

**AQA – Organism exchange substances with their environment – A2 Biology P3**

1. June/2021/Paper\_3/No.5

0 5 . 1 The action of endopeptidases and exopeptidases can increase the rate of protein digestion. Describe how. [2 marks]

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0 5 . 2 As humans age, there is a decrease in body protein.  
Give the name of **one** body protein that could have resulted in: [2 marks]

reduced muscle power \_\_\_\_\_  
reduced immunity \_\_\_\_\_

Scientists investigated the effect of two types of dietary protein on the ability of old men to produce body proteins.

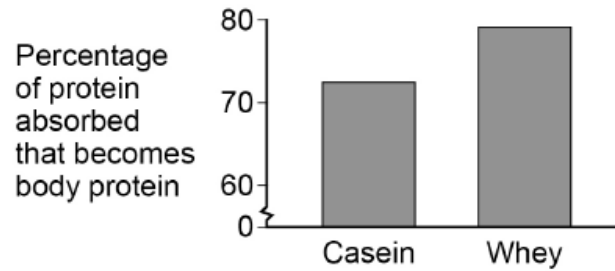
**Table 2** shows information about the two types of dietary protein investigated.

**Table 2**

Physiological factor	Name of dietary protein	
	Casein	Whey
Rate of absorption of dietary protein / $\text{mmol dm}^{-3}$ amino acids in blood plasma $\text{h}^{-1}$	3.05	4.33
Stimulation of protein synthesis	Higher rate	Lower rate
Breakdown of body proteins	No effect	Inhibitory effect

**Figure 4** shows the percentage of protein absorbed that becomes body protein in old men following a meal of casein or whey.

**Figure 4**



A statistical test confirmed that the difference between the results shown in **Figure 4** was significant.

0 5 . 3

Suggest which type of dietary protein would be better for old men to eat to cause a net gain of body proteins. Use the information provided to explain your answer.

[3 marks]

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