

The placebo effect

Jessica Glanville reports on the strange world of imaginary medicine.

The National Cycling Centre, Manchester Velodrome, England: 9.20 a.m.

The UK's top cyclists are in training, and are intrigued to hear that today they will be taking part in tests of a new and legal energy-boosting supplement. Unusually, the cyclists will have to complete two time trials around the velodrome. In time trials, cyclists have to give everything they've got to achieve the fastest time possible, and no cyclist would normally attempt another time trial until the following day.

As the cyclists prepare for the second time trial, half receive what they are told are caffeine capsules. The other half are given the new supplement – apparently a special formula which the researchers say is reported to have improved performances significantly with other athletes. Even if the supplements worked, the tired cyclists would still be expected to go slower than on the first time trial, but amazingly, half of those who took the new supplement put in a faster time, with one cyclist achieving a personal best. Some seem to have found the second ride easier; 'I felt really tired before I took it,' says one, but then 'I got a bit of a burst of energy, and felt ready to go again.' Everyone is excited about the new performance-enhancing substance ... until the researchers tell them that none of the capsules contained any active ingredients. All the pills, even the 'caffeine ones', were full of cornflour – they were placebos.



Unexpected outcomes

The term placebo comes from the Latin, I shall please. It was used in the 19th century to describe medical treatments whose aim was to please the patient, rather than provide any significant health benefit. While patients might feel better emotionally for having received some form of treatment, it was believed that placebos obviously had no real effect on their illness. However, doctors soon realized that placebos often led to significant improvements in patients' symptoms, and they were introduced into modern drug trials in order to show whether the drug being trialled brought greater benefits than those expected to occur from the placebo effect.



The effect isn't just restricted to drugs. For many years, patients with broken backs had surgical cement injected into their joints, and these operations appeared to have had amazing results. Eventually, one surgeon became suspicious when patients who'd had the wrong part of the spine treated by mistake still experienced significant benefits from the operation. He then experimented by giving some of his patients a fake operation; they were given local anaesthetic and the surgeon talked them through the operation while doing absolutely nothing to the problem joint. None of the patients knew who'd had the real operation, but they all experienced equal amounts of pain relief and improved movement afterwards. It would seem that the million plus operations that had been carried out worldwide may have been a very expensive piece of theatre.

Not just in the mind

It's often assumed that the placebo effect is purely imaginary, i.e. nothing has really changed in the body, but the mind perceives an improvement. And yet, as Freud showed over a century ago, there seem to be few limits to the physical symptoms the unconscious mind can produce. Psychosomatic illnesses are said to be 'all in the head', but they can often manifest in very real physical conditions. Could placebo cures simply be a more positive demonstration of the mind/body connection?



Tests at high altitudes have shown that hikers who believe they are breathing in extra oxygen, but have in fact been given cylinders containing ordinary air, produce real chemical changes in their bodies, exactly like the ones that result from breathing in oxygen. Brain scans also show that when people are given placebo painkillers, the brain actually produces natural painkillers, just as it would if morphine was used.

It seems that placebos can tap into the brain's internal pharmacy in response to our expectations, helping with a variety of conditions such as depression, nausea, and even Parkinson's disease. The subtle details of placebo psychology are incredible. Capsule placebos have been shown to be more effective than simple tablets; tablets from more expensive packages produce a greater placebo effect than cheaper-looking ones. It appears that even colour plays a role; red placebo pills are considered to be the best for treating pain, while blue ones are ideal for anxiety – unless you're an Italian football fan, in which case blue, being the colour of the national football team, will act as a stimulant rather than a sedative!

The power of suggestion

It seems unfortunate that placebo drugs can't be used more widely by doctors, but of course, medical ethics forbid deception, and surely a placebo can't have its effect if the patient is told the truth about it? Well, never assume anything concerning the bizarre power of mind over body! Participants in a Harvard University experiment found it absurd to take pills prescribed by a doctor, knowing that they were placebos. 'He wants me to take sugar pills?', said one, 'This isn't gonna work.' Nevertheless, they experienced twice as much improvement with their digestive problems as those who took nothing during the same period. Some participants found that all their symptoms disappeared, and begged for more placebos when the symptoms returned at the end of the experiment. Unfortunately the doctors weren't allowed to prescribe them.



Perhaps the solution lies in other ways of harnessing the power of self-suggestion, which is the foundation of the hypnotist's art, also sometimes used to alleviate health problems. The snag there is that not everyone is responsive to hypnotic suggestion. One thing we should certainly pay more attention to is the significance of the doctor-patient relationship. It seems that a caring and supportive doctor, talking encouragingly about the likelihood of improvement, is often likely to have as much effect on a patient's condition as the drugs or treatment being prescribed. We should also remember that many of the expensive drugs we buy have only slightly better results than those of placebos in trials. Then again, perhaps the more expensive they are, the more effective we will imagine them to be!