	Joint Type	Movement	Agonist	Antagonist
Knee				

Movement: Glide Phase in Breaststroke

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle				

Sporting Movement Answers – Swimming

Movement: Breastroke Wrist Action in Pull Phase

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist				

Movement: Butterfly Arm Movement (Recovery Phase)

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-Ulnar	Pivot	Pronation	Pronator Teres	Supinator

Movement: Initial Pull Phase in Freestyle

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow				

Movement: Backstroke Start

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder				

Movement: Finish on Freestyle (End of Race)

Joint	Joint Type	Movement	Agonist	Antagonist
Spine				

Movement: Finish on Freestyle (End of Race)

Joint	Joint Type	Movement	Agonist	Antagonist
Spine				

Movement: Breastroke Kick

Joint	Joint Type	Movement	Agonist	Antagonist
Hip				

Movement: Push Off Wall from Turn

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge	Extension	Quadriceps Group	Hamstring Group

Movement: Glide Phase in Breastroke

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle				

Questions for tennis.

Movement: Wrist bending slightly forward in fore hand topspin.

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist	Condylar			Wrist extensors.

Movement: Ball toss of serve.

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-Ulna			Supinator	Pronator teres.

Movement: Ball toss of serve.

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow		Flexion.		

Movement: ~~Ball~~ forehand topspin follow through.

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder		Anterior Flexion.	Deltoid.	

Movement: Bending over to reach dropshot.

Joint	Joint Type	Movement	Agonist	Antagonist
Spine	Gliding	Flexion.		

Movement: Opening up for forehand cross court.

Joint	Joint Type	Movement	Agonist	Antagonist
Hip			Gluteus	Gluteus

Movement: Getting low for dropshot. Maximus Minimus.

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge			

Movement: Getting as much height on tip toes to snap serve.

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle	Hinge.	Extension.		

Sporting Movement answers.
Sport Tennis.

Harry Hood.

Movement: Wrist bending slightly forward in forehand topspin shot.

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist	Condyloid.	flexion.	Wrist flexors	Wrist extensors.

Movement: Ball toss of serve.

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-Ulna	Pivot.	Supination	Supinator	Pronator teres

Movement: Ball toss of serve.

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow	Hinge.	Flexion.	Biceps brachii	Triceps brachii.

Movement: Forehand topspin follow through.

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder	Gliding.	Anterior flexion.	Deltoid.	Biceps brachii.

Movement: Bending over to reach deep shot.

Joint	Joint Type	Movement	Agonist	Antagonist
Spine	Gliding.	flexion.	Rectus abdominis.	Biceps brachii Triceps brachii

Movement: opening up for forehand cross court. Erector spinae group

Joint	Joint Type	Movement	Agonist	Antagonist
Hip	Ball and Socket.	lateral rotation.	Gluteus maximus.	Gluteus Gluteus minimus.

Movement: Getting low to a deep shot.

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge.	flexion	Biceps femoris.	Rectus femoris.

Movement: Getting as much height to snap on serve.

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle	Hinge.	extension.	Gastrocnemius	tibialis anterior.

Sporting Movements Answers

Sport:

Movement: ~~GOALKEEPER SAVE~~

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist		extension		

Movement: ~~GOALKEEPER THROW (OVER ARM)~~

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-Ulnar	PIVOT			

Movement: ~~THROW IN~~

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow				

Movement: ~~GOALKEEPER THROW (OVER ARM)~~

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder		extension		

Movement: DRIBBLING

Joint	Joint Type	Movement	Agonist	Antagonist
Spine		LATERAL FLEXION		

Movement: PASS WITH INSIDE OF FOOT

Joint	Joint Type	Movement	Agonist	Antagonist
Hip		ABDUCTION		

Movement: SHOOTING

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge	extension		

Movement: FIRST TOUCH PLANTING FOOT ON FLORA

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle		Plantar flexion		

Sporting Movements Questions

Sport: FOOTBALL

Movement: Goal keeper save

Joint	Joint Type	Movement	Agonist	Antagonist
Wrist	CONDYLOID	Extension	Wrist extensors	Wrist flexors

Movement: GOAL keeper throw (overarm)

Joint	Joint Type	Movement	Agonist	Antagonist
Radio-Ulnar	PIVOT	PRONATION	PRONATOR TERES	SUPINATOR muscle

Movement: Throw in

Joint	Joint Type	Movement	Agonist	Antagonist
Elbow	HINGE	Extension	TRICEPS BRACHII	BICEPS BRACHII

Movement: Goal keeper throw (overarm)

Joint	Joint Type	Movement	Agonist	Antagonist
Shoulder	CONDYLOID B.B.S	Extension inward rotation	int subscapularis	ext infraspinatus

Movement: Dribbling

Joint	Joint Type	Movement	Agonist	Antagonist
Spine	GLIDING	LATERAL FLEXION	interna oblique	externa oblique

Movement: Pass with inside (sidefoot)

Joint	Joint Type	Movement	Agonist	Antagonist
Hip	B.B.S	ABDUCTION	GLUTEUS MEDIUS	ADDUCTOR LONGUS

Movement: Shooting

Joint	Joint Type	Movement	Agonist	Antagonist
Knee	Hinge	Extension	QUADRACEPT GROUP	Hamstrings

Movement: first touch planting ^{foot} on floor

Joint	Joint Type	Movement	Agonist	Antagonist
Ankle	Hinge	Plantar flexion	soleus	tibialis anterior

PE Revision Topic: Muscles Fibre Types

Muscle Fibres are long cylindrical muscles cells that are held together in bundles to make up individual skeletal muscles.

Slow Twitch fibres- type 1: Muscle fibre associated with aerobic work. Produce a small force over a long period of time due to a small fibre size. High resistance to fatigue because of a large number of mitochondria. They use oxygen to produce a small amount of amount of tension. This muscle type has a high number of capillaries and myoglobin to deliver oxygen by the blood to the muscle cells and therefore suited to endurance events. They contain a high number of triglycerides stores to provide over a long period of time as this is a complex carbohydrate.

Fast Twitch fibres- type 2: Muscle fibres associated with anaerobic work. Produces a large force over a short amount of time due to having a large fibre size. Low resistance to fatigue because a low number of mitochondria to provide energy. They are suited to power based events such as sprinting. They contain a high number of glycogen stores to provide quick release energy which can be broken down easily.

Fast oxidative glycolytic (type 2a)- Anaerobic fibres more resistant to fatigue than type 2b but produces slightly less force.

Fast glycolytic fibres (type 2b)- These fibres have the greatest anaerobic capacity and therefore generates the largest force.

Activity: Fill in the gaps

Structure

Characteristic	Slow Twitch	Fast oxidative glycolytic	Fast Glycolytic
Fibre Size		Large	
No. of mitochondria			Small
No. of capillaries	Large	Moderate	
Myoglobin content	High		
PC store			High
Glycogen store		High	
Triglyceride store	High		Low

Functional

Speed of contraction			Fastest
Force of contraction		High	
Resistance to fatigue	High		
Aerobic capacity			Lowest
Anaerobic capacity	Low	High	

MUSCLE FIBRE TYPES

Muscle fibre - A long cylindrical muscle cell. They are held together in bundles to make up an individual skeletal muscle.

Slow twitch fibres - type 1

- Designed for aerobic exercise and use oxygen to produce a small amount of tension over a long period of time, as they are resistant to fatigue.

- Performance in endurance events tend to have a high percentage of slow twitch muscle fibres.

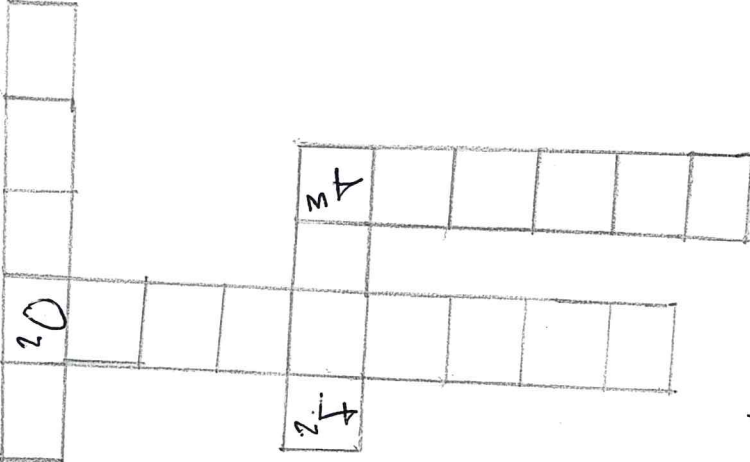
Fast twitch - type 2

Designed for anaerobic exercise and produce a large amount of force over a short period of time, they fatigue easily. Performance in power events e.g. Usain Bolt tend to have a high percentage of these.

There are two types of fast twitch type 2 fibres:

- Fast oxidative glycolytic fibres - type 2a or FOG fibres. These anaerobic fibres are more resistant to fatigue than FG fibres, but have slightly less force.

- Fast B glycolytic fibres - type 2b or FG fibres. These fibres have the greatest anaerobic capacity so generate the most force.



Down

Across

1. The shape of a muscle fibre cell. oxygen.
2. What an FOG fibre is. in type 2 muscle fibre.
3. What occurs after fast in the type 2.