AS Revision - 1

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

SUBJECT SUPPORT
SUPPORTING YOUR CENTRE – ENHANCING YOUR TEACHING – ENABLING YOUR LEARNERS

Revision topics – chosen by your teachers

Physiology:
- Starling's Law and cardiovascular drift
- Lung function
- Blood pressure and velocity

Skill:
- Motor programmes - Open and closed loop control

Opportunities for Participation:
- Roles of NBGs/Sport England/YST
- Factors affecting a pupils experience of school sports

Qu 7:
- Training methods

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Typical question

May 11 Qu 2

Both heart rate and stroke volume increase when running.

Use 'Starling's Law of the heart' to explain how stroke volume increases when running. *(3 marks)*

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Starling's Law of the heart

- Exercise – need for more blood – more blood = increased
- Increased - heart fills more during -
- Greater pre-load the walls of the heart

Starling's Law of the heart

- The heart muscle is
- The more the walls of the heart, the more the contraction of the heart muscle and the greater the amount of blood leaving the heart -
- During exercise – increased results in increased

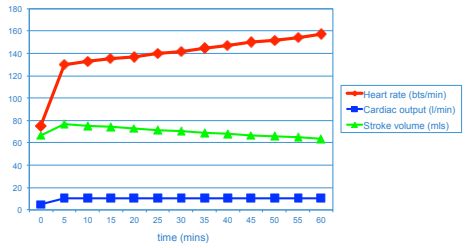
Typical question

May 05 Qu 2

Explain why a performer's stroke volume decreases during a run of constant pace and workload. *(4 marks)*

Cardiovascular drift

Changes to cardiac output, stroke volume and heart rate during a period of steady state exercise



Description

- During exercise lasting

- Cardiac output
- Stroke volume
- Heart rate

Explanation

- Continuous exercise – lots of
- Reduces and hence

- Hence reduced -
  (Starling's Law)
- But cardiac output needs to be kept constant

Explanation

- Cardiac output = heart rate x stroke volume
- If stroke volume , then heart rate must to maintain cardiac output
- Called cardio-vascular drift

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)*

Mechanics of Breathing

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

Mechanics of breathing

- Depends on pressure - air moves from higher to lower pressures
- To breathe in – lower pressure by increasing volume of chest cavity – and muscles contract - impulses
- To breathe out – stop impulses - muscles relax - chest returns to normal size

Typical question

May 12 Qu 1

Breathing rate increases to get more oxygen into the blood. Gaseous exchange involves oxygen diffusing across membranes.

Identify the membranes involved in this diffusion **and** identify **one** characteristic of these membranes that allows diffusion to happen. *(2 marks)*

Alveolar gas exchange

$pO_2 = 100$
$pCO_2 = 32$
alveolus

$pO_2 = 40$
$pCO_2 = 46$
blood

Why diffusion works

- Thin
- Short
- Large differences in
- Large contact

Typical question – open and closed loop theory

Jan 11 Qu 4.

(b)(i) During activities that involve throwing, performers will use open and closed loop control systems to control the movement. The diagram shows an open loop system.

What are the characteristics of an 'open loop control system'? *(2 marks)*

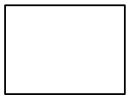
(ii) Explain why an open loop control system is not applicable to all types of skills. *(3 marks)*

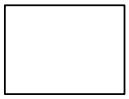
Open loop theory

- No – no
- No control
- movements

- Doesn't explain:
-
- or skills

Open Loop theory



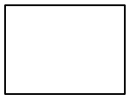


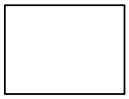
Adam's Closed loop theory

Involves

- Movement initiated by – motor programme -
- Action controlled by - used as model of correctness - adjusted and strengthened through
- Does not account for actions for feedback or

Closed Loop theory





Typical question

May 11 Qu 5

(b)Many organisations such as 'Sport England' are involved in the provision of sporting and physical recreational activities in the United Kingdom.

Identify some of the **initiatives** that 'Sport England' has developed in order to achieve its objectives of "Grow, Sustain, Excel"? *(4 marks)*

(c)How does the 'Youth Sports Trust' help to develop Physical Education and school sport opportunities? *(3 marks)*

Sports Organisations - answers

- Sport England
- Youth Sports Trust
- National Governing Bodies
- Sports Leaders UK

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. Promote & develop *a sport* at all levels of the sports development pyramid
6. Responsible for "Active Programmes"

Questions

7. Responsible for improving quality & increasing quantity of school PE/sport
8. Responsible for various Awards (eg CSLA)
9. Train coaches/officials in a specific sport
10. Runs Gifted and Talented/Junior Athlete Education programmes
11. Governments key delivery partner for "Community Sport"
12. Core values including providing a stepping stone to employment/decrease youth crime

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Questions

13. Runs 'Young Ambassadors' programme
14. Encourages young people to volunteer
15. Deliver 'Whole Sport Plans'
16. Invest over £1 billion of National Lottery and Exchequer funding over next 5 years to increase participation

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Typical question

May 10 Qu 6

(c)Explain how school provision can influence future participation in physical activities. *(5 marks)*

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Factors influencing provision in schools

Factors influencing provision in schools

SUBJECT SUPPORT

Typical question

- None so far on 'types of training'
- Unlikely to ask about all types of training – too many potential responses in mark scheme
- More likely to ask for specific types – e.g how to improve strength / power / stamina

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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.

SUBJECT SUPPORT

Types of training - continuous

- 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 –

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Types of training - Intermittent or interval

- 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; developing leg muscles helps swimming kick.
- Basic principle – – easy to do and measure

Types of training - Circuits

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

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

Types of training - Plyometrics

- 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

SUBJECT SUPPORT

Types of training - Mobility

- Used 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 amplitude and speed of movement

SUBJECT SUPPORT

Hope today has helped your revision