PSYCHOLOGY

PUZZLE

HEREDITY AND ENVIRONMENT

Case 1: Identical Genes, Different Muscles

During a pediatric posting, a physiotherapy student is asked to observe therapy for 9-year-old identical twins recovering from ankle sprains. Both have similar height, weight, and medical history. However, Twin A demonstrates better balance, quicker muscle activation, and confidence during exercises, while Twin B hesitates and fatigues easily. The student learns that Twin A regularly participates in sports and receives encouragement at home, whereas Twin B spends most leisure time indoors with minimal physical activity.

The student wonders: If heredity is identical, why are physical characteristics and motor skills so different? The supervising therapist asks the student to explain the discrepancy using psychological principles rather than labeling one child as "weak."

Possible Options

A. Assume one twin has hidden pathology
B. Attribute differences entirely to genetics
C. Recognize environmental influence on genetic potential
D. Treat the weaker twin with reduced expectations

Psychological Reasoning

Genes provide potential, not fixed outcomes
Environment shapes physical expression
Option C reflects interaction of heredity and environment
Encouragement and activity modify physical development

Case 2: Twins Who Learn Differently

A physiotherapy student conducts posture-training sessions for 12-year-old fraternal twins. Twin X quickly understands anatomical explanations and corrects posture independently. Twin Y struggles to remember instructions and becomes anxious when corrected. Parents report equal schooling, nutrition, and parenting style.

The student questions whether intelligence differences are inherited or shaped by environment—and whether therapy delivery should differ. The concern is avoiding bias while still ensuring effective learning**.**

Possible Options

A. Teach both twins identically for fairness
B. Assume one twin is careless
C. Adapt instruction based on cognitive differences
D. Lower expectations for the slower learner

Psychological Reasoning

Intelligence has a hereditary component
Expression varies even in shared environments
Option C respects individual intelligence differences
Adaptation supports learning without labeling

Case 3: Athletic Talent—Born or Made?

In a sports clinic, a physiotherapy student observes two cousins with similar ACL injuries. One regains strength rapidly and shows excellent coordination; the other progresses slowly. The faster-recovering patient comes from a family of athletes, while the other has no sports background.

The student debates whether recovery speed reflects genetic athletic traits or environmental exposure to training. The clinical instructor asks the student to justify future rehabilitation planning.

Possible Options

A. Attribute success entirely to heredity
B. Blame poor motivation
C. View performance as heredity activated by environment
D. Treat slower recovery as non-compliance

Psychological Reasoning

Genes influence muscle type and coordination
Training and practice activate genetic potential
Option C reflects interactionism
Avoids genetic determinism and blame

Case 4: Personality and Pain Response

A physiotherapy student treats two adult siblings with chronic knee pain. Both grew up in the same household. One is optimistic, motivated, and adherent; the other is anxious, fearful, and frequently catastrophizes pain. Physical findings are similar, yet outcomes differ.

The student wonders whether personality traits are inherited or shaped by life experiences—and how this should influence communication during therapy.

Possible Options

A. Ignore personality factors

B. Attribute personality solely to upbringing

C. Recognize genetic temperament modified by environment

D. Label anxiety as poor coping

Psychological Reasoning

Personality has a genetic base (temperament)

Environment shapes coping styles

Option C supports biopsychosocial care

Tailored communication improves outcomes

Case 5: Intelligence, Opportunity, and Rehabilitation

A physiotherapy student works with two adolescents of similar physical ability. One understands exercises easily and practices independently; the other struggles despite motivation. The student learns that one child had enriched early education, while the other had limited schooling due to socioeconomic factors.

The student questions whether intelligence differences are genetic or environmental—and how to respond ethically in therapy planning.

Possible Options

A. Assume limited intelligence restricts recovery

B. Attribute differences only to heredity

C. Modify teaching methods considering environment

D. Refer the patient elsewhere

Psychological Reasoning

Intelligence reflects both heredity and environment

Environmental enrichment enhances expression

Option C promotes equity and effectiveness

Adaptive teaching prevents mislabeling

• • • • • • • • • • • •