



CHEMISTRY ONLINE
— **TUITION** —

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BIOLOGY

ORGANISMS RESPOND TO CHANGES IN ENVIRONMENTS

Level & Board

AQA (A-LEVEL)

TOPIC:

SKELETAL MUSCLES

PAPER TYPE:

SOLUTION - 2

TOTAL QUESTIONS

6

TOTAL MARKS

26

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Skeletal Muscles - 2

1.

(a)

Catalyze Hydrolysis of ATP

Muscle contraction requires energy from ATP

Myosin used ATP

(b) Fast tissue as ATPase means ATP is hydrolyzed at a higher rate

(c)

Need light to see colour / brown / yellow

Cannot see colour / brown / yellow with electrons / an electron microscope

No organelles are visible.

2.

(a)

Function	Name
Attaches to Z line at the end of the sarcomere	Actin
Breaks down ATP	ATPase
Covers binding site on actin in relaxed myofibril	Tropomyosin

(b)

Can't form myosin / thick filaments;

Can't pull / can't move actin / slide actin past / (myosin) have to be joined / fixed to pull actin;

Myosin moves / if attached doesn't move;

Can't move actin towards each other / middle of sarcomere / between myosin / can't shorten sarcomere / can't pull Z lines together

3.

(a)

Fields of view randomly chosen

Several fields of view

All same species of animal/hamster

Same muscle

Used at least 8 animals in each group

OR

To ensure the reliability of their calculations of the mean number of capillaries per muscle fiber, researchers typically implement several precautions and quality control with Sample Size, do Random Sampling and Repeat Measurements.

4.

(a) $69 / 4.6 = 15$

(b) Calculation used mean number of capillaries

5.

(a) Removing diaphragm means animals are killed

(b)

Suggests significant difference between young and adult

Suggests not significant difference between adult and old

For fast and slow fibers

Suggests significant difference between young and old for fast fibers

6.

(a) Marathon runners

(b) Marathon runners have highest percentage of slow fibers

Slow fibers use aerobic respiration - occurs in mitochondria

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- Founder & CEO of Chemistry Online Tuition Ltd.
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