Reading Passage 3

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

Doing more exercise won't help you burn more calories

A simple calculation lies at the heart of a lot of mainstream weight loss advice. If calories out exceed calories in, you will lose weight. It is why both exercise and diet are said to be key to staying trim, and why many of us feel we can make amends for overindulging by joining the gym or dusting off our running shoes. It now turns out something weirder is going on. Working out a lot doesn't appear to burn more calories than doing a little. In fact, going mad in the gym doesn't seem to burn any more calories than moderate activity a few days a week and taking the stairs, for instance.

Some of the biggest clues that something was up with the exercise and weight loss equation lie far from the gym, on the plains of Tanzania. Here, the Hadza people live as we all once did, as hunter-gatherers. The men walk about 10 kilometres each day, stalking game with bows and arrows, while women spend hours on the move, digging for wild tubers and picking berries. A few years ago, Herman Pontzer, an evolutionary anthropologist at Hunter College in New York, and his colleagues headed to Tanzania to study the Hadza and their metabolism. Pontzer wasn't expecting to reveal any big mysteries around exercise. "It started off that we wanted to just ask a basic question: 'How many calories do you need to burn to live as a hunter-gatherer?'" he says. To the team's amazement, the Hadza got through only slightly more than Westerners who drive to a job to sit all day, with the men using up about 2600 calories and the women 1900. "I couldn't believe it," says Pontzer.

The findings caused a stir. They called into question the widely accepted idea that sedentary lifestyles in many societies are responsible for the obesity epidemic. Instead, Pontzer and his team began to wonder whether our daily energy expenditure could have evolved to be fixed at these levels, regardless of whether we sit at a desk all day or search the plains looking for our next meal.

To back up the idea, what's needed is to study other ways of living too, including populations with Western lifestyles. That's where Lara Dugas of Loyola University Chicago comes into the story. Her team kitted out nearly 2000 people from the US, Ghana, Jamaica, South Africa and the Seychelles with activity monitors for eight days to gauge their basic pattern of physical activity. She then tracked their weight over several years. The upshot? Activity levels didn't predict weight two years later. In fact, those who met the US guideline of 150 minutes of moderate-intensity exercise per week, according to the monitor data, tended to have put on more weight than those that did less. A paradox indeed.

In 2016, Pontzer and Dugas joined forces. They looked in more detail at over 300 of the people in Dugas's original study. It turned out that those who were moderately active

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used up about 200 more calories per day than sedentary people, but after that, calorie burning plateaued. Those who exercised every day didn't burn any more than those who worked out a few times a week. "Only at the very, very low end did we see anything like a trend of lower activity being paired with lower energy expenditure," says Pontzer.

This view tallies with calculations of how much people exercise when viewed over longer time spans, says Glenn Gaesser at Arizona State University. "If you add up the amount of calories individuals would expend doing 150 minutes of exercise a week, times 52 weeks of the year, you come up into the literally tens of thousands of calories that are expended." And yet exercisers only weigh around 2 kilograms less on average, he says. As the evidence piles up, says Pontzer, the idea that activity dictates how many calories you burn looks "pretty naive".

It seems time to put the calories in, calories out equation to rest. But how can it be that people do more exercise without seeming to expend extra energy? The assumption has been that they eat more to make up for it, whether because they are hungrier or feel like they have earned it. "You can consume a doughnut in less than a minute," says Gaesser. "But that minute of consuming the doughnut might take an hour or more of walking to match in terms of calories." It also doesn't help that people grossly overestimate their energy use during exercise. In one study, people were assigned a treadmill workout and then told to estimate how many calories they burned and eat an equivalent amount from a buffet. They guessed they used up 800 calories and ate about 550. In reality, they had burned just 200. That might help explain why Dugas found that those meeting US exercise guidelines tended to have put on more weight. But it wouldn't explain why the Hadza's prolific activity doesn't add up to much more energy consumption over the course of a day than a sedentary lifestyle.

So another suggestion for this exercise paradox is that our bodies compensate for a hard workout by moving less the rest of the day. Some clues have come from mice. When given running wheels to prompt exercise, they were found to move around less than usual in between bouts of activity. The number of calories saved from moving less the rest of the day almost exactly negated the calories burned from running. It seems people make similar sorts of adjustments when they embark on a new exercise regime, even if they don't realize it.

Rather than think of people as active or sedentary, an increasing number of us are both active, playing sports or working out regularly, and sedentary, spending the rest of the day sitting, says James Betts, who studies nutrition and exercise at the University of Bath, UK. So it is a mistake to just count the calories burned on a treadmill and not consider the rest of the day, he says. "All these other parts of exercise, just moving around more, can be the biggest component of energy expenditure and can dictate which person might be lean and which person might be obese," he says.

Ultimately, it is hard to avoid the conclusion that diet offers greater potential than exercise to get the calorie equation working more in your favor. But exercise does still

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have a place in the weight-loss journey: once you lose weight, it can help prevent the common problem of putting it back on. And there are plenty of other excellent reasons to exercise. "The Hadza are about three times more physically active than any Western population," says Pontzer. "And, not a shocker, they also have excellent heart health, they never get diabetes, they're not overweight. They age extraordinarily well." Being active improves overall health, mobility and brain function, and reduces the risk for many chronic conditions including Alzheimer's disease. "Exercise has health-promoting actions that far exceed its role of regulating weight," says Gaesser, "so don't be disappointed if you don't lose a lot of weight."

Questions 27-32

Look at the following research findings and the list of researchers below.

Match each research finding with the correct researcher, **A, B or C**.

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

NB You may use any letter more than once.

27. The amount of energy expended from doing exercise is not equally matched with the amount of calories gained from food.

28. The purpose of exercise is far more significant than to help a person lose weight.

29. In the long term, people who follow a rigorous weekly exercise regime show no correspondingly marked results in weight loss.

30. Energy expenditure from a person's daily activities, besides regular workouts, can largely determine their body weight.

31. The idea that more exercise corresponds to higher energy expenditure is not empirically proven.

32. Some evidence suggests that people underestimate the complexity of what causes obesity.

A. Herman Pontzer

B. Glenn Gaesser

C. James Betts

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