

RIPPLE ENGLISH

ACTIVE LEARNING PROGRAM

Workbook for:

“The Science of Stress”

問題は解きっぱなしにしないで！

英語資格試験の学習は、**解いた後の復習をしなければほとんど効果はありません。**答え合わせをしておしまいせずに、**テキストの音読練習やリスニング、多読学習などのインプット学習を何度も反復して記憶に定着させましょう。**ホームページからダウンロードできる音読練習用のテキストをぜひご活用ください。また、数日置いてから再度解き直すのも効果的です。答えを記憶してしまっているかもしれませんが、回答の根拠をなぞりながら繰り返し解くことで有効な復習になります！

The Science of Stress

1. Stress might be one of the things you want to avoid the most. Humans have achieved **unprecedented** wealth and security, but haven't yet been freed from stress. Why are we designed to experience stress? What exactly is stress? Put simply, stress is a threat response system designed to maximize the probability of survival and reproduction. We live in an agriculture-based, industrialized society of the 21st Century, but we still have the body and mind fit for the hunter-gatherer lifestyle of our ancestors. We feel stress against what threatened our ancestors' lives and reproductive opportunities, and that stress prompts us to confront or avoid these threats. The problem is that the living environment in the 21st Century is quite different from our ancestors. The very mechanism that helped our ancestors survive often backfires today, and it makes us stressed out, depressed, and unhappy. Besides, it has been optimized for survival and reproduction, not for our well-being. To live happily, we need to fully understand our internal operating system and learn how to manage it. How can we get along with our stress system?

- (1) The word "unprecedented" in the passage is closest in meaning to
 - A. underestimated
 - B. unparalleled
 - C. abundant
 - D. unintended
- (2) According to paragraph 1, why does our stress response system often backfire in the 21st Century?
 - A. It has evolved to eliminate stress from our lives completely.
 - B. It is designed for the survival needs of hunter-gatherer ancestors, not modern environments.
 - C. It has been optimized for our well-being and happiness in modern society.
 - D. It no longer prompts us to confront or avoid threats effectively.

2. Stress is a biological system to avoid potential threats and deal with imminent dangers for survival. Our biological nature was shaped in the hunter-gatherer era, where half of the population died before reaching adulthood. In order to survive such a harsh environment, our stress system has evolved to respond to potential threats overly sensitively.
3. Imagine a situation where our ancestral hunter gatherer is walking through a forest. Suddenly, a poisonous snake appears from the grass. Then, his brain immediately sends a signal to release stress hormones like cortisol, directing his body to send more energy and oxygen to his muscles and brain. But the more effective survival strategy is to get ready for the threat even before it appears. When the grass rustles, it could be caused by a fallen twig, a harmless rabbit, or a venomous snake. If the top priority is survival, his biological algorithm has to assume that the sound is made by a snake, no matter how unlikely it is. The body shows a similar stress response to an actual snake and an imaginary snake you predict to encounter.
4. In most cases, it's a false alarm, but the cost is small; temporary discomfort of stress hormones circulating throughout the body. The price is far cheaper than losing your life. Since survival is the primary concern for evolution, the stress response system should be somewhat overactive. Today, the brain sometimes predicts negative outcomes without any substantial reason, because it is designed to do so.

- (3) According to paragraph 2, which of the following is true about our threat response system?
 - A. It has been designed to be overactive by default.
 - B. Our threat response system is designed to be minimally reactive to potential threats.
 - C. Stress as a biological system is a recent development from the industrial era.
 - D. The stress system's primary function is to ensure relaxation and calmness in safe environments.
- (4) According to paragraph 3, why does the body show a stress response to both actual and imagined threats?
 - A. The body cannot distinguish between real and imaginary threats.
 - B. Stress hormones are only released in response to actual physical threats.
 - C. The biological algorithm prioritizes survival by preparing for potential threats.
 - D. Imaginary threats are considered more dangerous than actual threats.
- (5) According to paragraph 4, why is our stress response system often overactive?
 - A. It is designed to prevent temporary discomfort rather than life-threatening situations.
 - B. It is optimized for modern-day challenges rather than ancestral threats.
 - C. It accurately predicts all negative outcomes based on substantial reasons.
 - D. It prioritizes survival by preparing for potential threats, even if they are unlikely.

5. One way to survive a life-threatening situation is to face it and get over it. For example, when we see a poisonous snake, various stress hormones immediately circulate through the bloodstreams, encouraging our body to prepare for fight or flight. However, if the world is full of too many dangers, the best survival strategy is not to walk around the outside world to begin with. When we are exposed to intense and chronic stressors for a long time, our instinct interprets it as a sign that there are numerous threats in the outside world. In order to stay away from these risks, the brain tries to keep us indoors by making us feel depressed. This is supposed to be the mechanism behind the development of mental disorders, such as depression.
6. Also, our instinct does not understand the latest information and transportation technologies. Natural disasters and wars in distant countries will not directly threaten your life. However, our biological instinct was shaped in a hunter-gatherer era where there were not such things as the Internet and TVs. Therefore, until very recently in human history, we didn't have a chance to see and learn about tragedies that struck people in distant areas. We consciously know that they are happening at distant places, but our subconscious may believe that we are surrounded by imminent threats. Of course, it is important to stay informed about what's happening around the world, but maintaining your own inner peace is equally or more important. If watching the news is depressing, you don't have to.

(6) According to paragraph 5, how does the brain respond to intense and chronic stressors?

- A. It encourages us to seek out new challenges and dangers.
- B. It releases stress hormones to help us relax and feel calm.
- C. It interprets chronic stress as a sign of numerous threats, making us feel depressed to keep us safe indoors.
- D. It diminishes the stress response system to prevent overactivity.

(7) According to paragraph 7, why might modern humans feel stressed by distant events reported in the news?

- A. Our instinct does not recognize the significance of staying informed.
- B. Our subconscious believes that distant threats are immediate and nearby.
- C. Watching the news is unnecessary for maintaining inner peace.
- D. Information and transportation technologies have no impact on our stress levels.

7. Humans are exceptionally social animals. In the natural environment, a single individual human is embarrassingly **helpless**, so we have survived and thrived by gathering together and cooperating with each other. Thus, the body and the mind of Homo sapiens have evolved to have extra care about his or her social condition and status; we are designed to be afraid of social isolation and constantly care about our relative social standing in the community. These two concerns can be chronic sources of stress. For example, if your boss at work says, 'I need to talk to you about something,' you might feel a bit anxious. Your boss could just want to talk over a complicated topic that is difficult to be discussed via email, but your brain worries that you are going to receive negative feedback. What is at play is the fear of being expelled or losing status.
8. In addition, our instinct for social status particularly backfires today. If you were in a group of 150 hunter-gatherers, you could be quite content with yourself, saying “I’m relatively beautiful in this community,” or “I’m pretty capable.” Today, by contrast, we can see the lives of the top celebrities and perfect but illusional days of influencers on social media. We are being told that there are always people greater than us in the 8-billion population. By comparing ourselves to those perfect yet delusive images, the brain interprets that our relative status is going down, which possibly undermines our mental health. Our instinct doesn’t understand the fact that the celebrity on our smartphone’s screen is a complete stranger, almost unlikely to meet, and therefore has nothing to do with our lives. Today, the stress response system often reacts excessively to the subtle and minor signs of social threats.

- (8) The word “helpless” in the passage is closest in meaning to
- A. weak
 - B. unhelpful
 - C. ignorant
 - D. arrogant
- (9) According to paragraph 7, why might a person feel anxious when their boss says, “I need to talk to you about something”?
- A. They are afraid of discussing complicated topics in person.
 - B. They worry about losing social status or being socially isolated.
 - C. They are concerned about the difficulty of communicating via email.
 - D. They fear their boss might expel them from the workplace immediately.
- (10) According to paragraph 8, how does the instinct for social status negatively impact mental health in the modern world?
- A. It encourages us to form smaller, close-knit communities.
 - B. It makes us content with our relative status among top celebrities.
 - C. It causes us to compare ourselves to idealized images, leading to feeling discontent.
 - D. It helps us recognize the importance of real-life social connections.

9. In short, stress is the result of the threat response system designed specifically for survival. Since survival is the primary concern, it is designed to be overactive **by default**. Therefore, it is unrealistic to ponder how to avoid and eliminate all kinds of stress. Rather, we need to understand what stress is and know how to better cope with it.
10. First, stress is just a physiological phenomenon. Let's say you have an argument with your partner and feel anxious about the relationship. You will feel uncomfortable, not directly because of the argument itself, but because of the physiological alterations, such as parasympathetic inhibition and increased stress hormones in your bloodstream. If the anxiety persists and distracts you from work, you can let it go by changing your physiological state, such as exercising, taking a shower or a sauna, or attending a live concert.
11. Exercising is particularly effective. Physical exercise itself is also a stressful experience, but, unlike psychological stress, it is somewhat comfortable. When you start running, cortisol, one of the major stress hormones, increases in your bloodstream. After working out, the body tries to restore the elevated stress levels back to normal, which usually leads to lower cortisol levels than before exercise. We often find ourselves cheerful and refreshed after exercising primarily because of these hormonal changes. In other words, you can overwrite psychological stress with physical stress; washing away uncomfortable stress with healthy, comfortable stress. Moreover, after several weeks of regular exercise, your ordinary stress responses will become more moderate.
12. Another effective intervention is changing how you interpret stress. By turning your eyes to positive aspects of a stressful experience, you can change how your body responds to stress. Again, our biological mechanism is not designed to keep us happy all the time. In order to stay happy, we need to understand our internal algorithm and how to deal with it.

- (11) The phrase “by default” in the passage is closest in meaning to
- A. by choice
 - B. occasionally
 - C. temporarily
 - D. by nature
- (12) According to paragraph 10, how can one alleviate anxiety caused by stress?
- A. By ignoring the problem and focusing on work.
 - B. By recognizing that stress is caused by external factors.
 - C. By changing the physiological state through activities like exercising or taking a shower.
 - D. By arguing more frequently to become desensitized to stress.
- (13) According to paragraph 11, why is physical exercise effective in alleviating stress?
- A. It increases cortisol levels permanently.
 - B. It replaces psychological stress with healthy physical stress, leading to lower cortisol levels after exercise.
 - C. It causes stress responses to become more intense over time.
 - D. It eliminates the other stressors in our lives.
- (14) According to paragraph 12, how can one change their response to stress?
- A. By eliminating all sources of stress from their environment.
 - B. By understanding that stress is a purely negative experience.
 - C. By focusing on the positive aspects of a stressful experience.
 - D. By ignoring stress and pretending it does not exist.
- (15) Within the whole passage, all of the following were mentioned, EXCEPT
- A. Stress is a physiological phenomenon.
 - B. Exercise can be one of the effective interventions to help reduce stress levels.
 - C. Humans are social animals that care their relative social standings in their community.
 - D. Stress can be completely eliminated through understanding and coping strategies.

Answers

- (1) B
- (2) B
- (3) A
- (4) C
- (5) D
- (6) C
- (7) B
- (8) A
- (9) B
- (10) C
- (11) D
- (12) C
- (13) B
- (14) C
- (15) D

(1) 文中の“unprecedented（未曾有の）”に意味が最も近いのは

- A. underestimated（過小評価された）
- B. unparalleled（比類のない）**
- C. abundant（豊富な）
- D. unintended（意図しない）

(2) 1段落によると、なぜ21世紀においてストレス反応システムが裏目に出ることが多いのか？

- A. It has evolved to eliminate stress from our lives completely.（ストレスを完全に生活から排除するように進化したから）
- B. It is designed for the survival needs of hunter-gatherer ancestors, not modern environments.**（現代の環境ではなく、狩猟採集民の祖先の生存ニーズに合わせて設計されているから）
- C. It has been optimized for our well-being and happiness in modern society.（現代社会における私たちの幸福と幸せのために最適化されているから）
- D. It no longer prompts us to confront or avoid threats effectively.（脅威に効果的に立ち向かったり回避したりするように促すことはもうないから）

(3) 2段落によると、脅威対応システムについて正しいのは次のうちどれ？

- A. It has been designed to be overactive by default.**（デフォルトで過剰に活動するように設計されている）
- B. Our threat response system is designed to be minimally reactive to potential threats.（脅威対応システムは、潜在的な脅威に対して最小限の反応をするように設計されている）
- C. Stress as a biological system is a recent development from the industrial era.（生物学的システムとしてのストレスは、産業時代以降の最近に発達したものだ）
- D. The stress system’s primary function is to ensure relaxation and calmness in safe environments.（ストレスシステムの主な機能は、安全な環境でリラックスして穏やかに過ごすことだ）

(4) 3段落によると、身体はなぜ実際の脅威と想像上の脅威の両方に対してストレス反応を示すのか？

- A. The body cannot distinguish between real and imaginary threats.（身体は実際の脅威と想像上の脅威を区別できない）
- B. Stress hormones are only released in response to actual physical threats.（ストレスホルモンは実際の身体的脅威に反応してのみ放出される）
- C. The biological algorithm prioritizes survival by preparing for potential threats.**（生物学的アルゴリズムは、潜在的な脅威に備えることで生存を優先する）
- D. Imaginary threats are considered more dangerous than actual threats.（想像上の脅威は実際の脅威よりも危険であると見なされる）

(5) 4段落によると、ストレス反応システムが過剰に活動することが多いのはなぜか？

- A. It is designed to prevent temporary discomfort rather than life-threatening situations.（生命を脅かす状況ではなく、一時的な不快感を防ぐように設計されているから）
- B. It is optimized for modern-day challenges rather than ancestral threats.（先祖の脅威ではなく、現代の課題に最適化されているから）
- C. It accurately predicts all negative outcomes based on substantial reasons.（実質的な理由に基づいて、すべての否定的な結果を正確に予測するから）
- D. It prioritizes survival by preparing for potential threats, even if they are unlikely.**（起こる可能性が低くても、脅威に備えることで、生存を優先するから）

(6) 5段落によると、脳は激しいストレスや慢性的なストレスにどのように反応するか？

- A. It encourages us to seek out new challenges and dangers.（脳は私たちに新しい挑戦や危険を求めるように促す）
- B. It releases stress hormones to help us relax and feel calm.（脳はストレスホルモンを放出し、リラックスして落ち着くようにする）
- C. It interprets chronic stress as a sign of numerous threats, making us feel depressed to keep us safe indoors.**（脳は慢性的なストレスを多くの脅威の兆候と解釈し、私たちを屋内に安全に留まらせるために落ち込ませる）
- D. It diminishes the stress response system to prevent overactivity.（脳は過活動を防ぐためにストレス反応システムを弱める）

(7) 7段落によると、なぜ現代人はニュースで報道される遠くの出来事にストレスを感じるのか？

- A. Our instinct does not recognize the significance of staying informed.（私たちの本能は情報を得ることの重要性を認識していない）
- B. Our subconscious believes that distant threats are immediate and nearby.**（私たちの潜在意識は遠くの脅威がすぐ近くにあると信じてしまう）
- C. Watching the news is unnecessary for maintaining inner peace.（心の平穏を保つためにニュースを見る必要はない）
- D. Information and transportation technologies have no impact on our stress levels.（情報技術と交通技術はストレスレベルに影響を与えない）

(8) 文中の “helpless (無力な)” と意味が最も近いのは

- A. weak (弱い)
- B. unhelpful (役立たずな)
- C. ignorant (無知な)
- D. arrogant (傲慢な)

(9) 7段落によると、上司が「話したいことがある」と言ったとき、人はなぜ不安を感じるのか？

- A. They are afraid of discussing complicated topics in person. (雑な話題を直接話し合うのが怖いから)
- B. **They worry about losing social status or being socially isolated.** (社会的地位を失ったり、社会的に孤立したりすることを心配しているから)
- C. They are concerned about the difficulty of communicating via email. (電子メールでのコミュニケーションの難しさを懸念しているから)
- D. They fear their boss might expel them from the workplace immediately. (上司にすぐに職場から追い出されるのではないかと恐れているから)

(10) 社会的地位を求める本能は、現代社会において精神的健康にどのような悪影響を及ぼすか？

- A. It encourages us to form smaller, close-knit communities. (小規模で緊密なコミュニティを形成するよう促す)
- B. It makes us content with our relative status among top celebrities. (トップセレブリティの間での相対的な地位に満足させる)
- C. **It causes us to compare ourselves to idealized images, leading to feeling discontent.** (自分を理想化されたイメージと比較するようになり、不満を感じる)
- D. It helps us recognize the importance of real-life social connections. (現実の社会的なつながりの重要性を認識するのに役立つ)

(11) 文中の “by default” と意味が最も近いのは

- A. by choice (選んだ結果)
- B. occasionally (ときどき)
- C. temporarily (一時的に)
- D. **by nature** (元来、生まれつき)

(12) 10段落によると、ストレスによって引き起こされる不安をどのように軽減できるか？

- A. By ignoring the problem and focusing on work. (問題を無視して仕事に集中する)
- B. By recognizing that stress is caused by external factors. (ストレスは外的要因によって引き起こされることを認識する)
- C. **By changing the physiological state through activities like exercising or taking a shower.** (運動やシャワーを浴びるなどの活動を通じて生理的状态を変える)
- D. By arguing more frequently to become desensitized to stress. (ストレスに鈍感になるために、より頻繁に口論する)

(13) 11段落によると、なぜ運動はストレスを軽減するのに効果的か？

- A. It increases cortisol levels permanently. (コルチゾールレベルを永続的に増加させるから)

B. It replaces psychological stress with healthy physical stress, leading to lower cortisol levels after exercise. (心理的ストレスを健康的な身体的ストレスに置き換え、運動後のコルチゾールレベルを低下させるから)

- C. It causes stress responses to become more intense over time. (時間の経過とともにストレス反応が激しくなるから)
- D. It eliminates the other stressors in our lives. (私たちの生活における他のストレス要因を排除するから)

(14) 12段落によると、ストレスに対する反応を変えるにはどうすればよいか？

- A. By eliminating all sources of stress from their environment. (環境からストレスの原因をすべて排除する)
- B. By understanding that stress is a purely negative experience. (ストレスは完全にネガティブな経験であることを理解する)
- C. **By focusing on the positive aspects of a stressful experience.** (ストレスフルな経験のポジティブな側面に焦点を当てる)
- D. By ignoring stress and pretending it does not exist. (ストレスを無視し、存在しないふりをする)

(15) 全本文中で言及されていないのは

- A. Stress is a physiological phenomenon. (ストレスとは生理的な現象だ)
- B. Exercise can be one of the effective interventions to help reduce stress levels. (運動はストレスレベルを軽減するのに役立つ効果的な介入の1つだ)
- C. Humans are social animals that care their relative social standings in their community. (人間は社会的な動物であり、コミュニティ内での相対的な社会的地位を気にしている)
- D. **Stress can be completely eliminated through understanding and coping strategies.** (ストレスは、理解し対処戦略を講じることで完全に排除できる)