Learning Tracker: Topic 1 – Lifestyle, Health and Risk

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| **SPECIFICATION POINTS** | **R** | **Y** | **G** |
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| 1.1 Understand why many animals have a heart and circulation (mass transport to overcome limitations of diffusion in meeting the requirements of organisms). |  |  |  |
| 1.2 Understand the importance of water as a solvent in transport, including its dipole nature. |  |  |  |
| 1.3 Understand how the structures of blood vessels (capillaries, arteries and veins) relate to their functions. |  |  |  |
| 1.4 i) Know the cardiac cycle (atrial systole, ventricular systole and cardiac diastole) and relate the structure and operation of the mammalian heart, including the major blood vessels, to its function. ii) Know how the relationship between heart structure and function can be investigated practically. |  |  |  |
| 1.5 Understand the course of events that leads to atherosclerosis (endothelial dysfunction, inflammatory response, plaque formation, raised blood pressure). |  |  |  |
| 1.6 Understand the blood-clotting process (thromboplastin release, conversion of prothrombin to thrombin and fibrinogen to fibrin) and its role in cardiovascular disease (CVD). |  |  |  |
| 1.7 Know how factors such as genetics, diet, age, gender, high blood pressure, smoking and inactivity increase the risk of cardiovascular disease (CVD). |  |  |  |
| 1.8 Be able to analyse and interpret quantitative data on illness and mortality rates to determine health risks, including distinguishing between correlation and causation and recognising conflicting evidence. |  |  |  |
| 1.9 Be able to evaluate the design of studies used to determine health risk factors, including sample selection and sample size used to collect data that is both valid and reliable. |  |  |  |
| 1.10 Understand why people’s perceptions of risks are often different from the actual risks, including underestimating and overestimating the risks due to diet and other lifestyle factors in the development of heart disease. |  |  |  |
| 1.11 i) Be able to analyse data on energy budgets and diet. ii) Understand the consequences of energy imbalance, including weight loss, weight gain, and development of obesity. |  |  |  |
| 1.12 i) Know the difference between monosaccharides, disaccharides and polysaccharides, including glycogen and starch (amylose and amylopectin). ii) Be able to relate the structures of monosaccharides, disaccharides and polysaccharides to their roles in providing and storing energy (β-glucose and cellulose are not required in this topic). |  |  |  |
| 1.13 Know how monosaccharides join to form disaccharides (sucrose, lactose and maltose) and polysaccharides (glycogen and amylose) through condensation reactions forming glycosidic bonds, and how these can be split through hydrolysis reactions. |  |  |  |
| 1.14 i) Know how a triglyceride is synthesised by the formation of ester bonds during condensation reactions between glycerol and three fatty acids. ii) Know the differences between saturated and unsaturated lipids. |  |  |  |
| 1.15 i) Be able to analyse and interpret data on the possible significance for health of blood cholesterol levels and levels of high-density lipoproteins (HDLs) and low-density lipoproteins (LDLs). ii) Know the evidence for a causal relationship between blood cholesterol levels (total cholesterol and LDL cholesterol) and cardiovascular disease (CVD). |  |  |  |
| 1.16 Understand how people use scientific knowledge about the effects of diet, including obesity indicators, body mass index and waist-to-hip ratio, exercise and smoking to reduce their risk of coronary heart disease.. |  |  |  |
| CORE PRACTICAL 1: Investigate the effect of caffeine on heart rate in Daphnia. |  |  |  |
| 1.17 Be able discuss the potential ethical issues regarding the use of invertebrates in research. |  |  |  |
| CORE PRACTICAL 2: Investigate the vitamin C content of food and drink. |  |  |  |
| 1.18 Know the benefits and risks of treatments for cardiovascular disease (CVD) (antihypertensives, statins, anticoagulants and platelet inhibitors). |  |  |  |

**How can I improve?**

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**Revision Actions taken**

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