

## SELECTED SUMMARY

# Medical myths

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### **Vreeman, RC and Carroll AE. Medical myths. *BMJ* 2007; 335(7633):1288-9.**

Although physicians assume that their existing medical beliefs do not need re-examination, this is not so. Using Medline and Google search, we reviewed seven commonly held beliefs:

#### **1. People should drink at least eight glasses of water a day.**

There is no evidence supporting this recommendation. "This common advice may be traced back to a 1945 recommendation: A suitable allowance of water for adults is 2.5 litres daily in most instances. An ordinary standard for diverse persons is 1 millilitre for each calorie of food. *Most of this quantity is contained in prepared foods.* If the last, crucial sentence is ignored it could be interpreted as instruction to drink eight glasses of water a day." Indeed, drinking excess water can be dangerous and may result in water intoxication, hyponatraemia, and even death.

#### **2. We use only 10 per cent of our brains.**

This myth arose as early as 1907, propagated by multiple sources advocating the power of self-improvement and tapping into each person's unrealised latent abilities. "Studies of patients with brain injury suggest that damage to almost any area of the brain has specific and lasting effects on mental, vegetative, and behavioral capabilities." Brain imaging studies show that no area of the brain is completely silent or inactive, and, therefore, completely dispensable. We do use all of our brains.

#### **3. Hair and fingernails continue to grow after death.**

Nail and hair growth are active processes requiring live cells. Therefore they cannot continue to live and function after death. The dehydration of tissues after death causes retraction of skin around hair follicles and nails, giving rise to an *appearance* of nails and hair growing.

#### **4. Shaving hair causes it to grow back faster, darker or coarser.**

Once again, there is no scientific evidence to support this. Shaving does not affect the hair follicle that rests in the deeper layer of the skin. The new hair growth may appear coarser because "shaved hair lacks the finer taper seen at the ends of unshaven hair, giving an impression of coarseness. Similarly, the new hair has not yet been lightened by the sun or other

chemical exposures, resulting in an appearance that seems darker than existing hair."

#### **5. Reading in dim light ruins your eyesight.**

Reading in dim light "can create a sensation of having difficulty in focusing. It also decreases the rate of blinking and leads to discomfort from drying, particularly in conditions of voluntary squinting. The important counterpoint is that these effects do not persist.... [H]undreds of online expert opinions conclude that reading in low light does not hurt your eyes."

#### **6. Eating turkey makes people especially drowsy.**

Tryptophan affects sleep and mood control. Eating and meat, including turkey (and therefore tryptophan) makes one drowsy. "Turkey, chicken, and minced beef contain ... about 350 mg per 115 g, while ... pork or cheese, contain more tryptophan per gram than turkey. When consumed with other foods, the absorption of tryptophan may be reduced thus minimizing the effects on sleep. Also, any large meal, carbohydrate, fat or protein, can induce sleepiness by redirecting blood flow to the intestines and away from the brain."

#### **7. Mobile phones create considerable electromagnetic interference in hospitals.**

While there are no confirmed reported cases of death caused by cell phones in any hospital or medical facility, false alarms on monitors, malfunctions in infusion pumps, and incorrect readings on cardiac monitors have occasionally been reported. An article in 1993 cited more than 100 suspected cases of electromagnetic interference with medical devices in hospitals. When the *Wall Street Journal* published a front-page piece based on this article, "many hospitals banned the use of mobile phones". Studies at the Mayo Clinic and in Europe show that "mobile phones interfere with 4% of devices and only at a distance of <1 meter. Less than 0.1% showed serious effects". A more recent study in 2007 found no interference of any kind. "In contrast, a large survey of anaesthesiologists suggested that use of mobile phones by doctors was associated with reduced risk of medical error or injury resulting from delays in communication."

### **Conclusions**

"Despite their popularity, all of these medical beliefs range from unproved to untrue." As physicians, we have to be aware of the evidence supporting our decision making and, "at least

recognize when the practice is based on tradition, anecdote, etc." Physicians must constantly evaluate the validity of their recommendations.

### Commentary

The article summarised here refers to unproven beliefs in the well-educated, affluent West. It is, therefore, not that surprising that unscientific irrational beliefs flourish in India too, both among the medical profession and in the lay public.

Additional myths that I have come across in India include:

- Drinking cold water or eating ice cream causes a cold and a cough. With the exception of the small minority of the population born with cold-induced bronchospasm, there is no rational basis for this belief.
- Respiratory excretions are waste products like urine and faeces and must be spat out and should never be swallowed. This is patently false and causes immense damage to public health and sanitation.
- If the doctor gives the first dose of a remedy with her/his own hands then the treatment will be more efficacious. This may be very profitable for the physician, but does it have any basis beyond placebo effect?
- Drinking a glass of warm or hot water on waking in the morning flushes out impurities in the body. This has not been proven by any scientific study.
- Eating hot, spicy food increases stomach acidity and causes ulcers. Decades after the role of *Helicobacter pylori* as a causative agent of stomach and duodenal ulcers was established, many, including doctors, continue to believe in this myth. Why can't we simply say, "I cannot tolerate spicy foods"? Do we have to resort to pseudo-scientific reasons?

Readers will probably have many more to add to this short list. The important point is to recognise these for what they are, and attempt to educate ourselves and our patients.

### Why do such medical myths flourish in India?

Is it perhaps a reflection of the failure of the Indian education system, which emphasises rote learning and memorisation, and fails to inculcate a rational scientific temper? Or perhaps this unquestioning attitude is encouraged by our hierarchical society, which puts greater store on obedience and faith than sceptical reasoning. How often are children encouraged at home to be independent thinkers? Can you imagine the horror in school if a pupil challenges a teacher? Or perhaps we humans, so-called rational beings, are not so rational after all. When faced with a choice, we are known to make a decision

first and then find logical reasons to defend the choice.

In India multiple systems of medicine - allopathy, ayurvedic, homeopathy, unani and folk medicine - exist side by side. It is not unusual for a medical professional (with or without any formal training) to simultaneously practise a combination of these, Supreme Court directives notwithstanding. Well-known, respected practitioners have been known to justify their use of unconventional approaches with the statement "in my experience". Their positions allow them to substitute scientific evidence with their "experience", which is undocumented, unpublished and not peer-reviewed. And to add to the confusion, god-men, not medical practitioners, come up with potions for some difficult to treat illness. These often contain bizarre combinations of plant life, human or animal products. When challenged, they cite obscure ancient texts in support of the efficacy of their medications. Amongst the 1.2 billion Indians, there are always a few million who will trust a god-man and perpetuate the medical myth. Faith trumps science any day.

When faced with an incurable disease, it is easy to understand why someone may want to try any treatment, however fantastic. But to find this unquestioning acceptance of dubious remedies for common illnesses is disconcerting.

Unfortunately, our training as physicians seldom includes instruction on how to challenge our patients' (and often our own) deeply held beliefs, with sensitivity, and without being confrontational. Gentle discussion is in order rather than authoritative decrees; the patient should listen to you not simply because you are a doctor as that would perpetuate the same hierarchical mode of thinking. He should adopt your suggestion because your reasoning is persuasive.

We as physicians have a duty to practise rationally, using the best scientific evidence whenever possible. At times we do not have the evidence to guide our treatment. In this situation, unfortunately far too common, we should be humble enough to acknowledge this to the patient and explain the reason why we advocate a particular course of treatment as the best possible one in the light of existing knowledge.

In many instances one can ask: why all this fuss? How does believing in the magical appearance of upper respiratory infection by drinking cold water cause any significant harm to the person? So why not let it be? However, as practitioners of a profession based on rational, scientific knowledge, physicians should be particularly concerned about such blind faith and irrationality. As scientists, we must make consistent and continuous efforts to disabuse people of these medical myths while we continue to examine the basis of our own knowledge.