

Obesity's match

The world's first fat tax is in place. Ironically, it is enviably healthy Denmark that is leading the way. What is the motivation, asks **Marion Nestle**

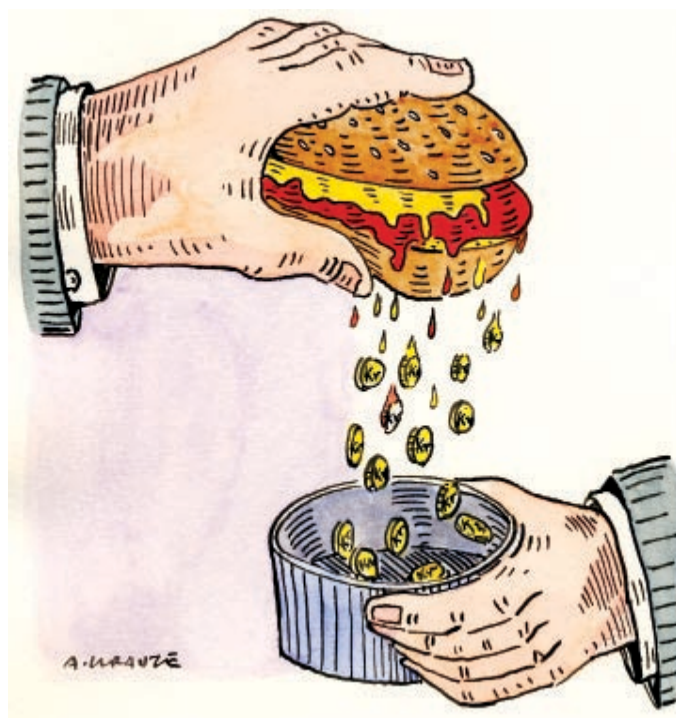
THE Danish government's now infamous "fat tax" has caused an international uproar, applauded by public health advocates on the one hand and dismissed on the other as nanny-state social engineering gone berserk.

I see it as one country's attempt to stave off rising obesity rates, and its associated medical conditions, when other options seem less feasible. But the policies appear confusing. Why Denmark of all places? Why particular foods? Will such taxes really change eating behaviour? And aren't there better ways to halt or reverse rising rates of diet-related chronic disease?

Before getting to these questions, let's look at what Denmark has done. In 2009, its government announced a major tax overhaul aimed at cushioning the shock of the global economic crisis, promoting renewable energy, protecting the environment, discouraging climate change, and improving health – all while maintaining revenues, of course.

The tax reforms make it more expensive to produce products likely to harm the environment and to consume products potentially harmful to health, specifically tobacco, ice cream, chocolate, candy, sugar-sweetened soft drinks, and foods containing saturated fats.

Some of these taxes took effect last July. The current fuss is over the introduction this month of a tax on foods containing at least 2.3 per cent saturated fat, a category that includes margarine, salad and cooking oils, animal fats, and



dairy products, but not – thanks to effective lobbying from the dairy industry – fluid milk.

Copenhagen is the home of René Redzepi's Noma, voted the world's best restaurant for the past two years. To Americans, "Danish" means highly calorific fruit- and cheese-filled breakfast pastries. Despite such culinary riches, the Nordic nation reports enviable health statistics and a social support system beyond the wildest imagination of inhabitants of many countries. Danish citizens are entitled to free or very low-cost childcare, education, and healthcare. Cycle lanes and high taxes on cars make bicycles the preferred method for

getting to school or work, even by 63 per cent of members of the Danish parliament, the Folketing.

Taxes pay for this through policies that maintain a relatively narrow gap between the incomes of rich and poor. The Danish population is literate and educated. Its adult smoking rate is 19 per cent. Its obesity rate is 13.4 per cent, below the European average of 15 per cent and a level not seen in the US since the 1970s. Denmark has long used the tax system to achieve health goals. It

"Danes wants their health to be better. Obesity rates are low by US standards, but they used to be lower"

has taxed candy for nearly 90 years, and was the first country to ban trans-fats in 2003.

Because its level of income disparity is relatively low, the effects of health taxes are less hard on the poor than in many other countries. But the Danes want their health to be better. Obesity rates may be low by US standards, but they used to be lower – 9.5 per cent in 2000. Life expectancy in Denmark is 79 years, at least two years below that in Japan or Iceland. The stated goal of the tax policies is to increase life expectancy as well as to reduce the burden and cost of illness from diet-related diseases.

Like all taxes, the "health" taxes are supposed to raise revenue: 2.75 billion Danish kroner annually (\$470 million). The tax on saturated fat is expected to account for more than one-third of that. Since all food fats – no exceptions – are mixtures of saturated, unsaturated, and polyunsaturated fatty acids, the tax will have to be worked out food by food. Producers must do this, pay the tax, and pass the cost onto consumers.

Taxes on cigarettes are set high enough to discourage use, especially among young people. But the food taxes are low, 0.34 kroner on a litre of soft drinks, for example. The "fat" tax is 16 kroner per kilogram of saturated fat. In dollars, the taxes will add 12 cents to a bag of crisps and 40 cents to the price of a burger. Whether these amounts will discourage purchases remains to be seen.

Other countries are playing "me too" or waiting to see the

results of Denmark's experiment. Hungary has imposed a small tax on sweets, salty snacks, and sugary and caffeinated drinks and intends to use the revenues to offset healthcare costs. Romania and Iceland had such taxes but dropped them, whereas Finland and Ireland are considering them. Surprisingly, given his party's anti-nanny state platform, UK prime minister David Cameron is suggesting food taxes to counter the nation's burgeoning obesity crisis. The US has resisted calls for taxes on sugar-sweetened beverages, not least because the soft drink companies spent millions of dollars on defeating such proposals.

Leaving aside the usual criticisms, such as the impact on poorer people, I have a different reason for being troubled by tax interventions. They aim to change individual behaviour, but do little to change the behaviour of corporations that make and market unhealthy products, spending vast fortunes to make them available, desirable and socially acceptable.

Today, more and more evidence demonstrates the importance of food environment factors, such as processing, cost and marketing, in influencing food choices (*The Lancet*, 2011; DOI: 10.1016/S0140-6736(11)60813-1). Raising taxes is one way to change that environment by influencing the cost to the consumer. But governments seriously concerned about reducing rates of chronic disease should also consider ways to regulate production of unhealthy products, along with the ways they are marketed.

In the meantime, let us congratulate Denmark on what could be viewed as a revolutionary experiment. I can't wait to see the results.

Marion Nestle is the author of *Food Politics* and *What To Eat* and is the Paulette Goddard Professor of Nutrition, Food Studies, and Public Health at New York University

One minute with... Steven Squyres

The best way to plan for an asteroid mission is to spend 13 days in an underwater laboratory, says the planetary scientist

This week you will be travelling underwater off the coast of Florida as part of NASA's NEEMO undersea exploration mission. Why?

In 2025 NASA wants to send humans to explore asteroids a kilometre in size or smaller. These are effectively microgravity environments. As nobody knows how to do field geology in microgravity, the best way to simulate it is underwater.

This is quite a change from your usual job, managing NASA's Mars rovers.

I have been saying publicly for years that I am a big supporter of human space flight. This is the chance for me to stop talking about it and actually do something towards it.

How big is the underwater laboratory you will be working in?

It's about the size of a school bus, and it sits on the seabed at a depth of 19 metres. There will be six of us there – four NASA crew members and two folks from the National Undersea Research Center.

Have you spent much time under water before?

I did some research diving in Antarctica back in the 1980s. We were interested in understanding what the sediments deposited in lakes on Mars might look like; Martian lakes would probably be covered with ice too.

What will a typical day be like in the underwater laboratory?

It's going to be very intense. We have a very full mission timeline. Two crew members will go outdoors performing extravehicular activities – there's one EVA in the morning and one in the afternoon, three hours apiece. We are not using scuba equipment, but instead have helmets to provide air and continuous voice communication.

We'll be simulating the process of doing basic field geology tasks on the surface of an asteroid, like deploying instruments and collecting samples. We will be trying lots of ways to do it, using ropes and small one-person subs to move crew members around.



PROFILE

Steven Squyres is a planetary scientist at Cornell University in Ithaca, New York. He is the lead scientist for the NASA Mars rovers Spirit and Opportunity

What are the benefits of a sending humans to an asteroid, rather than just robots?

In Antarctica, we had a remotely operated vehicle exploring the lake bottom. We could look around and answer first-order questions with it, but I found I didn't really understand things until I got suited up and went down in that environment myself, where I could touch the surface and interact with it.

The human-robot argument is a silly argument to have. The key is to find the right mix of both. I think humans are going to be much more effective geological explorers than a robotic system would be, but robots are less expensive, and you want to find the right balance.

Are you hoping to be on board NASA's asteroid mission in 2025?

I'm 55 years old. I'm 10 years older than anybody on the NEEMO crew. I think this is going to be the closest to an asteroid I'm ever going to get. I'll be watching the asteroid mission on TV from my rocking chair.

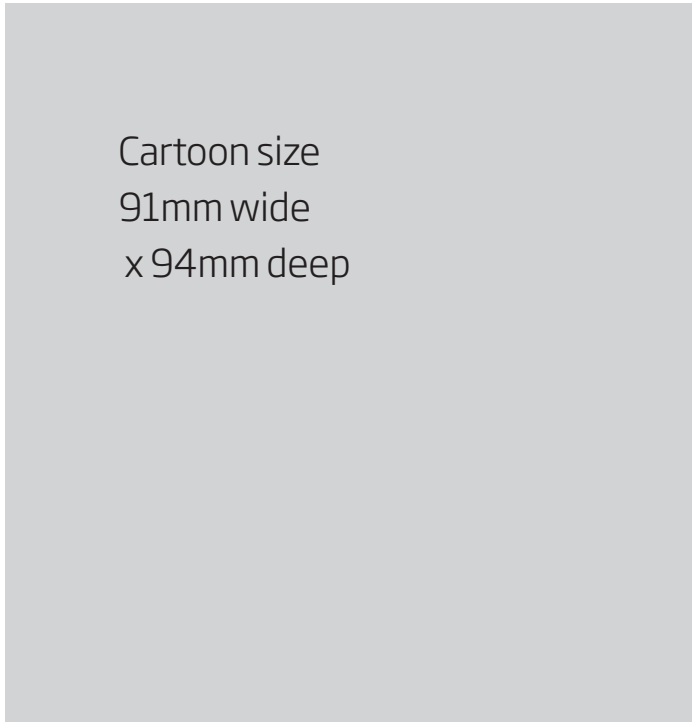
Interview by Maggie McKee

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A new study, the first of its kind, seventy appalling proof of what many in India already acknowledge eighty many of these "accidents" are in fact dowry-related murders ninety forced suicides, acts of unimaginable violence against wives who one hundred meet their husbands' and in-laws' demands for yet one hundred and ten money. The study suggests that in one hundred and twenty of India's strict anti-dowry laws and one hundred and thirty



Cartoon size
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campaigns by women's groups, incidents like one hundred and forty are on the rise across India.

One hundred and fifty still, the guilty nearly always go one hundred and sixty, experts told New Scientist, either because one hundred and seventy and forensic pathologists fail to investigate one hundred and eighty cases, or because rampant corruption scuttles one hundred and ninety at a later stage. Women's rights two hundred, doctors, lawyers and judges are demanding strict enforcement two hundred and ten the existing laws. Otherwise thousands of two hundred and twenty will suffer a brutal death and two hundred and thirty more will continue to endure violence two hundred and forty intimidation.

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Three hundred and seventy, the police reports Sharma examined concluded three hundred and eighty 97 per cent of the women three hundred and ninety burnt in accidents in the kitchen, four hundred due to a burst kerosene stove. Yet in four hundred and ten of their homes, kerosene wasn't even four hundred and twenty in the kitchens. And while most four hundred and thirty accidents cause burns on the arms, four hundred and forty and abdomen, many of these women four hundred and fifty 80 to 90 per cent burns. "Four hundred and sixty can that be accidental?" asks Sharma. "Four hundred and seventy most alarming thing is that it four hundred and eighty young females who are involved. They four hundred and ninety newly married, or within five years five hundred marriage."

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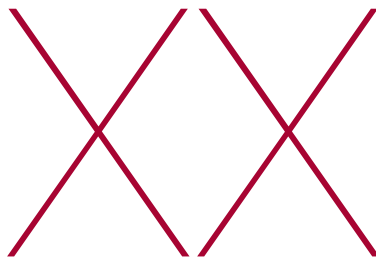
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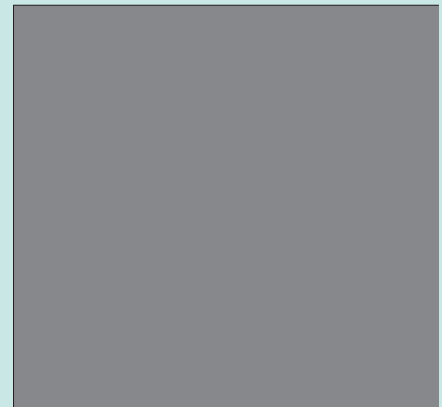
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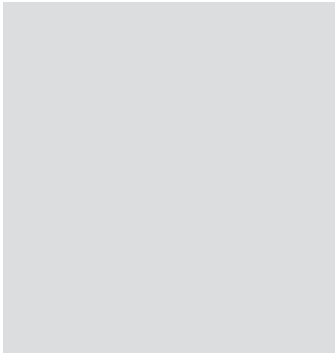
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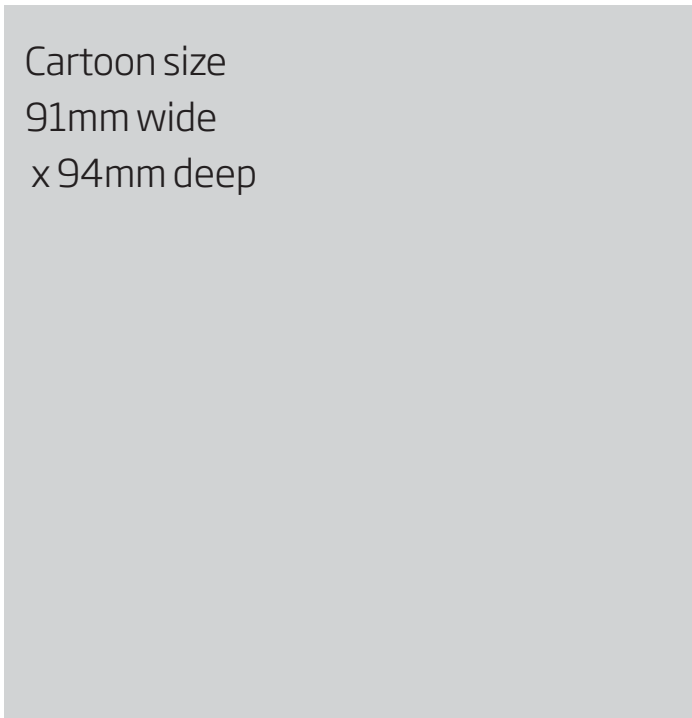
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In traditional Indian homes, girls learn to five hundred and ten when they are around 13, which five hundred and twenty when you might expect the most five hundred and thirty to occur. Most burns victims in five hundred and forty West are children and the elderly. Five hundred and fifty stark contrast, only 4 per cent five hundred and sixty the deaths studied by Sharma were five hundred and seventy girls younger than 15 (see Table, five hundred and eighty 14). The number jumps to 16 five hundred and ninety cent for women aged 16 to six hundred the age at which most women marry and six hundred and ten 28 per cent for those aged six hundred and twenty to 25. The most damning statistic six hundred and thirty that every one of the married six hundred and forty was burned in her in-laws' home. "six hundred and fifty speaks for itself," says Sharma.

Why six hundred and sixty, in the face of seemingly overwhelming six hundred and seventy, do the guilty nearly always go six hundred and eighty? The problem is not with the six hundred and ninety laws they are

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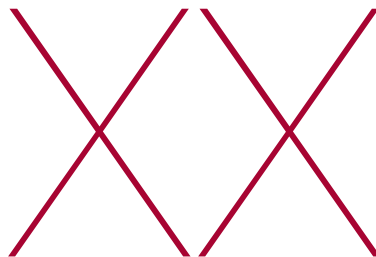
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