

Exercise walk-through

Physical Development Across the Lifespan ■ 3.2

eXercise

You must be able to

- describe **prenatal** 产前 development and the effect of a **teratogen** 致畸物
- state the sequence of **motor** 运动 development in infancy
- describe the physical changes of **adolescence** 青春期
- state the main physical changes of **late adulthood** 老年期

Method — Prenatal development and teratogens

Development proceeds from zygote to embryo to foetus. A **teratogen** is any agent — alcohol, certain infections, some drugs — that can cross the placenta and disrupt development. Effects depend on **timing**: the same exposure does more damage during the formation of the affected structure.

Method — Motor development

Maturation gives a broadly fixed **sequence** — sitting, crawling, standing, walking — but the **timing** varies between individuals and cultures. Sequence is biological; pace is not purely so.

Method — Adolescence

Puberty brings a growth spurt and reproductive maturity. Brain development continues, with the prefrontal regions supporting planning and impulse control maturing later than the reward-sensitive regions.

Method — Late adulthood

Sensory acuity declines, reaction time slows, and muscle mass falls. Well-practised knowledge and vocabulary are typically preserved, while speed-dependent tasks decline first.

Practice 2.1 ■ 2 marks

Define a teratogen and give one example.

Solution 2.1

Worked steps

an agent that can cross the placenta and disrupt prenatal development **B1**; e.g. alcohol **B1**.

Practice 2.2 ■ 2 marks

Explain why the timing of an exposure matters as much as the dose.

Solution 2.2

Method: Prenatal development and teratogens

Worked steps

a structure is vulnerable while it is forming **B1**, so the same exposure produces different damage depending on when it occurs **B1**.

Practice 2.3 ■ 1 mark

Two infants walk at 10 and at 15 months.

- (a) State what is fixed across infants.
- (b) State what varies.

Solution 2.3

Method: Motor development

Worked steps

(a) the sequence of motor milestones **B1**. (b) the age at which each is reached **B1**.

Exam-style 3.1 ■ 1 mark

In adolescence, the brain regions supporting planning and impulse control mature

- A** before reward-sensitive regions
- B** after reward-sensitive regions
- C** at exactly the same time
- D** only after age 40

Solution 3.1

Method: Adolescence

- A before reward-sensitive regions
- B after reward-sensitive regions**
- C at exactly the same time
- D only after age 40



Worked steps

- B. prefrontal maturation lags behind reward-sensitive development.

Exam-style 3.2 ■ 1 mark

In late adulthood, the abilities usually best preserved are

- A** reaction speed
- B** vocabulary and well-practised knowledge
- C** hearing acuity
- D** muscle mass

Solution 3.2

Method: Late adulthood

- A reaction speed
- B vocabulary and well-practised knowledge** 
- C hearing acuity
- D muscle mass

Worked steps

B. crystallised knowledge is typically preserved while speed declines.

Exam-style 3.3 ■ 1 mark

A public health campaign targets alcohol use in early pregnancy.

- (a) State the reason for targeting that period.
- (b) Explain one difficulty in measuring the campaign's effect.

Solution 3.3

Worked steps

- (a) major structures form early, so exposure then does the most damage **B1**.
- (b) self-reported drinking is unreliable and other influences on outcomes cannot be controlled **B1**, so any change is hard to attribute to the campaign **B1**.