

# Celebrities and Science 2009

People in the public eye are often drawn to promoting theories, therapies and campaigns that make no scientific sense. Sense About Science keeps a case file of examples of celebrity statements sent in by scientists and members of the public.

## Background

This is the fourth year of Sense About Science's celebrity audit. In January 2007, exasperated with the tide of influential and misleading claims in magazines, websites and celebrity stories, we worked with scientists to offer an olive branch and practical assistance. We told celebrities: "before making scientific claims, check your facts – all it takes is a phone call." In December 2007, we reviewed progress in a number of subject areas, from Sarah Beeny's comments about chemical-free make-up to celebrity endorsements of brain training. In 2008 the US presidential candidates were stealing the limelight with their misleading comments about MMR while UK celebrities showed more sense on many of the subjects covered than their international counterparts. For more on these visit [www.senseaboutscience.org](http://www.senseaboutscience.org).

Every year we review celebrities' dodgy science claims – from special diets and 'miracle' cures to chemicals, vaccines and evolution – and ask scientists what they should have said instead.

The review is not exhaustive: it looks at new themes and stubborn misconceptions, notes the odd good example and corrects fresh mistakes. Celebrities would do well to realise that checking science claims before making them publicly is not complicated. Many blunders can be avoided by consulting someone who knows basic physiology or chemistry. We have illustrated that this year by asking our Voice of Young Science network of early career researchers to respond to some of the claims. This 2009 review reiterates the message to people in the public eye from our thousands of scientist volunteers: *science advice is only a phone call away.*

### What's new in the review of 2009?

- We were disappointed to note that, for the first time, **sporting names are prominent in the review, particularly for endorsing unproven therapies.** Over 2010, we will be taking the 'check your facts' message into the sporting world, in an effort to turn this around so that UK athletes will lead on scientific sense in the 2012 Olympics.
- Overall, the main message from scientists to celebrities this year is **nutrition is neither the cure nor cause of everything.** We have seen a flurry of comments about diet and nutrition, such as Roger Moore's claim that foie gras is causing Alzheimer's Disease and Heather Mills' claim that meat gives you "the illness you die of".
- In the 2008 *Celebrities and Science* review, we were tentatively optimistic that celebrities had dropped their enthusiasm for 'chemical free' products and lifestyles. Sadly, like shoulder pads and mini-skirts, 'chemical free' claims never really go away and in 2009 we have seen renewed calls to avoid deodorants and the pill because they 'contain chemicals'. Once again this year, scientists are stressing that **nothing is chemical free and the effect of a chemical depends on the dose.**

Check the facts. Call Sense About Science on

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Sense About Science is a small charity that equips people to make sense of science and evidence.  
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## Nutrition & Food Production

Guidance point for celebrities:

- Nutrition is neither the cure nor cause of everything

Bollywood actress **Shilpa Shetty** said: **“I avoid carbonated drinks – they sap all the oxygen from your body and make your skin wrinkly and dehydrated.”**<sup>1</sup>

**Professor Ron Maughan, physiologist, Loughborough University**



Shilpa, carbonated drinks have no effect on oxygen levels in the body. At rest, the body is constantly producing carbon dioxide and this amount increases even more during exercise. By comparison, the amount from a fizzy drink is

trivial and there is no obvious mechanism by which the skin would be affected.

Model and charity campaigner **Heather Mills** claimed that when you eat meat **“[It] sits in your colon for 40 years and putrefies, and eventually gives you the illness you die of. And that is a fact.”**<sup>2</sup>

**Dr Melita Gordon, gastroenterologist, University of Liverpool**



Meat proteins, like all other proteins, are digested by enzymes, and absorbed in the small bowel before they ever reach the colon. Any remaining indigestible matter is mechanically transited through the whole bowel in a matter of days and expelled in your faeces.

Celebrity chef **Anthony Worrall Thompson** said: **“Locally produced food is better for your health because the ingredients are far more nutritious than something that has been shipped from thousands of miles away.”**<sup>3</sup>

**Dr Mark Reuter, molecular microbiologist, Institute of Food Research**



Buying local food certainly has advantages such as fewer food miles and support for the local economy, but is local produce more nutritious? The nutritional benefits of food depend on the ingredients, how they have been stored after harvest and how the food is prepared and cooked, not the distance the ingredients have travelled.

**Dr Steve Rawsthorne, plant biochemist, John Innes Centre**



For nutritional quality, plants require good light, rainfall and nutrients and this can differ positively or negatively whether they are grown locally or not.

The actor **Roger Moore** stated: **“There are even surveys suggesting that eating foie gras can lead to Alzheimer’s, diabetes and rheumatoid arthritis. In short, eating foie gras is a tasty way of getting terminally ill.”**<sup>4</sup>

**Lucy Jones, dietitian, Whittington NHS Trust**



No single food should be looked at in isolation or attributed to causing any disease or curing one. During digestion our food is broken down into simple components and it is the balance of these components that is important for our health, not the specific food that they come from.

**Dr Stuart Rulten, molecular biologist, University of Sussex**



There are many well-characterised genetic and environmental factors that can directly increase a person's risk of developing Alzheimer's or diabetes, such as high blood pressure, high cholesterol, old age and having changes in

the gene apolipoprotein E. There is no scientific evidence that eating foie gras will directly cause Alzheimer's disease, diabetes or rheumatoid arthritis.

Taking vinegar shots to flush fat and digest food more quickly has become all the rage in the celebrity world. The craze has gathered devotees including the model Cindy Crawford, actress Megan Fox and **Fergie**, singer with the group The Black Eyed Peas, who said **"I do vinegar shots. It has to be organic apple cider, unfiltered. Two tablespoons. For some reason I've noticed a difference on my stomach."**<sup>5</sup>

**Lucy Jones, dietitian, Whittington NHS Trust**



As attractive as it sounds, there's no magic pill, lotion or potion for a quick fix to weight loss. The body, including the liver, is a well-oiled detoxing machine, which will not be improved by vinegar, whether it be organic, apple

cider, unfiltered, or your bog standard malt vinegar!

## Medicine and Health

**Guidance points for celebrities:**

- **Anecdotal accounts are not scientific evidence**
- **If it sounds too good to be true, it usually is**

After Patrick Swayze's death from pancreatic cancer this year, the American actress **Suzanne Somers** said of his chemotherapy: **"[They] put poison in his body... Why couldn't they have built him up nutritionally and gotten rid of the toxins?"**<sup>6</sup>

**Marianne Baker, PhD student, Cancer Research UK**



Suzanne is correct in stressing the importance of nutrition in recovering from serious diseases. Chemotherapy is poison, it must be in order to kill cancer cells so that they can't grow and multiply.

The drug doses are optimised so that they travel in the blood to target the cancerous cells but are flushed out by the body before damaging most healthy cells.

The British actor **Sir Tom Courtenay** told readers of the *Daily Mail*: **"Prostate cancer is dangerous because it's secretive and clever, so all men should get their PSA checked."**<sup>7</sup>

**Professor Peter Furness, pathologist, University of Leicester**



It is currently not at all clear that screening all men for prostate cancer with a PSA test would be effective. PSA testing rarely gives a simple yes/no answer to prostate cancer. It gives a measurement of risk. When a PSA

test says 'This man might have cancer', most cases will turn out not to have cancer. So prostate biopsies are necessary; but biopsies are not totally risk-free. Some prostate cancers are so slow-growing they don't actually need any treatment; but we can't tell reliably which they are. It's complicated, which is why we still don't know whether random PSA testing makes men live longer or not.

This year we've seen sports professionals trying out alternative therapies. Arsenal striker **Robin Van Persie**, together with four players from Liverpool FC have had treatment where horse placenta fluid is dripped on their injuries.

**Van Persie** commented on the use of the treatment for his torn ankle ligaments: **"She is vague about her methods but I know she massages you using fluid from a placenta... I am going to try... It cannot hurt and, if it helps, it helps."**<sup>8</sup>

**Professor Greg Whyte, sports scientist,  
Liverpool John Moores University**



For recovery from this type of injury one needs to follow a rehabilitation programme, which may include multiple episodes of deep friction massage, one-to-one care and targeted exercise. Any benefits from the placenta

treatment would more likely be due to the massage and not the actual fluid. There is no evidence for the efficacy of using placenta extracts to treat torn ligaments.

**Tom Nolan, Trainee GP**



Without controlled clinical trials we'll never know whether the placental massage was likely to have quickened or slowed down his recovery. Van Persie says 'it cannot hurt' but although 'miracle cures' can be tempting they

are often misleading, expensive and create confusion about what treatments to choose.

The former tennis champion **Annabel Croft** has described the apparent remarkable recovery of her daughter Amber when she suffered severe food poisoning on a trip to Thailand: "I gave her **arsenicum album\***, which worked very quickly. She went from **throwing up all night to dancing at the party.**"<sup>9</sup> \*(Arsenicum album is a homeopathic product derived from arsenic.)

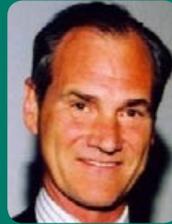
**Dr Keith Hopcroft, GP**



Food poisoning can clear up quite quickly in some cases just with clear fluids.

**Annabel** also described how she took homeopathic remedies to treat a cyst in her left ovary and that after a year of taking the remedy, her symptoms and the cyst had gone.

**Professor John Guillebaud,  
Family Planning and Reproductive Health,  
University College London**



Some cysts, even if they have caused severe pain, can just clear up without further intervention, which may be why the homeopathy appeared to work here for Annabel. But in some rare cases cysts on the ovary can be cancerous, so reliance

on homeopathy could lead to a dangerous delay in obtaining treatment that is effective.

**Biology**

**Guidance point for celebrities:**

- **Scientific evidence is not just another opinion**

The former US Vice Presidential candidate **Sarah Palin** appeared in our review last year questioning the purpose of genetic research into fruit flies. This year in an article about her autobiography "Going Rogue", it was reported that she "**didn't believe in the theory that human beings — thinking, loving beings — originated from fish that sprouted legs and crawled out of the sea**" or from "**monkeys who eventually swung down from the trees.**"<sup>10</sup>

**Professor Richard Dawkins,  
evolutionary biologist and author**



To speak of 'sprouting' and 'swinging' suggests sudden events, whereas evolutionary changes happen almost imperceptibly, over many hundreds of thousands of years. What happened in our fish

ancestors, as we know from excellent fossil evidence, is that lobe-shaped fins (which you can still see in modern fish such as lungfish and coelacanths) changed into walking legs, so agonizingly slowly that you couldn't detect the change in a hundred human lifetimes. Evolution is not a matter of belief; the evidence is there in fossils, in embryology and in genetics.

# Chemistry

## Guidance points for celebrities:

- Everything is made of chemicals so nothing is 'chemical free'
- The effect of a chemical depends on the dose

The television presenter **Denise Van Outen** endorsed Bionsen deodorant saying: **“the entire range is free from harmful chemicals, aluminium and parabens, which have been linked to breast cancer.”**<sup>11</sup>

Atomic Kitten singer **Natasha Hamilton**: **“Like many women, I was unaware [of] the dangerous chemicals [that] antiperspirants contain, which have been linked to breast cancer.”**<sup>12</sup>

**Dr Gary Moss**, pharmaceutical scientist, University of Keele



The claims that Natasha and Denise refer to that link these chemicals with breast cancer are not substantiated by the evidence. Research has also shown that it is unlikely that these products would even enter the body,

as they are too large to cross the skin and reach the bloodstream. The skin is generally impermeable to charged chemicals, like aluminium, which is found naturally in our food and drinking water.

Again the American actress, **Suzanne Somers** has come to our attention: **“I’ve come to realize that they [birth control pills] weren’t safe because is it safe to take a chemical every day? And how could it be safe to take something that prevents ovulation?”**<sup>13</sup>

**Harriet Teare**, chemist



There are many examples of drugs for certain diseases which must be taken every day in order to stay alive. These drugs are processed and excreted by the body and so do not accumulate over time, which is *why* they must be taken every day.

**Dr Susan Bewley**, consultant obstetrician, Kings Health Partners



Our own hormones are ‘chemicals’ just like the contents of the birth control pill. Without contraception, human ovulation is regularly suppressed by hormones released in repeated pregnancies and prolonged breast feeding.

The American actress **Gwyneth Paltrow** has appeared again in our review, this time stressing the importance of eating **“foods that were organic, grown locally, and not processed or full of preservatives[...]**When I’d read about what pesticides do to small animals, I thought, why would I expose my child to that?”<sup>14</sup>

**Dr John Cherrie**, human exposure scientist, Institute of Occupational Medicine



Gwyneth misses the point that it is the dose that makes the poison, the amounts found in our food are very low and there is no evidence of any ill-effects.

**Professor Alan Boobis**, toxicologist, Imperial College London



Experimental animals are exposed to doses substantially greater than those to which consumers will ever be exposed and the mechanism by which pesticides cause harm will not operate at the levels to which humans are exposed

via their food. If these studies produce doubt about the safety of a pesticide, it is not approved for use.

## Now the Good News...

Over 2009 we have been contacted by an unprecedented number of people seeking to check their facts with scientists before speaking publicly, which we have been delighted to help with. We have also seen an encouraging rise in the number of television presenters, performers and commentators debunking pseudoscience and promoting evidence based thinking. And we now have good examples that show how easy it is for people in the public eye to say something sensible about science and medicine.

For example some of our scientists liked the response of 80s' rock star **Bonnie Tyler** when questioned about trying acupuncture: "I lost some weight but I was also on a more sensible diet at the same time which, if I'm cynical, is more likely the reason for the weight loss."<sup>15</sup>

Sian Porter, dietitian



Bonnie is right. Many people claim to feel more healthy and energized when trying alternative treatments as often in the process they are also changing their overall diet and eating patterns to a healthier and more balanced food intake.

Medics were impressed by actress **Natascha McElhone's** comments about tetanus after a visit to Angola: "It's completely preventable if you're inoculated against it."<sup>16</sup>

Dr Andrew Green, GP



Over 100,000 newborns still die every year of tetanus as we need improved standards of hygiene at delivery in developing countries. But Natascha is right, we can also help prevent newborn deaths from tetanus by making sure their mothers are vaccinated.

## What Next?

If you are a scientist and want to help to get good science into public discussions, email [enquiries@senseaboutscience.org](mailto:enquiries@senseaboutscience.org).

Please send us any examples you see of celebrities speaking about science and medicine.

If you're in the public eye and are planning to comment on a medical or scientific issue...

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1. *Daily Mail*, Under the microscope: Shilpa Shetty, 13th April 2009
2. *Observer*, From Lady Mucca ... to Mrs Whippy, 19th July 2009
3. *The Reading Chronicle*, A local flavour, 30th July 2009
4. *Daily Mail*, Roger Moore on why he won't speak to anyone (even his friends) if they eat foie gras, 22nd September 2009
5. *CosmoGirl*, [www.cosmogirl.com/lifeadvice/body-and-soul/fitness/celeb-dos-donts](http://www.cosmogirl.com/lifeadvice/body-and-soul/fitness/celeb-dos-donts)
6. *New York Post*, Holistic hoo-ha, 18th September 2009
7. *Daily Mail*, Under the microscope: Tom Courtenay, 19th May 2009
8. *Guardian*, Arsenal's Robin van Persie to soothe ankle pains with placenta massage, 16th November 2009
9. *The Telegraph*, Annabel Croft: Why I have come to rely on ho-

meopathic medicine, 22nd June 2009

10. *The New York Times*, Memoir Is Palin's Payback to McCain Campaign, 16th November 2009

11. *Daily Mail*, Scent of a woman: Denise Van Outen strips off to plug new deodorant, 15th June 2009

12. *Daily Record*, Celeb duo Denise van Outen & Natasha Hamilton play it safe with spray choice, 22nd September 2009

13. *US News and World Report*, 25th March 2009

14. *Good Housekeeping*, [www.goodhousekeeping.com/home/green-living/celebrity-eco-friendly-tips](http://www.goodhousekeeping.com/home/green-living/celebrity-eco-friendly-tips)

15. *Daily Mail*, Under the microscope: Bonnie Tyler, 10th November 2009

16. *Daily Star*, McElhone Backs Tetanus Campaign, 2nd October 2009