

BTEC Level 3 National Extended Certificate in Sport

Unit 1 Anatomy and Physiology

Preparation for Year 12

Preparation for the Externally Assessed Exam

Name: _____

All topics can be researched by using search engines on the internet and typing in key words from the specification:

<https://qualifications.pearson.com/en/qualifications/btec-nationals/sport-2016.html>

Suggested websites include:

<https://www.livescience.com/>

<https://www.healthline.com/human-body-maps>

<https://www.innerbody.com/>

<https://www.bbc.co.uk/bitesize>

<http://www.mananatomy.com/>

<https://www.britannica.com/science>

<https://www.thoughtco.com/>

<https://www.nhs.uk/>

<https://www.webmd.com/>

<https://www.brianmac.co.uk/>

<https://www.teachpe.com/>

You do not have to print this booklet. You can complete the work electronically. If you would like a copy that you can edit in word or you have any questions relating to the course, please email:

amy.rodham@st-anthonys-academy.com

Section A - The effects of exercise and sports performance on the skeletal system

A1 - Structure of the Skeletal System

Location of Bones: You need to be able to locate all the major bones in the body.

TASK: Label the bones below on the skeleton.



WORD BANK

<i>Cranium</i>	<i>Clavicle</i>	<i>Ulna</i>	<i>Fibula</i>	<i>Sternum</i>
<i>Scapula</i>	<i>Pelvis</i>	<i>Patella</i>	<i>Ribs</i>	<i>Humerus</i>
<i>Femur</i>	<i>Vertebral column</i>	<i>Carpals</i>	<i>Radius</i>	<i>Tibia</i>
<i>Metacarpals</i>	<i>Phalanges</i>	<i>Tarsals</i>	<i>Metatarsals</i>	

Sections of the Skeleton:

TASK: On the skeleton picture, colour the parts of the body that are the axial skeleton, and in a different colour, highlight the appendicular skeleton

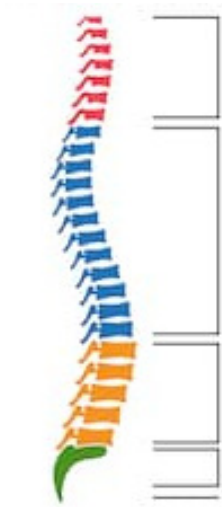
TASK:

Give 3 bones in the axial skeleton:

Give 3 bones in the appendicular skeleton:

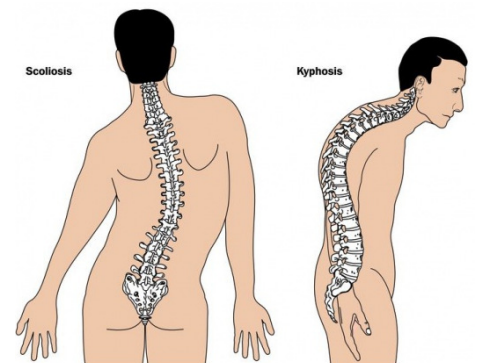
Sections of the Vertebral Column:

TASK: Identify the; sections of the vertebral column on the diagram



AO1: Postural Deviations of the vertebral column

Task: Use the spaces below to describe the normal shape of the vertebrae and the two postural deviations that can sometimes occur.



Neutral Spine Alignment (Normal)	
Kyphosis	Scoliosis

Types of Bone

The different types of bone that make up the skeleton can be categorised into 5 categories, **describe** each one and give an **example**.

- Long bones

- Short bones

- Flat bones

- Irregular bones

- Sesamoid bones

Process of Bone Growth

Using the following words, **explain** the process of bone growth.

Osteoclasts

Osteoblasts

Epiphyseal plate

A2 - Functions of skeletal system

TASK: Complete the table below with a description of each of the functions of the skeletal system.

Function	Description
Support	
Protection	
Source of blood cell production	
Store of Minerals	
Attachment for skeletal muscle	
Leverage	
Weight Bearing	
Reduce Friction across a joint	

A3 - Joints

TASK: On the diagram of the skeleton below can you identify the joints of the upper and lower skeleton by circling them...



TASK: List examples of a joint within the different classifications?

- **Fibrous joints** (fixed joints) - these joints are fixed and don't allow any movement
- **Cartilaginous joints** (slightly moveable joints) - these joints can only move a small amount

- *Hinge*
- *Ball and socket*
- *Condylloid*
- *Pivot*
- *Saddle*
- *Gliding*

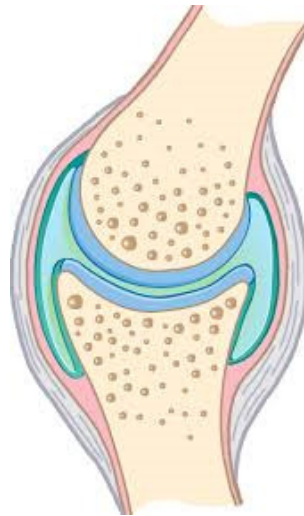
TASK: Complete the table on synovial joints

- Remember range of movement = flexion, extension, dorsiflexion, plantarflexion, etc

Joint Type	Where you find it	Bones that form it	Range of movement	Sport example

Structure of Synovial Joints

TASK: Use the headings in the table below to label the synovial joint



TASK: Describe the structure and function of each part of a synovial joint.

Part of the Joint	Structure	Function
Joint Capsule		
Bursa		
Articular Cartilage		
Synovial Membrane		
Synovial Fluid		
Ligaments		

Movements:

Complete the table on each movement giving a **full** description and **specific** sport example

Movement	Description	Sports Examples
Flexion		
Extension		
Dorsiflexion		
Plantarflexion		
Lateral flexion		
Horizontal flexion		
Horizontal extension		
Hyperextension		
Abduction		
Adduction		
Horizontal abduction		

Horizontal adduction		
Rotation		
Circumduction		

A4 and A5 - The effects of exercise and sports performance on the skeletal system

Responses = short term response of the bodies systems to a single sport or exercise session, immediate effect.

TASK: Describe each of these responses of the skeletal system to exercise

- ***Increase in synovial fluid***
- ***Decrease in viscosity of synovial fluid***
- ***The simulated increase of mineral uptake in bones due to weight-bearing exercise***

Adaptations = long term, enduring adaptations of exercise/training on the bodies systems.

TASK: Explain the **adaptations** of the skeletal system and their impact on sports performance

1. *Increased bone strength*

2. *Increased ligament strength*

Additional Factors

TASK: Describe the additional factors that affect the skeletal system

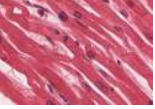
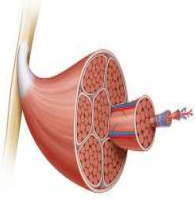
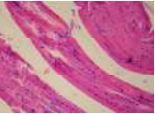
Arthritis	Osteoporosis	Age

Muscular system

B1 - Characteristics and functions of different types of muscles

Identify the three different types of muscle

Describe two characteristics and functions of each type

Muscle Type	Characteristics	Functions
		
		
		

B2 - Major Skeletal muscles of the muscular system

Skeletal muscles fatigue and are voluntary; i.e. they are under our control. It is these muscles that allow us to stand up, walk, run etc.

Locate the following muscles on the diagram below

WORD BANK

Deltoids, Biceps, Wrist Flexors, Triceps, Wrist Extensors, Supinator & Pronators, Abdominals, Pectorals, Quadriceps, Obliques, Tibialis anterior, Hip flexors, Erector Spinae, Trapezius, Latissimus Dorsi, Gluteals, Hamstrings, Gastrocnemius, Soleus,



B3 - Antagonistic Muscle Pairs

Describe each of the **roles** involved in antagonistic muscle pairs:

AGONIST

ANTAGONIST

SYNERGIST

FIXATOR

TASK: Complete the following table

Exercise	Agonist	Antagonist	Fixator	Synergist
Biceps curl				
Knee Extension (Kick)				
Shoulder press				
Tricep dip				

B4 - Types of skeletal muscle contraction

There are three different types of skeletal muscle contraction.
Write a **description** and **example** of each in the spaces below:

CONCENTRIC

ISOMETRIC

ECCENTRIC

TASK: Identify the types of muscle contractions, and the muscles, that are being utilised in the following sentences:

"As a footballer lifts his foot backwards in preparation to kick the ball, the hamstring muscle contraction is: _____ and the quadriceps muscle contraction is: _____."

As he straightens his leg to strike the ball, the hamstring muscle contraction is: _____ and the quadriceps muscle contraction is: _____"

"A prop position in the scrum position uses _____ muscle contraction to push against the opponents. He engages the _____ and _____ muscles in his legs."

"As a sprinter lifts his foot and bends his knee the _____ muscle contraction is **concentric** and the _____ muscle contraction is _____
As he straightens his leg and puts his foot on the floor the _____ muscle is **eccentric** and the muscle contraction is _____"

"The muscle contraction used when holding the 'push' position in a press up is:

The main muscles used to maintain this position are: _____, _____ & _____"

B5 - Fibre Types

There are 3 main fibre types:

- *Type I*
- *Type IIa*
- *Type IIx*

Complete the table below to give characteristics of the muscle fibres.
Give physical activity examples

Type I	Type IIa	Type IIx

TASK: Describe the all or none law on nervous control of muscle contraction

TASK: Complete the table on muscle fibres.

Feature	Type I	Type IIa	Type IIx
Presence of oxygen			
Speed of contraction			
Resistance to fatigue			
Sporting example			

B6 - Responses of the muscular system to a single sport or exercise session

Explain the short term responses of the muscular system to a single sport or exercise session

Short term response	Explanation
1. Increased blood supply	
2. Increased muscle temperature	
3. Increased muscle pliability	
4. Lactate (high intensity exercise)	
5. Microtears (resistance exercise)	

B7 - Adaptations of the muscular system to exercise

Explain the long term adaptations of the muscular system to exercise

Long term adaptation	Explanation
1. Hypertrophy	
2. Increased tendon strength	
3. Increase in myoglobin stores	
4. Increase in number and size of mitochondria	
5. Increase in storage of glycogen	
6. Increase in storage of fat	
7. Increased tolerance to lactate	

B8 - Additional Factors affecting the muscular system

Discuss the following additional factors affecting the muscular system;

- *Age - effect of the aging process on loss of muscle mass*
- *Cramp -involuntary sustained skeletal muscle contraction*

Age

Cramp

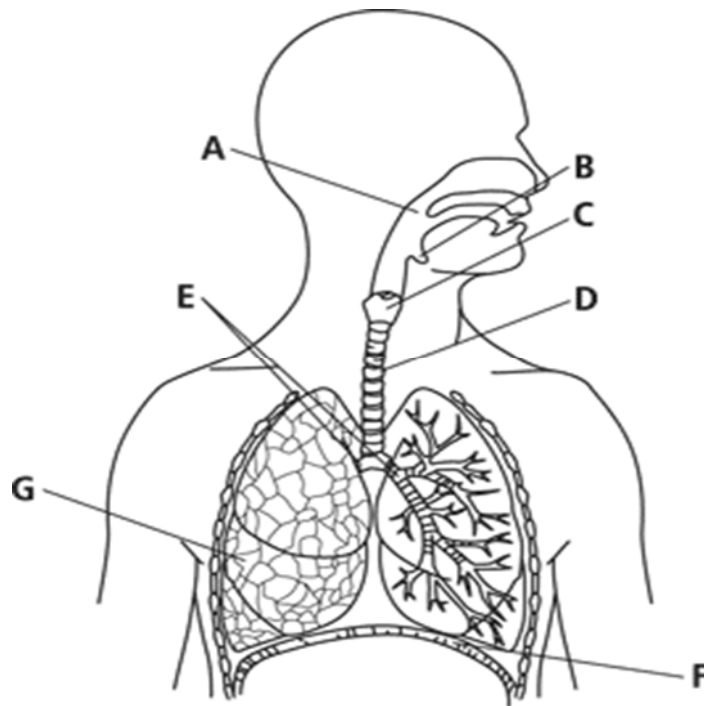
Answer the following questions.

- 1 What is meant by the term 'sarcopenia'?
- 2 Why can exercise delay muscle loss with age?
- 3 What is cramp and Why do athletes commonly experience cramp?
- 4 Describe three ways in which cramp can be prevented.

Section C - The effects of exercise and sports performance on the Respiratory system

Structure of the Respiratory System

TASK: Label the main structures of the respiratory system (You might have to add lines)



<i>Nasal Cavity</i>	<i>Epiglottis</i>	<i>Trachea</i>	<i>Ribs</i>	<i>Intercostal</i>
	<i>Muscles</i>	<i>Alveoli</i>		
<i>Bronchioles</i>	<i>Pleural membrane</i>	<i>Pharynx</i>	<i>Larynx</i>	<i>Bronchi</i>
	<i>Diaphragm</i>			

Mechanisms of Breathing

TASK: Describe the mechanisms of inspiration and expiration

Inspiration	Expiration

Control of Breathing

TASK: Describe how breathing is controlled by **Neural Control** and by **Chemical Control**.

Neural control =

Chemical control =

Gaseous Exchange

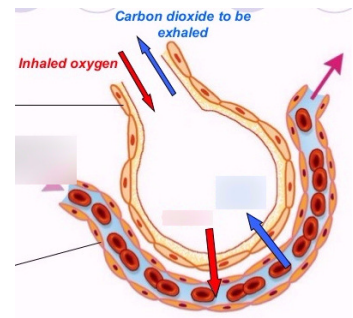
1. *What is gaseous exchange?*

2. *How does gaseous exchange occur?*

3. *Where does gaseous exchange occur in the body?*

4. *How do the structures involved in gaseous exchange aid their function?*

TASK: Using the diagram describe the process of gaseous exchange at the lungs



Explain how **exercise** would affect gas exchange at the alveoli (refer to oxygen and carbon dioxide)

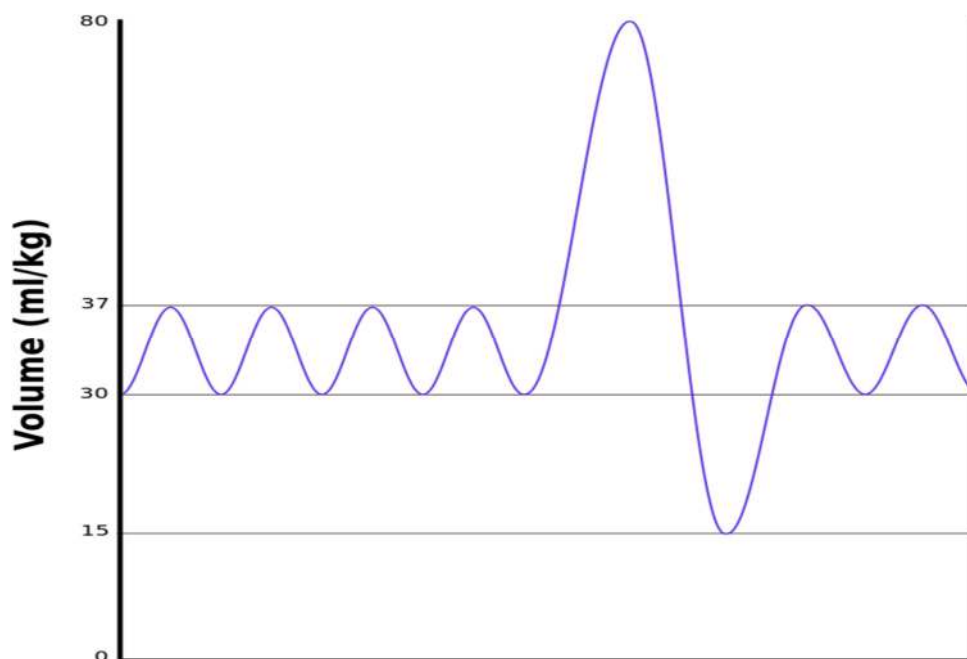
Lung Volumes

Key Terms - Write the definition of these key terms

Minute Ventilation =

Respiratory Rate =

TASK: Label the 6 lung volumes on the graph below then complete the table



	Definition	Average amount	Changes during exercise
<i>Tidal Volume</i>			
<i>Inspiratory Reserve Volume</i>			
<i>Expiratory Reserve Volume</i>			
<i>Residual Volume</i>			
<i>Vital Capacity</i>			
<i>Total lung volume</i>			

Responses and Adaptations of the Respiratory System to Exercise

TASK: Put these into the correct location as a response or adaptation
Add a description of each so that you can explain what it is and why it happens

- Increase in oxygen and carbon dioxide diffusion rate
- Increased breathing rate
- Increased strength in respiratory muscles
- Increased tidal volume
- Increased vital capacity

Responses

Adaptations

Additional Factors affecting the respiratory system

TASK: Describe how these additional factors affect the respiratory system

Asthma	Altitude

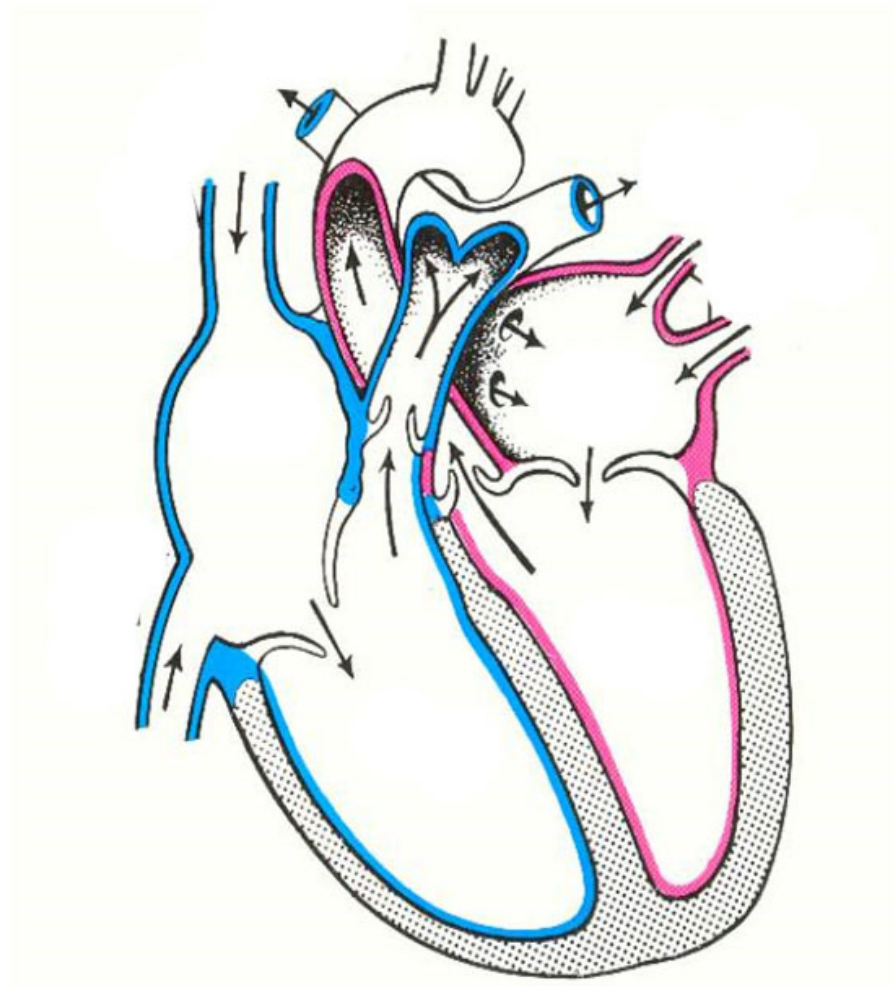
Section D - The effects of exercise and sports performance on the Cardiovascular system

Structure of the Heart

TASK: Label the 4 chambers, 4 blood vessels, 4 valves in the heart

Label which side is oxygenated and which is deoxygenated

Use the arrows to identify where the blood is going to and where it is coming from



Task: Describe the role of each of these structures

Coronary Arteries =

Bicuspid valve =

Tricuspid valve =

Aorta =

Aortic semi lunar valve =

Pulmonary semi lunar valve =

Pulmonary vein =

Structure of Blood Vessels

Task: For each of these blood vessels give 2 characteristics of its structure

Arteries:

Veins:

Arterioles:

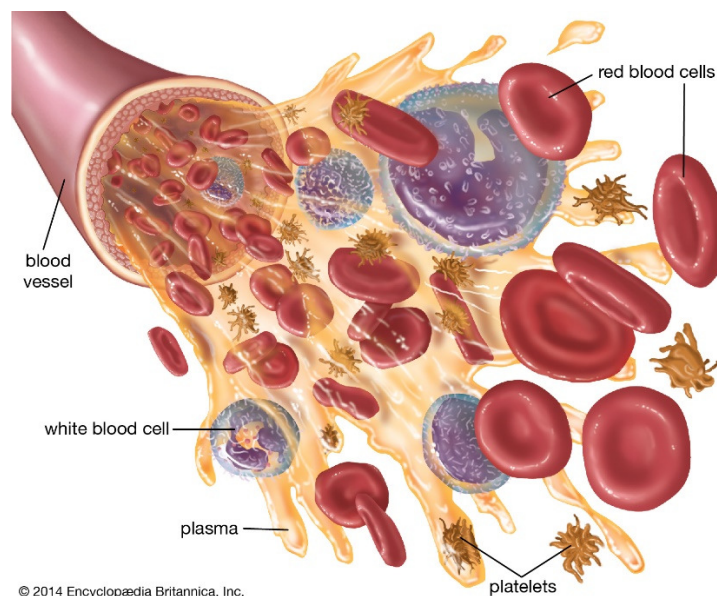
Venules:

Capillaries:

Composition of Blood

TASK: Complete the table on the description and function of each component of the blood

Component	Description	Function
<i>Red Blood Cells</i>		
<i>White Blood Cells</i>		
<i>Platelets</i>		
<i>Plasma</i>		



Functions of Cardiovascular System

TASK: Describe the functions of the cardiovascular system

Function	Description

Nervous Control of the Cardiac Cycle (Cardiac Conduction)

*The process of the heart filling with blood followed by a contraction where the blood is pumped out is known as the **cardiac cycle**.*

Task: Describe the cardiac cycle of the heart in stages

The autonomic nervous system is the part of the nervous system that regulates body functions and it is involuntary. It is what controls your heart beat.

TASK: Describe the role of the sympathetic and parasympathetic nervous system.

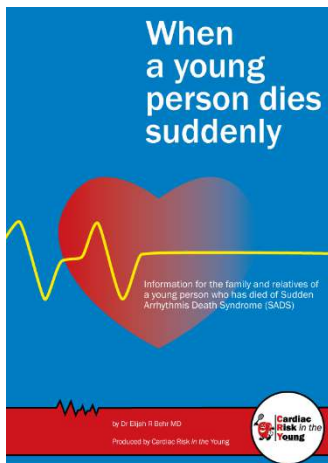
Sympathetic Nervous System =

Parasympathetic Nervous System =

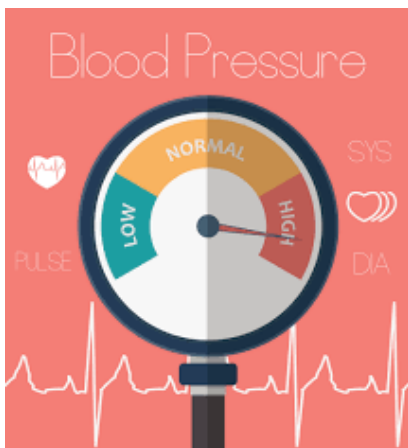
Additional Factors affecting the cardiovascular system

TASK: Explain how the following 3 factors will affect the cardiovascular system

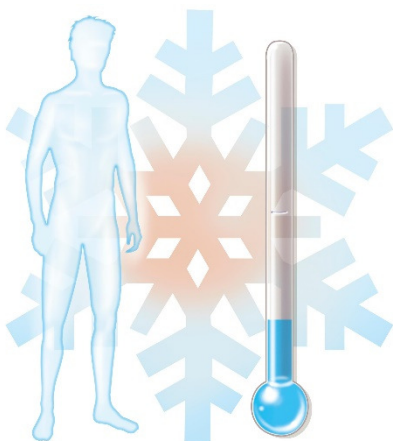
1. Sudden Arrhythmic Death Syndrome



2. High and Low Blood Pressure (You need to know the values for each!)



3. Hyperthermia and Hypothermia



Section E - The effects of exercise and sports performance on the Energy systems

*Energy is required to make muscle fibres contract. The energy is obtained from the breakdown of foods, particularly carbohydrate and fat. The body maintains a continuous supply of energy using **adenosine triphosphate (ATP)**.*

Stored ATP - *ATP is stored in the muscle cell*

TASK: Draw an ATP molecule

TASK: Describe how an ATP molecule releases energy
Including the name of the enzyme, what we are left with afterwards and how long it lasts

ATP-PC System

TASK: Answer the following questions about the ATP-PC system

What does PC stand for?

Is this system aerobic or anaerobic?

How long does the ATP-PC system last for?

Why does it only last this long?

How does the ATP- PC system create energy?

What sports would use this system? What kind of actions will be fuelled by this system?

How long does it take this system to recover?

Lactate System

The lactate system is a short-term energy system used to meet the demands of higher intensity exercise over a longer period.

Is the system aerobic or anaerobic?

What fuel does this system use to create energy?

How long does this system last?

Describe the process of **anaerobic glycolysis**.

What is the by-product of this system? Is it good or bad? Why?

How long does it take this system to recover? Why?

How many ATP are produced by this system?



Aerobic System

*The aerobic system is the long-term energy system. It only works if **oxygen** is available. The aerobic energy system is broken down into 3 processes.*

TASK: Describe each stage of the aerobic system

Aerobic Glycolysis

Krebs Cycle

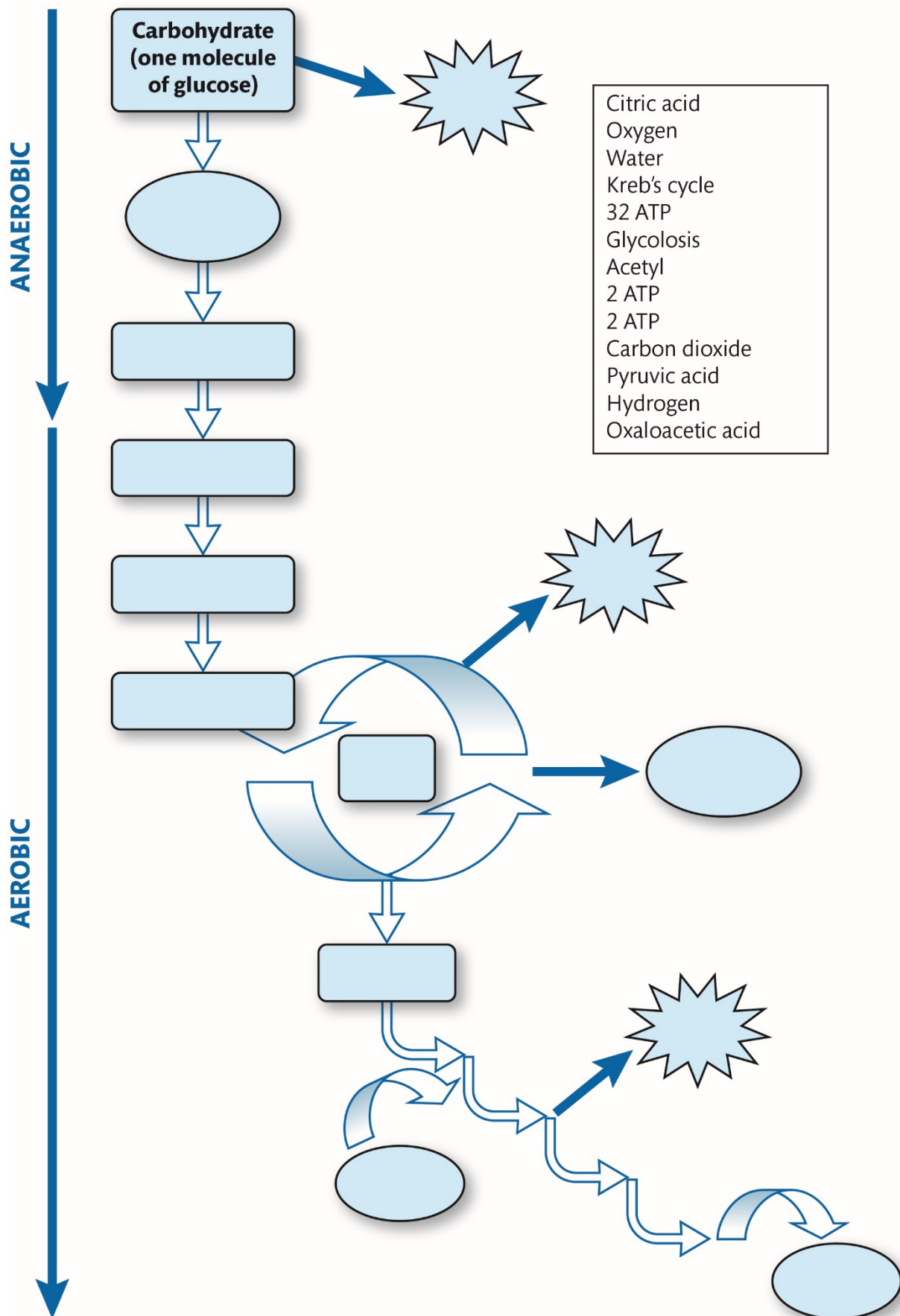
Electron Transport Chain

How many ATP are produced by this system?

Energy Systems in Combination

TASK: Using a sport of your choice describe how the energy systems work in combination.

TASK: Complete the flow diagram for the aerobic system



Adaptations of the energy systems to Exercise

TASK: Describe the adaptations of the energy systems to exercise

Adaptation	Which energy system does it help	Describe the adaptation

Additional Factors affecting the energy systems

There are additional factors that must be considered when looking at the energy systems and their impact on sport and exercise performance

TASK: Describe each of these additional factors

Diabetes

Hypoglycaemic attack

Children's lack of lactate system

Section F - Interrelationships between Body Systems for Sports Performance

The final question in the paper is worth 8 marks

This question tests your ability to combine your knowledge of different body systems. It is mainly focussed upon functions, responses & adaptations of all 5 systems.

TASK: Make a summary of the functions, responses & adaptations of each system.

BTEC Level Extended Certificate in Sport Research Project Unit 7 – Practical Sports Performance

UNIT 7: Practical sports performance

In preparation for the Year 12 BTEC Level 3 BTEC Extended Certificate in sport course please complete the following research:

1. NGB Rules/laws for badminton and a team sport of your choice
2. Roles and responsibilities of officials in badminton and your sport choice
3. Technical demands required to perform skills within badminton and your sport choice
4. Tactical demands applied within badminton and your sport choice

All topics can be researched by using search engines on the internet and typing in key words from the specification:

<https://qualifications.pearson.com/en/qualifications/btec-nationals/sport-2016.html>

Suggested websites include:

<https://www.rulesofsport.com/>
<https://sportsknowhow.com/>
<https://www.theukrules.co.uk/>
<https://www.badmintonengland.co.uk/>
<http://www.sportsofficialsuk.com/>
<https://sportsofficialsworldwide.com/>
<https://wgcoaching.com/>
<https://www.aspire-sports.co.uk/>
<https://www.brianmac.co.uk/>
<https://www.sportplan.net/>
<http://www.sportingtactics.co.uk/>

Topics	NGB rules/laws	Coverage
1	Research the NGB rules/laws for badminton and one team sport	<ul style="list-style-type: none"> Rules/laws as regulated by the national or international governing body for the individual or team sports, e.g. BWF (Badminton World Federation) rules of badminton, FIFA (Fédération Internationale de Football Association) laws of football, IRB (International Rugby Board) laws of rugby, ITF (International Tennis Federation) rules of tennis, IJF (International Judo Federation) rules of judo, R&A (Royal & Ancient) laws of golf, UCI (Union Cycliste Internationale) rules of cycling. Competition rules/laws and regulations: individual sports at the Olympic Games, tournaments (e.g. World Cup football, cricket), World Championships (e.g. athletics, gymnastics), leagues, knockout competitions. Unwritten rules and/or etiquette specific to sport, including welfare of competitors, behaviour, sportsmanship/ethics. Situations where rules/laws have been applied both legally and illegally, to include gaining a fair and unfair advantage, to win in a competitive environment. Regulations for sports under competition rules to include the regulations for players, participants, equipment, playing surface/area, health and safety, facilities, scoring system, spectators.
2	Roles and responsibilities of officials	
	Research the roles and responsibilities of officials for badminton and one team sport	<ul style="list-style-type: none"> Key officials and their roles in a sports competition, e.g. umpires, referees, tournament directors, judges, timekeepers, starters, third umpires, fourth umpires, referee assistants. Responsibilities of the officials to include interpretation and application of the rules/laws, control of competitors, health and safety (equipment, facilities, competitors), fair play, use of technology (e.g. Hawk-Eye for cricket, leg before wicket law, line calls in tennis, goal-line technology in football), effective communication/non-verbal communication (voice, whistle, signals), fitness requirements, qualifications.
3	Technical demands required to perform a sport	
	Research the skills required in badminton and one team sport	<ul style="list-style-type: none"> These are the skills required in specific sports, and the applied technique of the skill for effective participation. Skills, to include continuous skills (e.g. running), serial skills (e.g. pole vault), discrete skills (e.g. golf swing) attacking skills, defensive skills. Examples of skills: take-off in the high jump, landing in the long jump, throwing execution in the shot put, attacking shots in racket sports, defensive shots in racket sports, a golf swing, body position in a rugby tackle, footwork in basketball, rotation in gymnastics. Breakdown of how the techniques of the skill are applied for effective participation to include continuous, serial, discrete, attack, defence.

4	Tactical demands applied in sports performance	
	Research the tactics relevant to badminton and one team sport	<p>Tactics should be relevant to specific sports.</p> <ul style="list-style-type: none"> • Defending and attacking, e.g. formations, shot selections, movement, body position, phases of play, use of space. • Decision making. • Communication. • Environmental conditions.

Wider engagement in Physical Education

For all BTEC sport students it is recommended that they actively seek to watch some of the many exceptional sporting documentaries that can be found on YouTube, Netflix, Amazon Prime or other online platforms. Recommendations include, but are not limited to:

Documentaries

Title	Where to watch it	What it's about
The Dawn Wall	Netflix	Legendary free climber Tommy Caldwell tries to get over heartbreak by scaling the Dawn Wall of El Capitan in Yosemite National Park.
Free Solo	All 4	Professional rock climber Alex Honnold attempts to conquer the first free solo climb of famed El Capitan's 900-metre vertical rock face at Yosemite National Park.
Icarus	Netflix	When filmmaker Bryan Fogel sets out to uncover the truth about doping in sports, a chance meeting with a Russian scientist transforms his story from a personal experiment into a geopolitical thriller.
The Class of '92	YouTube	Cinematic documentary examining the rise to prominence and global sporting superstardom of six supremely talented young Manchester United footballers - David Beckham, Nicky Butt, Ryan Giggs, Phil Neville, Paul Scholes and Gary Neville.

Sunderland 'Till I Die	Netflix	The English city of Sunderland has seen its main industries of shipbuilding and mining fall by the wayside, which means the Sunderland Association Football Club -- SAFC -- has become an increasingly more important part of the lifeblood of the unique city.
Pumping Iron	Netflix	This partly real and partly scripted film documents what many consider to be the golden age of bodybuilding that occurred in the 1970s.
Iron Cowboy	Amazon Prime	The Story of the 50.50.50 Triathlon is the true story James Lawrence's (aka the Iron Cowboy) herculean 50-day journey to complete 50 Ironman distances in 50 consecutive days in all 50 states as he redefines the limits of what is humanly possible.
Eliud	YouTube	Our short film from inside Eliud Kipchoge's training camp, that explores the philosophies that have made him the greatest marathon runner of all time
The Man With The Halo	YouTube	The Man with the Halo – A story of bravery and determination in the face of adversity.
Nike: Breaking 2	YouTube	Breaking2 was a project by Nike to break the two-hour barrier for the marathon.
Kissed by God	Amazon Prime	Three-time world champion surfer Andy Irons quietly battled bipolar disorder and opioid addiction throughout his life - demons that millions of others combat daily. His previously untold story tears down myths associated with the diseases.
The Edge	Amazon Prime	Between 2009 and 2013, the England Test cricket team rose from the depths of the rankings to become the first and only English side to reach world number one (since ICC records began). The Edge is a compelling, funny and emotional insight into a band of brothers' rise to the top, their unmatched achievements and the huge toll it would take.
Breaking 60	Amazon Prime	Exploring the world of extreme running, as athletes take on the Hong Kong Four Trails challenge and attempt to complete all 298km in 60 hours. The challenge spans the entire width of Hong Kong, and is equivalent to seven marathons back-to-back.
Game Changers	Netflix	James Wilks travels the world on a quest for the truth about meat, protein, and strength. Showcasing elite athletes, special ops soldiers, and visionary scientists to change the way people eat and live.
The Test	Amazon Prime	The Test: A New Era for Australia's Team, is a docuseries following the Australian Men's Cricket Team, offering a behind-the-scenes look at how one of the world's best cricket teams fell from grace and was forced to reclaim their title and integrity.
Tyson - The Movie	Amazon Prime	Through a mix of interviews and archive film, the legendary boxer reveals his rollercoaster life. The film takes us from Tyson's early days in Brooklyn through his meteoric boxing career and subsequent lost fortune. We see a complex man, destroyed by his own hubris - a modern-day Greek tragedy.

All or Nothing Manchester City	Amazon Prime	In this ground-breaking docu-series, follow Manchester City behind the scenes throughout their Premier League winning, record-breaking '17-18 season. Get an exclusive look into one of the best global sports clubs, including never-before-seen dressing room footage with legendary coach Pep Guardiola, and delve into the players' lives off and on the pitch.
The English Game	Netflix	Two 19th-century footballers on opposite sides of a class divide navigate professional and personal turmoil to change the game — and England — forever.
All or Nothing Brazil National Team	Amazon Prime	The Brazilian National Team goes on a journey of faith, brotherhood, and hard work to reimagine their identity and to re-engage a disgruntled fanbase as they attempt to win the 2019 Copa América on home soil. From the locker room, through the trainings, to the games, we go exclusively behind-the-scenes with the world's most famous football team.
Michael Johnson: Survival of the Fastest	YouTube	Olympian Michael Johnson makes a personal genealogical and scientific journey to discover if African American and Caribbean athletes are successful as a result of slavery

Podcasts

Title	Where to find it	What it's about
The Science of Sport Podcast	Apple Android	<p>World-renowned sports scientist Professor Ross Tucker and veteran sports journalist Mike Finch break down the myths, practices and controversies from the world of sport. From athletics to rugby, soccer, cycling and more, the two delve into the most recent research, unearth lessons from the pros and host exclusive interviews with some of the world's leading sporting experts. For those who love sport.</p> <p>Stand out episodes:</p> <ul style="list-style-type: none"> • 26/02/20 - The Science of Perfect Training • 08/02/20 - The Shoe That Broke Running II • 25/11/19 - Mary Cain & RED-S • 23/10/19 - The Shoe That Broke Running • 23/09/19 - Why the All Black Are The Greatest Sports Team • 09/09/19 - How to Cheat at Sport and Get Away With It • 27/08/19 - How to Make a Champion (Part II) • 13/08/19 - How to Make a Champion (Part I) • 09/07/19 - The Drugs In Sport Episode • 18/08/19 - The Science of Cricket with Gary Kirsten • 29/04/19 - Caster Semenya: Explaining Sex v Gender

That Triathlon Show	Apple Android	<p>The one triathlon show focusing on practical and actionable advice that you can use in your own triathlon training and racing. New episodes are released twice per week. Includes some excellent discussions on the science of training.</p> <p>Stand out episodes:</p> <ul style="list-style-type: none"> • 06/02/20 - Hill repeats and long runs; Protein for endurance • 27/01/20 - Race hydration, calories and sodium • 06/01/20 - Volume, intensity and physiological adaptations • 18/11/19 - Nutrition trends and current evidence • 24/10/19 - Fueling workouts; Diet and body types • 14/10/19 - Improve your running speed, endurance and performance • 03/10/19 - Aerobic and anaerobic capacity • 19/09/19 - Does compression clothing improve performance and recovery
The Clean Sport Collective	Apple Android	<p>The Clean Sport Collective is a community of powerful voices comprised of athletes, brands, events, clubs, fans and the public to support the pursuit of clean sport and athletics through the absence of performance enhancing drugs.</p> <p>Stand out episodes:</p> <ul style="list-style-type: none"> • 01/02/20 - New Shoe Regulations with Ross Tucker • 26/01/20 - Evan Dunfee - Bronze Medalist in 50km walk • 05/01/20 - Steve Magness, Nike Oregon Project Whistleblower • 17/11/19 - Mary Cain Tells Us Her Story • 20/10/19 - Tyler Hamilton: Convicted Doper and Whistleblower
		<ul style="list-style-type: none"> • 07/10/19 - Kara and Adam Goucher on the 4-Year Bans • 31/05/19 - Travis Tygart, CEO of USADA

Books, articles and journals

Title	Where to find it	What it's about
Touching The Void by Joe Simpson (1988)	Amazon	<p>Simpson's harrowing account of his and Simon Yates's calamitous assault, in 1985, on Siula Grande, Peru, has rightly transcended the sport of climbing and become a legendary fable for what humans are capable of doing to survive. It centres, of course, on one of the most amazing escapes ever achieved: with Simpson hopelessly hanging off one end of a rope, Yates is faced with cutting it to prevent them both being killed. Somehow, Simpson survives the fall. But alone in a crevasse with a shattered leg, his situation is hopeless. What follows is a staggering tale of will and courage that also addresses the perennial question of what drives people to climb mountains in the first place. As Churchill said: "When you're going through hell, keep going".</p>

SSN exercise & sports nutrition review update: research & recommendations	https://jissn.biomedcentral.com/track/pdf/10.1186/s12970-018-0242-y	This paper is an ongoing update of the sports nutrition review article originally published as the lead paper to launch the Journal of the International Society of Sports Nutrition in 2004 and updated in 2010. It presents a well referenced overview of the current state of the science related to optimization of training and performance enhancement through exercise training and nutrition. Notably, due to the accelerated pace and size at which the literature base in this research area grows, the topics discussed will focus on muscle hypertrophy and performance enhancement. As such, this paper provides an overview of: 1.) How ergogenic aids and dietary supplements are defined in terms of governmental regulation and oversight; 2.) How dietary supplements are legally regulated in the United States; 3.) How to evaluate the scientific merit of nutritional supplements; 4.) General nutritional strategies to optimize performance and enhance recovery; and, 5.) An overview of our current understanding of nutritional approaches to augment skeletal muscle hypertrophy and the potential ergogenic value of various dietary and supplemental approaches.
Peak Performance	Amazon	Peak Performance combines the inspiring stories of top performers across a range of capabilities from athletic to intellectual to artistic with the latest scientific insights into the cognitive and neurochemical factors that drive performance in all domains. Peak Performance presents the newly-discovered links that hold promise as performance boosters, but that have been traditionally overlooked. In a concise and relatable manner, Peak Performance explains the strong connection between mind and body and how everyone can apply certain techniques to enhance their own achievements. This book is an entertaining and actionable guide to optimising personal performance that shows readers how to get the most from themselves. Brad Stulberg and Steve Magness highlight great performers across various disciplines including Olympic marathoner Meb Keflezighi,
		three-time Grammy Award winner Don Was, and renowned mathematician David Goss. This book discusses the science and application of each principle of success and concludes with prescriptive techniques. Unlike other performance books that are field-specific, Peak Performance cuts across domains and will attract readers and entrepreneurs involved in diverse pursuits, from athletes to artists, from hobbyists to scientists, from students to business professionals. If you want to take your game to the next level, whatever 'your game' may be, Peak Performance will teach you how.