



Revision Series 2024

OCR A-Level PE – Paper 1

◆ Notes pages ◆



The EverLearner

## How to use this revision session and notes

- Complete this document when doing the live or on-demand revision shows.
- The imagery contained in the notes is designed for you to be able to study the A01 knowledge prior to the live session.
- During the live session, James will guide you through how to use that knowledge in your exam.
- Focus on the skills that James is presenting as much as the content. In most cases, students have a knowledge of the topic but struggle to respond to the command in the question. This is a focus of our revision.
- Complete the notes pages as extensively as possible and, if necessary, return to the show to complete it more than once in order to make the fullest notes possible.
- Have the National Mock Exam to hand and, ideally, your completed, marked version of it.
- Have the [exam infographics](#) to hand. These will be referred to throughout the show.

### My ticklist:

- Notes pages
- Exam infographics
- Exam paper
- Exam mark scheme
- Exam model answers

## During the live show, we will cover...

Topic 1: Analysis of movement.....	3
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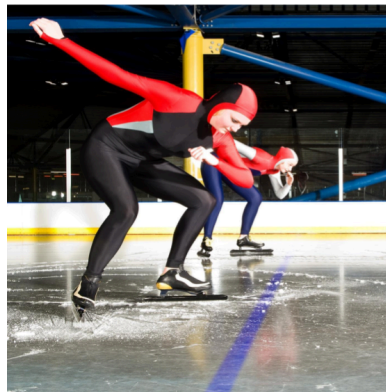
We will also cover a wide array of exam skills including command terms for A01, A02 and A03 as well as the extended writing requirements of the paper.

You may also find it useful to study our previous years' revision shows when different samples of content and skills have been developed.

# Topic 1: Analysis of movement

Movement analysis in exams						
Year	2018	2019	2020	2021	2022	2023
Joint	Wrist	Knee and ankle	Elbow	Elbow	Knee	Shoulder
Marks	6 x A03	5 x A02	6 x A03	4 x A03	3 x A03	5 x A03

These performers are completely still in the ready position before a speed skating race. Complete the table to analyse this position at the ankle.



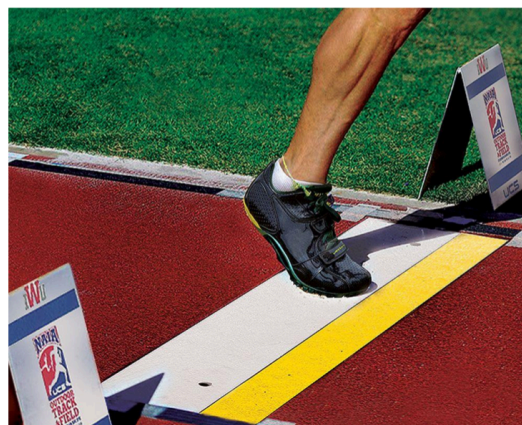
Joint	Articulating bones	Type of movement	Agonist	Type of contraction
Ankle				

Complete the table to analyse the lunge action at the hip.



Joint	Phase	Joint movement	Agonist	Type of contraction during the downward motion
Hip	Left (front)			
	Right (back)	Extended	Illiopsoas	

Complete the table to analyse the long jump take-off action at the ankle.



Joint	Type of joint	Joint movement	Agonist	Plane of movement
Ankle				

Complete the table to analyse the box jump **landing** action at the hip **and** the knee. The performer is still in the **downward** motion.



Joint	Type of joint	Joint movement	Agonist
Hip			
Knee			



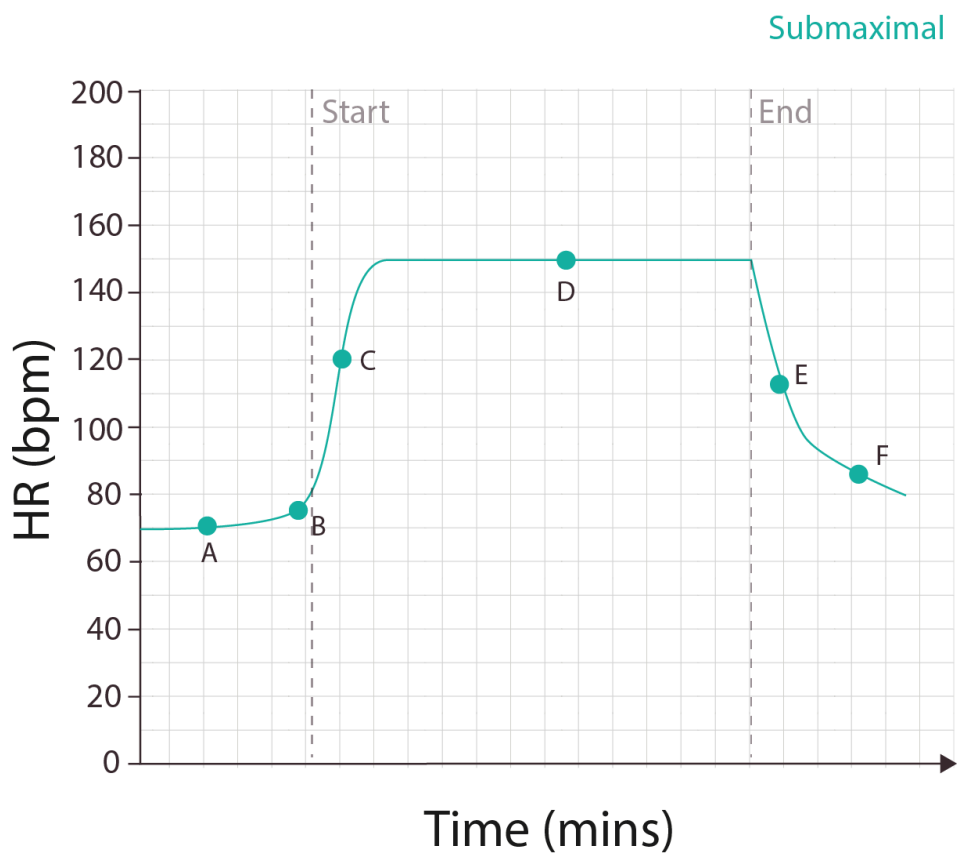
Want to know more?

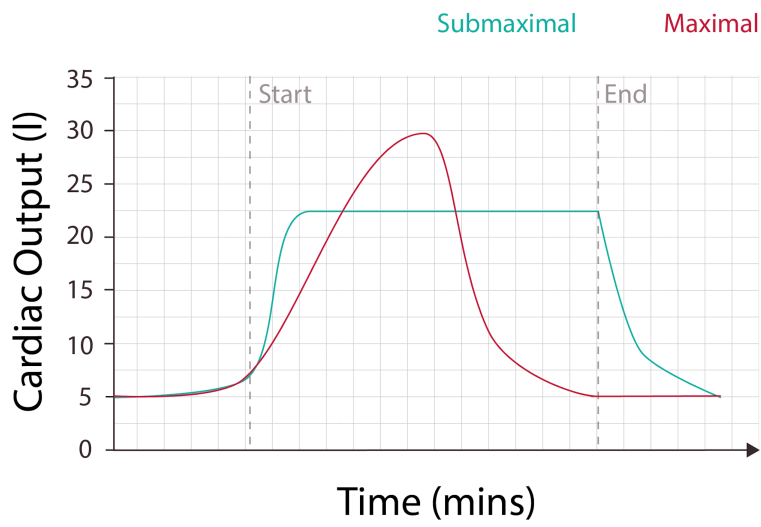
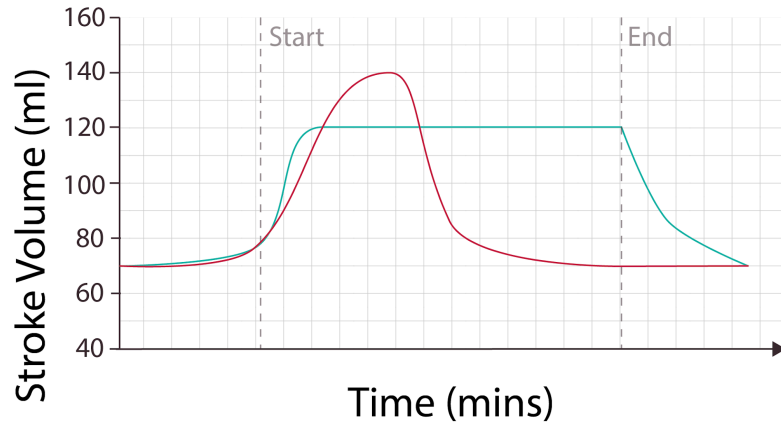
Watch the FREE tutorials "The hip" and "The knee and ankle" on [TheEverLearner.com](https://www.theeverlearner.com)

# Topic 2: Cardiovascular system during exercise

Cardiac output = Stroke volume x Heart rate

Value	Heart rate	Stroke volume	Cardiac output
Unit	bpm	ml	l/min
Rest	70 (60-80)	70	4.9
Submaximal	_____	_____	_____
Maximal	_____	_____	_____
Recovery	_____	_____	_____






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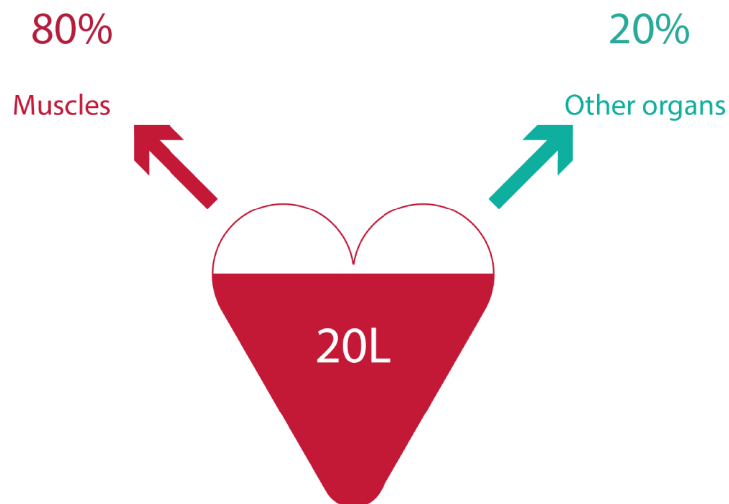
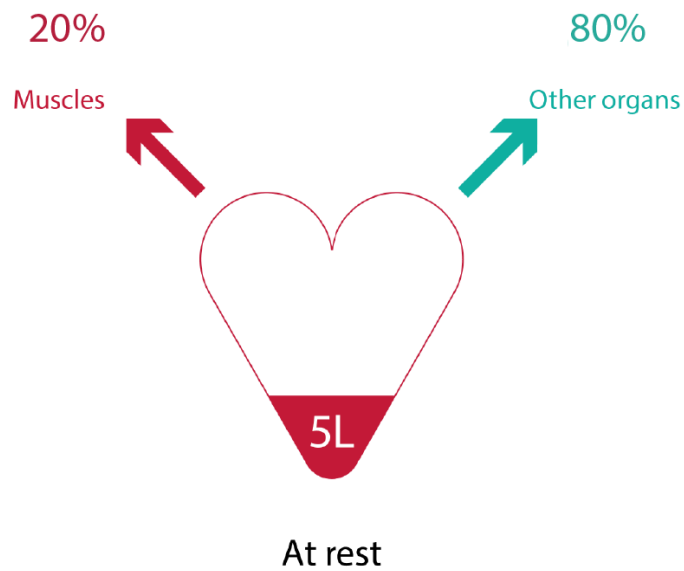
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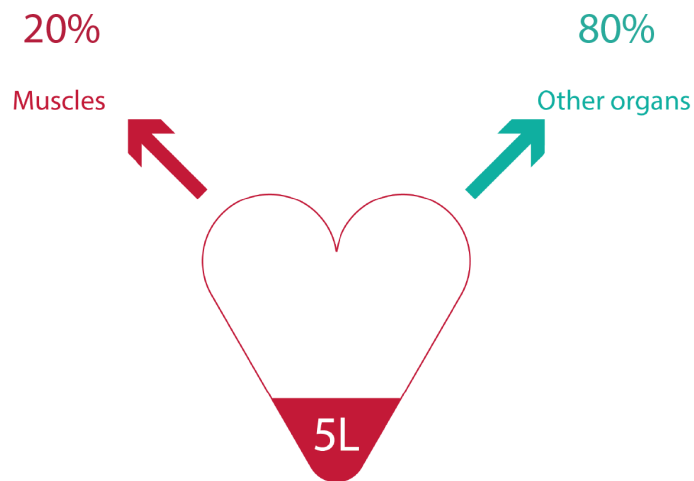




### Maximal exercise

- Arterioles leading to the working muscles vasodilate.
- Precapillary sphincter muscles leading to the capillary beds at the working muscles vasodilate.
- Vascular shunt occurs.
- Q shunted through central capillary to increase resistance to blood flow and redirect to the skeletal muscle.
- Arterioles leading to the other organs vasoconstrict.
- Precapillary sphincter muscles leading to the capillary beds at the other organs vasoconstrict.

### Distribution of Q during recovery



### At rest

- Q shunted through central capillary at the muscle to increase resistance to blood flow and redirect to the other organs.
- Q shifts from 80% to skeletal muscle down to 20% to skeletal muscle gradually.
- Arterioles leading to the working muscles vasoconstrict.
- Precapillary sphincter muscles leading to the capillary beds at the working muscles vasoconstrict.
- Arterioles leading to the other organs vasodilate.
- Precapillary sphincter muscles leading to the capillary beds at the other organs vasodilate.

Sympathetic	Parasympathetic
_____ vasomotor tone	_____ vasomotor tone
Causes vaso_____ of arterioles and pre-capillary sphincters	Causes vaso_____ of arterioles and pre-capillary sphincters
_____ resistance to blood flow	_____ resistance to blood flow

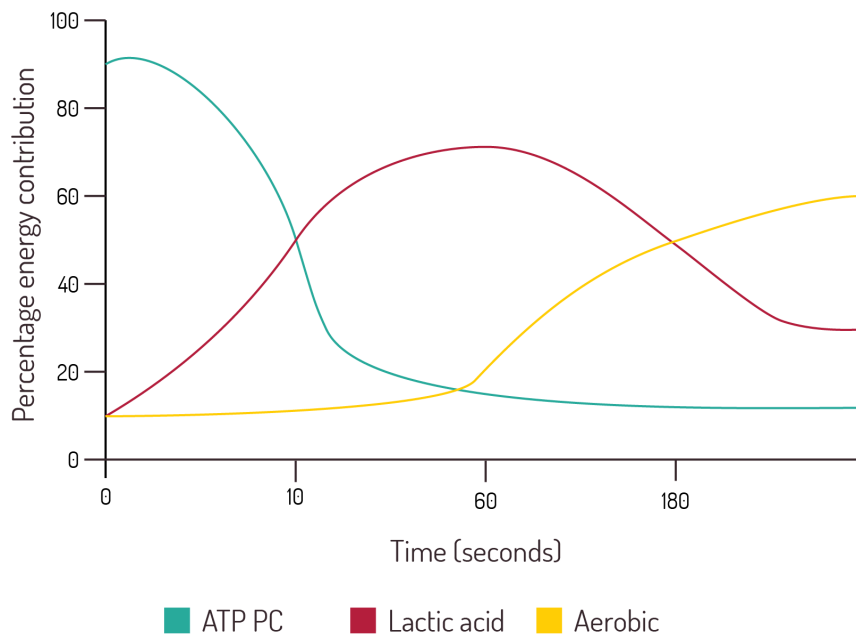


Want to know more?

Watch the FREE tutorials "Cardiac volumes" and "Vasomotor control and vascular shunt" on [TheEverLearner.com](https://www.theeverlearner.com)

# Topic 3: Energy systems and ATP resynthesis

Interplay of energy systems during intermittent exercise			
Factor	ATP/PC	Glycolytic	Aerobic
Intensity	Very high intensity/Maximal	High intensity	Moderate intensity
Duration	Up to 10s duration	Up to 120s duration	Up to 2 hours duration
Recovery periods	<ul style="list-style-type: none"> <li>• 50% recovery in 30s</li> <li>• 100% recovery in 2-3 minutes</li> <li>• Work relief ratio: 1:3+</li> </ul>	<ul style="list-style-type: none"> <li>• 5 minutes recovery</li> <li>• Work relief ratio: 1:2</li> </ul>	<ul style="list-style-type: none"> <li>• No recovery other than repaying O<sub>2</sub> deficit created by anaerobic work</li> <li>• Work relief ratio: 1:1 or less</li> </ul>
Fitness level			



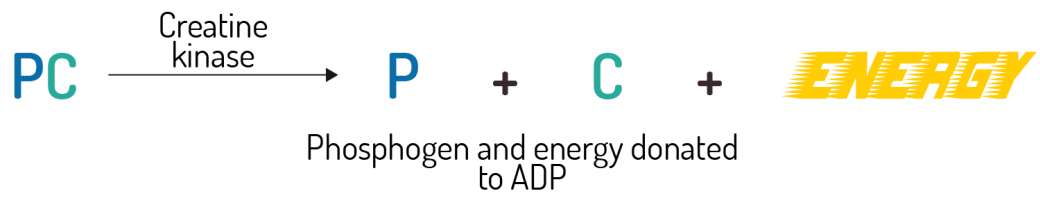
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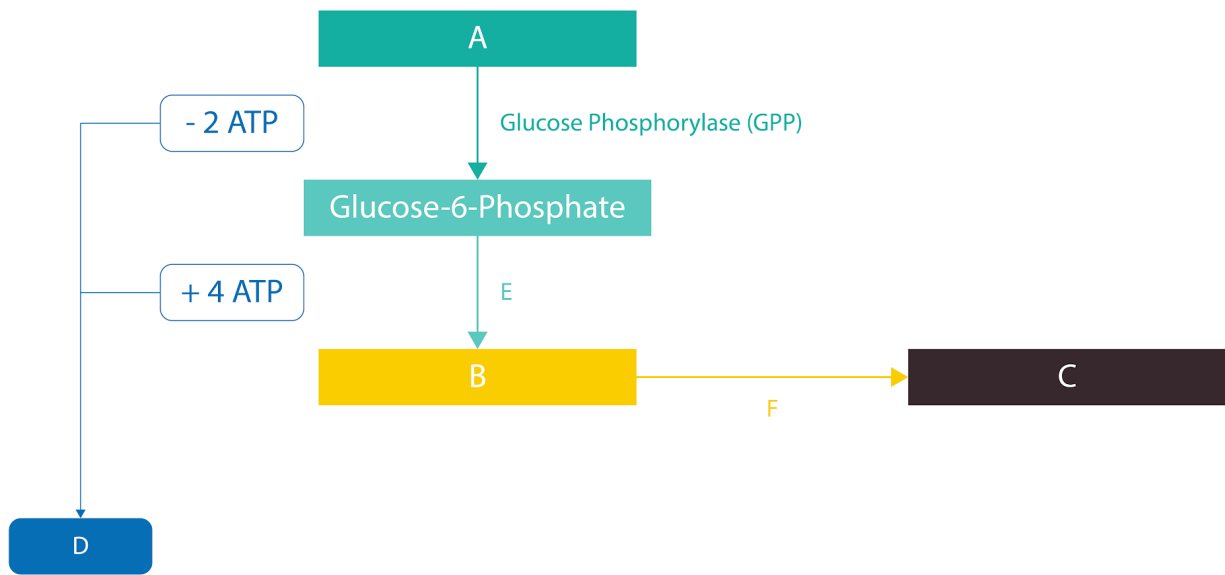
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ATP/PC System	
Fuel source	
Controlling enzyme	
Yield	
By products	
Type of reaction	

ATP/PC System Evaluation	
Strengths	Weaknesses

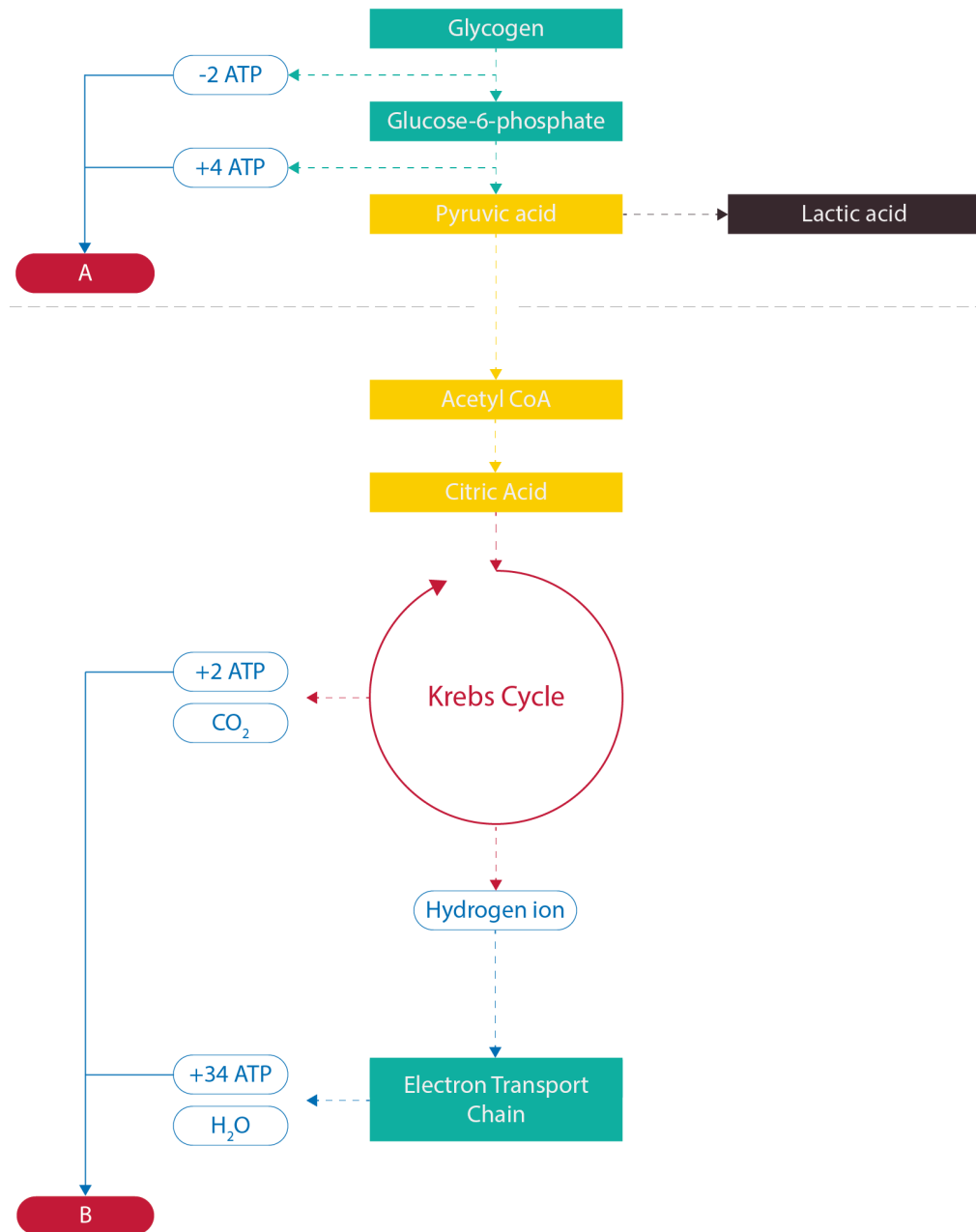
## Lactic acid system



Glycolytic / Lactic acid system	
Fuel source	
Controlling enzyme	
Yield	
By products	
Type of reaction	

Glycolytic / Lactic acid system evaluation	
Strengths	Weaknesses

# Aerobic System



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Aerobic system evaluation	
Strengths	Weaknesses

Aerobic system	
Fuel source	
Controlling enzyme	
Yield	
By products	
Type of reaction	

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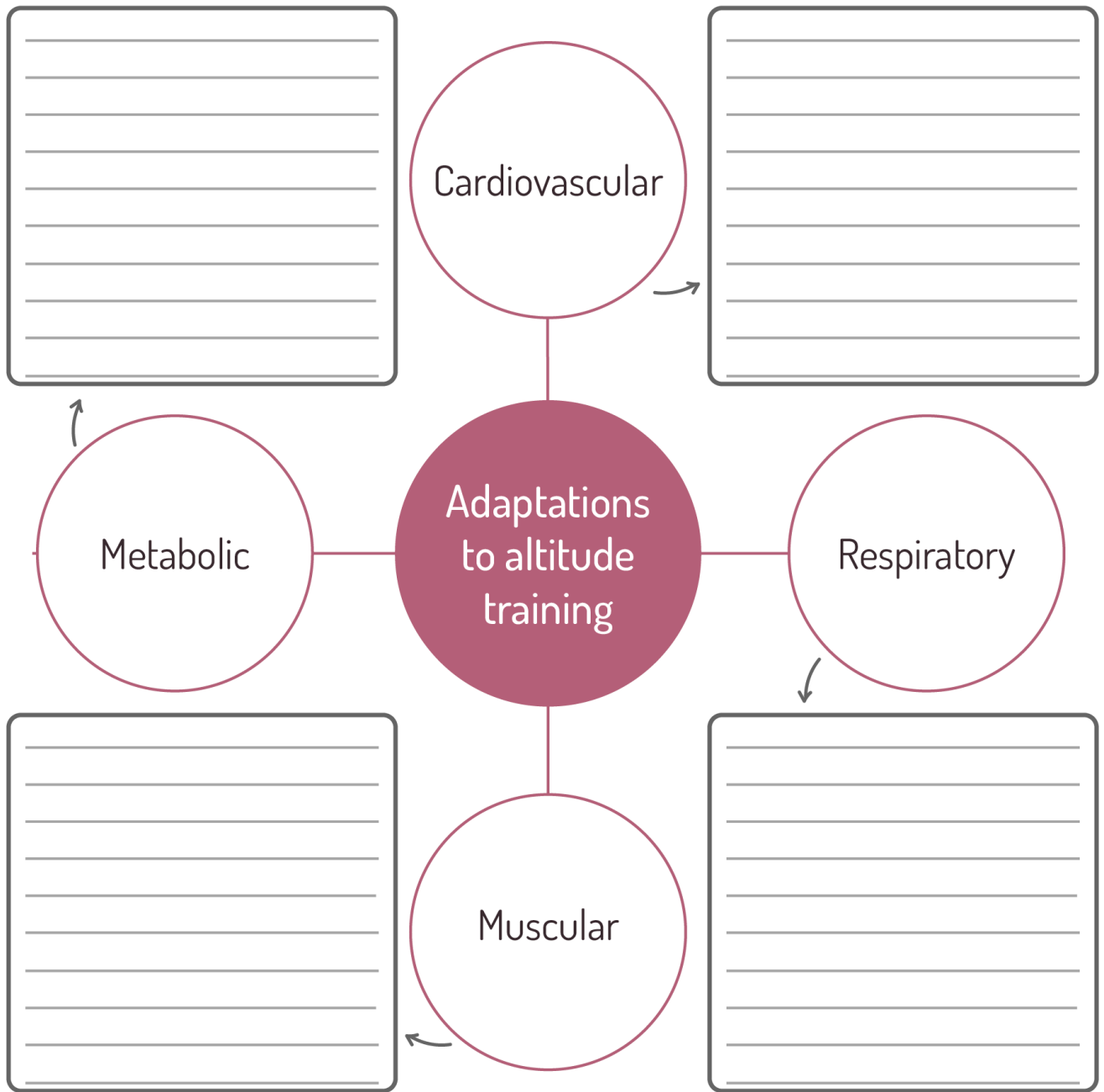
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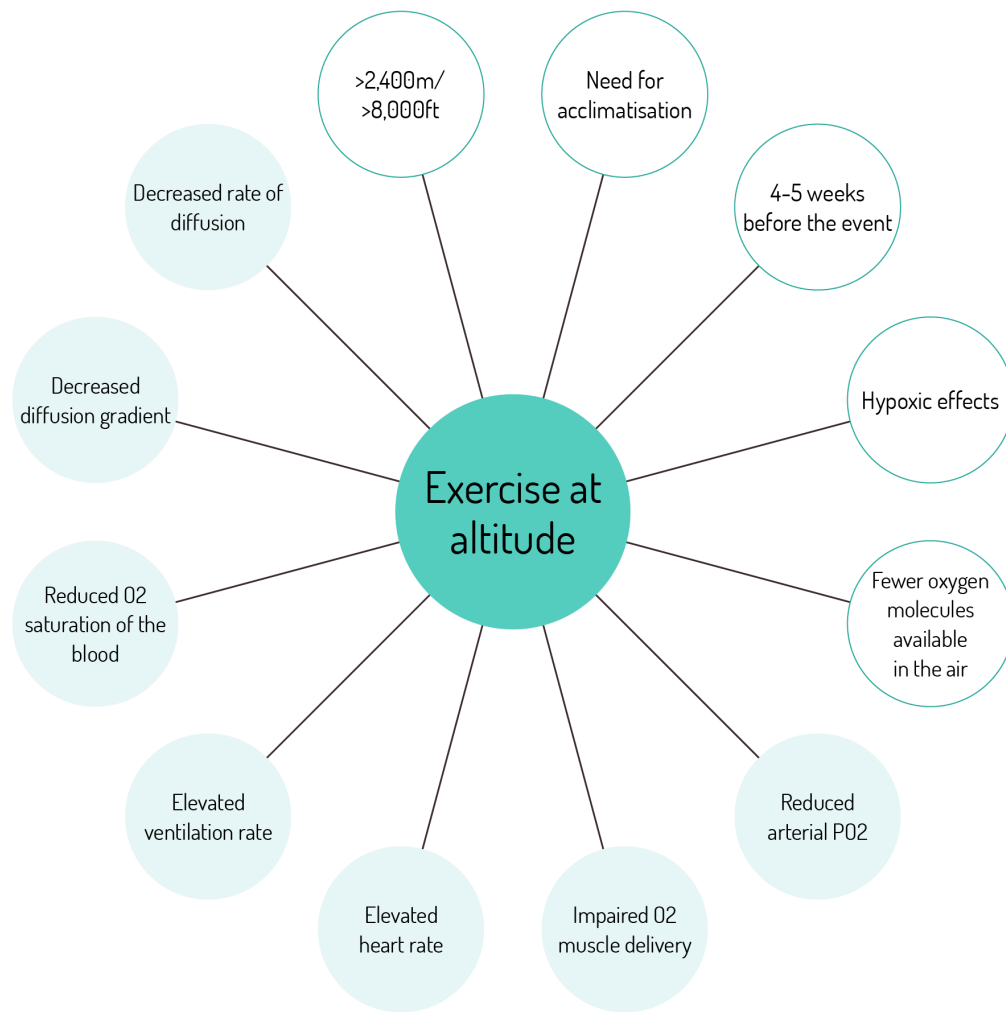
Want to know more?

Watch the tutorials "ATP/PC system", "ATP/PC system analysis", "Glycolytic system", "Aerobic system" and "Energy continuum" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

# Topic 4: Exercise at altitude








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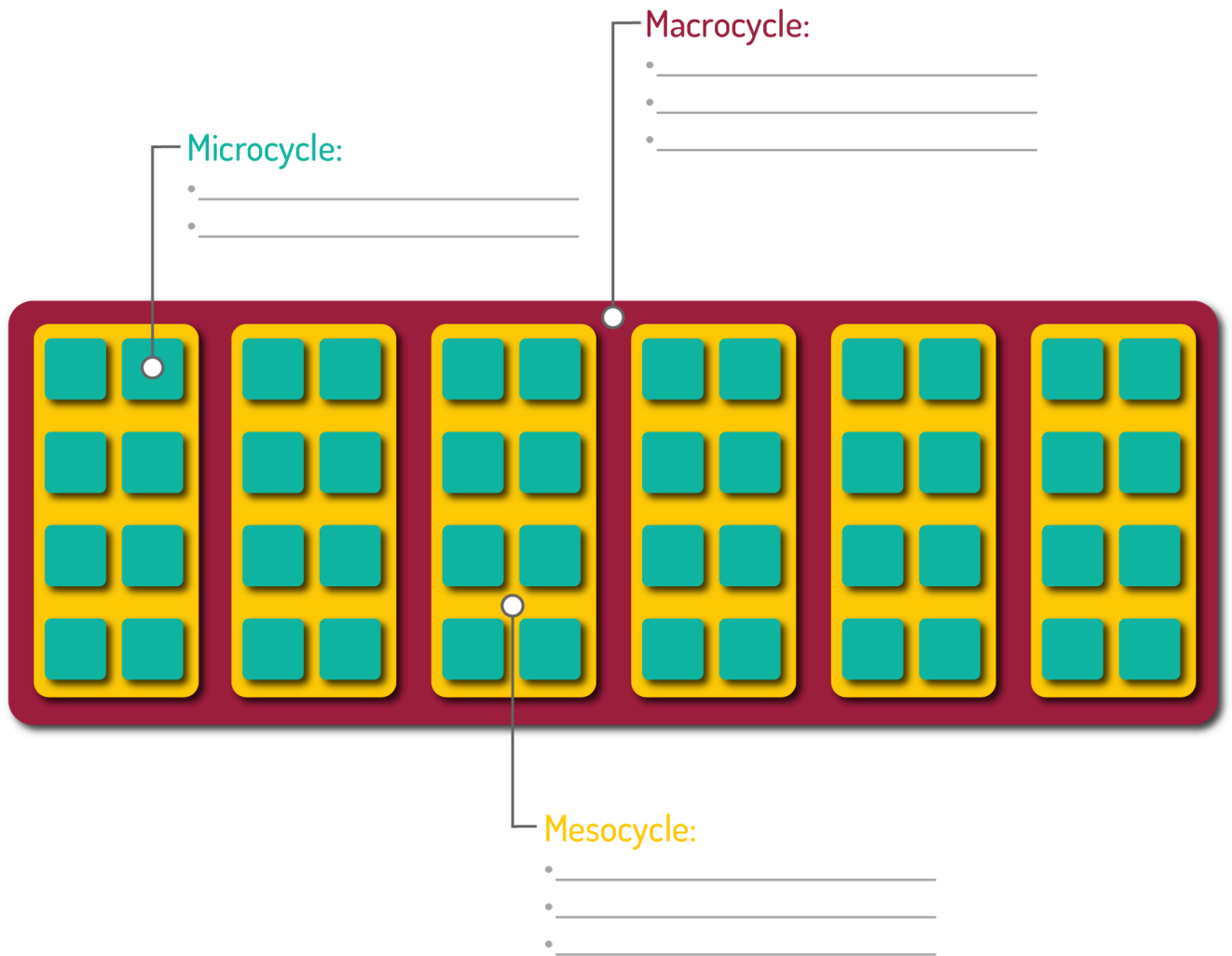
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Want to know more?

Watch the tutorial "Altitude training" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

# Topic 5: Periodisation of training



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Want to know more?

Watch the tutorial "Periodisation" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

## Topic 6: Impact of training on lifestyle diseases

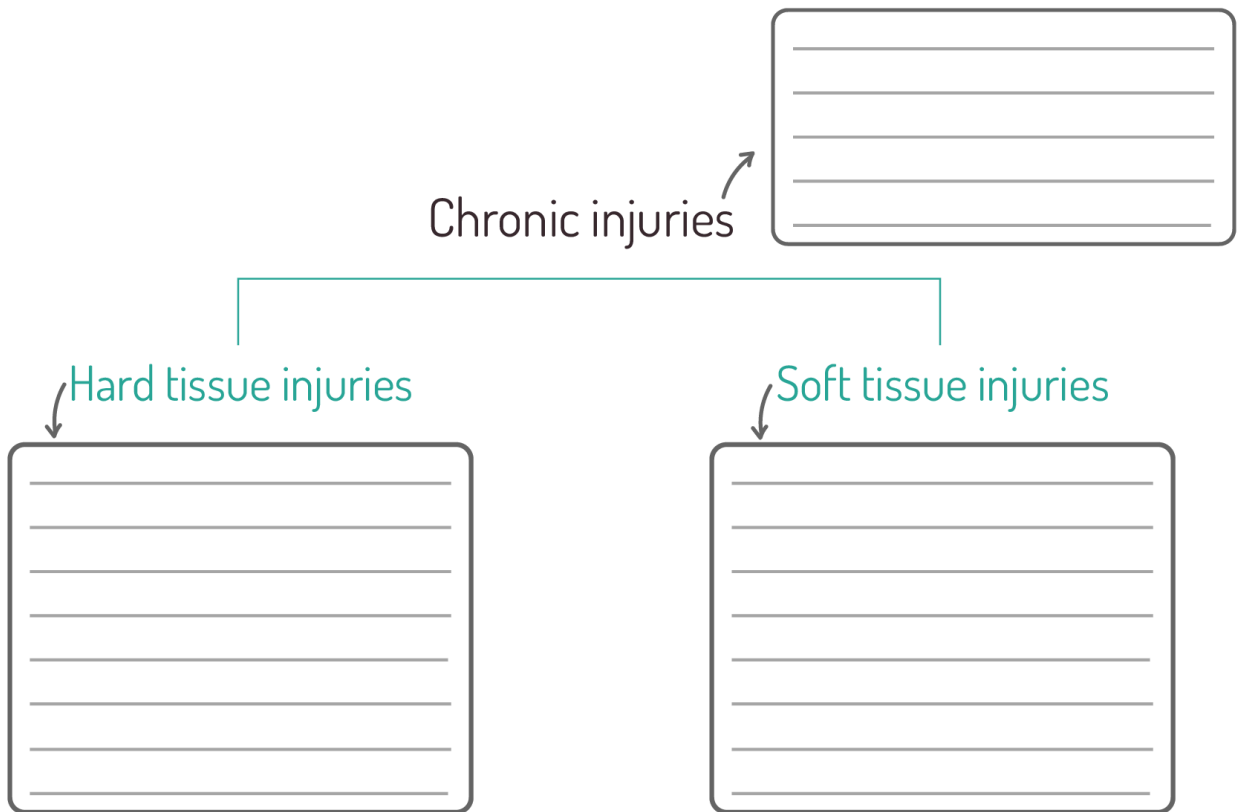
System	Impact of training	Achieved through...
Cardiovascular	Reduces cholesterol/LDLsbBlood lipids.	_____
	Prevents atherosclerosis / Decreases plaque deposits.	_____
	Prevents arteriosclerosis.	_____
	Decreases blood viscosity.	_____
	Decreased blood pressure	_____
	Cardiac hypertrophy	_____
	Less risk of stroke	_____
	Less risk of heart attack	_____
	Decreased resting HR	_____
Respiratory	Increased strength of respiratory muscles	_____
	Maintain full use of lung tissue	_____
	Increased surface area of alveoli	_____
	Increase in pulmonary capillaries	_____
	Reduced risk of chest infections	_____
	Lower risk of COPD	_____



Want to know more?

Watch the tutorials "Cardiovascular health" and "Asthma and COPD" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

# Topic 7: Acute and chronic injuries

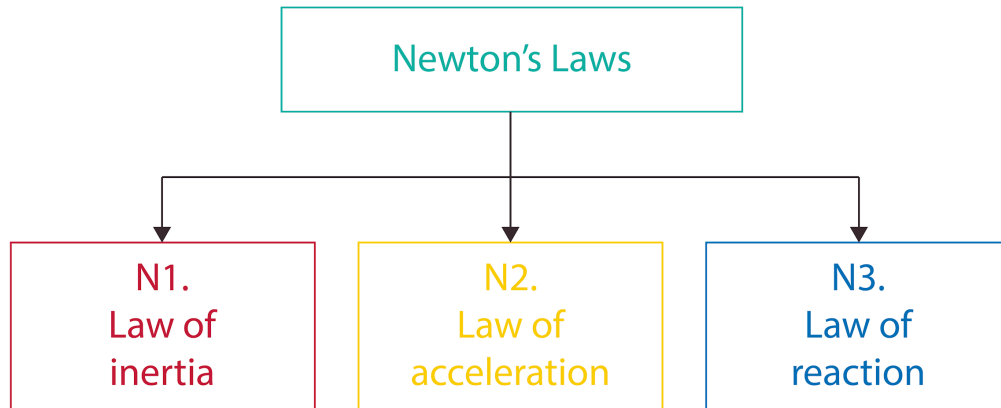


Want to know more?

Watch the tutorials "Acute injuries" and "Chronic injuries" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

# Topic 8: Biomechanical principles

## Newton's laws of motion



### Law of Inertia

An object will continue in a state of **constant velocity** until compelled to change by an **external force**.



## Law of Acceleration

An object will **accelerate proportional** to the force acting and in the **direction** of that **force**.

$$\text{Force} = \text{mass} \times \text{acceleration}$$



## Law of Reaction

For every **action**, there is an **equal** and **opposite reaction**.



Answer these three questions:

Explain how a performer of your choice can use a knowledge of Newton's first law of motion to improve their performance.

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Explain how a performer of your choice can use a knowledge of Newton's second law of motion to improve their performance.

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Explain how a performer of your choice can use a knowledge of Newton's third law of motion to improve their performance.

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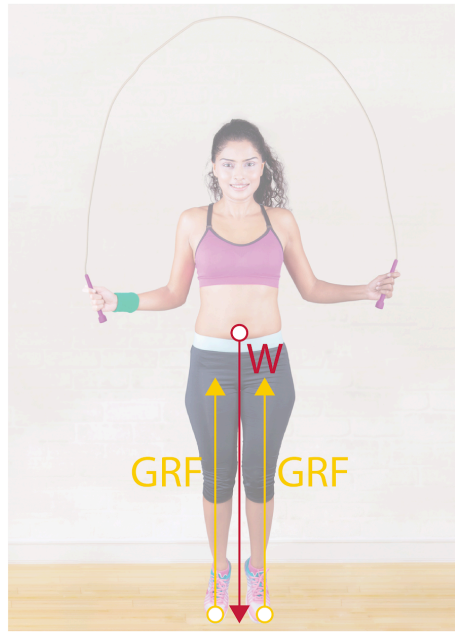
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## Net forces



No movement








# Factors affecting friction and air resistance

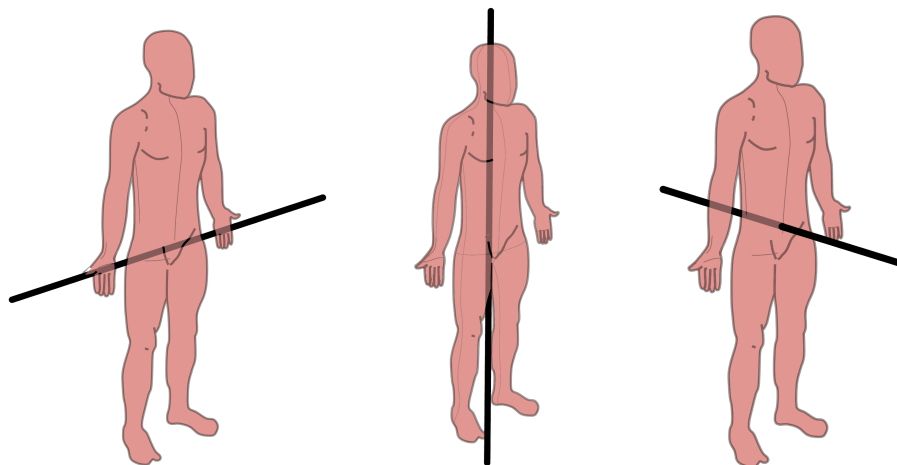
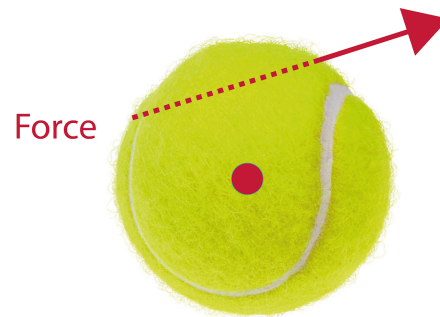


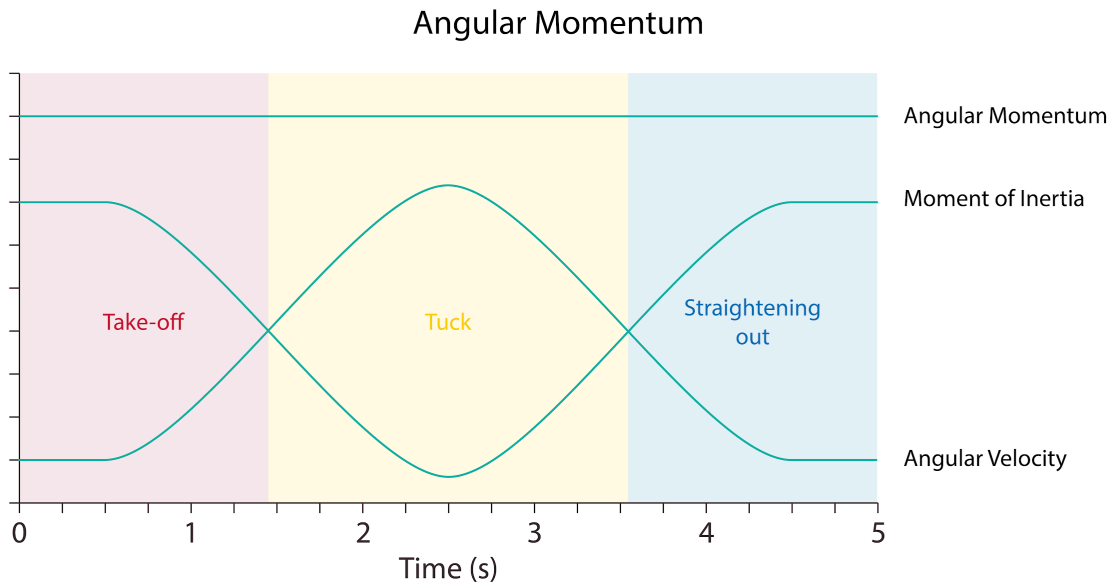
Want to know more?

Watch the tutorials "Newton's laws", "Vertical forces" and "Horizontal forces" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

# Topic 9: Angular motion

## Definition

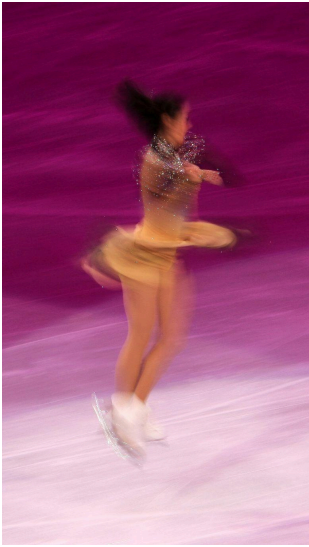





A **rotating** body will continue in a state of **constant angular momentum** until an **external torque** acts upon it.



Stage	Action	Impact
Prior to take-off	_____	_____
	_____	_____
	_____	_____
During flight	_____	_____
	_____	_____
	_____	_____
Prior to entry	_____	_____
	_____	_____
	_____	_____



Stage	Action	Impact
Prior to take-off	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
During flight	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
Prior to entry	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>



Want to know more?

Watch the tutorials "Angular motion" and "Angular momentum" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).

# Topic 10: Projectile motion

## Factors affecting horizontal displacement of projectiles

### Factor 1: Angle of release



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## Factor 2: Speed of release



Complete this statement:

A greater velocity of release increases the \_\_\_\_\_ of a projectile.

## Factor 3: Height of release

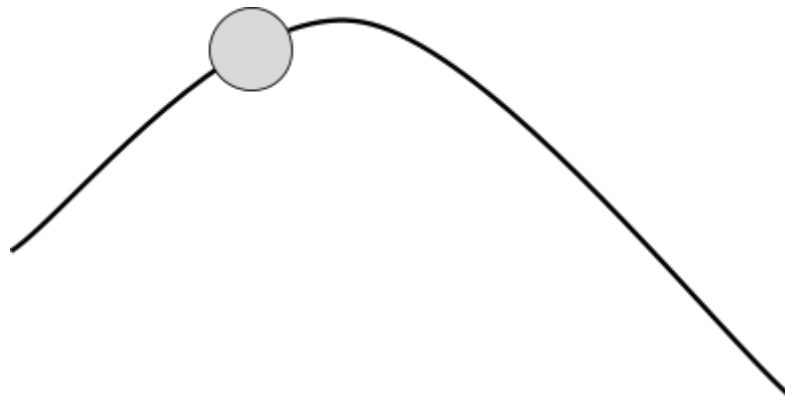


Complete this question:

Explain how a shot putter uses the height of release of the shot to improve her performance.

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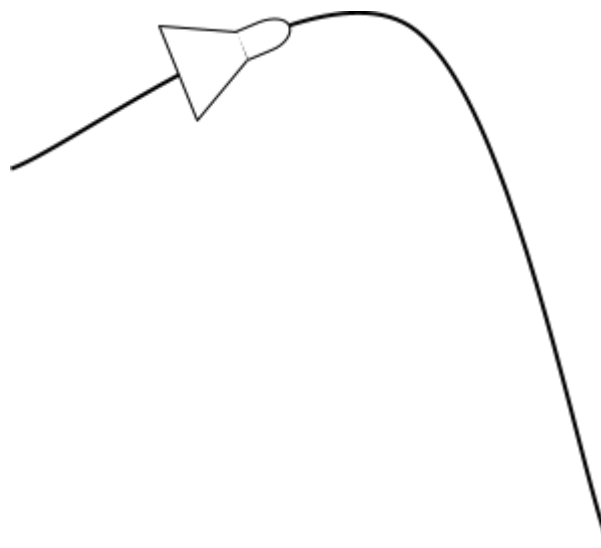
Illustrate the resultant force of the shot:



Explain why the flight path of the shot is symmetrical.

A rectangular box containing seven horizontal lines, intended for a student to write an explanation.

Illustrate the resultant force of the shuttle:



Explain why the flight path of the shot is asymmetrical.

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Want to know more?

Watch the tutorial "Projectile motion" on [TheEverLearner.com](https://www.theeverlearner.com) (subscribers only).