

## Further information

### Big Picture

Published twice a year by the Wellcome Trust, 'Big Picture' is a free post-16 resource for teachers that explores issues around biology and medicine.

[www.wellcome.ac.uk/bigpicture](http://www.wellcome.ac.uk/bigpicture)

### Debating in the classroom

Debate kits from *I'm a Scientist, Get Me Out of Here!*

[imascientist.org.uk/lessonplankits](http://imascientist.org.uk/lessonplankits)

Citizen Science resources to help teachers facilitate discussion about biomedical science issues that affect society today

[www.at-bristol.org.uk/cz/teachers/Default.htm](http://www.at-bristol.org.uk/cz/teachers/Default.htm)

### Debate topics

Below are opinion pieces, websites and journal articles addressing each debate topic. In most cases, the journal articles are open access, meaning you can freely read the full published research. In cases where they are not, you may be able to access a free copy by [joining the Wellcome Library online for free](#).

### Cognitive enhancers

Barbara Sahakian. 2012. A pill to make you smarter?

<http://www.wellcomecollection.org/whats-on/exhibitions/superhuman/the-future-of-humanity.aspx>

Barbara Sahakian. 2011. The ethics of smart drugs.

[www.cam.ac.uk/research/discussion/the-ethics-of-smart-drugs/](http://www.cam.ac.uk/research/discussion/the-ethics-of-smart-drugs/)

The Wellcome Trust blog: Looi M. 2010. Smart drugs, smarter students?

[wellcometrust.wordpress.com/2010/05/12/smart-drugs-smarter-students/](http://wellcometrust.wordpress.com/2010/05/12/smart-drugs-smarter-students/)

Bostrom N. 2009. [Cognitive Enhancement: Methods, ethics, regulatory challenges](#).

Farah M et al. 2004. [Neurocognitive enhancement: what can we do and what should we do?](#)

### Technology

The Independent: Greenfield S. 2012. Computers may be altering our brains.

[www.independent.co.uk/voices/commentators/susan-greenfield-computers-may-be-altering-our-brains-2336059.html](http://www.independent.co.uk/voices/commentators/susan-greenfield-computers-may-be-altering-our-brains-2336059.html)

The Guardian: Goldacre B. 2011. Why won't Professor Susan Greenfield publish this theory in a scientific journal?

[www.badscience.net/2011/11/why-wont-professor-greenfield-publish-this-theory-in-a-scientific-journal/](http://www.badscience.net/2011/11/why-wont-professor-greenfield-publish-this-theory-in-a-scientific-journal/)

Yuan K et al. [Microstructure abnormalities in adolescents with internet addiction disorder](#). PLoS ONE 2011;6(6):e20708.

## Love

Slate: Yong E. 2012. One molecule for love, morality and prosperity?

[www.slate.com/articles/health\\_and\\_science/medical\\_examiner/2012/07/oxytocin\\_is\\_not\\_a\\_love\\_drug\\_don\\_t\\_give\\_it\\_to\\_kids\\_with\\_autism.html](http://www.slate.com/articles/health_and_science/medical_examiner/2012/07/oxytocin_is_not_a_love_drug_don_t_give_it_to_kids_with_autism.html)

Ross HE et al. [Variation in oxytocin receptor density in nucleus accumbens has differential effects on affiliative behaviours in monogamous and polygamous voles](#). J Neurosci 2009;29(5):1312-8.

Kemp AH. [The role of oxytocin in human affect: a novel hypothesis](#). Curr Dir Psychol Sci 2011;20(4):222-31.

## Alcohol

Drug and alcohol services for under-18s

[www.y-smart.org.uk/](http://www.y-smart.org.uk/)

ONS. 2012. [Alcohol-related Deaths in the UK, 2010](#).

Taffe MA et al. [Long-lasting reduction in hippocampal neurogenesis by alcohol consumption in adolescent nonhuman primates](#). PNAS 2010, doi:10.1073/pnas.0912810107.

Pentney RJ. [Measurements of dendritic path lengths provide evidence that ethanol-induced lengthening of terminal dendritic segments may result from dendritic regression](#). Alcohol and Alcoholism 1995;30(1):87-96.

## Cannabis

Drug and Alcohol Information Centre: cannabis and schizophrenia.

[www.drugarm.com.au/files/pdf/Cannabis%20&%20Schizophrenia.PDF](http://www.drugarm.com.au/files/pdf/Cannabis%20&%20Schizophrenia.PDF)

Big Picture: Addiction. 2010.

[www.wellcome.ac.uk/Education-resources/Education-and-Learning/Big-Picture/All-issues/Addiction/index.htm](http://www.wellcome.ac.uk/Education-resources/Education-and-Learning/Big-Picture/All-issues/Addiction/index.htm)

Drugs and the brain: a quick guide to brain chemistry.

[www.wellcome.ac.uk/Education-resources/Education-and-Learning/Big-Picture/All-issues/Addiction/WTDV027633.htm](http://www.wellcome.ac.uk/Education-resources/Education-and-Learning/Big-Picture/All-issues/Addiction/WTDV027633.htm)

Drug and alcohol services for under-18s

[www.y-smart.org.uk/](http://www.y-smart.org.uk/)

Zamberletti E et al. [The endocannabinoid system and schizophrenia: integration of evidence](#). *Curr Pharm Des* 2012;18(32):4980-90.

Arseneault L et al. [Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study](#). *BMJ* 2002;325:1212-3.

## Brain damage

Aeon Magazine: Fleming S. 2012. Was it really me?

[www.aeonmagazine.com/being-human/steve-fleming-neuroscience-crime/](http://www.aeonmagazine.com/being-human/steve-fleming-neuroscience-crime/)

MacArthur Foundation Research Network on Law and Neuroscience

[www.lawneuro.org/](http://www.lawneuro.org/)

Royal Society. Brain Waves Module 4: Neuroscience and the Law

<http://royalsociety.org/policy/projects/brain-waves/responsibility-law/>

Udell M. 2009. [Neuroscience, free will and criminal justice](#).

Mobbs D et al. [Law, responsibility and the brain](#). *PLoS Biol* 2007;5(4):e103.

## Humans superior

The Wellcome Trust. 2012. Metacognition: I know (or don't know) that I know.

[www.wellcome.ac.uk/News/2012/Features/WTVM054482.htm](http://www.wellcome.ac.uk/News/2012/Features/WTVM054482.htm)

National Geographic: Roach J. 2006. Elephants recognize selves in mirror, study says.

[news.nationalgeographic.com/news/2006/10/061030-asian-elephants.html](http://news.nationalgeographic.com/news/2006/10/061030-asian-elephants.html)

Joly O et al. [Processing of vocalizations in humans and monkeys: a comparative fMRI study](#). *NeuroImage* 2012;62(3):1376-89.

Plotnik JM et al. [Self-recognition in an Asian elephant](#). *PNAS* 2006;103(45):17053-7.

## Violent adolescents

PBS. Inside the teenage brain.

[www.pbs.org/wgbh/pages/frontline/shows/teenbrain/](http://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/)

Estudillo MO. 2001. [Juveniles should be treated as adults in certain circumstances](#).

Mills KL et al. [Developmental changes in structure of the social brain in late childhood and adolescence](#). *Soc Cogn Affect Neurosci* 2012.