# B1.1 Carbohydrates and lipids: data-based questions

What the Cell · DP Biology · data-based questions

**Name** _____ **Date** _____ **Total** _____ / 8

**Read the data carefully before you answer.** The number of marks shows how many separate points to make. Show your working in calculations.

## 1 Saturated fat and blood cholesterol

8 marks

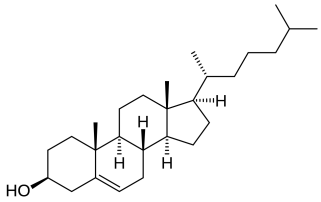
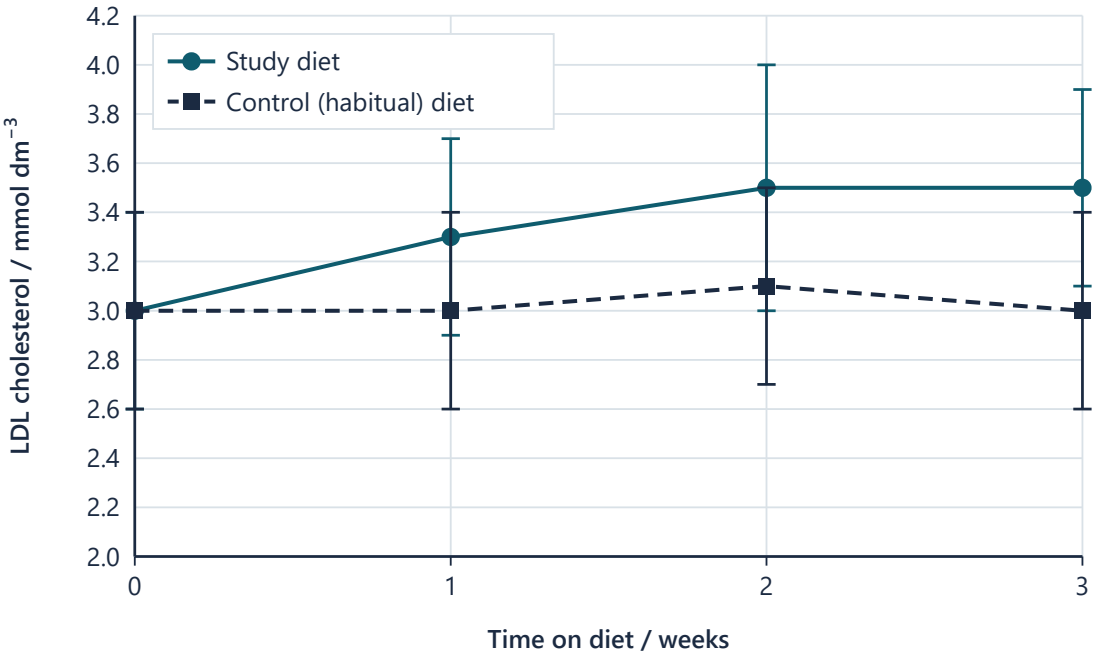



Photo: BorisTM, Public domain, Wikimedia Commons.

Thirty healthy adults were split into two groups. For three weeks, the study group ate a diet in which olive oil and nuts were replaced with butter and cream. The control group kept their usual (habitual) diet. The table shows the mean daily intake. The graph shows mean blood LDL cholesterol, ± 1 SD.

| | Habitual diet | Study diet |
|---|---|---|
| **Energy / MJ day$^{-1}$** | 9.4 ± 1.8 | 9.2 ± 1.1 |
| **Total fat / % of energy** | 34 | 34 |
| **Saturated fat / % of energy** | 11 | 18 |
| **Monounsaturated fat / % of energy** | 15 | 10 |
| **Polyunsaturated fat / % of energy** | 8 | 6 |
| **Carbohydrate / % of energy** | 48 | 47 |



a **Comment** on the energy content of the two diets. **[1]**

b **Distinguish** between the fat content of the two diets. **[2]**

c **Calculate** the percentage change in mean LDL cholesterol of the study group from week 0 to week 3. **[2]**

d High LDL cholesterol is a risk factor for coronary heart disease. **Evaluate** the claim that these data show saturated fat causes heart disease. **[3]**