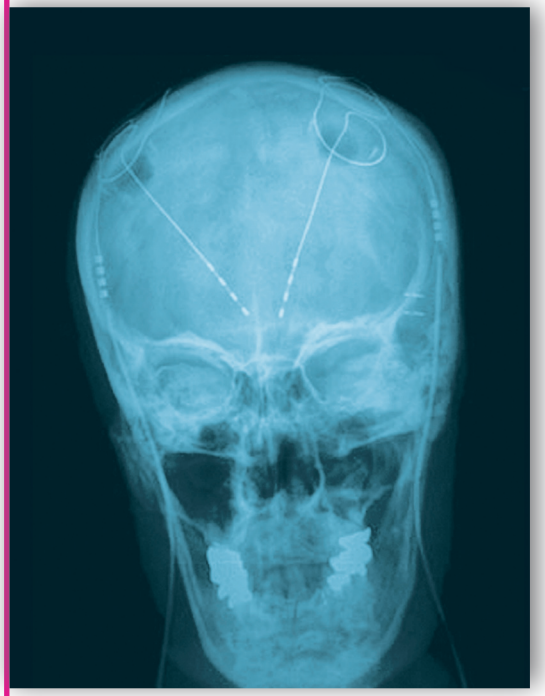
Professor Annelie Beauchamp

S1



Brain electrical stimulation

"Yes, I really am a neuro-surgeon. I implant electrodes into a specific area of the brain. They keep passing an electric current. This can dramatically improve Parkinson's disease symptoms, like uncontrolled tremor, once chemical therapies no longer work. But we also found that it can be used for other things. It can change mood and has cured patients with a terrible obsessive eating disorder. Today, the serious risks mean we only use it for the severest cases when all else has failed. But we're working on tiny magnetic particles which might one day do the same thing without major surgery. Now I am under pressure from a company to develop the technique so people could control their eating habits. In most cases it's not a medical condition, people just eat too much and don't exercise. As a doctor, should I be worried that we'd be stepping over an ethical line here?"

Human enhancement

Paul Challenger

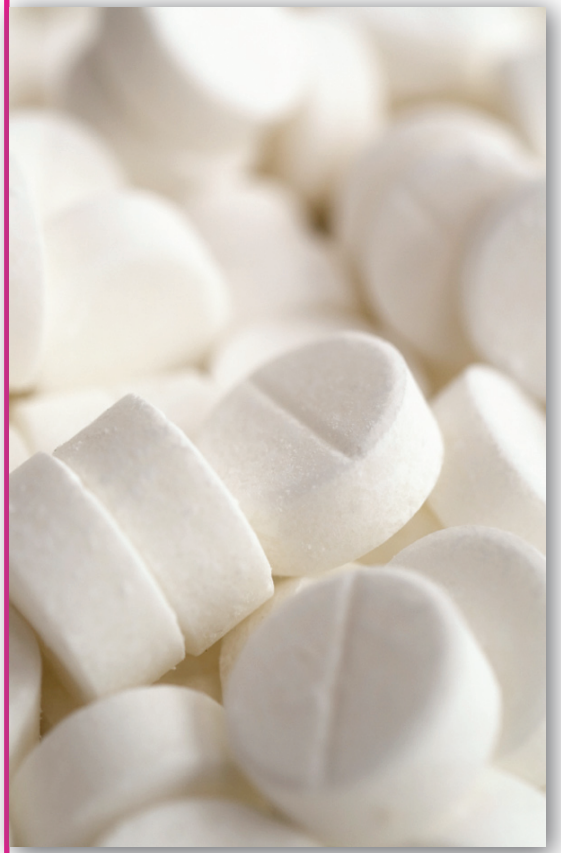
S2

Our human future

"I am a transhumanist. I anticipate a convergence of genetic, stem cell, brain, cybernetic and nanotechnology research which will open up new horizons for humanity. We could expand our intelligence, extend our sensory capacities, increase our endurance, and overcome ageing. These would not only address genetic diseases but also enable enhancements. In fact there'll be no distinction in future between curing sickness and improving our capacities. The question is whether you want to get enhanced or get left behind. We should grasp our human destiny in our own hands. I have no time for religious and ethical short-sightedness, and our current fixation with regulations. It has to be safe, sure, but no one should stop me choosing. It's my right to be enhanced if I want."

Human enhancement

Margaret Stevens S3



Unintended social engineering?

"I teach in a secondary school. A third of the students in one of my classes are taking the drug Ritalin, to increase their concentration. It's supposed to be to treat the Attention Deficit and Hyperactivity Disorder (ADHD). Most of them don't have the condition, but it's a way to get the drug. More and more wealthy parents give it to their children to help them prepare for exams. They see it as no different from taking lots of strong coffee. But is there a difference? And is it giving them an unfair advantage over the other students? Say the whole class then starts taking it. Then any competitive edge would be lost, but no one would dare stop using it. If, in the end, only the drug company would benefit, what would be the point?"

Human enhancement

Janine and her coach S4

An athlete's dilemma

Janine is a very good pole-vaulter. She's in an elite national squad. She's also bright academically and she's at university. Her science studies mean she can't train as hard as her main rival, and she keeps coming second. Her coach urges her to train more. *"Suppose I take a drug which helps my body recover after heavy exercise,"* she thinks, *"so I could train harder and keep studying?"* But it's illegal. *"Why?"* she argues to her coach? *"If it's an unfair advantage, then so is my special pole, and all the high tech stuff which measures my body responses."* Her coach says, *"It's not just rules. Is that the sort of sport you want, if you can only succeed by using drugs? And sport could be the forerunner of what happens in society. Should we draw a line for the human 'race'?"* he asks, *"Or is it just up to the individual?"*

Human enhancement

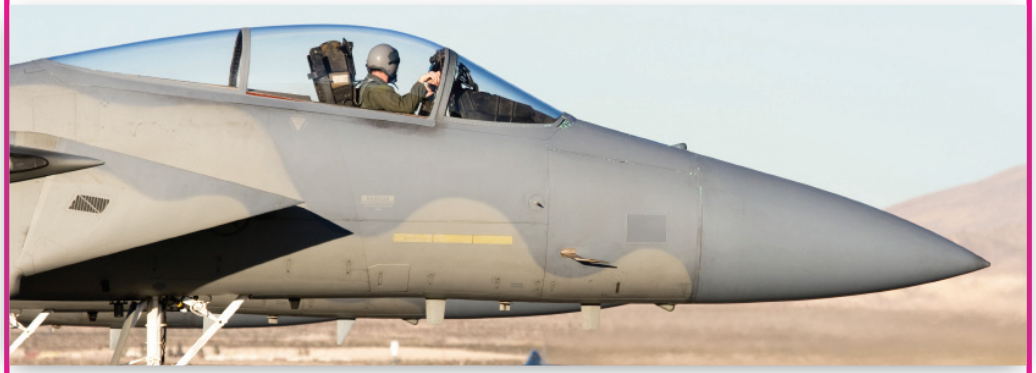
Murdo the driver S5

Infrared vision : enhancement ... or not?

Twice a week Murdo drives an articulated truck across the Scottish highlands and back with supplies to the remote outer islands. In winter, it can be a dangerous journey with mist or high winds and rain or snow. But they depend on it. He reads a brochure about how doctors developed an implant in a light sensitive device in the retina of the eye with a computer chip to connect to the brain, which helped some blind people partially recover their sight. But a company has taken the idea and made the device sensitive outside the normal range of vision, and is offering it to enable normal sighted people to see infrared. It would make driving at night much safer, the brochure claims. *"Sounds great!"* he says to his mates. They aren't so sure. *"What if the implant goes wrong or wears out?"* says one, *"... then what?" "And, knowing you, Murdo,"* another quips, *"rather than driving more safely, wouldn't you just use it to drive faster instead, with the same risk as now?"* What do you think?

Human enhancement

Dr John Bold S6



For medical or military?

"I am managing director of InsulinNano plc, which makes tiny needles for implanting in the skin of diabetics. Using nanotechnology we've given each needle a special coating which enables it to monitor the blood sugar levels, and it sends a signal to a tiny computer chip which controls a nano-sized pump. The pump delivers the right amount of insulin into the blood automatically. It was set up with government venture capital to help nano-medical companies get products to market. Once proven, there's a big demand. But the clinical safety trials are delayed. Funds are running very low. The military are interested in developing our needles to inject soldiers on the battlefield with drugs that would enable them do without sleep for long periods. There's no legislation about this 'dual use', so should I seize this lifeline so we can keep our medical goal on track, or not?"

Human enhancement