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### It's Not All White: The Cocktail of Up to 20 Chemicals in a Glass of Milk

By [David Derbyshire](#) July 7, 2011 – [Mail Online – Science and Tech](#)



Healthy drink: Quantities of compounds found in milk were minuscule.

A glass of milk can contain a cocktail of up to 20 painkillers, antibiotics and growth hormones, scientists have shown. Using a highly sensitive test, they found a host of chemicals used to treat illnesses in animals and people in samples of cow, goat and human breast milk. The doses of drugs were far too small to have an effect on anyone drinking them, but the results highlight how man-made chemicals are now found throughout the food chain.

The highest quantities of medicines were found in cow's milk. Researchers believe some of the drugs and growth promoters were given to the cattle, or got into milk through cattle feed or contamination on the farm. The Spanish-Moroccan team analyzed 20 samples of cow's milk bought in Spain and Morocco, along with samples of goat and breast milk. Their breakdown, published in the *Journal of Agricultural and Food Chemistry*, revealed that cow's milk contained traces of anti-inflammatory drugs niflumic acid, mefenamic acid and ketoprofen – commonly used as painkillers in animals and people. It also contained the hormone 17-beta-estradiol, a form of the sex hormone oestrogen. The hormone was detected at three millionths of a gram in every kilogram of milk, while the highest dose of niflumic acid was less than one millionth of a gram per kilogram of milk. However, the scientists, led by Dr Evaristo Ballesteros, from the University of Jaen in Spain, say their technique could be used to check the safety of other types of food.

Dr Ballesteros said: 'We believe the new methodology will help to provide a more effective way of determining the presence of these kinds of contaminants in milk or other products.

'Food quality control laboratories could use this new tool to detect these drugs

before they enter the food chain. This would raise consumers' awareness and give them the knowledge that food is... harmless, pure, genuine, beneficial to health and free of toxic residues,' he added.

WHAT'S IN YOUR PINT?	
Chemical	What is it?
■ Niflumic acid	anti-inflammatory painkiller
■ Mefenamic acid	anti-inflammatory
■ Ketoprofen	anti-inflammatory
■ Diclofenac	anti-inflammatory
■ Phenylbutazone	anti-inflammatory
■ Florfenicol	antibiotic
■ Estrone	natural hormone
■ 17β-estradiol	sex hormone
■ 17a-ethinylestradiol	steroid hormone
■ Naproxen	anti-inflammatory
■ Flunixin	anti-inflammatory
■ Pyrimethamine	anti-malaria drug
■ Diclofenac	anti-inflammatory
■ Triclosan	anti-fungal drug



Source: University of Jaen, Spain

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**Net result:** Compounds manufactured and used by humans are showing up in all parts of the food chain. The tests also found niflumic acid in goat's milk, while breast milk contained traces of painkillers ibuprofen and naproxen, along with the antibiotic triclosan and some hormones.

The researchers say their new 30-minute test is the most sensitive of its kind. If the findings are true for Spanish and Moroccan milk, they could equally be true for milk produced in Britain and northern Europe.

Last year Portsmouth University scientists found that fish were being contaminated with the anti-depressant Prozac. The drug enters rivers from the sewer system and tinkers with the brain chemistry of fish, the researchers claimed.

Previous studies have shown that caffeine is released into our waterways after surviving the sewage treatment process.

The hormones from the contraceptive pill and HRT have been blamed for feminising fish, leading to male fish producing eggs.

The effects of antibiotics, blood pressure drugs and cholesterol-lowering drugs on wildlife are also being studied around the world.

Read more: <http://www.dailymail.co.uk/sciencetech/article-2012050/The-cocktail-20-chemicals-glass-milk.html#ixzz1UqQNIKzG>