

Astrophysics and the Human Body

Astrophysics · Practice Test · 20 Questions

1. Which organ in the human body is primarily responsible for balancing, which becomes disoriented in the microgravity of space?

- A) The heart
- B) The inner ear
- C) The lungs
- D) The liver

2. What happens to the height of an astronaut while living in space due to the lack of gravity compressing their spine?

- A) They shrink
- B) They stay the same
- C) They grow taller
- D) They lose limbs

3. Which form of radiation, common in space, can cause damage to human DNA if not properly shielded?

- A) Visible light
- B) Cosmic rays
- C) Radio waves
- D) Infrared heat

4. What happens to an astronaut's bone density during long-duration space flight in microgravity?

- A) It increases
- B) It remains stable
- C) It decreases
- D) It turns into muscle

5. What is the primary gas, also found in the Earth's atmosphere, that astronauts must monitor in the space station to prevent hypercapnia?

- A) Carbon dioxide
- B) Helium
- C) Neon
- D) Argon

6. Which fluid in the human body shifts toward the head in microgravity, often causing a puffy face appearance?

- A) Bile
- B) Synovial fluid
- C) Blood and extracellular fluid
- D) Gastric acid

7. What is the main source of vitamin D that humans get on Earth, which must be supplemented in space?

- A) Sunlight
- B) Moonlight
- C) Starlight
- D) Nebula light

8. Space travel can affect the human circadian rhythm because astronauts experience how many sunrises per day in low Earth orbit?

- A) One
- B) Sixteen
- C) Zero
- D) One hundred

9. Which part of the eye can be affected by the pressure changes associated with fluid shifts in space?

- A) The pupil
- B) The retina
- C) The iris
- D) The sclera

10. What is the term for the rapid loss of muscle mass that occurs when astronauts do not perform resistance exercise in space?

- A) Hypertrophy
- B) Atrophy
- C) Metabolism
- D) Ossification

11. Which celestial body's gravitational pull is responsible for the tides, which indirectly influence marine life cycles that humans consume?

- A) The Moon
- B) Mars
- C) Jupiter
- D) Saturn

12. Astronauts undergo physical training to counteract the effects of microgravity on which bodily system?

- A) The cardiovascular system
- B) The digestive system
- C) The endocrine system
- D) The nervous system

13. What is the primary fuel source for the human body that astronauts must consume in specific amounts to maintain energy in space?

- A) Nuclear energy
- B) Calories
- C) Solar radiation
- D) Kinetic energy

14. Exposure to what type of space-based environment can lead to a decrease in the production of red blood cells, known as 'space anemia'?

- A) High oxygen
- B) Microgravity
- C) Extreme heat
- D) Darkness

15. What protective gear must humans wear to prevent the vacuum of space from causing ebullism (gas bubbles forming in blood)?

- A) A pressurized space suit
- B) Sunglasses
- C) A raincoat
- D) A thermal blanket

16. Which major organ is responsible for filtering waste, a process that can be stressed by the increased calcium levels in astronaut blood?

- A) The brain
- B) The kidneys
- C) The pancreas
- D) The spleen

17. The Earth's magnetic field protects humans from solar particles; what is this shield called?

- A) The atmosphere
- B) The magnetosphere
- C) The crust
- D) The mantle

18. What effect does the lack of gravity have on the human sense of taste, often making food seem blander?

- A) It increases sensitivity
- B) It causes congestion that dulls taste
- C) It creates a spicy sensation
- D) It has no effect

19. What is the main danger to human health from solar flares, which are intense bursts of radiation from the Sun?

- A) Radiation sickness
- B) Excessive sweating
- C) Increased hair growth
- D) Better sleep

20. In the context of space health, what does 'deconditioning' refer to?

- A) Learning new skills
- B) The body adapting to microgravity
- C) The cooling of space craft
- D) Eating too much food