


AS Revision - I

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

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Revision topics – chosen by your teachers


Section B / Question 7

Physiology:

- Cardiac physiology
- Blood pressure and velocity


Opportunities for Participation:

- Current Government initiatives

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Section B / Question 7


- Expect similar introduction:
‘You have been asked to produce a training programme to help with the fitness training and skill development of a group of performers within an AS level Physical Education class’
write - ‘they are AS P.E. students and therefore!!!’
write – ‘here is my training programme’

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Typical question – Section B


May 11
Explain how you could calculate the workload intensities for a continuous training programme. In addition, explain the different forms of guidance **and** the factors you should consider when deciding on the most appropriate method to use. (12 marks)

Jan 12
Describe how you would apply the 'FITT principles' **and** 'specificity' to improve fitness. Explain how the characteristics of the learner **and** the situation may influence your decision to use 'command style' teaching to improve skills of the group. (12 marks)

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Question 7

- The question will ask about different topics; one on fitness - other on skill development
- Must answer areas –
- Small space available for planning -
- Skill - open-ended question - response required is generalities:
- If is..... If is..... If is.....

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Question 7


- Expect creditable points in m/s – hence – expect 10 points in m/s for each topic
- Aim to identify as many points as possible
- No need for structured
- MUST answer in
- Extra mark if quality of language is adequate

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Training principles


S
P
O
R
T

F
I
T
T

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Specificity

- Use same energy system -
- Same muscle fibre-type –
- Similar
- Similar to activity;
- Similar to activity;

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Overload


- Harder than normal;
- Body adapts - as fitness improves – so increase:
 - – how often;
 - – how hard;
 - – kind of exercise;
 - – how long;
- Idea of

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Measuring intensity


- Heart rate training zone = _____ of max HR
- Max HR = _____
- Karvonen formula – _____

- Heart rate range = _____
- Borg scale – _____
- Use Rating of Perceived Exertion
- Scale: (sitting) to _____ (extreme exhaustion)

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Fitness testing – why?

- Provides measurement of _____
- Shows _____
- Shows _____
- Provides _____
- Measures _____ of training
- Provides _____ from training

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Ethics of fitness testing

- Effects may _____ with programme
- May cause _____
- May cause _____
- Results may cause _____ harm

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Making tests specific

- Use same:

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Making tests valid and reliable

- Valid – test should measure what it's to measure - specific
- Links to specificity – test protocol – same as used in activity
- Reliable – when repeated -
- Differences in results due to changes in fitness – not
- Limitations to of measurements

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Health-related fitness tests

- Stamina –
- Muscular endurance –
- Strength –
- Flexibility –
- Speed -
- Power –

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Skill-related fitness tests

- Agility –
- Reaction time –
- Balance –
- Co-ordination –

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Warm up - benefits

- Better delivery
- Faster (chemical reactions)
- Improved flow
- Increased
- Increased efficiency of
- Improved preparation
- rehearsal
- Reduces

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Warm up - content


- General warm up – jogging to raise
- Stretching – to reduce and relax
- Specific exercises of increasing intensity – to skills/movement
- Psychological preparation – control

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Cool down


- Clears products
- Reduces chance of
- Prevents
- Reduces levels
- Allows to fall

Content - exercising and move around

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Types of stretching

- Key idea is what stretched position
- Active – held by own
- – stretch held by partner or self
- Static – stretch held and contractions applied
- Ballistic – stretch by
- Dynamic -

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Stretching safely

- prior to stretching / begin slowly
- Make stretch
- Hold/repeat stretch for
- Never hold a painful stretch /danger of injury –
- Balance/equalise stretches /

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**Types of training –
Continuous training**

- Trains systems
- Running, exercise
- Aim for of maximum effort
- Heart rate close to bpm
- Use Borg scale

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Intermittent (interval) training

- Alternate periods of effort and
- More than continuous -
- Lots of possible – remember tedium
- Interval training – vary - intensity; duration; recovery time; number of repetitions

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Circuit training

- Series of exercises performed one after the other –
- Very
- Usually stations; minute per station; laps
- Rest – or in between stations
- Can include practice

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Weight training


- Can improve:

- Based on
- Use machines and/or free weights

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Plyometric training

- training
- stretch to 'load' muscle
- Stronger contraction follows

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Mobility training

- Static exercises best as part of
- better – stimulate muscle and tendon sense organs
- Gradually increase and

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Skill development - style of question

- Use what? when? why?
- Consider learner -
- Consider situation
- Consider task -

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Teaching styles

- Command - makes all decisions
Advantages – good for - beginners; safety; control;
- Discovery – provides solution
Advantages – helps with confidence; good when of 'correct' solutions

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Teaching styles

- Problem-solving – learner solves problem set by
Advantages – increases understanding and motivation; good for individuals and groups;
- Reciprocal – work in pairs; decides what is taught
Advantages - develops self-confidence; instant feedback; communicate

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Whole and part methods of practice

Whole practice – whole skill; no breakdown into parts

- Establishes /
- Used for skills with organisation; and skills

Part – isolate and practice parts

- For complex with low
- E.g.

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Progressive part and whole-part-whole methods of practice

Progressive part – practice parts; ‘chain’ them back together in order

- E.g.
- Establishes

Whole part whole – attempt whole skill; improve part; then repeat whole

- Establishes
- Maintains


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Massed or distributed

Consider:


Task –

Subject -

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Advantages of massed and distributed practice


Massed for: Distributed for:

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Guidance


- Visual – especially good for use stage creates - LTM
- Verbal – in isolation or with for all stages suitable
- Mechanical – supporting if
- Manual - directing ()

Both limit

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Feedback

- Receipt of about movement and its outcome
- Can be during or after performance
- Can be from within performer –
- Or from outside performer -

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Intrinsic feedback

- _____ received by
- Body awareness or _____
- Improves as performer _____ skill

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Extrinsic feedback

- From _____ of themselves
- Most used by _____
- E.g. from coach, team mates, crowd, officials

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Other forms of feedback

- Positive – _____
- _____ – critical to correct
- _____ - how long after the event
- Knowledge of results (_____) – success of _____
- Knowledge of performance _____ – success of _____

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Which feedback when?

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Typical questions

Jan 11 Qu 2.
 (b)(i) Briefly explain the terms 'cardiac output' and 'stroke volume' and the relationship between them.
(3 marks)

May 11 Qu 2
 (a) (ii) Explain how the heart controls the rate at which it beats. *(4 marks)*

May 10 Qu 1
 (b) (i) What are the effects of training on resting 'cardiac output' and 'stroke volume'? *(2 marks)*

Jan 12 Qu 1
 (b) Explain how changes in the acidity of the blood cause the heart rate to increase during a game of football. *(4 marks)*

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Heart rate values

Stroke volume	The volume of blood pumped out of one ventricle
Heart rate	The number of times the heart contracts
Cardiac output	The volume of blood pumped out of one ventricle

Cardiac output =


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Effects of exercise

Heart rate increases - contraction
– blood flows quicker


Stroke volume increases - contraction - more blood pumped out per beat

Cardiac output increases - more blood / to exercising muscles

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Heart rate increases - changing heart rate

- SAN sets heart rate -
- Nerves act as
- Vagus (parasympathetic) nerve heart rate
- Sympathetic nerve heart rate

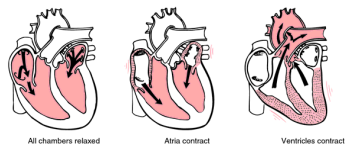
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Cause of change in heart rate

- Exercise – more
- Increased
- Detected by
- Impulses to
- Changes to heart rate via and nerves

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Cardiac cycle - order of contraction



All chambers relaxed Atria contract Ventricles contract

The cardiac cycle

- Intrinsic - from within atria -
- Impulses spread through atria –
- Picked up by
- Descends to tip of ventricle -
- Purkinje fibres –

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Effects of training

- Heart gets bigger –
- Hence more muscle – more contraction
- Increased resting and exercising
- Same resting hence
decreased resting heart rate -


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Typical question

Jan 12 Qu 1
 (c) (ii) How does a lower resting heart rate affect oxygen delivery to muscles? (2 marks)


May 11 Qu 2
 (a) (i) Use 'Starling's Law of the heart' to explain how stroke volume increases when running. (3 marks)

Jan 11 Qu 2
 (b) (ii) Explain the term cardio-vascular drift. (3 marks)

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Heart rate range

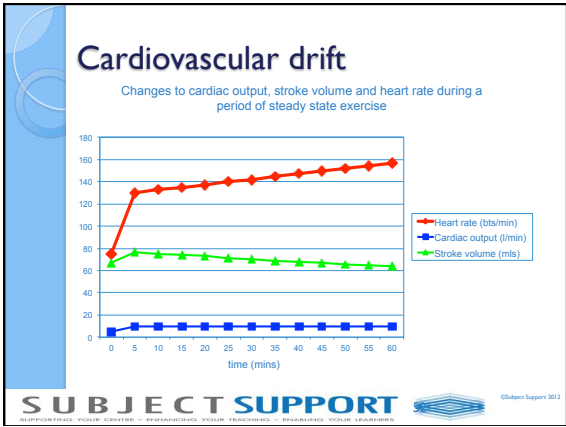
- Limited volume of blood for oxygen transport
- When exercising heart rate requires energy – hence more blood containing goes to heart
- Less available for
- Training – lower resting heart rate - heart rate range – heart uses less blood – more available for

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Starling's Law of the heart

- Exercise – need for more blood – more blood – increased
- The more the walls of the heart are by incoming blood
- Heart muscle is the more it's stretched, the more the contraction of the heart muscle
- Hence during exercise – increased venous return causes an increased

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- ### Description
- Continuous exercise lasting
 - Cardiac output stays constant
 - Stroke volume decreases
 - Heart rate increases
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- ### Explanation of cardio-vascular drift
- Continuous exercise – lots of heat production and hence reduces venous return
 - Hence reduced stroke volume (Starling's Law)
 - Cardiac output (Q) needs to be kept constant
 - $Q = SV \times HR$ - if SV ↓, then HR must ↑
 - Hence need for increase in heart rate during steady state exercise to maintain constant cardiac output
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Typical question

Jan 12 Qu 2
 (b) During a game, the blood pressure of a player increases. What factors determine the 'blood pressure' in arteries? (3 marks)

May 12 Qu 2
 As a 400-metre hurdler's blood flows around his body, its pressure and velocity changes are shown below.


	Pressure	Velocity
Blood vessels A	High	High
Blood vessels B	Low	Low
Blood vessels C	Low	Medium

(b) (i) Which of the blood vessels in the table, **A, B** or **C** represents veins? (1 mark)

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Blood pressure and velocity


- Contracting heart generates _____ in _____ and pushes blood along
- Pressure and velocity _____ in blood vessels
- High pressure and fast in _____
- Low pressure and slow in _____
- Low pressure and quicker in _____

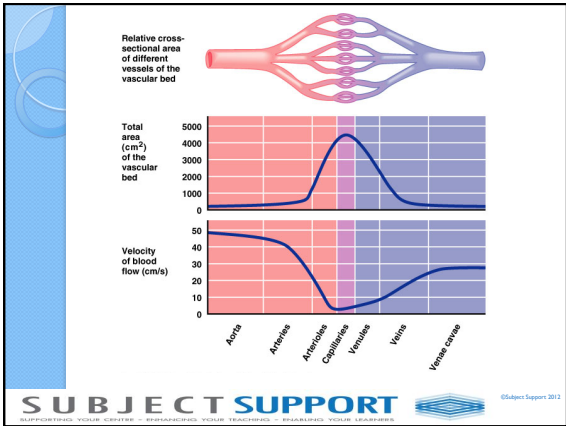
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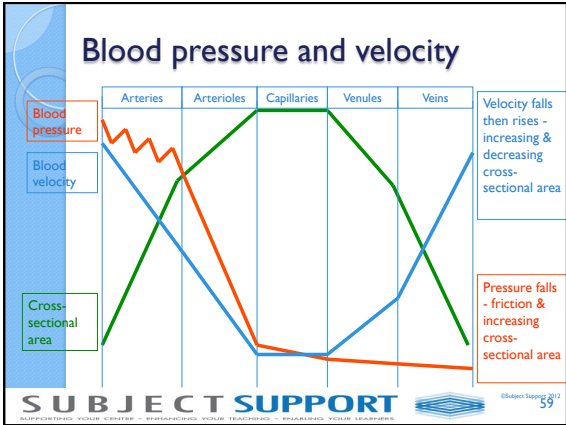
Pressure and velocity

Pressure and velocity are affected by:

- Cross-sectional area – larger area - less _____
- Friction - between blood and walls of blood vessels - _____

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Typical question

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)

May 10 Qu 6


(b) Why has the government in the UK become increasingly involved in developing specific policies to encourage participation in sport? (4 marks)

May 12 Qu 5

(b) (ii) The government introduced the 'best value' policy in an attempt to improve recreational and sport provision. Outline the main features of the 'best value' policy. (2 marks)

Role of National Government

- Via
- Distributes money from treasury and
- Main agency –

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Sport England

- Funds community sport
- Works with NGBs
 - numbers doing sport
 - participation levels
- Help talented people – 5 National Sports Centres
- – now SPOGO – where to play

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Government policies

- Changes over time, but when specification/exam written –
- Physical Education and School Sport Club Links Strategy -
- Sports Colleges
- School Sport Co-ordinators
- School Sport Partnerships

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The P.E. and School Sport Club Links Strategy (PESSCLS)

- Part of
- Became PESSYP (Young People)
- Aim - high quality in schools
- Minimum - lessons and extra-curricula
- Use of external coaches
- Because PE/school sport improves: attendance; concentration; fitness and health

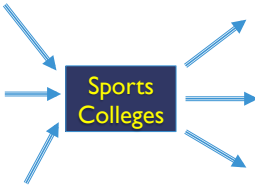
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Sports colleges

- Part of specialist schools programme
- Eventually
- Deliver Government's
- Provide facilities/expertise for and
- Groups of local secondary schools -

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Inputs and outputs of specialist sports colleges



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School sport co-ordinators

- Work with groups of
- Usually based at
- Tries to improve P.E. and school sport
- Mainly extra-curricular
- Works with PLT
- PDM

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School Sport Partnerships

- Partnership Development Manager
- Develop links between schools – especially at
- Develop opportunities for extra-curricular sport
- Increase participation in sport
- Provide opportunities in
- Raise of pupils

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Best value

Government policy to improve public sector provision – includes – idea is to allow private companies to bid to run public services such as

- Public sector forced to account more for the use of local
- Improves efficiency of provision and is better use of

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Best value

- Consider which bid gives best value for money
- Use _____ methods – what do people want - deliver to those standards
- Demonstrate successful delivery
- _____ regularly
- Use of private sector methods to achieve e.g.

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