



AS Revision - I

- Based on previous questions, and
- potential answers to those questions

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Revision topics – chosen by your teachers

Physiology:

- Movements - racket strokes; running; squats; press-ups
- Mechanics of breathing
- Levers

Skill:

- Information processing


Opportunities for Participation:

- Government influences to increase participation

Qu 7:

- Training methods

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Typical question – racket actions

May 07 Qu 5

The diagram shows a squash player executing a forehand stroke.



Using the diagram, identify the type of joint, the joint action and the main agonist at the shoulder and elbow that are involved in the movement of the racket arm from position A to position B.

Type of joint Joint action Main agonist

Shoulder

Elbow

(6 marks)

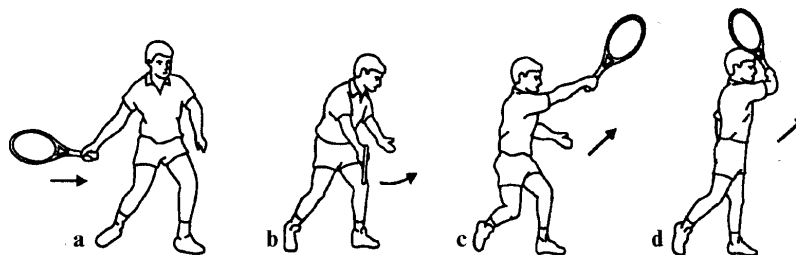
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Racket actions – a-b



Joint – shoulder

Type -

Action =

Bones -

Agonist =

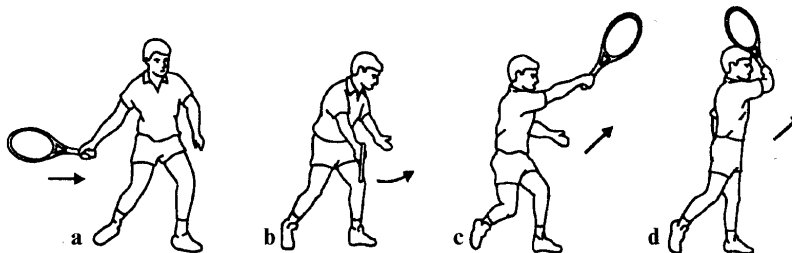
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Racket actions – c-d



Joint – elbow

Type -

Action =

Bones -

Agonist =

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Typical Question - running

Jan 10 Qu 2

The diagram shows a games player running.



Drive leg

The player's left leg is driving him forward. For the movement occurring at the **knee joint**, of the drive leg, identify:

- (i) The *axis* about which the movement is taking place. (1 mark)
- (ii) The main *agonist* causing the movement (1 mark)
- (iii) The *joint action* taking place. (1 mark)

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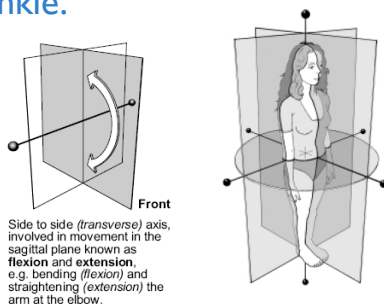
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Planes and axes

The leg action in running takes place in a **sagittal plane** about a **transverse axis**. The actions are concerned with three joints, the hip, knee and ankle.



Side to side (*transverse*) axis, involved in movement in the sagittal plane known as **flexion** and **extension**, e.g. bending (*flexion*) and straightening (*extension*) the arm at the elbow.

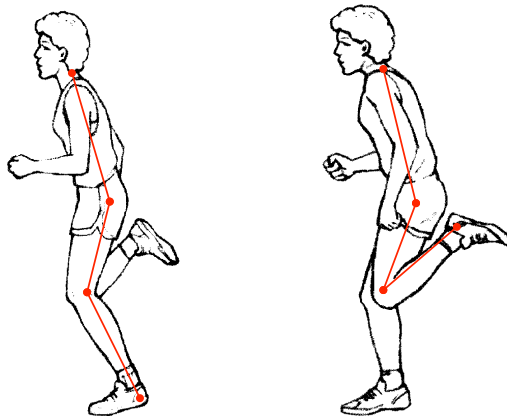
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Running – two phases



Drive phase

Recovery phase - rare

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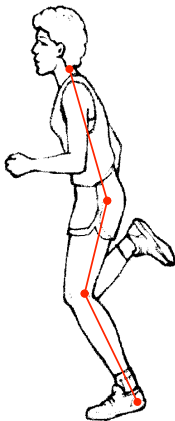


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Drive phase

Hip



- Type of joint –
- Articulating bones –
- Joint action –
- Main agonist –

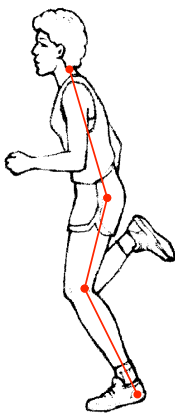
Drive phase

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Drive phase

Knee



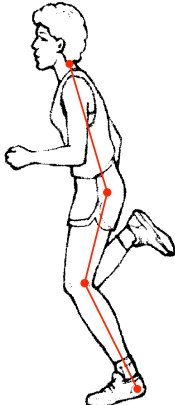
- Type of joint –
- Articulating bones –
- Joint action –
- Main agonist -

Drive phase

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Drive phase




Drive phase

Ankle

- Type of joint –
- Articulating bones –
- Joint action –
- Main agonist -

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Upward and Downward movements

No movement

- Type of contraction -
- Muscle stays same length


Upward movement

- Type of contraction -
- Muscle shortens

Downward movement

- Type of contraction -
- Muscle lengthens

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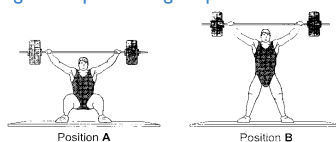


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Typical question - squats

May 11 Qu 1

The diagram shows a weightlifter performing a squat.



Using the diagram, identify the 'joint action', 'main agonist' and the 'type of muscle contraction' occurring at the hip and ankle joint as the weightlifter moves from position A to position B.

	Hip	Ankle
Joint action		
Main agonist		
Type of muscle contraction		

(6 marks)

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Up and Down Movements - Squat



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Up and Down Movements



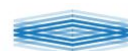
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Upward movements

- Type of contraction -
- Muscle shortens

Agonists

- Hip – extension –
- Knee – extension –
- Ankle – plantar flexion -



Downward movements

- Type of contraction -
- Muscle lengthens
Agonist controlling descent
- Hip – flexion –
- Knee – flexion –
- Ankle – dorsi flexion -

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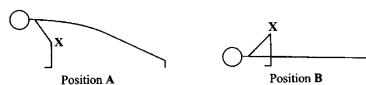


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Press-ups - Typical Question

May 02 Qu 4

The diagram shows a gymnast performing a press-up during a fitness session.



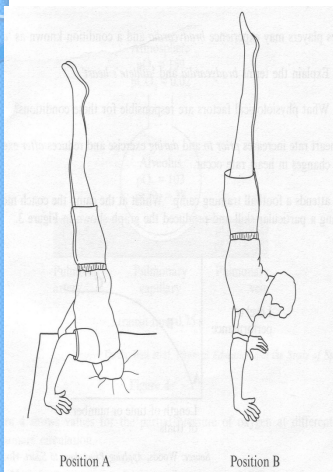
- (i) Using the diagram, name the main *agonist* **and** the main *antagonist* acting at the elbow as the gymnast moves from **Position A** down to **Position B** (2 marks)
- (ii) Name the type of muscle contraction that occurs in the main agonist at:
- **Position A**, whilst the gymnast is stationary
 - As the gymnast moves from **Position A** down to **Position B**. (2 marks)

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Press ups – A-B



Pressing up

Joint – elbow

Joint action =

Muscle action -

Agonist =

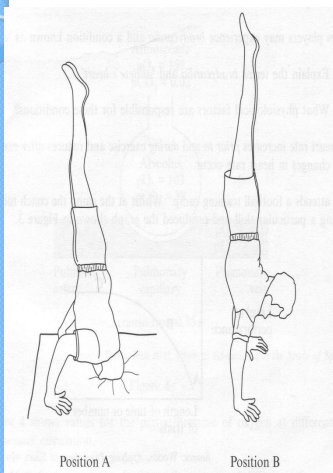
Plane/axis =

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Press ups – B-A



Lowering down

Joint action =

Muscle action –

Agonist =

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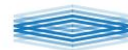
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Mechanics of breathing – typical question

May 09 Qu 2

How is breathing rate regulated by the body to meet the increasing demands of exercise during a game such as netball?
(4 marks)

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Mechanics of Breathing

- Breathing rate determined by detecting:
- Increase in blood
- Increases
- Detected by
- Impulses to
- Increased sympathetic nerve impulses to breathing muscles

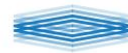
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Levers – 3 classes

- Three components
 - fulcrum
 - effort
 - resistance
- 1st class –
- 2nd class –
- 3rd class –



Levers in humans

- Vast majority of joints act as 2nd class levers – fulcrum in middle
- Very few exceptions
 - Triceps causing extension – 1st class
 - Plantar flexion – 2nd class



First class lever

Remember 1 2 3 – F R E

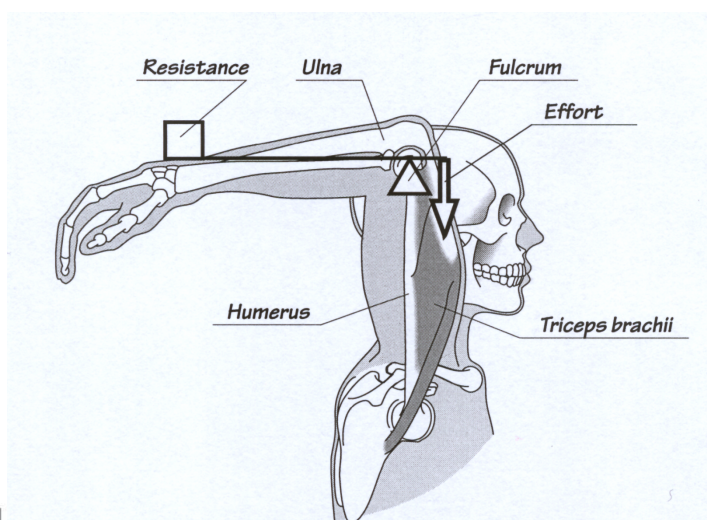


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First class lever – only one!



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Second class lever – I 2 3 – F R E

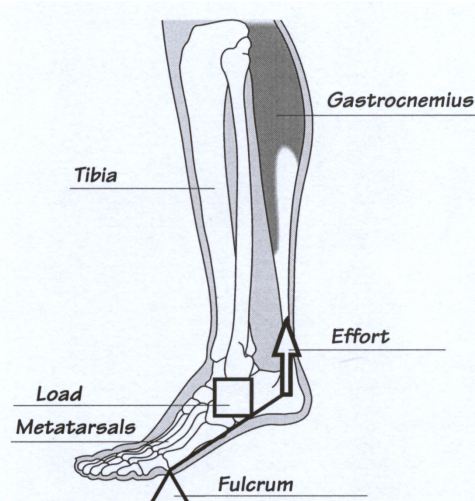


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Second class levers – only one!

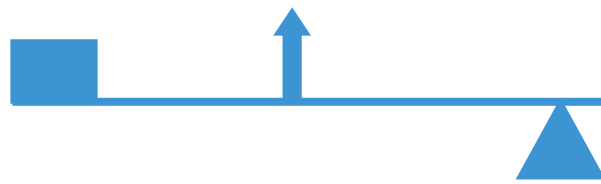


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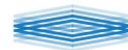


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Third class lever – I 2 3 – F R E

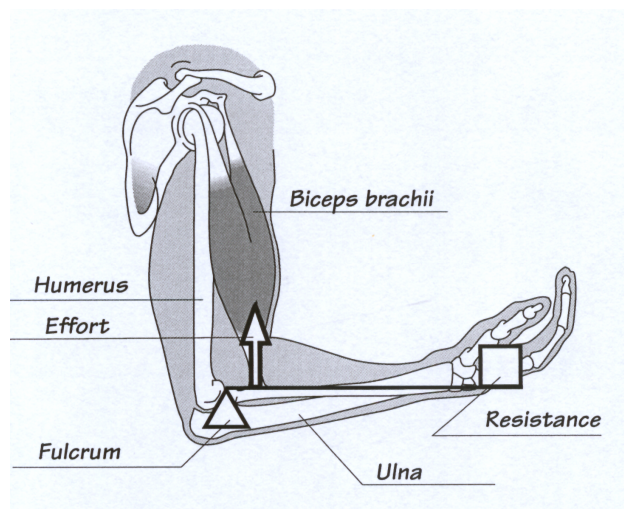


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Third class levers – all other joints



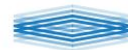
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Mechanical Dis(advantage)

- Depends on length of force arm and resistance arm
- Force arm =
- Resistance arm =



Mechanical (Dis)advantage

- 3rd class lever system – e.g. biceps at elbow



Mechanical (Dis)advantage

3rd class levers – short force arm and long resistance arm:

- Forces
- Movements

2nd class levers - short resistance arm and long force arm:

- Forces
- Movements

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Information processing – typical question

May 09 Qu 4.

In games such as badminton, performers use information processing to make decisions.

State four types of sensory information used in badminton. *(3 marks)*

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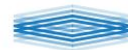


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Information Processing - input

Main senses involved in sport

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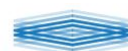
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Perception – typical question

May 09 Qu 4.

Perception is part of an information processing system;
briefly explain each of the **three** processes that occur as
part of *perception*. (3 marks)

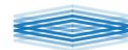
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Perception - making sense

Three parts to the perceptual process



Selective attention – typical question

May 11 Qu 3

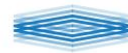
To be effective, games players will need to use selective attention.

- (i) Using an example from a game, explain the term 'selective attention'. (3 marks)
- (ii) How can a coach improve a player's selective attention? (3 marks)



Selective attention

- Too much _____ in
- Only pay attention to information and ignore



Improving selective attention

Change _____ of the stimulus
Highlight/focus on appropriate

Learn to ignore
Lots of _____ practice
performer



Memory – typical question

Jan 10 Qu 4.

For the effective learning of gymnastic skills, gymnasts need to remember important instructions and use selective attention.

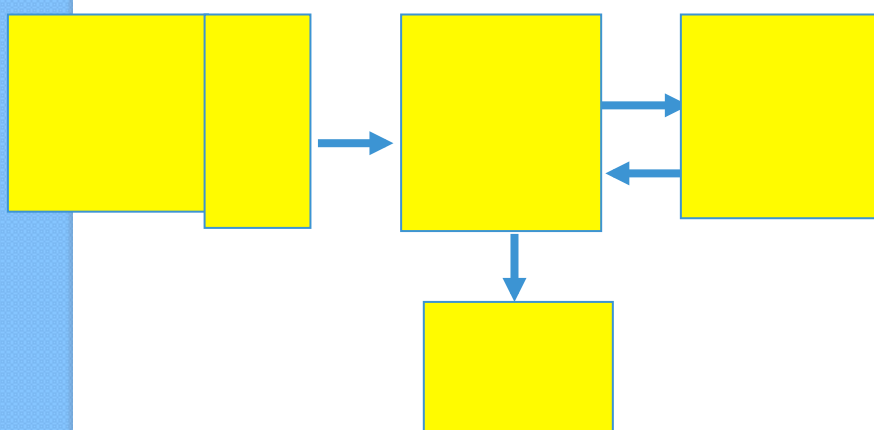
- (a) What are the characteristics and functions of *short term memory*? (3 marks)
- (b) How can a coach ensure that important information is stored in the gymnast's *long term memory*? (4 marks)

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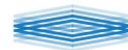
Memory



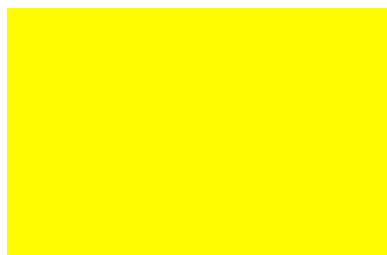
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LTM – functions/characteristics

- Store of
- Information moved into and from
- Only information stored
- capacity



Improving memory



Government initiatives – typical questions

May 10 Qu 6

There are many influences which impact on an individual's participation in sporting and recreational activities.

- (a) Name **three** 'policies' that Sport England has developed to encourage increased participation in sport. (3 marks)
- (b) Why has the government in the UK become increasingly involved in developing specific policies to encourage participation in sport? (4 marks)

May 09 Qu 5.

- (c) By 2007 there were nearly 350 *Sports Colleges* in England. What are the main aims of these *Sports Colleges*? (4 marks)

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Initiatives - answers

- Step into Sport
- PESSCLS
- Specialist sports colleges
- Sportsmark
- School Sport Partnerships
- Youth Sport Trust
- SSCOs
- Top Sport
- Sports Leaders UK
- Young Ambassadors
- Kelly Holmes
- “UK School Sport Games”

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Questions

1. Youth Sport Trust scheme for 7-11 year olds, - provides opportunities to develop skills in a range of sports
2. Part of Government's specialist schools programme, hub sites for school and community sport and regional focal points for excellence in PE and sport
3. People who are employed to work in schools promoting participation in PE/Sport
4. Scheme set up to improve the working together of schools and sports clubs

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Questions

5. Organization promoting and developing sports and dance leadership opportunities
6. Secondary schools linked to a cluster of primary schools
7. This registered charity (established 1994) which aims to 'build a brighter future for young people through sport'
8. An award given to a secondary school for good practice in PE provision

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Questions

9. Sports Leaders UK and the Youth Sports Trust work together to promote and develop this leadership initiative for 14-19 year olds.
10. Youth Sports Trust scheme promoting participation using sporting role models
11. An annual “mini Olympics” bringing together the top school sport performers in the UK.
12. The “School Sport Champion”.

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Sports Organisations - answers

- Sport England
- Youth Sports Trust
- National Governing Bodies
- Sports Leaders UK
- Disability Sport England
- Womens Sport Foundation

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Questions

1. "Grow, Sustain, Excel"
2. Appoint a School Sport Champion
3. Examples include England Netball & UK Athletics
4. Work with the Youth Sports Trust to promote the 'Step into Sport' initiative'
5. Raise awareness of needs/abilities of disabled - physical activity for example
6. Promotes benefits of participation in physical activity to women/young girls
7. Promote benefits of exercise to disabled

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Questions

8. Promote & develop a sport at all levels of the sports development pyramid
9. Responsible for "Active Programmes"
10. Responsible for improving quality & increasing quantity of school PE/sport
11. Involved in 'What works for women' website
12. Responsible for various Awards (eg CSLA)
13. Train coaches/officials in a specific sport

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Questions

14. Develops campaigns to increase women's participation
15. Runs Gifted and Talented/JAE programmes
16. Specialist organisation trying to increase participation amongst disabled
17. Governments key delivery partner for "Community Sport"
18. Core values including providing a stepping stone to employment /decrease youth crime

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Types of training - continuous

- Continuous running, swimming, rowing or cycling
- Trains the _____ system and helps develop _____
- _____
- To develop stamina or endurance - train hard, but not too hard - heart rate about _____ beats per min - improvement.
- _____
- Use Borg scale of _____ or heart rate _____ of maximum _____
- Remember idea of _____

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Types of training - Intermittent or interval

- Uses alternating periods of effort and recovery
- Body does greater total than during training
- Adjusting the duration, intensity and type of activity – wide variety of sessions.
- Interval training = periods of intense exercise followed by periods of rest –
- Interval training based on: intensity; duration of exercise; length of recovery; number of repetitions of the exercise-recovery interval
- Also can divide the session into blocks of work –
- have longer rest intervals between them.

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Types of training - Weights

- Weight training increases your ,
and
- Specific weight-training exercises - develop particular muscle groups
- E.g. upper-body weight training helps in tennis
- E.g. developing leg muscles helps swimming kick.
- Basic principle – – easy to do and
measure

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Types of training - Circuits

- Exercises performed one after the other
- Each exercise = a
- Circuits – variable
- Can develop many components e.g.
, ,
etc.

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Types of training - Plyometrics

- Type of training
- Powerful muscular contractions in response to rapid stretching of muscles -
- Faster and greater the load - more powerful the following contraction
- Loading activates stretch reflex - more forceful contraction than a 'normal' contraction.
- Examples - jumping and bounding exercises – off and onto boxes
- Plyometrics - very strenuous - can be too excessive - injuries

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Types of training - Mobility

- Mobility exercises during warm-up stimulate nervous system, muscles, tendons, and joints
- stretches best during cool-down – help rest/recovery
- mobility exercises – begin gradually - smoothly increase range of motion – more
- Stay within normal range of motion - but increase the amplitude and speed of movement
- Key point -

