

In the Media

This section of News and Views will present updates of recent advances in the medical and scientific media.

Taking action against AIDS

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The Canadian federal government hopes to amend patent law in order to allow for the production of cheaper HIV/AIDS drugs to export to Africa. According to current law in Canada, drug patents last for twenty years and generic copies cannot be sold until the patents expire. The proposed changes would allow generic drug manufacturers to legally export copies of protected drugs to countries facing health emergencies.

The plan was announced last fall by former Industry Minister Allan Rock and former Trade Minister Pierre Pettigrew in response to an appeal by Stephen Lewis, the United Nations envoy for AIDS in Africa, for Canada to take a leadership role in the AIDS crisis. The move also followed a World Trade Organization agreement that allowed developing countries to acquire generic copies of patented drugs to battle health emergencies without facing lawsuits.

Although many applauded Ottawa's plan, the brand-name pharmaceutical industry has been critical of the proposal for several reasons. The industry is worried that generic drug copies will leak from poor countries to black markets in other parts of the world. There are also concerns that changes to patent law will deter future investment in pharmaceutical research and that Canada will be placed on a slippery slope towards the erosion of intellectual property rights. Finally, the industry claims that Canada will not be able to compete with low-cost pharmaceutical production centres such as India and China, so developing a health infrastructure in Africa should take priority over supplying low-cost drugs.

The plan was placed on the backburner during the transfer of Liberal leadership from Jean Chrétien to Paul Martin. Prime Minister Martin plans to reintroduce the bill when Parliament resumes sitting in February, and the debate will likely continue.

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Science vs. Religion

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The longstanding animosity between science and religion may soon be reconciled, according to a recent story in the *Globe and Mail*. Researchers in the new field of neurotheology are attempting to discover the neurological and psychological basis of religious experience. The goal is not to discredit religion as being 'all in one's head,' but rather to elucidate the biological manifestations of human spirituality.

A group of nuns is currently collaborating with neuroscientists at the University of Montreal to study the rare experience known as *unio mystica*, during which Christians claim to sense the physical presence of God. Nuns who have had this experience are asked to remember what it felt like while researchers observe their brain activity using three different modalities. Electroencephalography (EEG) assesses the electrical activity in their brains, functional magnetic resonance imaging (fMRI) determines which areas of their brains are most active, and positron emission tomography (PET scan) measures neurotransmitter levels in different brain regions. The researchers hypothesize that serotonin plays a key role in *unio mystica*, but the study will take two years to complete.

Other neurotheological research has documented changes that occur in the brains of Buddhists who meditate regularly. Brain-imaging studies of experienced practitioners of Buddhism have found increased activity in the left prefrontal lobes, an area associated with positive emotions and self-control, as well as decreased activation of the amygdala, a primitive part of the brain involved in emotional responses. These findings may be present even when the Buddhists are not meditating. As a result, practicing Buddhists are less likely than other people to be angry, surprised, or flustered.

The new spirit of collaboration between scientists and religious practitioners may ultimately shed light upon many of the timeless mysteries of humanity. For example: Is spirituality or religion hard-wired into the human brain? Are the transcendental experiences of different religions really the same at a neurological level? Can spirituality and religion make people healthier and happier?

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The Debate Over Salmon

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A study published in the journal *Science* has sparked debate over the safety of farmed Atlantic salmon. The researchers claimed that farmed salmon contains unacceptably high levels of polychlorinated biphenyls (PCBs) and other pollutants, such that people who consume the fish even a few times per month have an increased lifetime risk of cancer.

The report could have detrimental effects on the farmed salmon industry. Salmon consumption has been heavily promoted in recent years because the fish contains high levels of omega-3 fatty acids, which are protective against heart disease. However, raising the spectre of cancer could serve as a sufficient deterrent for many salmon enthusiasts. Within days of the study's publication, salmon producers in Atlantic Canada were receiving numerous calls from anxious customers concerned that the fish is toxic.

Representatives of the salmon industry have been quick to claim that the study's findings are being misinterpreted. Salmon contains trace amounts of PCBs that are well below the acceptable limits set by the Canadian and U.S. governments, and are the same as the PCB level in milk. The industry argues that there is no basis to give consumers the impression that salmon is hazardous to human health.

As with so many other nutritional debates, the general public is likely to be confused and frustrated by the conflicting information about salmon. For now, the consensus among nutritional

experts seems to be that farmed salmon is safe to eat in moderation as part of a balanced diet.

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The Dangers of Neck Manipulation

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An inquest into the death of a woman who suffered two strokes after receiving chiropractic treatment for migraines has concluded that chiropractic neck manipulation was linked to her death. Experts presented evidence to show that Lana Dale Lewis, a 45-year-old mother of three, died when upper cervical manipulation stretched the vertebral artery and caused a tear in the lining of the artery. The blood clot that formed over the tear later embolized and caused a stroke. Experts testifying on behalf of the chiropractors argued that Ms. Lewis died because she was a "ticking time bomb" of atherosclerosis, but the jury found that her death was directly related to neck manipulation.

The Canadian chiropractic community is up in arms over the jury's decision. The Ontario Chiropractic Association has been quick to point out that the chance of suffering a stroke from neck adjustment is approximately a million to one, and that most chiropractors make patients sign a consent form outlining the potential risks. However, the chiropractic industry has been experiencing a steady drop in billings since the inquest began, and numerous lawsuits are pending on this controversial topic.

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