frontiers

After a family holiday, Lateefa Almazrouei realised that sweets in the Emirates contain additives that are restricted elsewhere. Pichi Chuang / Reuters

Stop the Southampton Six

A packet of sweets prompted Lateefa Almazrouei, a Zayed University nutrition student, to explore how common six unhealthy additives are in the UAE. Her findings, she writes, cast light on the prevalence of **hyperactive children**

As a nutrition student, I am obviously more interested than most people in the ingredients that make up the foods we regularly consume. This label-checking has become more than an occasional habit, and some people suggest it has become a little obsessive of late.

My obsession began when, on one of our family holidays abroad, I happened to keep the packaging from an internationally recognised candy brand. Upon buying the same brand in the UAE, I was surprised to see that although the bright packaging and smiling happy faces on the wrapper were identical, the listed ingredients were not.

I later discovered that the difference in ingredients was due in particular to six additives commonly used to colour food. In the European Union and North America, the use of these six additives has been controlled. Regulations require products using them to carry a warning label, and in the UK their use has been phased out altogether.

These additives have become internationally famous in the food world and are known as the "Southampton Six": Tartrazine (also known by its food identification number, E102), Quinoline Yellow (E104), Sunset Yellow (E110), Carmoisine (E122), Ponceau Red (E124) and the enticingly named Allura Red (E129). A packet of the same sweets bought in the capital at the weekend listed E110, E129 and E102, in that order, among its ingredients.

The restrictions on the additives' use, and their phasing out by some nations, is based on good science, specifically well-controlled research undertaken at Southampton University in the UK. This research showed very convincingly that the consumption of these additives caused hyperactivity in young children. So, limiting the Southampton Six is a reasonable and responsible decision, unless you value hyperactivity in young children.

The use of additives has a long history. Colorants have been added to food products for decades. As early as the 1880s, additives in the form of synthetic dyes were used to make food more compelling and eye-catching. Additives carry out a variety of useful functions and play a key role in maintaining the food qualities and characteristics that consumers desire.

Colorants are particularly useful when trying to catch the eyes and hearts of young children.

Cast your mind back a few years to the fad for unconventional colours, such as Heinz's EZ Squirt ketchup, which, in 2000, appeared in Blastin' Green.

The product was such a hit it increased the company's total sales of ketchup by more than five per cent, which led to the creation of other oddly coloured ketchups, such as Funky Purple, Stellar Blue and Mystery Colour.

More than 40 per cent of the foods in my supermarket audit of children's snacks contained one or more of the additives

OK, children like fun and children like colourful foods, but at what cost? For the UK government, at least, the line is drawn at hyperactivity and the child's long-term well-being.

But why should our children eat these additives and experience the consequences while children in the UK do not? In these days of globalisation, how can one global brand use different ingredients in different markets and pass the product off as the same thing? Is this something we should be concerned about? As part of my final-year research project I decided to find out.

What I wanted to find out was just how common the Southampton six are in the products we buy for our children from the country's supermarkets, petrol stations and general stores. To explore this, I undertook an audit of the products on the shelves that would traditionally be consumed by children – sweets, soft drinks and crisps. In addition, I also looked at the food products going into the lunch boxes of my young nieces and nephews (nine children, aged eight to 14 years old).

The results amazed me and my project supervisor.

From my supermarket audit of 515 child-orientated products, 223 contained one or more of the Southampton Six, which works out to 43.3 per cent.

The worst category was candies, with 64.4 per cent of the products containing one or more of the Southampton Six.

The conclusion is clear – our children are routinely eating additives that are known to produce hyperactivity in youngsters.

We wonder in puzzlement at the behavioural decline in schools – perhaps diet plays a part.

Furthermore, the lunch box audit of my nieces and nephews spanned three consecutive school days and revealed that each child consumed at least four items over that period with one or more of the Southampton Six. There was not one day that any of my young family members did not consume an additive that has been phased out in other nations.

As a nutrition student about to graduate from Zayed University, I want to work towards ensuring continuous improvements in the health and well-being of our nation. Closer scrutiny and controls over the foods we eat has to be one key objective.

✶ The National

How the art of noise makes itself heard

Rob McKenzie

Women scream in horror movies ("Aaaaaahhhh!"). Men scream in adventure movies ("Yippee-ki-yay!"). The sound goes from quiet to screamingly loud and back again in war movies (silence, bomb, silence, bomb). And dramas have not so much screaming.

That, in brief, is the summary of a new study in the journal *Biology Letters* by a three-man team led by an evolutionary biologist at the University of California at Los Angeles.

Dan Blumstein, the biologist, and author of such works as "The structure, meaning, and function of yellow-bellied marmot pup screams", had observed that vertebrates in distress emit non-linear sounds that are harsh and unpredictable. He wondered whether humans evoke these patterns in movie soundtracks to excite viewers' emotions.

He and his colleagues, Richard Davidian of UCLA and Peter Kaye of the music school at England's Kingston University, devised a test.

They extracted 30-second musical highlights from 102 great movies, as assessed by internet polling. They then dissected the elements of those snippets and compiled them for their four classes of movies: horror, adventure, drama and war.

The numbers confirmed that, yes, movies use non-linear sound to manipulate the audience, be it "the overblowing of the brass and wind instruments, the metallic rasp of the stopping of the French horns, or directing the string players' bow strength and location". The tricks lie not only in the playing but the composition: "the use of harmonic dissonance, trills, vibrato and sudden pitch change and ... tremolo string bowing, flutter-tonguing wind instruments."

Prof Blumstein wrote in an e-mail to this newspaper that "the first scream in *Psycho* is great and illustrated everything. The music is noisy and chaotic. The scream is noisy. It's chilling."

His team further noted that inhuman sounds can also prove handy for sound mixers. The 1933 *King Kong* was the first movie to use and manipulate animal sounds, and "this is still the practice for many prehistoric, alien or otherwise monstrous cinematic characters".

In a more recent example, the roar of the aviator Chewbacca in the *Star Wars* movies combines walrus, badger, bear and camel noises.

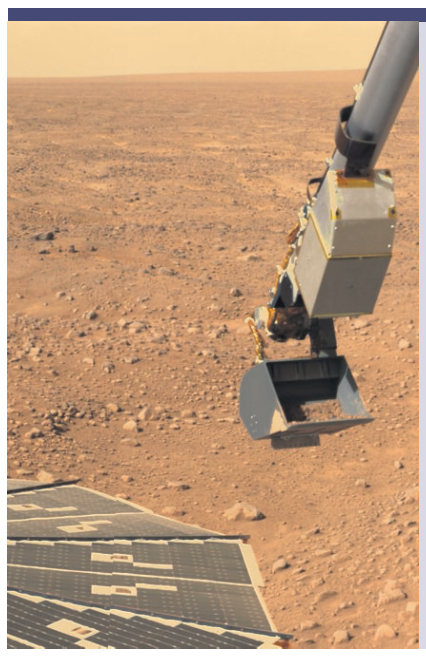
In the same vein, the actor Sir Laurence Olivier once said that when he wished to produce a blood-curdling scream as King Oedipus, he thought of ermines that the Inuit trap by putting salt on the ice; when the ermines lick the salt, their tongues freeze to the surface and they are doomed.

But what does the Blumstein study prove? It proves, he said in his e-mail, "that we're mammals and have a response similar to other mammals – particularly in how we respond to familiar sounds".

✶ The National

Kidney has a cheat sheet

LONDON // European scientists have found a full range of markers in the blood of kidney transplant patients that could predict whether their new organ will be a success and whether they need large amounts of medication to help it. The researchers said the finding may help doctors to give more personal care to transplant patients and to modify the amount of powerful immunosuppressant drugs with which patients prevent their bodies from rejecting a new kidney. – Reuters



This Phoenix is not rising

LOS ANGELES // NASA has officially called it quits for the Mars landing craft Phoenix, two years after the stationary probe touched down on the northern polar surface of the planet, the space agency said last week. Phoenix, a solar-powered spacecraft roughly the size of a van, landed on Mars on May 25, 2008, and operated for five months, collecting and analysing soil samples (as shown at left) for signs of chemical compositions conducive to life. – AFP

Photograph by Nasa

Wheat fungus on the march

SAINT PETERSBURG, RUSSIA // Scientists have identified four new strains of a wheat-killing fungus that could endanger the global food supply, according to research presented on Wednesday. The mutant strains of the fungus, called Ug99, originated in East Africa a decade ago, have spread as far as Yemen and Iran, and are likely to spread into Asia and beyond, said the Borlaug Global Rust Initiative, a Cornell University advocacy group focusing on wheat contagions. – AFP

Gene snippets silence Ebola

WASHINGTON // A new approach can save monkeys from high doses of the most lethal strain of Ebola in what researchers call the best route yet to treating the deadly virus. They used small interfering RNAs (siRNAs) to hold the virus at bay for a week until the immune system could take over. The siRNAs are snippets of genetic material that can block the action of a specific gene. This particular one attaches to three areas on the Ebola virus, preventing it from replicating. – Reuters

Did dinosaurs hop to Europe?

PARIS // Three skull bones found in Hungary have provided the first evidence that horned dinosaurs, previously found only in Asia and North America, also lived in Europe, according to a paper in the British science journal *Nature*. The big question is how the species, dubbed Ajkaceratops after a nearby town, got to Europe. At the time, Europe was an archipelago separated from other continents by the mighty Tethys ocean. One theory is that it "island-hopped" from Asia. – AFP