Reading Passage 3

You should spend about 20 minutes on **Questions 27-40**, which are based on **Reading Passage 3.**

Too much sunscreen?

A. The Ancient Babylonians, Egyptians, Greeks and Romans all recognized that sunlight could be harnessed to promote health. Hippocrates, for instance, believed that it was beneficial in the treatment of most ailments. But medical interest in sunlight truly took hold at the turn of the 20th century, following observations that it kills bacteria and that a deficiency is associated with rickets, a condition that affects bone development during childhood. By the late-1920s, sunlight was being touted as a cure for pretty much every illness under the sun, and a suntan had become an emblem of health and status.

B. It was also around this time that scientists identified one of the key mechanisms by which sunlight promotes health. When the ultraviolet (UV) B rays in sunlight hit the skin, they spur the synthesis of vitamin D3. This circulates in the blood before being further metabolised into the active form of vitamin D elsewhere in the body. Bone and muscle cells use vitamin D to regulate levels of calcium and phosphorus, keeping them strong and healthy – but it is also important for certain immune cells, which spew out an antimicrobial in response to it. Indeed, last month a study found that giving vitamin D supplements alongside antibiotics could speed up treatment of multidrug-resistant tuberculosis in the lungs.

C. The dark side of sunlight was recognised in 1928 by British researcher George Findlay, who exposed monkeys and horses to regular irradiation with UV light and observed that tumors developed under their skin. Since then, many further studies have shown that UV light triggers DNA mutations in our skin cells, potentially leading to cancer. Sunscreen, in combination with other sun avoidance measures, reduces that risk.

D. Today, the sunscreen industry is booming. Global sales of sun-care products totalled around $15.8 billion in 2015 and are projected to reach $24.9 billion by 2024. There is also a trend towards ever higher sun protection factors, even SPF100, although they don't necessarily provide much extra protection. Combined with the fact that most Westerners spend a lot of time indoors – in the US it is, on average, 90 per cent of their lives– this has prompted concerns that, at least at high latitudes, many people aren't storing enough vitamin D to see them through winter. The fear is that their bones, muscles and possibly other tissues are suffering as a result.

E. The trouble is, in recent years the list of illnesses associated with vitamin D deficiency has grown, but for many of these, supplements don't seem to lead to better health. Several recent studies actually associated high doses of vitamin D with an increased risk of falls in older people. According to a recent review of trials, apart from bone-related conditions, there is good evidence for only two things: that vitamin D can prevent upper respiratory tract infections and stop existing asthma from getting worse. Ongoing trials

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may yet find additional benefits, but it is unlikely vitamin D will be a panacea for our many modern health challenges.

F. Scott Byrne, an immunologist at the University of Sydney, has been working with Prue Hart at the University of Western Australia to investigate whether UV light could help people with multiple sclerosis (MS), an autoimmune condition that is more common at higher latitudes. Hart has shown that exposing mice to UV doses equivalent to a brief stint in the midday sun can protect them from developing a form of MS. Now she and Byrne are looking into whether UV exposure from specialised lamps could slow, or even prevent, the development of MS in people.

G. Even so, immune suppression can't explain all the effects of sunlight on health that we have seen. Consider the perplexing finding that people with high sun exposures have higher a life expectancy, on average, than sun avoiders – despite facing an increased risk of skin cancer. That was the discovery of a large Swedish study into the risks associated with melanoma and breast cancer. In 1990, nearly 30,000 women were interviewed about their health and behaviour – including their sun habits. They were then interviewed again 20 years later. When Pelle Lindqvist at the Karolinska Institute and his colleagues crunched that data, they found that, on average, women who spent more time in the sun lived one to two years longer than sun avoiders, even after adjusting for factors such as disposable income, education level and exercise. That suggests it wasn't simply about having a more healthy lifestyle overall. The researchers found that reduced life expectancy among sun avoiders was mostly due to a greater risk of death from cardiovascular diseases and other non-cancer-related illnesses, such as type 2 diabetes, autoimmune disease or chronic lung disease. What could be going on?

H. Richard Weller at the University of Edinburgh, UK, thinks he has the answer. Like most dermatologists, Weller started his career believing that sunlight is terribly bad for you. He still wouldn't dispute that it is a major risk factor for skin cancer. However, his discovery that we produce and stockpile vast quantities of nitric oxide – a potent dilator of blood vessels – in our skin made him think again. He wondered if this UV-activated nitric oxide was why people's blood pressure readings are lower in summer than in winter. This may be the reason why cardiovascular conditions are more prevalent at higher latitudes. If that were the case, it would also help to explain the puzzling results of the Swedish study. What he found pointed in that direction: his experiments showed that if you expose somebody to the equivalent of about 20 minutes of UK noontime summer sunlight, they experience a drop in blood pressure that continues even after they step indoors.

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Questions 27-32

Reading Passage 2 has eight sections, **A-H.**

Which paragraph contains the following information?

Write the correct letter, **A-H**, in boxes **27-32** on your answer sheet.

27. An experiment on animals to demonstrate that sunlight can be seen as a preventative measure

28. A possible reason explaining why people in certain regions are more susceptible to heart-related conditions than others

29. Two factors leading to the deficiency in a vital element for the human body.

30. A particular disease among children that is a consequence of the infrequent exposure to sunlight

31. A denial of the healing function of a specific vitamin.

32. An explanation why protecting ourselves from excessive sunlight exposure is of great necessity.

Questions 33-36

Choose the correct letter, **A, B, C or D.**

Write the correct letter in boxes **33-36** on your answer sheet

33. What can be inferred from the paragraph A?

A. It was not until the 20th century that sunlight was acknowledged as a cure thanks to a number of observations.

B. Killing bacteria is believed to be a good way to deal with rickets.

C. The lack of sunlight exposure can be a cause of a certain physical condition

D. By the 20th century, some bacteria were believed to affect a child's development of bones

34. What did George Findlay find in his research in 1928?

A. Some species of animals were more prone to cancer than others

B. DNA mutations in people's skin cells could barely be triggered by UV light

C. Monkeys were also susceptible to skin cancer like horses

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D. Skin cancer on some animals could be attributed to the ultraviolet light.

35. What was true about Pelle Lindqvist's study?

A. Sun avoiders have higher chances of skin diseases.
B. There were fewer interviewees in the second interview after 2 decades
C. The study only focuses on female subjects.
D. Those who avoided being exposed to sunlight died from illnesses like lung cancer.

36. What if the research of Richard Weller was right?

A. It would help to confirm that excessive sunlight can increase the risk of skin cancer
B. It would account for what the previous study did not explain
C. The reason why our blood pressure readings are low in certain periods of the year would be clear.
D. Why our blood pressure continuously drops when we stand in the shade could be explained.

Questions 37-40

Complete the summary below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer

Write your answer in boxes **37-40** on your answer sheet

Since ancient times, the benefits of sunlight to health have been acknowledged. In the second decade of the last century, people with a **(37)** _____ were generally believed to be healthier and stronger. Although sunlight has several undesirable effects, one of which is causing **(38)** _____ to develop beneath skin layers as a consequence of being exposed to UV light frequently, lacking it is also a disaster. As sunlight helps synthesize Vitamin D, overprotection from it can make people's muscles, bones and **(39)** ____ more vulnerable to illnesses. A study in Sweden has proven that people with less time spent under the sun will likely have a shorter **(40)** _____ than those who do not avoid sunlight.

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