

Exercise walk-through

2.3

Health, lifestyle and cancer (4.2.2.5–4.2.2.7)

AQA · GCSE · Biology

Exercises 2.1·2.3

2.1 Define health. [1]

2.2 Give one proven causal risk factor for Type 2 diabetes. [1]

2.3 State two differences between benign and malignant tumours. [2]

Exercises 2.1·2.3

2.1 Define health. [1]

2.1 The state of physical and mental well-being.

2.2 Give one proven causal risk factor for Type 2 diabetes. [1]

2.2 Obesity.

2.3 State two differences between benign and malignant tumours. [2]

2.3 Benign is contained in one area within a membrane while malignant invades neighbouring tissues; malignant spreads in the blood to form secondary tumours, benign does not.

Exercises 3.1·3.2

3.1 Explain how smoking causes lung cancer, naming the substances involved. [3]

3.2 Table: % of adults obese vs rate of Type 2 diabetes in three towns.

Town	% obese	Diabetes rate per 1000
A	12	14
B	21	31
C	30	48

(a) Describe the pattern. [2]

(b) Explain whether obesity is a cause of Type 2 diabetes. [2]

Exercises 3.1·3.2

3.1 Explain how smoking causes lung cancer, naming the substances involved. [3]

3.1 Cigarette smoke contains carcinogens; these mutate the DNA of cells in the lung lining; the mutated cells divide uncontrollably, forming a malignant tumour.

3.2 Table: % of adults obese vs rate of Type 2 diabetes in three towns.

Town	% obese	Diabetes rate per 1000
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(a) Describe the pattern. [2]

(b) Explain whether obesity is a cause of Type 2 diabetes. [2]

3.2 (a) As the percentage obese rises, the diabetes rate rises – a positive correlation; the rate roughly doubles from A to C. (b) Obesity is a proven risk factor with a known causal mechanism for Type 2 diabetes, so the correlation here reflects cause, not chance.

Exercise 3.3

3.3 A newspaper claims a new energy drink “causes heart disease” from a survey. Give two checks needed before accepting causation. [4]

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3.3 Any two, each with reason: a mechanism – how would the drink cause the disease?; controlled for other lifestyle factors – diet, exercise, smoking, otherwise those could be the true cause; sample size and representativeness – small or biased samples mislead; peer review of the study. [max 4]