

The pros and cons of transcranial electrical stimulation (tES) for non-therapeutic use

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Cognitive Improvement

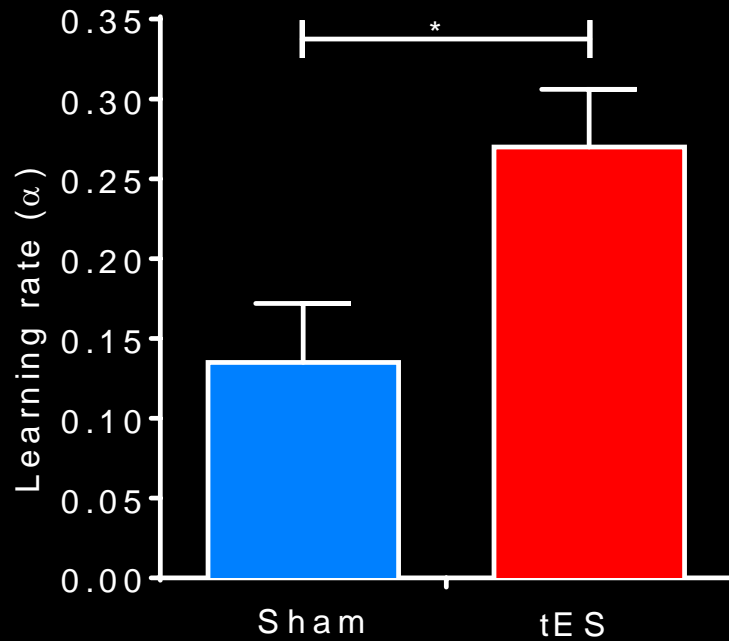
Brain stimulation has shown the capacity to improve cognitive and non-cognitive performance

This has been shown on single session, and on multiple sessions that involve cognitive training (Jacobson et al., 2012; Kuo & Nitsche, 2012; Krause & Cohen Kadosh, 2013)

tES Improved Arithmetic Learning over 5 Days

Calculation

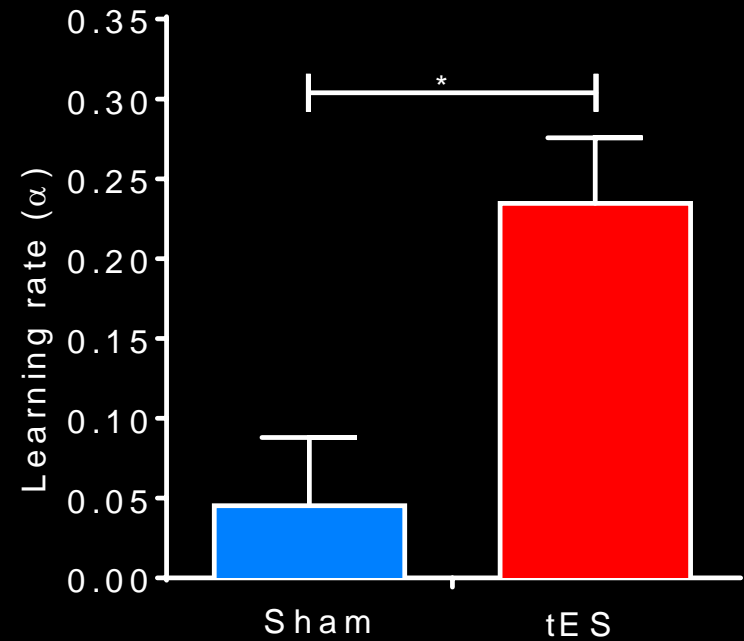
e.g., $5+18-10+18=31$



$F(1, 22)=7.9, p<.01$

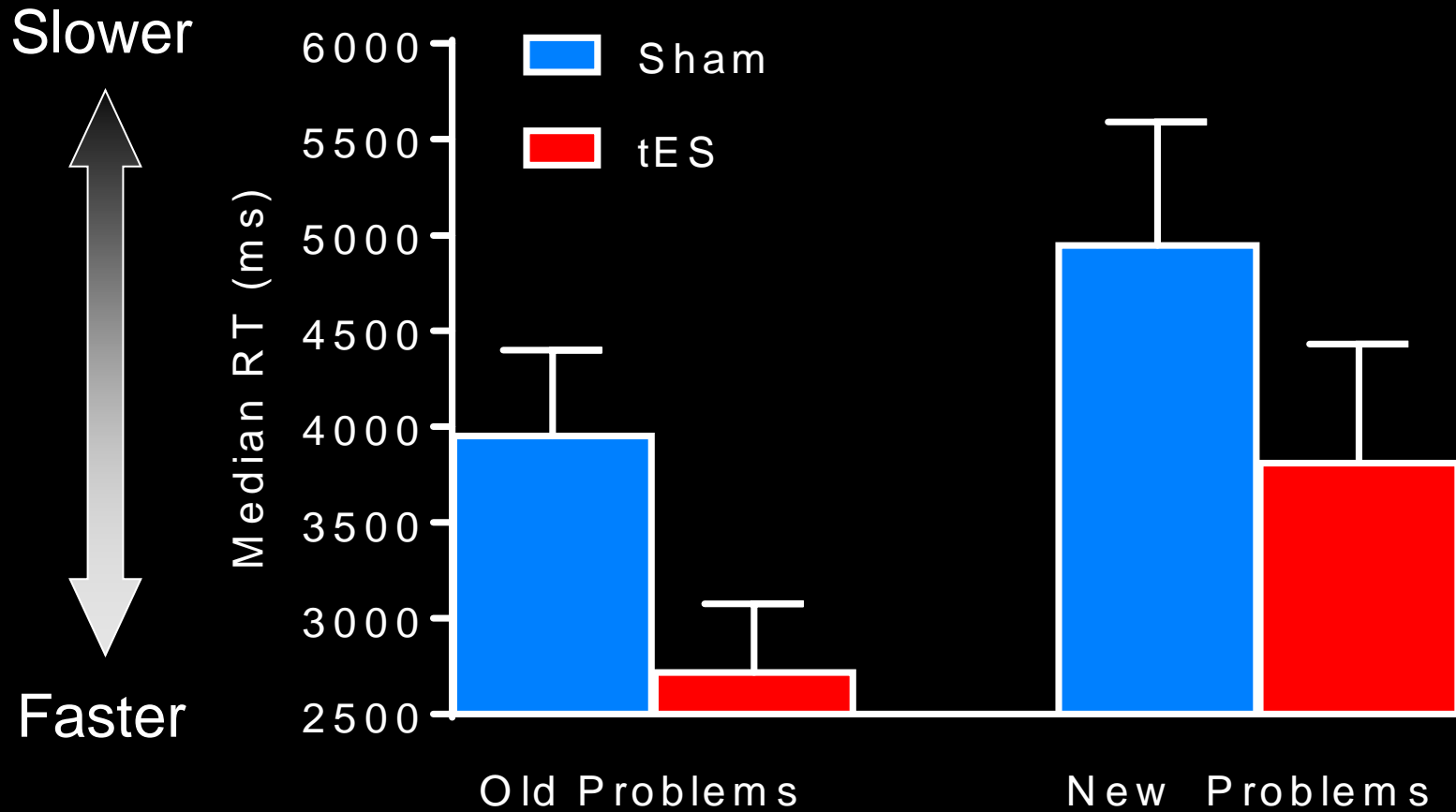
Drill

e.g., $4 \times 8 = 32$

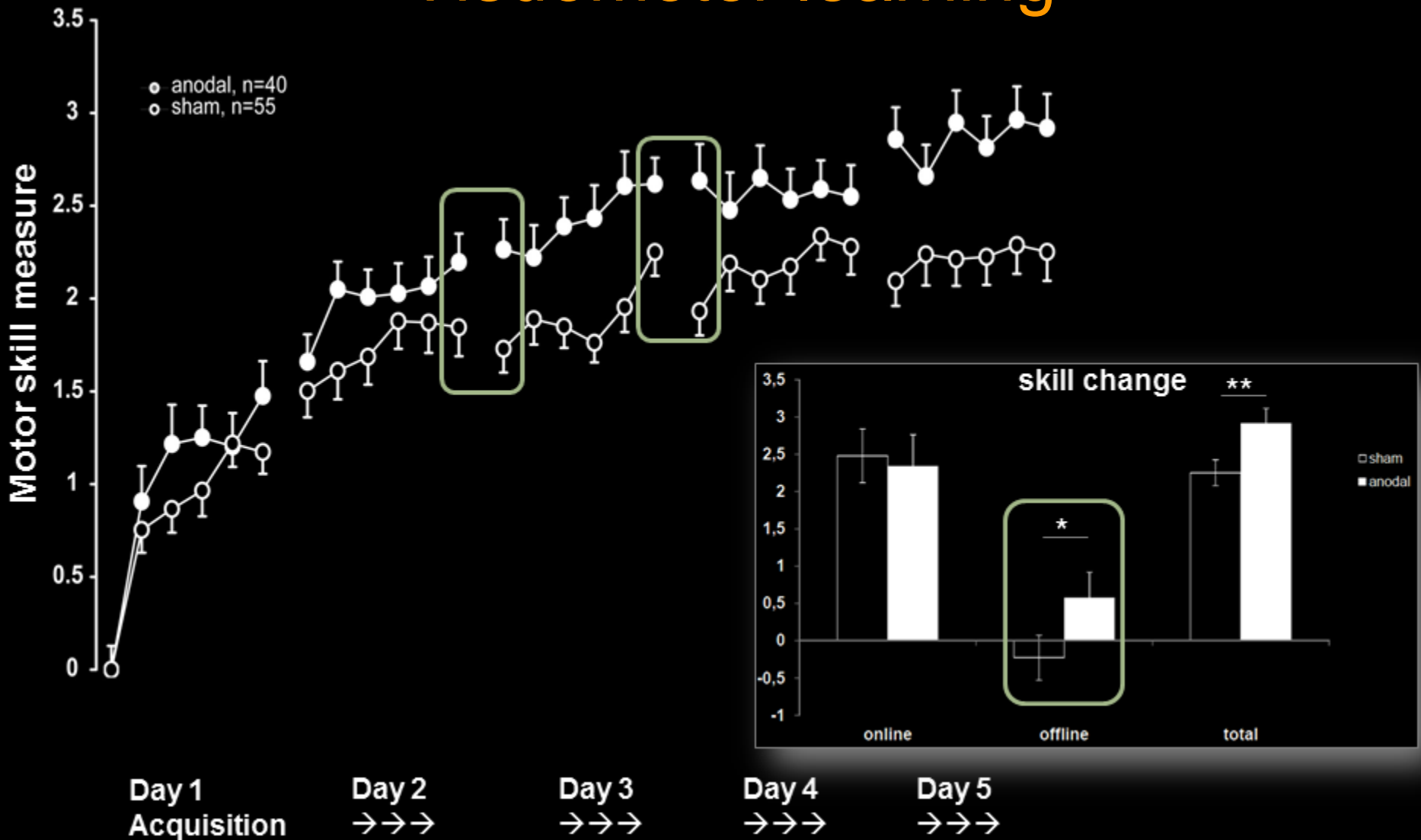


$F(1, 22)=7.81, p<.01$

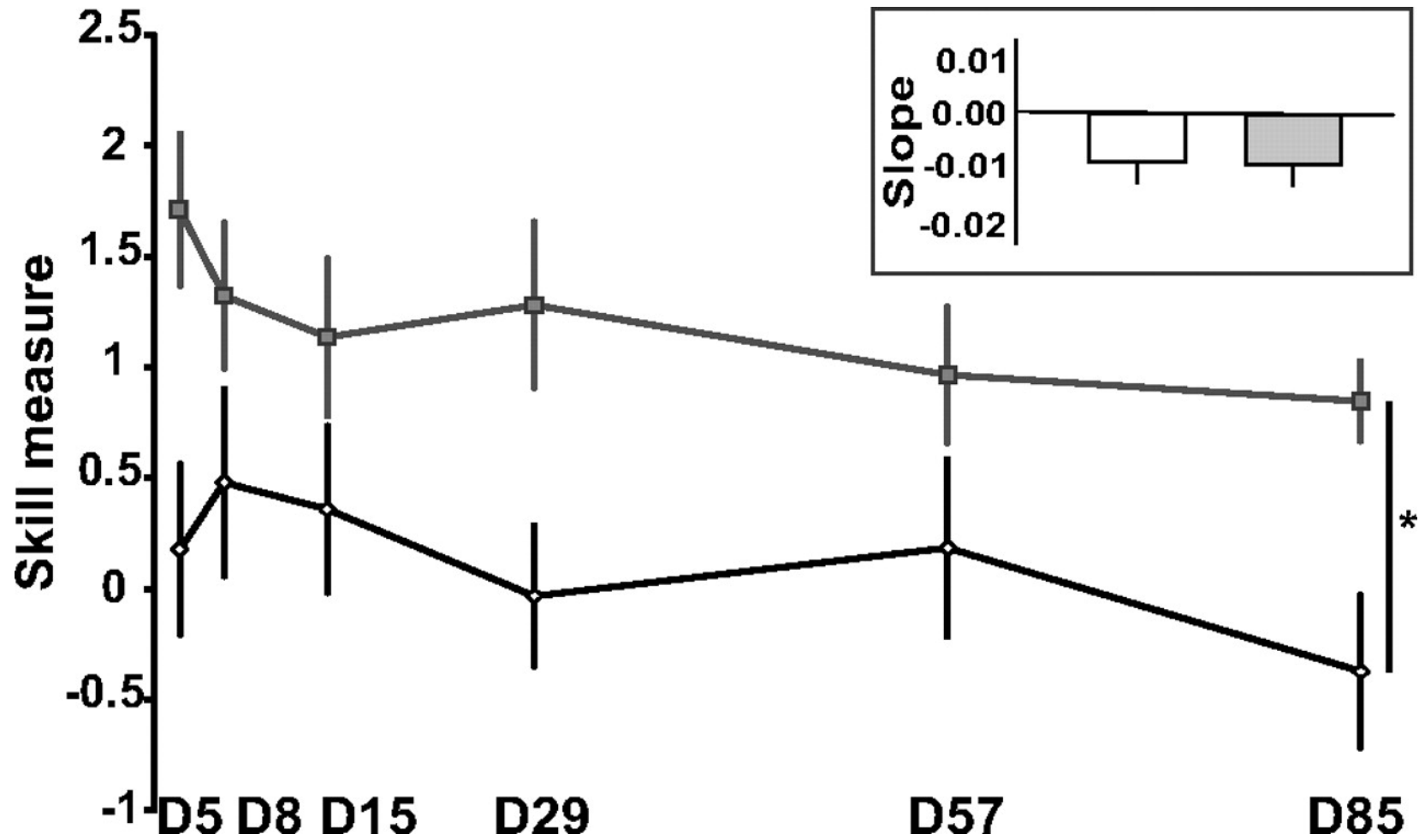
The effects are long-lasting



Visuomotor learning



Visuomotor learning



The cons

Safety

Vibes are the result of years of development by neuroscientists and extensive test sessions with thousands of people.

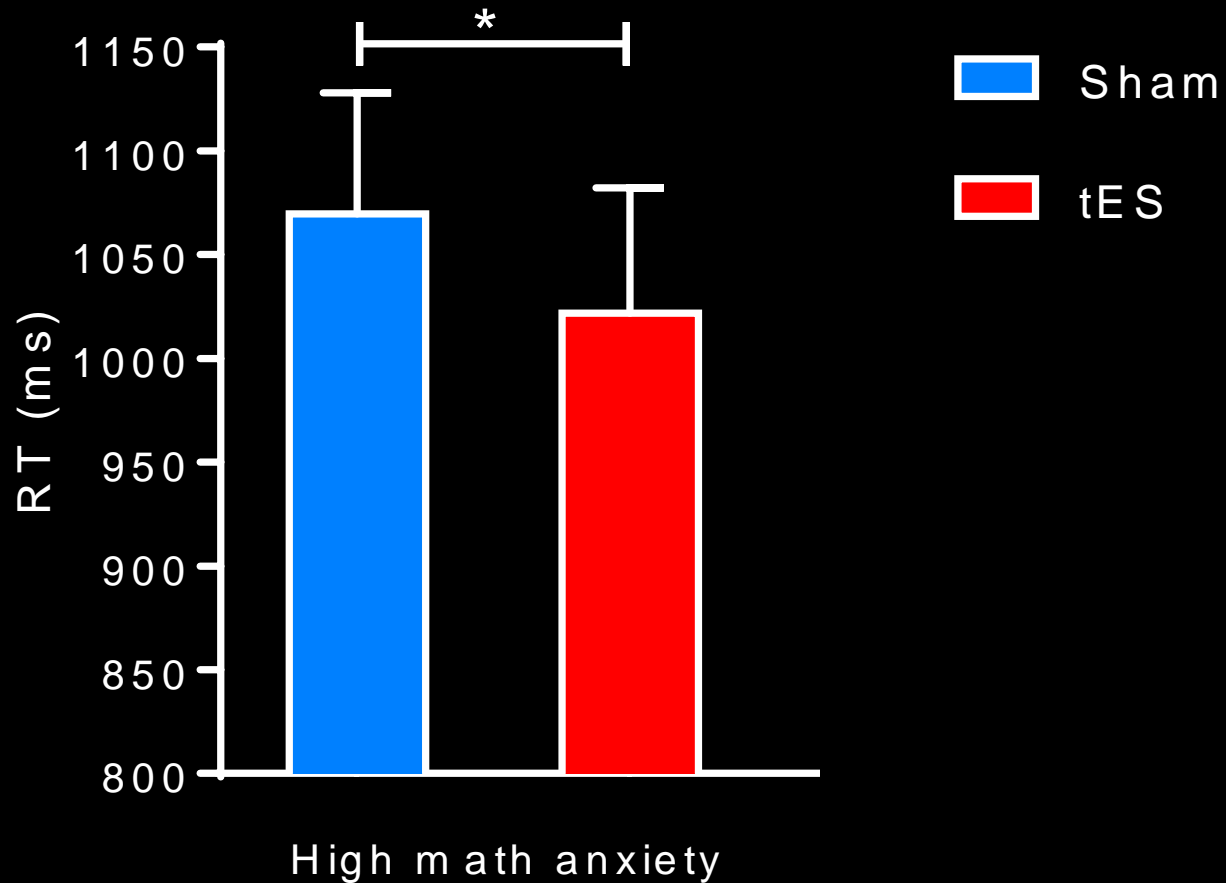
technology employs energy levels within the normal range of brain activity and we work within FDA guidelines to assure product safety. Over 1,000 peer-reviewed published studies across more than 20,000 sessions further support the safety of our approach.

[Our Approach](#)

The cons



The cons

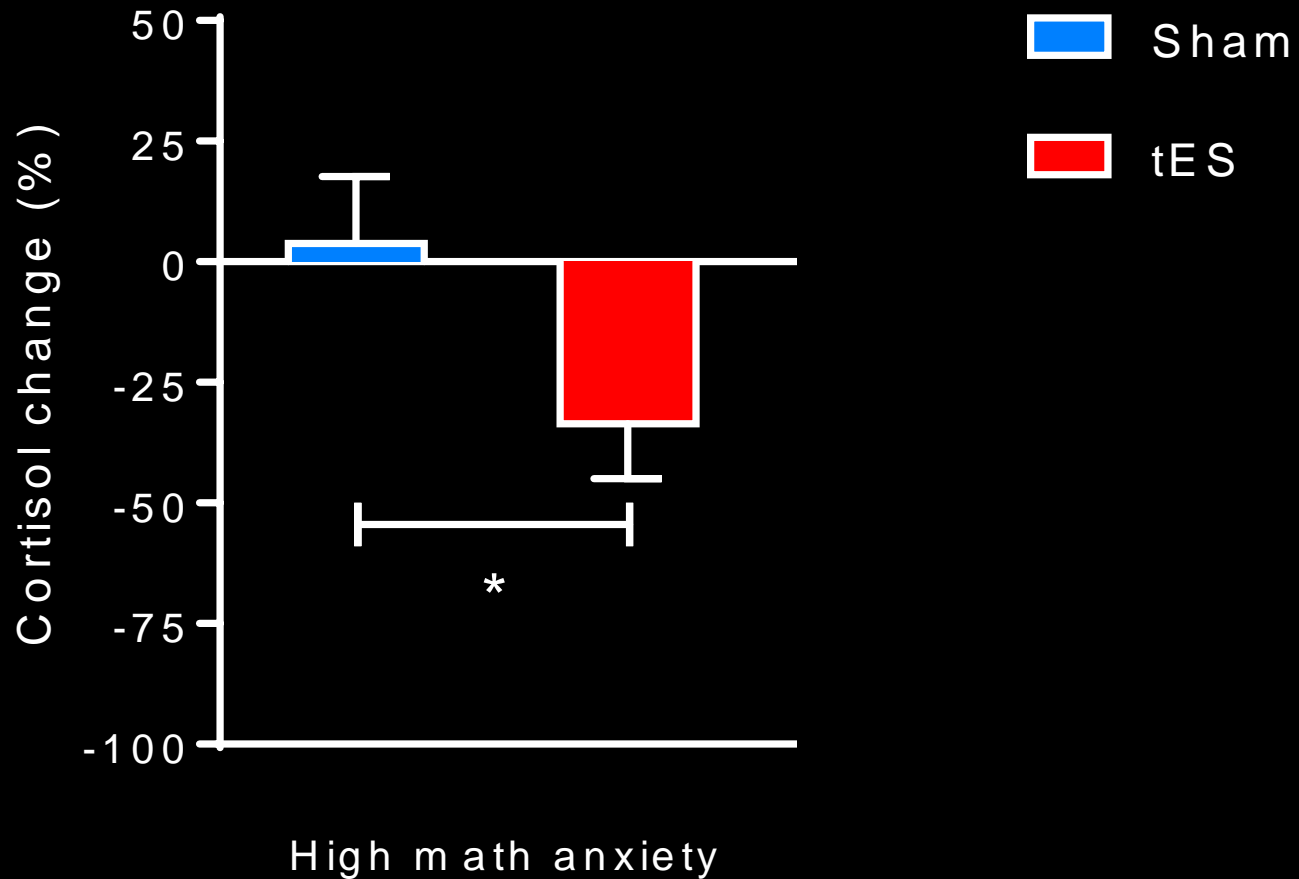


Physiological side effects

Worse



Better



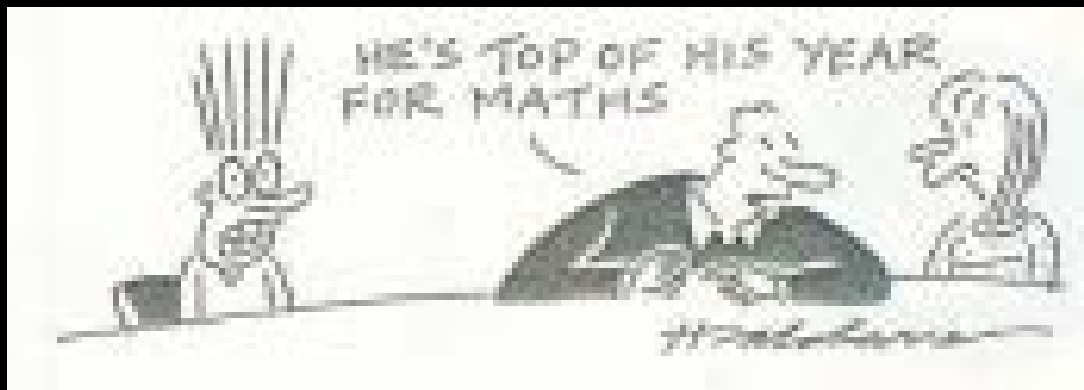
Where do we need to go?

- Safety of stimulation over short- and long-period of time
- The impact of stimulation on the developing brain
- Individualising stimulation
- Revising exclusion criteria
- Increase public awareness
- Flexible regulation

Thank You For Your Attention

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The Times (5/11/2010)