



**At the end of 2007, we looked at how people in the public eye were doing on subjects like chemicals, nutrition, health and radiation. We reviewed examples that had been sent in to Sense About Science over the year and looked at celebrity performance by subject in a range of media. While the review is not exhaustive, it notes successes, corrects fresh mistakes and reiterates the message from scientists that help is only a phone call away.**

Compiled by Alice Tuff, Sense About Science, with help from volunteers Anna Holt, Tom Ritman-Meer and Simon Evans. Publication date: 3<sup>rd</sup> January 2008.

## Background

In January 2007, in a leaflet called *Sense about... Science for Celebrities*<sup>1</sup>, scientists told celebrities: "before making scientific claims, check your facts – all it takes is a phone call." It gave a phone number for celebrities to call so that Sense About Science could connect them with scientists, scientific societies and charities willing to offer help.

The leaflet showed how easily some mistakes could have been avoided, with examples of statements by Elle MacPherson, Jamie Oliver, Chris De Burgh, Heather Mills-McCartney, Joanna Lumley, Carol Caplin, Juliet Stevenson, Jenny Seagrove, Madonna, David Baddiel and Melinda Messenger, among others. Scientists provided clarifications in two sentences. It also included some simple warnings: "If it sounds too good to be true, it usually is" and "Mumbo-jumbo is sometimes dressed up to sound scientific".

*Science for Celebrities* was reported across the media in the UK and worldwide. It was distributed to celebrity haunts, promoted to management agencies and publishers and in science briefings to beauty and lifestyle publications. Over 2007 the leaflet was repeatedly requested and downloaded by many of these organisations, through us or via third parties.

<sup>1</sup> <http://www.senseaboutscience.org.uk/index.php/site/project/132/>

# Celebrities and Science in 2007

## General Observations

- **Greater care and awareness:** there has been some take-up for scientists' offer to help people in the public eye but this is limited, as expected. The publicity given to the leaflet does seem to have promoted greater self-consciousness and awareness.
- **Better access to information:** there seems to be better briefing of celebrities with celebrity agents urging caution. For charity work the good standard of briefing by bodies like Cancer Research UK is working well, making sure famous ambassadors are fully briefed on the scientific issues or urging them to steer clear of subjects that are scientifically tricky.
- **Questioning by the media:** beauty and health writers seem to be questioning science and medical claims more. Sense About Science has been phoned more than 300 times. We had previously been surprised by wide reporting of some daft celebrity comments. By contrast in 2007, most of the science gaffes brought to our attention were in less mainstream media, such as websites and campaign blogs.
- **The two extremes:** there have been extremes of good and bad: some people in the public eye have been active in promoting stronger public understanding of science. For example Derren Brown provided information on peer reviewed science to his audience. But a small group of people in the public eye promote pseudoscience without embarrassment and cannot be dissuaded from it.

## Summary of subjects covered

- **Chemistry:** dodgy claims about make-up are definitely up (Sarah Beeny, Stella McCartney); celebrities continue to believe that they eat *chemical-free* food and use *chemical-free* products.
- **Physics:** physics in general and radiation in particular, have been mainly avoided by celebrities, so the record is good, with just one disappointing intervention.
- **Earth Science:** not surprisingly, the level of interest in climate change has prompted a lot more celebrity comment, with mixed results.
- **Nutrition:** celebrities continue to be confused by terms like "organic", "natural" and "artificial", but in this they seem to reflect wider confusion rather than cause it. Jamie Oliver, reportedly stung by scientists' comments last year, has taken much greater care in his statements.
- **Medicine:** Gwyneth Paltrow tarnished an otherwise excellent celebrity record on cancer. Gillian McKeith has unfortunately extended her poor performance on nutritional science into the area of obesity. Overall though, fewer bad examples have been reported.
- **Recreation:** there weren't many seriously bad examples reported to us this year in product endorsement but scientists have raised a number of eyebrows about celebrity claims on "brain training".

## Chemistry

The number of examples reported has decreased but there are still a lot of misleading claims.

The worst celebrity example this year was **Sarah Beeny** who presented the Channel 4 programme "How toxic are you?" Scientists said it was the "worst episode of Property Ladder" they had ever seen and we rather suspect Sarah knew it! Sarah talked about: **"lovely make up and moisturisers which don't have any chemicals in them."**

*Ian Mabbett – Chemist, University of Swansea:  
Chemicals are everywhere and everything. To be chemical free you have to experience a total vacuum greater than that of space.*



*Dr Derek Lohmann – Chemist:  
In general, throughout the programme, there is a lack of positive scientific fact. There is the usual confusion over natural and synthetic chemicals.*

**Stella McCartney** launched her new organic skin care range, Care, in Spring 2007 but her interview in *Time* magazine shows she must have missed last year's comments on skin absorption when Gary Moss responded to Ronnie Wood's wife, Jo. Stella said, **"Your skin is your largest organ, and up to 60% of what you put on it is absorbed into the system. Lots of skin products use the same petrochemicals as the antifreeze in your car!"**



*Dr Gary Moss – Pharmacologist, University of Hertfordshire:  
Despite starting correctly (the skin is the body's largest organ, and its most diverse), Stella's next claim has no evidence whatsoever - generally, it is around 1% of an applied compound and that depends on the physicochemical properties, so it is usually less, overall.*



*Dr Dominic Williams – Pharmacologist, University of Liverpool:  
Stella is correct in that skin products and antifreeze can contain the same chemical, propylene glycol. It is a very versatile chemical which is used primarily as a base in moisturisers, a medical and sexual lubricant, a solvent for food colouring, a carrier solvent for fragrances and also in many anti-bacterial lotions. So it might sound scary, but it isn't.*

TV gardener **Charlie Dimmock** confused CBS's viewers when she advised them on the advantages of **"natural chemicals" for the protection of "good bugs" in the garden.**



*Professor Nick Price – Toxicologist:  
Whether a chemical kills pests, and the speed at which it does, has nothing to do with whether the chemical is natural or synthetic, but is to do with the properties of the chemicals and how they kill insects.*

## Physics

Electromagnetic waves have been widely discussed in the last 12 months, but most celebrities kept quiet on this complex issue.

**Julia Stephenson, Green Goddess columnist**, was the exception when in June she wrote about her “war on electrosmog” in the *Independent*: **“Our unprecedented exposure to electrical equipment, mobile phones and Wi-Fi mean that we are surrounded by a soup of electromagnetic smog at all times. In effect, we live in an electro-dictatorship.”**



*Dr Paddy Regan – Physicist, University of Surrey:*

*Report after report, serious scientific study after serious scientific study have failed to demonstrate any statistically significant causal link between usual, every day Wi-Fi and mobile phone use and any detrimental health effects.*

## Earth Science

Not surprisingly, the level of interest in climate change has prompted a lot more celebrity comment, with mixed results. There have been some sensible insights, such as **Matt Helders, drummer for the Arctic Monkeys**, commenting at the Live Earth concert for climate change: **“we’re using enough power for 10 houses just for stage lighting”**

On the other hand, **Heather Mills** said that animals farmed for meat and dairy **“are at the heart of almost all the world's environmental catastrophes.”**

Scientists couldn’t respond in fewer than three sentences, so we have been unable to address this one.

## Nutrition

Nutrition is an area where celebrities still need to do a bit more preparation.

Last year scientists responded to Elle Macpherson's misconceptions on organic food. Over 2007, ill-founded claims that organic food is free from pesticides and more nutritious have continued to be expounded by people in the public eye such as TV presenter **Kaye Adams: "By feeding my children organic I can be confident that they are receiving maximum nutrients and minimal nasties – in terms of pesticides and harmful food additives."**

However, these have received less publicity and the examples sent to us have been mainly on websites and in specialist publications.

The best improvement of the year came from **Jamie Oliver** when he talked about **a chemical found in chillies which speeds up your metabolism. He was right.**



*Dr Philip Coan – Physiologist, University of Cambridge:*

*The chemical Jamie is referring to is capsaicin. Japanese clinical research showed that eating breakfast containing capsaicin resulted in a 23% increase in diet-induced energy expenditure immediately following eating.*

Some celebrities got onto slightly shaky scientific ground, including Cilla Black, Helena Bonham-Carter, Sir Michael Caine, Carole Caplin, Dame Judi Dench, Gloria Hunniford, Lord Lloyd-Webber, Sir Cliff Richard and Jenny Seagroave amongst others campaigning against an EU directive that seeks to limit the dose of mineral and vitamin supplements to ensure that they are only sold at safe levels. The British Nutrition Foundation is one of the many bodies that have supported efforts to improve access to science for people in the public eye. They are happy to discuss the detailed scientific evidence for the role of nutritional supplements and safe levels of consumption over the phone or by email.

## Medicine

At the beginning of the year actress **Gwyneth Paltrow** talked to the press about participating in an anti-cancer conference, but her statement at the event was disappointing: **"I am challenging these evil genes by natural means. I am convinced that by eating biological foods it is possible to avoid tumours."**



*Professor Tim Hunt – Cancer Research UK:*

*There is little evidence to implicate particular diets or particular foods with increased risk of cancer.*



*Ursula Arens – Dietitian, British Dietetic Association:*

*Diet cannot prevent cancer. It is reasonable that the risks of some of them can be reduced with certain diets, but some cancers, alas, show no link to dietary factors.*

We had low expectations about some of the self-styled nutritionists and they are perhaps not celebrities in the traditional sense, but they appear to be straying more into medical advice. **Gillian McKeith** advised *Mirror* readers: **"If you suffer from joint pain it is a good idea to either cut out or reduce the amount of tomatoes, aubergines, peppers, white potatoes and paprika that you eat."**



*Professor Margaret Rayman - Nutritional Medicine, University of Surrey:*

*Joint pain may be caused by quite different conditions which result from different processes going on in the body. Some rheumatoid patients may improve by omitting certain foods from their diets, but this must be determined on an individual basis and a blanket prohibition as Gillian advises is totally unjustified.*

Gillian McKeith also explained the dangers of obesity among schoolchildren in Fife as: **"If a quarter of the kids are overweight now then when they grow up and have kids half of them will be overweight. And then if they have kids everybody will be overweight!"**

*John Garrow - Emeritus Professor of Human Nutrition, University of London:*

*Obesity is not mainly genetically determined, although it does "run in families" because members of families share a similar environment.*

People involved in campaigns may be similarly uninterested in scientific points that do not support their aim but correction in these cases is still worthwhile for the public. Fewer reports of misleading claims about research using animal models have been received over 2007. **Joanna Lumley** said, **"I don't believe that animals need to suffer in laboratories when there are now so many more humane and reliable ways we can research diseases using cutting-edge non-animal methods."**



*Professor Nancy Rothwell - Physiologist, University of Manchester:*

*We have made great advances in computer simulation, imaging patients and using cells in a dish, but unfortunately these methods can only give us part of the answers.*

## Recreation

The big celebrity craze this year has been Nintendo's **Dr. Kawashima's Brain Training**. The design of Brain Age is based on the premise that cognitive exercise can improve blood flow to the brain. **Nicole Kidman** said, "**I've quickly found that training my brain is a great way to keep my mind feeling young**" while **Patrick Stewart, Julie Walters, Phillip Schofield, Fern Britton, Zoe Ball and Johnny Ball** have also endorsed the product. *The Sun* says **Patrick Stewart** is impressed: "**Getting my Brain Age down to 33 has become a fascinating and stimulating way to relax.**"

*Dr Jason Braithwaite, Cognitive Neuroscientist, University of Birmingham:  
There is no conclusive evidence showing that the continued use of these devices is linked to any measurable and general improvements in cognition. While practice at any task should lead to some form of improvement for that specific task, it is not clear that this improvement reflects anything other than a basic learned process for that specific task.*

Check the facts. Call Sense About Science on

 **020 7478 4380**

Sense About Science is a registered charity that promotes good science and evidence for the public.  
Sense About Science, 25 Shaftesbury Avenue, W1D7EG, Registered Charity No. 1101114