



A Whiff of Willpower

New research suggests that a single breath of the right scent can quietly change how hard we work and how tired we feel, with no calories required.

Athletes have always searched for a legal edge, something that can push them a little further without breaking the rules. Now scientists believe they may have found one in an unexpected place: the sense of smell. A growing body of research suggests that certain scents can quietly change how hard we work, how tired we feel, and even how much we eat, all without adding a single calorie.

The idea rests on a [mechanism](#)¹ known as the cephalic-phase response. When we see, smell, or even think about food, the body begins preparing for digestion before anything is eaten. The brain, in effect, is fooled. The strong aroma of dark chocolate, for instance, can trigger the release of stomach acid and insulin, creating a brief sense of fullness. For an athlete trying to concentrate on training rather than a rumbling stomach, this small illusion can be surprisingly useful.

Dark chocolate appears to work better than milk chocolate or plain water, and the reason comes down to chemistry. Its higher cocoa content produces a sharper, more intense smell, packed with stimulating molecules such as caffeine and theobromine. The nose [detects](#)² these signals instantly, and the brain responds before the body has time to question what is really happening.

Chocolate is not the only scent that has attracted attention. Peppermint oil is among the most widely studied aromas in sports science. Several studies have shown that inhaling it can temporarily expand lung capacity, shorten reaction time, and raise our tolerance for pain. Menthol stimulates the cold

receptors in our airways, making each breath feel easier and lowering our sense of effort. Weightlifters, meanwhile, often reach for ammonia, the sharp chemical found in smelling salts. A single breath produces a mild fight or flight reaction, releasing adrenaline and briefly [boosting](#)³ maximum strength.

Why should a smell hold such power over the body? The answer lies in human anatomy. Smell is the only sense connected directly to the limbic system, the emotional core of the brain that [governs](#)⁴ memory, mood, and motivation. Because of this link, a pleasant aroma can gently activate the reward centre and lift our spirits, while a sharp one can sharpen our focus in an instant.

Scent may also work through simple distraction. By occupying the brain with new information, it can delay the moment when signals of fatigue from tired muscles are finally noticed. In one study, participants who breathed in an appealing smell completed more repetitions yet did not report feeling any more exhausted. Their perceived effort stayed the same, even though their bodies had done more work.

The [implications](#)⁵ are intriguing. If a familiar scent can persuade the mind to ignore tiredness, then coffee, citrus, or chocolate might one day sit beside water bottles in the gym as ordinary training tools. None of them will turn an average runner into a champion. Yet these [harmless](#)⁶ tricks reveal something remarkable about ourselves: that the line between what the body can do and what the mind allows it to do is far thinner than we ever imagined.

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VOCABULARY — KEY WORDS FROM THE STORY

#	WORD	DEFINITION	EXAMPLE SENTENCE
1	mechanism <i>noun</i>	a natural or established process that explains how something works or is produced	"Scientists are still studying the exact mechanism that controls how we fall asleep."
2	detect <i>verb</i>	to notice or discover something, especially something that is difficult to see, hear, or feel	"Modern sensors can detect even a tiny amount of smoke in the air."
3	boost <i>verb</i>	to increase or improve something such as strength, energy, confidence, or sales	"A short walk in the morning can boost your energy for the whole day."
4	govern <i>verb</i>	to control or strongly influence how something happens or behaves	"Strict rules govern how personal data can be stored and shared."
5	implication <i>noun</i>	a possible future effect or result of an action, decision, or discovery	"The new law has serious implications for small businesses."
6	harmless <i>adjective</i>	not able or likely to cause any damage, injury, or upset	"The spider looked dangerous, but it was completely harmless."

COMPREHENSION — ANSWER THE QUESTIONS

QUESTION 1 — MULTIPLE CHOICE

According to the article, why does dark chocolate work better than milk chocolate for this purpose?

- A-) It contains far more sugar, which the brain enjoys. B-) Its stronger smell comes from a higher cocoa content and stimulating molecules.
- C-) It is easier for athletes to carry during training. D-) It removes the feeling of hunger permanently.

QUESTION 2 — MULTIPLE CHOICE

What is the central idea of the 'cephalic-phase response' as described in the article?

- A-) The body starts digesting food only after it has been eaten. B-) The body begins preparing for digestion before any food is actually eaten.
- C-) The brain completely ignores the smell of food during exercise. D-) Chocolate adds extra calories that give athletes more energy.

QUESTION 3 — SHORT ANSWER

Using information from the article, explain how 'distraction' might allow someone to exercise for longer.

COMPREHENSION ANSWERS

My score today ____ / 3

Q1 Its stronger smell comes from a higher cocoa content and stimulating molecules. ✓ Correct (B)

The text states that dark chocolate's 'higher cocoa content produces a sharper, more intense smell, packed with stimulating molecules such as caffeine and theobromine'. The advantage is the intensity of the aroma, not the sugar. The article also describes only a 'brief sense of fullness', so the effect is temporary, not permanent.

Q2 The body begins preparing for digestion before any food is actually eaten. ✓ Correct (B)

The article explains that 'when we see, smell, or even think about food, the body begins preparing for digestion before anything is eaten', which is why the brain is 'fooled'. The whole point is that no food, and no calorie, is involved, so the calorie option is wrong.

Q3 **Answer:** According to the article, the brain must process signals of fatigue coming from tired muscles before we consciously feel exhausted. When a strong or pleasant smell reaches the nose, it occupies the brain with new information, which can delay the moment these tiredness signals are noticed. In one study, people who breathed in an appealing scent completed more repetitions but did not feel any more tired, because their perceived effort stayed the same even though their bodies had done more work. In this way, distraction changes the mind's awareness of effort rather than the body's real limits.

Explanation: A strong answer should (1) describe distraction as the brain being occupied by new sensory information; (2) link this to a delay in noticing fatigue signals from the muscles; (3) refer to the study result of more repetitions with the same perceived effort; and (4) show understanding that the change is mental and perceptual, not a genuine rise in physical ability.

VOCABULARY — TRANSLATION & NOTES

mechanism

Often followed by 'behind' or 'by which': 'the mechanism behind the reaction'. Very common in science and academic writing.

detect

The noun is 'detection' and a device is a 'detector'. Common with 'detect a change / a signal / a smell'.

boost

Strong collocations: 'boost confidence / sales / energy / the economy'. It can also be a noun: 'give someone a boost'.

govern

As well as politics ('govern a country'), it is often used for rules and systems: 'the laws that govern nature'.

implication

Usually plural and followed by 'for' or 'of': 'implications for health'. Do not confuse it with 'implication' meaning something hinted at but not said directly.

harmless

The opposite is 'harmful'. Often strengthened as 'completely / perfectly harmless'; a 'harmless joke' upsets nobody.

YOUR TURN — SENTENCE BUILDING

Mastery comes from practice. Write original sentences using today's target vocabulary.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

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