Improving Inhibition Control and Impulsiveness using Go/No-Go Exercises with Children

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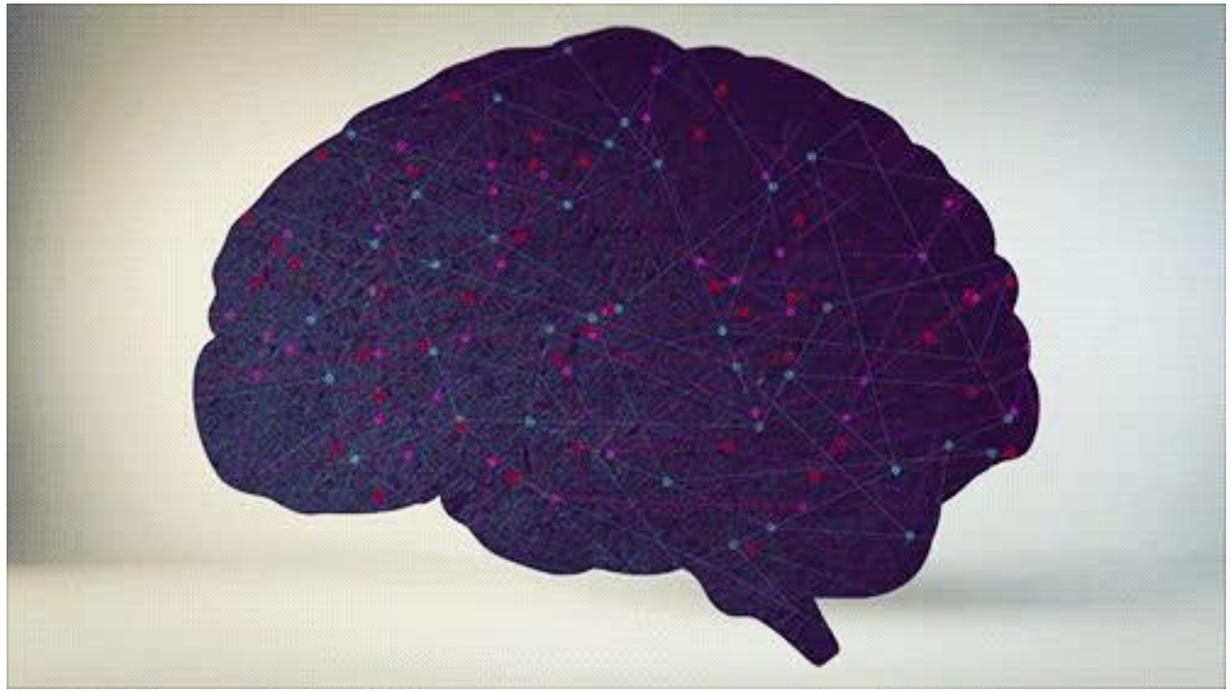
We have evolved to a point where our brain can anticipate actions and make a decision in milliseconds, whether we should make an action or not, and if so, how.

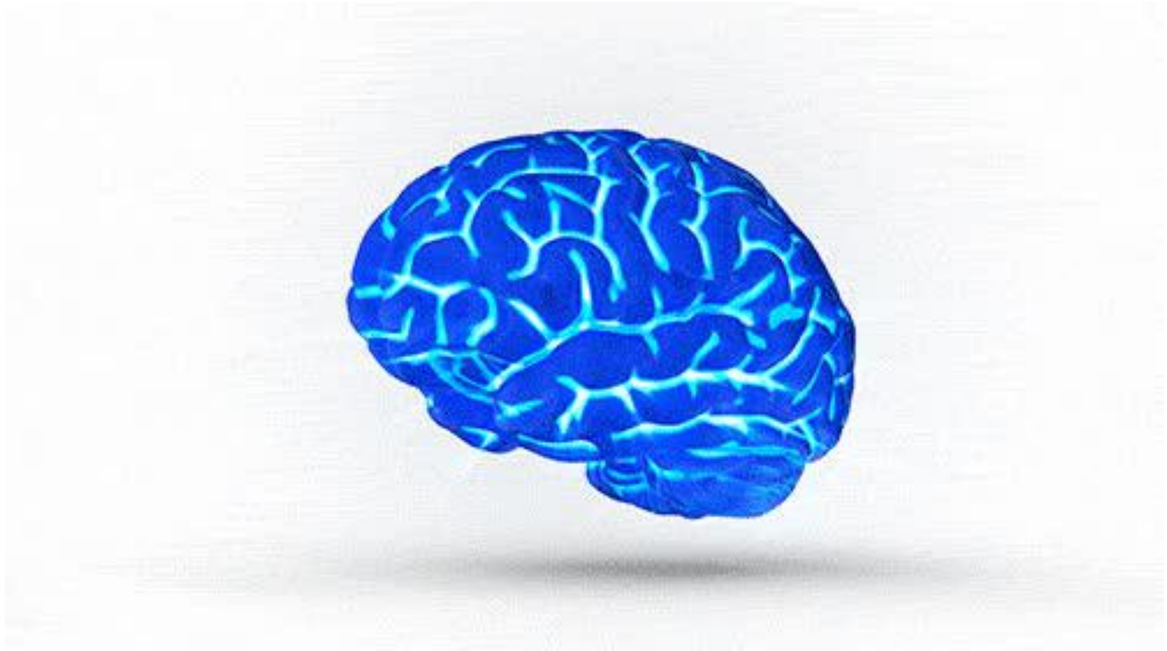
We have brain regions which are responsible for pushing us towards an action and brain regions which are responsible of inhibition of the first.



It is well established that Orbitofrontal cortex (OFC) lesions produce deficits in response inhibition. Imaging studies suggest that activity in OFC is stronger on trials that require suppression of behavior or movement, specifically the Right Inferior OFC.

The ability to activate these brain areas is considered responsible for impulse control, which is often an issue for children with ADHD and is usually a major component of the disorder.

It is also established that frontal top-down inhibition processes can be enhanced with specifically designed inhibitory control training regimens utilizing Go/No-Go (GNG) concept.



We can see impulse control as early as age 3.

Impulsive children pose risk of injury, violence and

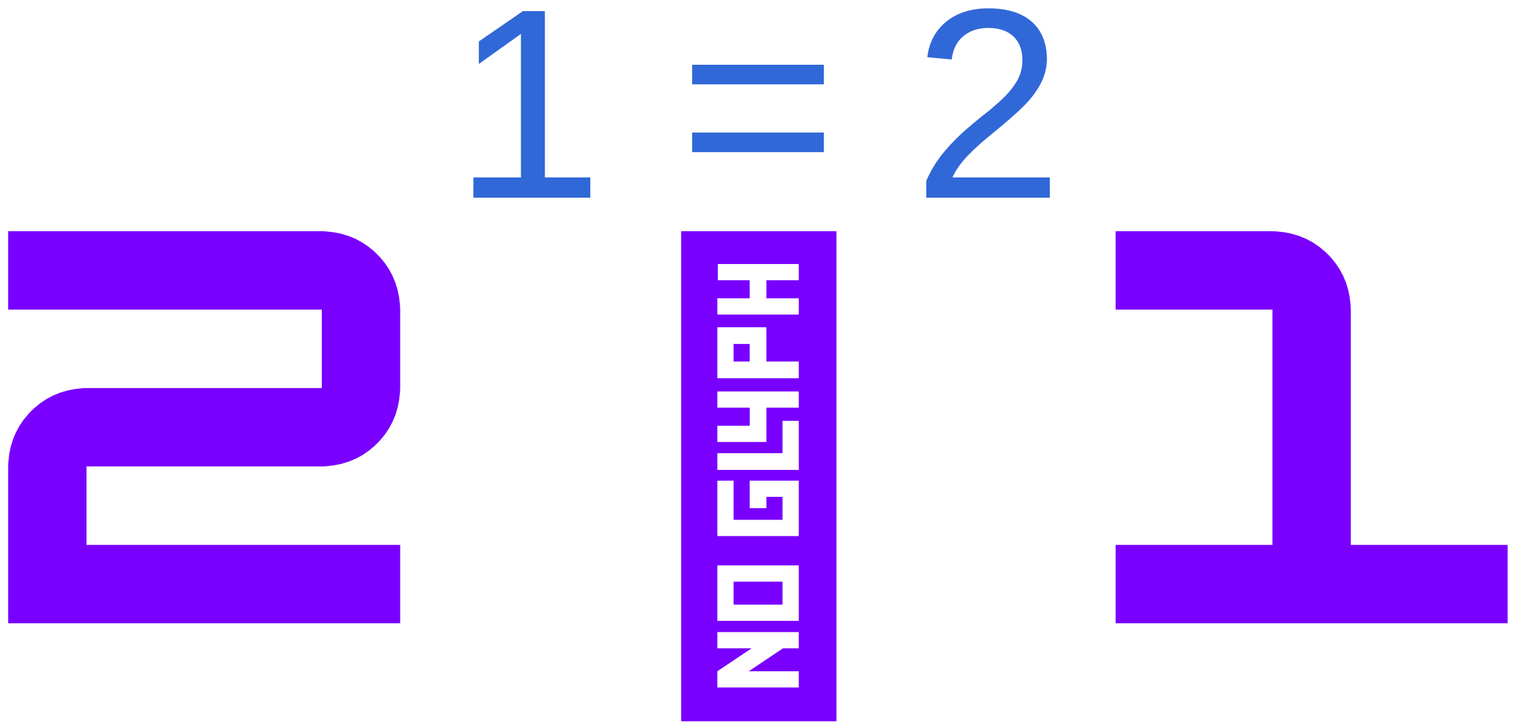
social difficulties.

We use GNG based games and exercises in order to fire the OFC (The right OFC mainly) and increase Impulse Control.

Methods: 12 children (8 boys, 4 girls) went through an 18 bi-weekly, 30 sessions of Inhibition Training.
We used multiple exercises and games that have a core of Go/No-Go component and track the improvement of inhibition control.

Results: All participants improved their inhibition markers, some more than others.


Let’s
Play


1 = 2
NO GLYPH

FORWARD

BACKWARD

SEA

LAND

STROOP TEST

yellow blue green blue

yellow blue green blue

yellow red blue red

yellow blue green blue

yellow red blue red

green red yellow yellow

yellow	blue	green	blue
yellow	red	blue	red
green	red	yellow	yellow
blue	yellow	yellow	green

yellow	blue	green	blue
yellow	red	blue	red
green	red	yellow	yellow
blue	yellow	yellow	green
blue	green	green	red

yellow blue green blue

yellow red blue red

green red yellow yellow

blue yellow yellow green

blue green green red

blue red blue yellow

BLAZEPOD

FLASH REFLEX TRAINING

<u>Level 1</u>

2 pods

Blue – Left

Red – Right

<u>Level 2</u>

4 pods

Blue – Left

Red – Right

Level 3

4 pods

Blue – Left

Red – Right

Ignore the other colors!

Level 4

4 pods

4 hoops

Jump to the hoop with the same color as the pod

Level 5

4 pods

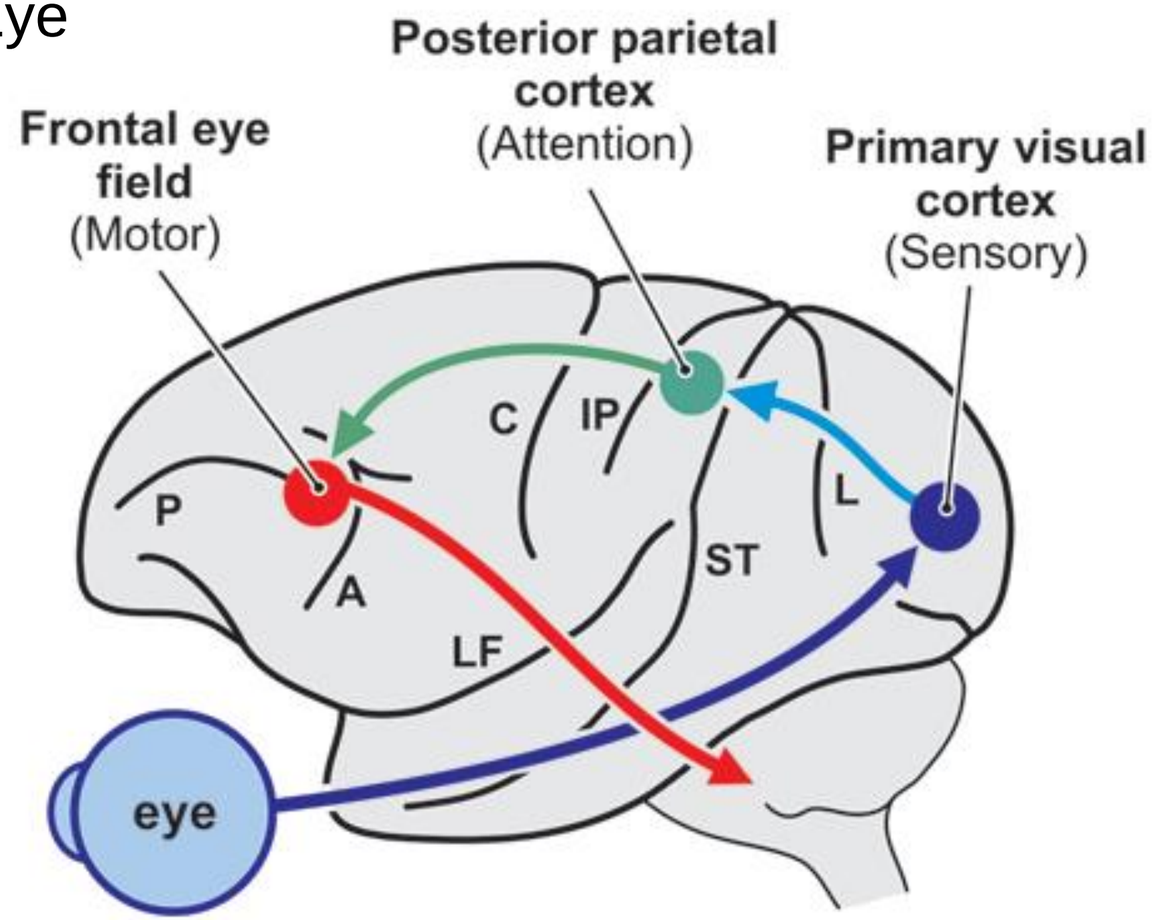
4 hoops

Jump to the word with the same color as the pod

Eye Movement

Saccade /Anti-Saccade

Saccade is a fast, **voluntary**, movement of the eyes, generated by activation of the Frontal Eye Field (FEF) of one hemisphere, and require Cerebellar input for accuracy.



Traffic Light Game

Saccade, Anti-Saccade and GNG

Dr Adam Winter

You can find this presentation and it’s resources here: