

Blind faith in pills and potions

Scientists, in their professional capacity, are trained to be firm when it comes to differentiating between facts and beliefs. The scientific community accepts only carefully collected and reproducible results. Of course, there is often speculation about what these results mean, but such extrapolations must be based on facts and analysed in the context of a hypothesis. That is the virtually universally accepted procedure in laboratories throughout the world. But outside the scientific cloisters, there is often a different reaction to facts and beliefs. People might ignore or dismiss valid scientific results, and yet believe almost anything that non-scientists proclaim. We live in the most sophisticated time in human history, have nearly unlimited access to information, are 'free' to think for ourselves and make our own decisions, and yet, often revert to more primitive behaviour when it comes to key aspects of our lives, such as health.

When it comes to foods and food supplements, the public often consume products in the—possibly mistaken—belief that they are improving their health, and scientists are by no means excluded from this behaviour. Taking some kind of dietary supplement, despite having no real idea of its positive—or negative—effects, is a widespread part of today's lifestyle. Gingko biloba, St John's wort, Echinacea, bacteria-laden yoghurts and yeast-rich foods often insinuate that their 'health' benefits are backed by solid science, but are they really? When doctors recommend taking a pill with a proven efficacy and safety profile based on rigorous clinical trials, many people are still concerned about possible risks, but when no such evidence exists for 'natural' pills and potions, these concerns are often absent.

Why is the public sceptical about medical treatments and at the same time prone to accept unproven health claims? It might

help to change the focus from health to appearance. Western consumers spend a fortune each year on cosmetics to ward off the inevitable signs of ageing. A quick glance at the list of ingredients in a common body lotion shows that it contains tens of different compounds, many of which are familiar from the laboratory context. As the consumer becomes attuned to different collagen derivatives, vitamins, and so forth, the implicit suggestion is that such products are more than cosmetic, and that the manufacturer knows something about how to cure ageing. However, under European legislation, cosmetics must not be drugs: they can make things appear better, but they cannot make them better.

Heavily marketed cosmetics use a whiff of science to gain respectability, although they do not need to undergo the rigorous testing required for standard drugs. If that were the case, the business model for cosmetics would quickly collapse: the high costs of clinical trials would render such potions unacceptably expensive. Furthermore, if there was a clinically proven ointment that could stop Father Time in his tracks, concerns about side-effects would follow with requirements that the tube does not contain a 'nano-something' and demands that it be tested on all age groups of the population to ensure that nothing unpredictable happens. To put this into context: imagine the regulatory hurdles that would be put into place for using botulinum toxin for anything other than treating wrinkles. And yet, the use of such injections is a matter of inconsequence to the followers of fashion.

Perhaps the real issue is that most consumers are searching for a cosmetic rather than a real cure, because what concerns many western consumers are not really medical issues but issues more related to their well-being. The pharmaceutical industry is not focused on needs before

disease and therefore does not directly cater to this market—instead, the health food and cosmetics industries meet this demand. Eventually, the blind trust in non-pharmaceutical products—and the fact that inactive products rarely produce side effects—might lead consumers to conclude that cosmetics and food additives are more 'natural', and therefore superior to the dreaded chemicals provided by the pharmaceutical industry. This misguided attitude is dangerous, particularly if an individual is suffering from any illness that could be cured or treated with pharmaceutical drugs.

Of course, nature has many cures in its stores, and there are effective approaches for improving health that do not depend on taking drugs. But not everything 'natural' is effective or safe, and many alternative approaches have neither been thoroughly assessed nor proven effective. An overwhelming trend towards a more natural approach to curing illness would signal a step back, to a time when such treatments were the only ones available and life expectancy was significantly lower.

When it comes to making decisions about something as vital as health, it is important to make a choice on the basis of facts rather than beliefs. Sometimes, when feeling good is all that is at stake, a yoghurt or facial cream that does no harm is acceptable. But in other cases, it is necessary to take a pill or potion to cure a serious ailment, even if there are risks or side effects for a small percentage of patients. By confusing the two situations, the public is tending to grow more cynical about science. It is time to reintroduce some logic and balance into discussions on this important topic, before there is real damage to consumers and public health alike.

Frank Gannon

doi:10.1038/sj.embor.7400761