

TEXT 1

Although gluten has gained a bad reputation, the majority of people would struggle to explain what it actually is. The truth is that gluten is just a mixture of proteins found in the seeds of certain cereal plants, such as wheat, rye and barley. Gluten is stored in a tissue inside the seed called the endosperm, which surrounds the plant embryo and provides a dense source of energy as the plant starts to grow. In wheat, gluten is formed when the proteins glutenin and gliadin cross-link into a net-like structure that provides elasticity and viscosity.

Once food reaches the stomach it must be broken down by enzymes in the process of digestion. Large proteins are broken up into chains of amino acids called peptides. Normally these peptides are easily broken down further, but the gliadin peptides in gluten are difficult to break down as they are part of a group of peptides called prolamins. Prolamins are made up of lots of glutamine and proline amino acids, which digestive enzymes have difficulty breaking up. This means that unlike most proteins gluten digestion can leave strands of amino acids intact in the small intestine. These strands can be up to 10 amino acids long and are known as oligopeptides. For most people gliadin oligopeptides are harmless. However, a small proportion of the population will produce an immune response known as coeliac disease, a condition caused by the body's immune system mistakenly attacking itself. Coeliac disease is caused by a reaction to gluten

1. According to the passage, which of the following statements is FALSE?
(A) Most people are actually unsure about gluten.
(B) Coeliac disease occurs in many people.
(C) Endosperm is a food reserve tissue inside the seeds.
(D) Endosperm nourishes the developing embryo.
(E) Gliadin is a protein difficult to digest.

TEXT 2

There appears to be increasing numbers of children who specialize in a single sport at an early age. The lure of a college scholarship or a professional career can motivate young athletes to commit to specialized training regimens at an early age. However, the American Academy of Pediatrics recommends avoiding specializing in one sport before puberty.

Once puberty begins, both boys and girls go through their adolescent growth spurt (AGS). The change and the age at which they occur can have an impact on a child's sports performance. Going through this can have a significant impact on athletic performance in both positive and negative ways. Increases in body size, hormones, and muscle strength can improve athletic performance. Nevertheless, there may be a temporary decline in balance skills and body control during the AGS. Quick increases in height and weight affect the body's center of gravity. Sometimes, the brain needs to adjust to this higher observation point. As a result, a teen may seem a little clumsy.

This phase is especially noticeable in sports that require good balance and body control (e.g. figure skating, diving, gymnastics, basketball). In addition, longer arms and legs can affect throwing any type of ball, hitting with a bat, catching with a glove, or swimming and jumping. Coaches that are aware of the AGS can help reduce athletic awkwardness by incorporating specific aspects of training into practice sessions.

2. The most appropriate title for this passage is ...
(A) Adolescent Growth Spurt and Sport
(B) Effects of Puberty on Sports Performance
(C) The Rising Popularity of Sports among Children
(D) The Impact of Poor Balance and Body Control
(E) The Side Effects of Specializing in Sports on Children

TEXT 3

(1) Child development refers to the biological, psychological and emotional changes that occur in human beings between birth and the end of adolescence, as the individual progresses from dependency to increasing autonomy. (2) It is a continuous process with a predictable sequence yet having a unique course for every child. (3) It does not progress at the same rate and each stage is affected by the preceding types of development. (4) Because these developmental changes may be strongly influenced by genetic factors and events during prenatal life, genetics and prenatal development are usually included as part of the study of child development. (5) Child care programs present a critical opportunity for the promotion of child development. (6) Developmental change may occur as a result of genetically-controlled processes known as maturation, or as a result of environmental factors and learning, but most commonly involves an interaction between the two. (7) It may also occur as a result of human nature and our ability to learn from our environment.

3. Which sentence is irrelevant to the topic of the passage?
- (A) Sentence 2
(B) Sentence 3
(C) Sentence 4
(D) Sentence 5
(E) Sentence 6

TEXT 4

Scientists used artificial intelligence (AI) to study the spatial relationships between main earthquakes and their aftershocks. In tests, AI predicted the aftershock locations better than the traditional methods that many seismologists use.

In 1992, a series of earthquakes prompted an outbreak of interest among seismologists. They were trying to map out where exactly an aftershock might occur based on how a mainshock might shift stresses on other faults. After 1992,

researchers began trying to refine the complicated stress change patterns using different criteria. The most used criterion, the Coulomb failure stress change, depends on fault orientations. However, stresses can push on the faults from many directions at once. Consequently, fault orientations in the subsurface can be complicated.

Using AI, the data included more than locations and magnitudes. The data considered different measures of changes in stress on the faults from the quakes. The AI learned from the data to determine how likely an aftershock was to occur in a specific place. The team tested how precise the system could pinpoint aftershock locations using data from another 30,000 mainshock-aftershock pairs. The AI consistently predicted aftershock locations much better than the Coulomb failure criterion.

However, the study focuses just on permanent shifts in stress due to a quake. Aftershocks may also be triggered by a more momentary source of stress. A quake's rumbling through the ground could produce this kind of stress. Another question is whether AI-based forecast system could leap into action quickly enough after a quake. The predictions in the new study benefited from a lot of information about which faults slipped and by how much. In the immediate aftermath of a big quake, such data wouldn't be available for at least a day.

4. The tone of this passage is. . .
- (A) critical
(B) pessimistic
(C) concerned
(D) informative
(E) persuasive
5. "I would rather have graduated from the University of New York last year."
The sentence means that I _____ from the University of New York last year.
- A. wouldn't graduate
B. won't graduate
C. don't graduate
D. didn't graduate
E. haven't graduated