

The Science of Intelligence

**Richard Haier
Insight Cruises
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Please Note

I enjoyed our time on board and I'm happy to provide these slides but, they are provided for your personal viewing only. They are all copyrighted and cannot be used for any other purpose without my written permission.

Thx----Rich

Also, this is a pdf version of my presentations. The video clips do not function. I do not have permission to post most of them but if you have a special need to see them, please email me:

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You can also see more on my website:

www.richardhaier.com



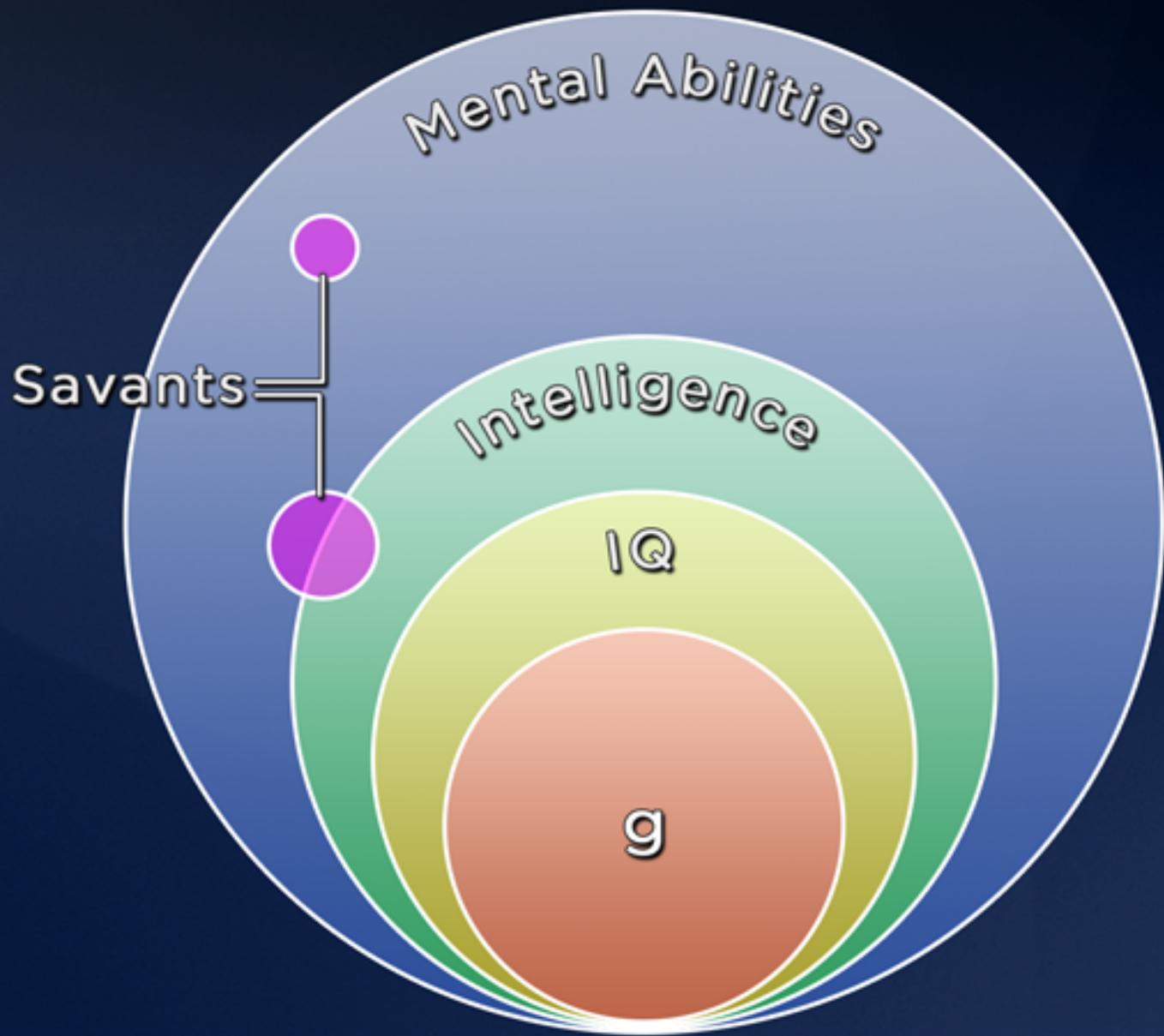
**“There’s so much
about intelligence
that I don’t
understand.”**

...Homer Simpson

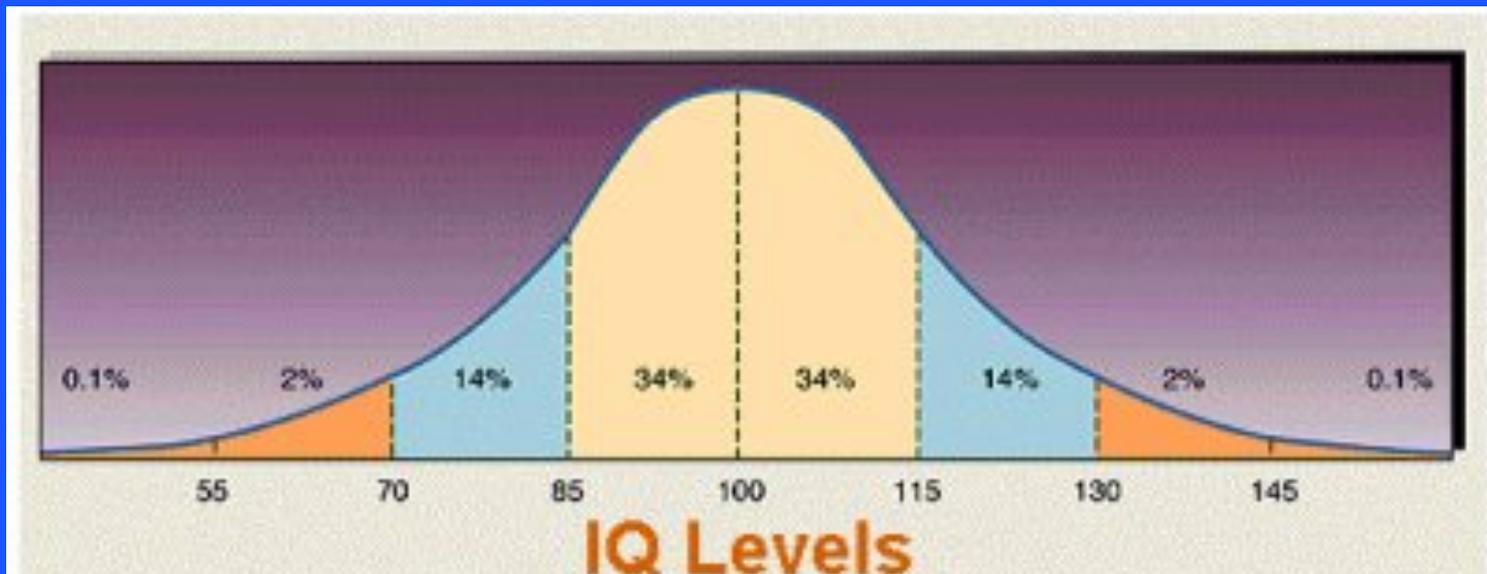
**Session 4 How smart do you want
to be?**

CAN INTELLIGENCE BE ENHANCED?

**What does this new science of
intelligence mean for you and for
your children and your
grandchildren?**



Can the curve be shifted to the right so the average goes from 100 to 110 or higher?



**Can intelligence be
enhanced by manipulating
gray matter volume or white
matter integrity?**

**Does your brain become
more efficient with learning
or training?**

Structural MRI

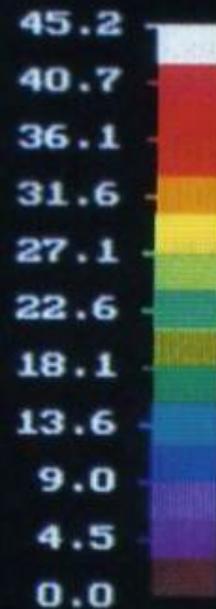
Does Gray Matter Increase After Practice?



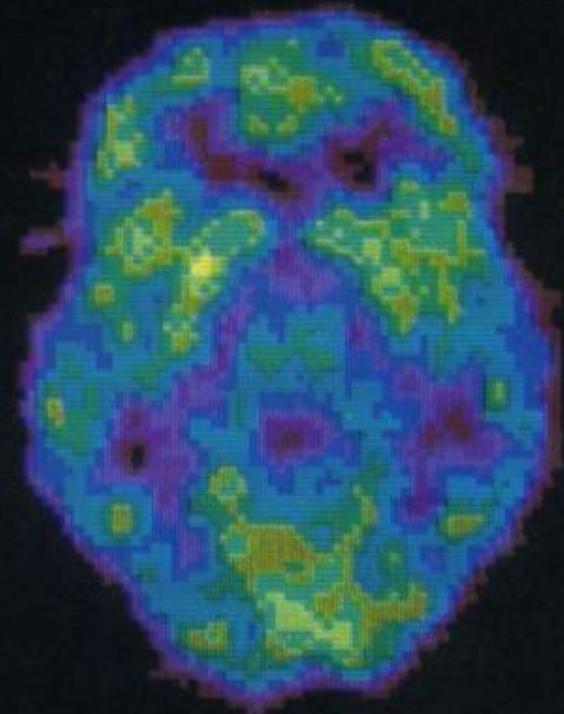
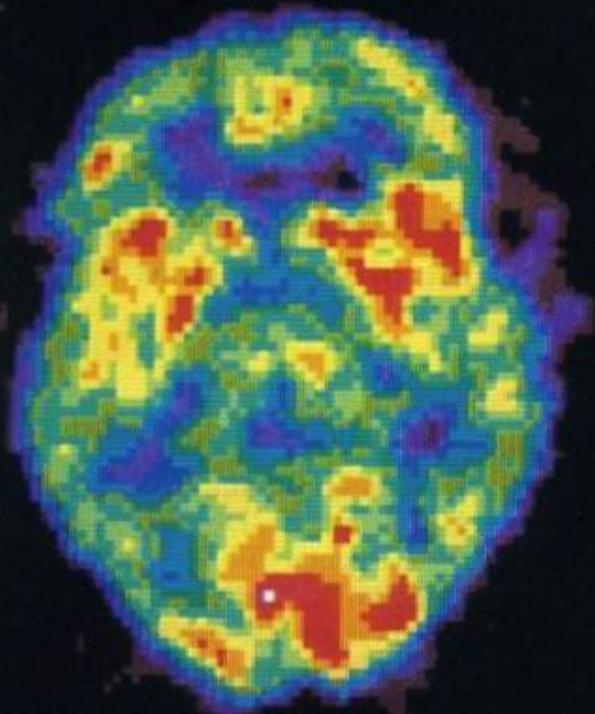
Tetris

NAIVE

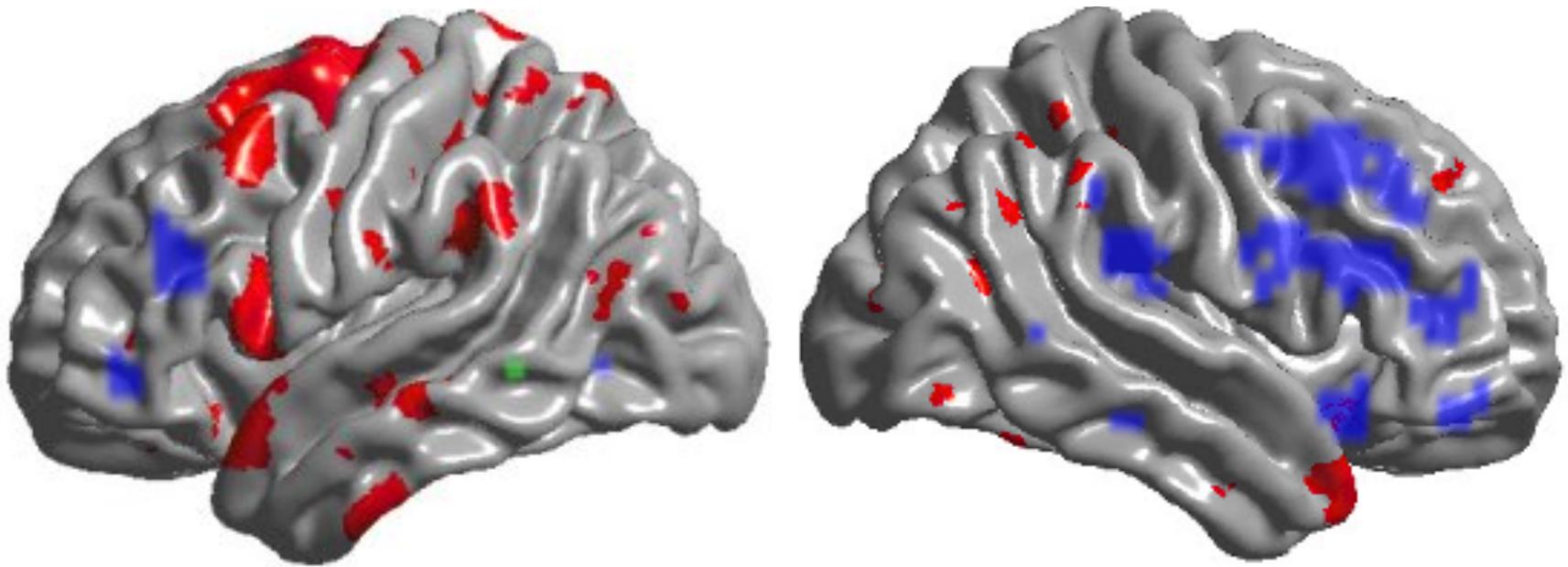
PRACTICE



$\mu\text{mol}/100\text{gm}/\text{min}$

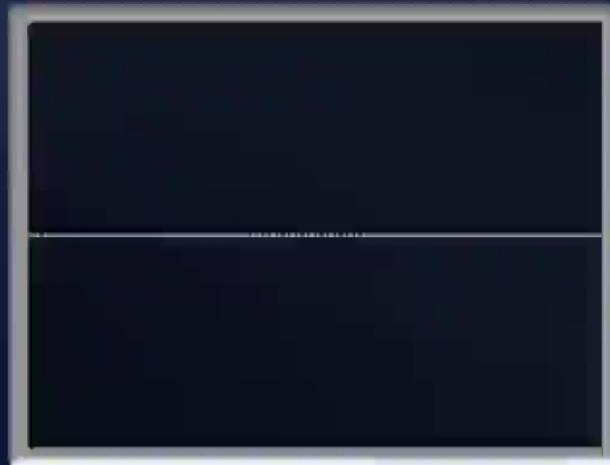


Cortical thickness and BOLD changes after Tetris practice



Haier et al 2009 BMC Research Notes
Blue Planet Software

N2-back letter auditory memory training



Auditory-letter
matching

N-back visual spatial

Dual n-back



Visual-Spatial
matching



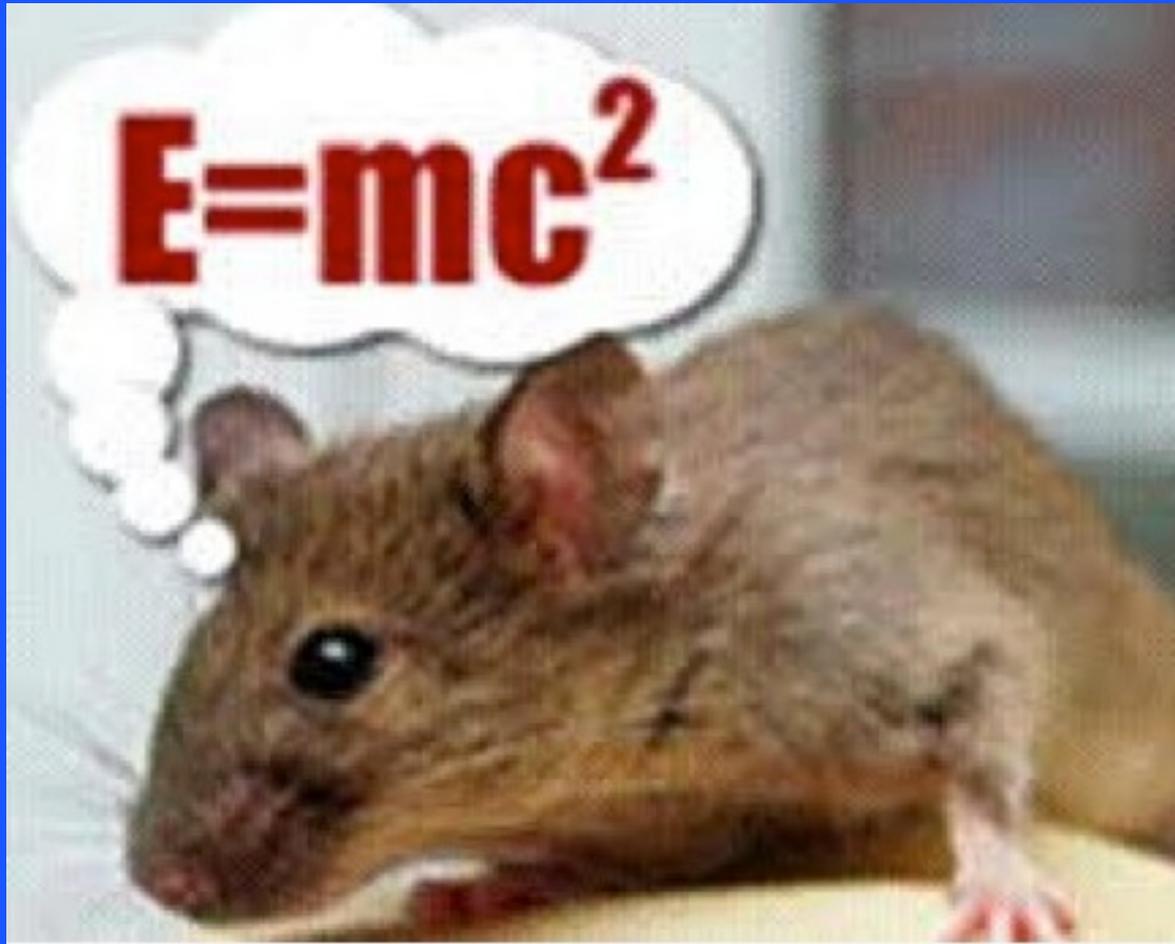
Auditory-letter
matching

Chimp vs Human—working memory [you can find this on YouTube]



**How about shocking your
brain?**

Doogie Mouse



CLOSE TO HOME

BY JOHN McPHERSON

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WELL, GENTLEMEN, CONGRATULATIONS!
YOUR EXPERIMENTS ON ENHANCING
INTELLIGENCE HAVE BEEN QUITE
SUCCESSFUL! NOW, IF YOU WOULD KINDLY
DIVULGE THE PASSWORDS TO YOUR FINANCIAL
ACCOUNTS...



Creativity and Intelligence

Is scientific study of creativity
possible?

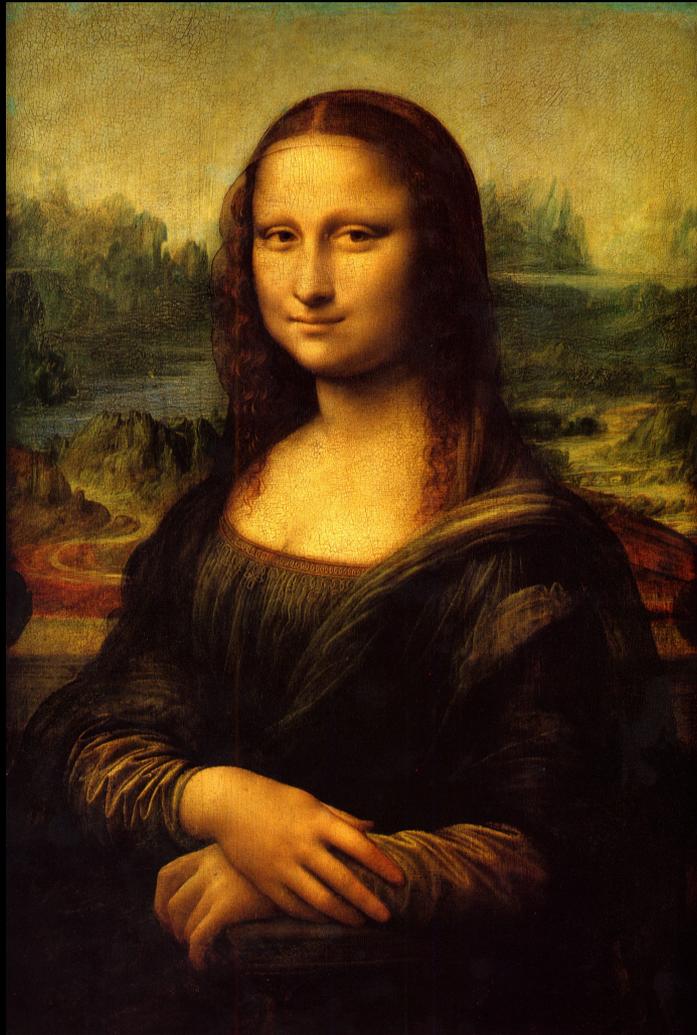
Right Brain vs Left Brain



Left
brain

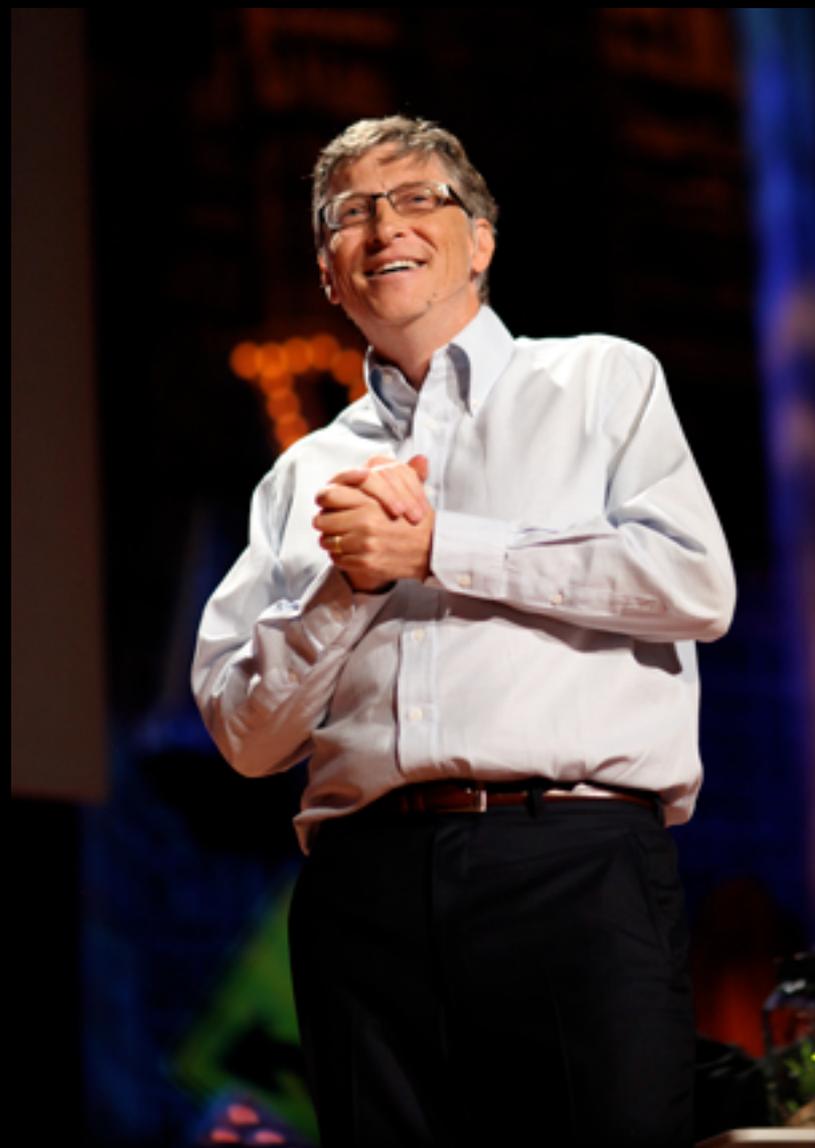
Right
brain

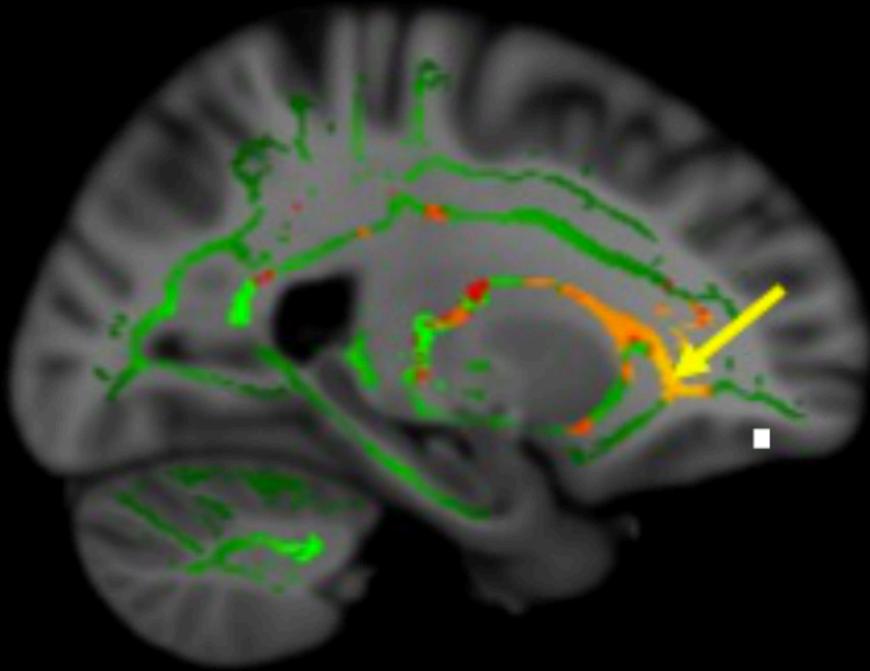




What's the difference between these?







The IQ Pill

Results of 2008 Nature survey (N=1,427)

20% use drugs to improve concentration

70% would risk mild side effects to boost
brain power

80% defended right to take such boosters

>33% would feel pressure to give their kids
brain boosters if other kids used them

**If we could change your
gray matter, or the relevant
molecular biology...**

Would you take an IQ pill?

How much would you pay?

**All neuroscience studies of intelligence will ultimately lead to attempts to increase it--manipulate brain growth factors, neurotransmitters, stem cells---
What will drugs to lessen or cure AD do in college students?**

FINAL QUESTION:

Assuming more intelligence is always better than less (without exception), don't we have a moral obligation to increase IQ?

CAUTION

**THIS MACHINE
HAS NO BRAIN
USE YOUR OWN**



