

# An uninhibited guide to the management of disinhibition



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## Inhibition as manifestation of Will



“When physiologists have solved the problem of inhibition, they will be in a position to consider that of volition.”

*Morgan 1891*

“The laws of nature ... ordain that the faculties of an inferior order should obey those of a superior order. . .”

*Gall 1835*

“This inhibitory influence of higher over lower nerve centres we shall see reason to extend into the region of the encephalic centres themselves.”

*Ferrier, 1876*

empirical psychology	psychiatry	physiology			physiological psychology	neuropsychology
<b>1834</b>	<b>1843</b>	<b>1845</b>	<b>1858</b>	<b>1863</b>	<b>1874</b>	<b>1876</b>
<b>associative inhibition</b> Herbart	<b>behavioral inhibition in psychiatric patients</b> Griesinger	<b>peripheral inhibition</b> Weber and Weber	<b>inhibitory system</b> Lister	<b>central inhibition</b> Sechenov	<b>inhibition in the CNS</b> Wundt	<b>inhibition, attention and frontal cortex</b> Ferrier
physiology and pharmacology	neurophysiology	psychoanalysis	behaviorism	neurology	neurophysiology	
<b>1883</b>	<b>1906</b>	<b>1926</b>	<b>1927</b>	<b>1931</b>	<b>1941</b>	<b>1942</b>
<b>inhibition by interference</b> Brunton	<b>neural inhibition</b> Sherrington	<b>inhibition and anxiety</b> Freud	<b>internal and external inhibition</b> Pavlov	<b>inhibition in epilepsy</b> Jackson	<b>inhibitory neurons in the spinal cord</b> Renshaw	<b>inhibition and the corpus striatum</b> Mettler and Mettler
theories of personality	experimental psychology	learning theory	behaviorism	PFC lesion studies		cognitive psychology
<b>1947</b>	<b>1949</b>	<b>1959</b>	<b>1963</b>	<b>1964</b>	<b>1965</b>	<b>1984</b>
<b>behavioral inhibition as a personality trait</b> Eysenck	<b>act-inhibition</b> Stanley and Jaynes	<b>latent inhibition</b> Lubow and Moore	<b>inhibition of the orienting reaction</b> Sokolov	<b>inhibition of the orienting reaction</b> Konorski	<b>drive disinhibition</b> Brutkowski	<b>inhibition of return</b> Posner and Cohen

## Development of the concept of Inhibition

*from Bari & Robbins (2013)*

## Perspectives on inhibition

- 19<sup>th</sup> C. Inhibitory theories of cognition = thinking as inhibited action
- Behavioural: inhibition = a form of impulse control allowing delayed reinforcement
- Social learning: socially-mediated response to pursuit of intrinsic goals
- Developmental: internalised ways of behaving aided by language development (self-talk)
- Neuropsychological: a means of regulating activation of action schema mediated by attention



# Psychiatric notions of disinhibition

- Social disinhibition
- Sexual disinhibition
- Emotional lability
- Mania



# Emotional lability

- Pathological laughing & crying
- Pseudobulbar palsy
- Dysprosopia
- Disorder of emotional expression
- Clear-cut (brief) episodes of depressed appearance (wailing, facial grimacing)
- Normal affective behaviour in other settings
- Behaviour ceases rapidly on distraction
- Insight usually preserved
- Midbrain (septum), bilateral cortical lesions implicated



# Mania (Hypomania)

- Orbito-frontal brain region implicated in secondary mania
- Abnormally and persistently elevated, expansive or irritable mood
  - More talkative than usual, racing thoughts
  - Distractibility
  - Reduced need for sleep
- Disruption to normal functioning (Mania only)
- No psychotic features
- Not due to effects of a substance or a general medical condition



# Social disinhibition

- Over-familiarity with people
  - overly tactile
  - use of first names, nicknames
- Intimate self-disclosure
  - eg. health, financial, sexual information
- Excessive, garrulous chatter
- Impolite, abrupt, offensive comments





- “I repeat myself and may seem insecure. I tend to be preoccupied by certain things. You may notice that I might ask inappropriate questions. I speak too much about my private life.”



# Sexual disinhibition

- sexual conversation or content
- comments and jokes of a personal or sexual nature
- inappropriate touching or grabbing
- sexual propositions
- exposure of genitals in public
- masturbation in a public place
- sexual assault



# Sexual disinhibition

Can be considered as a failure to follow social rules about when and where to say or do something.

Sexual thoughts, impulses or needs are expressed in a direct or disinhibited way:

- in inappropriate situations
- at the wrong time
- with the wrong person



Gray 1982



- BEHAVIOURAL INHIBITION SYSTEM
- Inhibits behaviour pertaining to negative outcomes
- Overactive = anxiety proneness
- Right PFC

- BEHAVIOURAL ACTIVATION SYSTEM
- Activates behaviour pertaining to positive outcomes
- Overactive = impulsivity
- Sensitivity to reward
- Left PFC

# Inhibition and impulsivity

- Poor response inhibition on experimental tasks correlated with questionnaire reports of impulsivity

*Rochat et al., 2013*

- UPPS model of impulsivity
- **Urgency**
- Lack of Premeditation
- Lack of Perseverance
- Sensation seeking

*Wilbertz et al 2014*

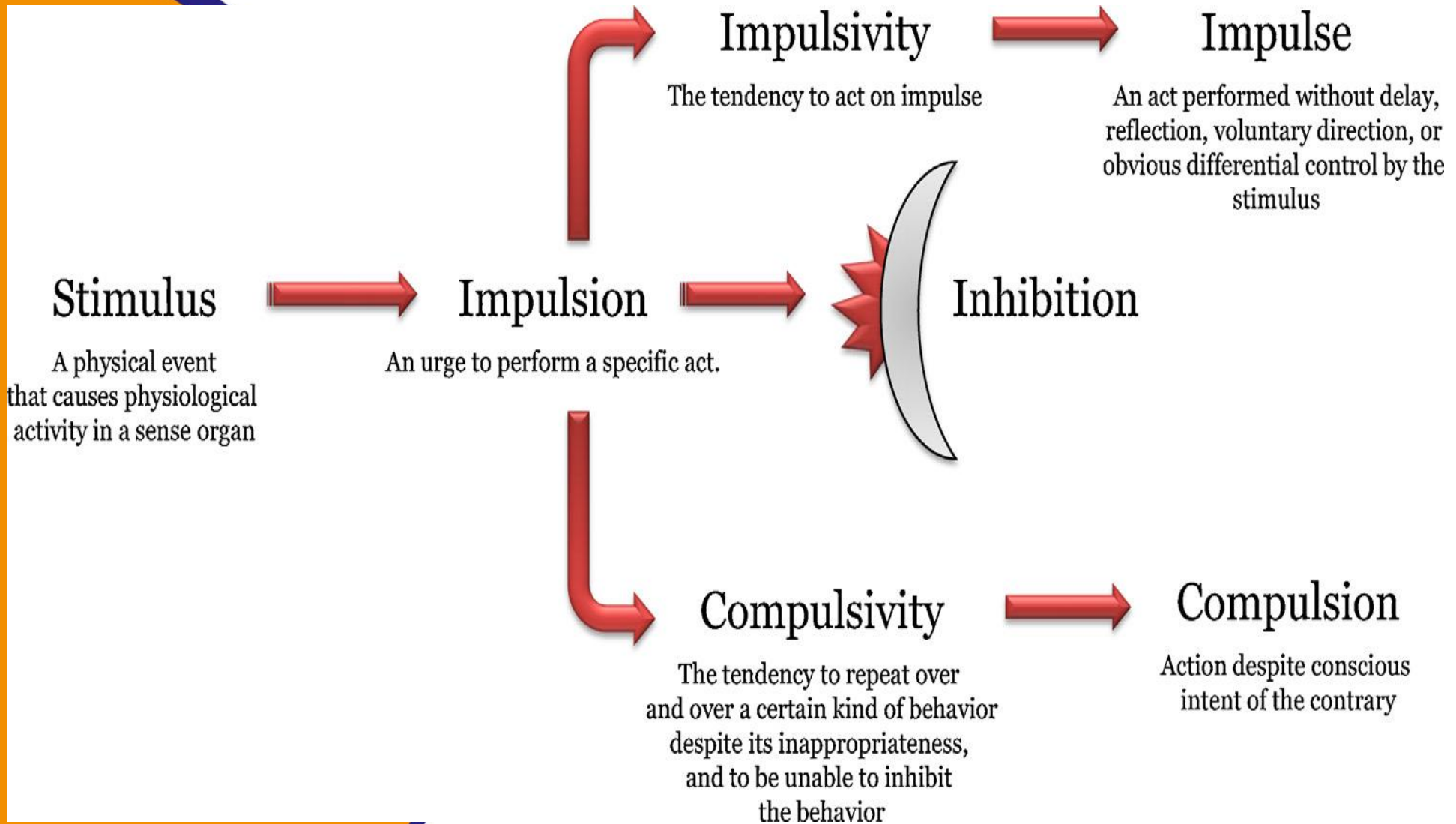
# Disinhibition after brain injury



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“If the centres of **inhibition**, and thereby the faculty of **attention**, are weak, or present impulses unusually strong, **volition** is impulsive rather than deliberate.”

*Ferrier 1876*



Bari & Robbins, 2013

# Dual inhibition model



Controlled inhibition (*Top-down*)  
*Slow, effortful executive control*

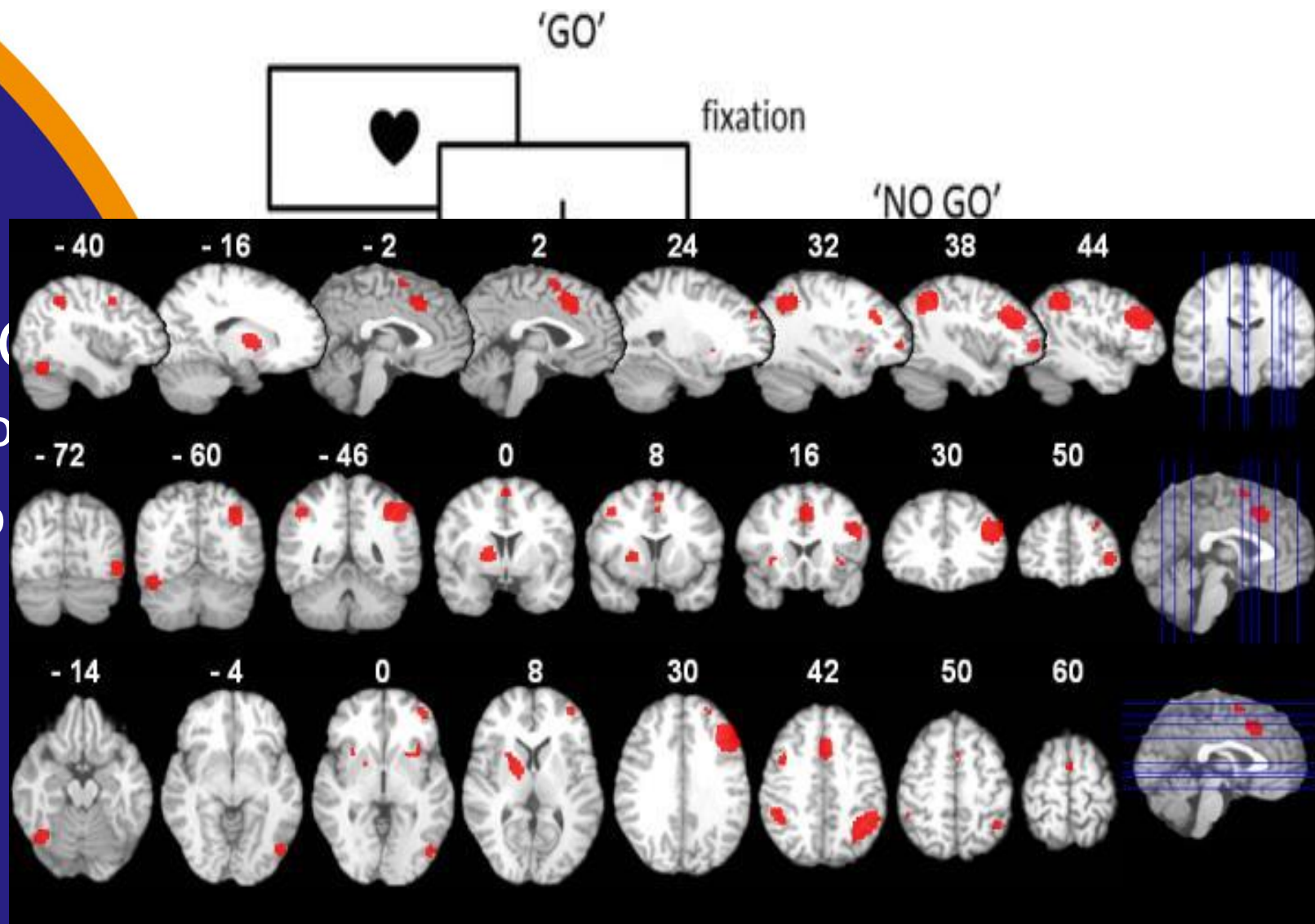


Automatic Inhibition (*Bottom-up*)  
*Fast triggered 'stop' signals*

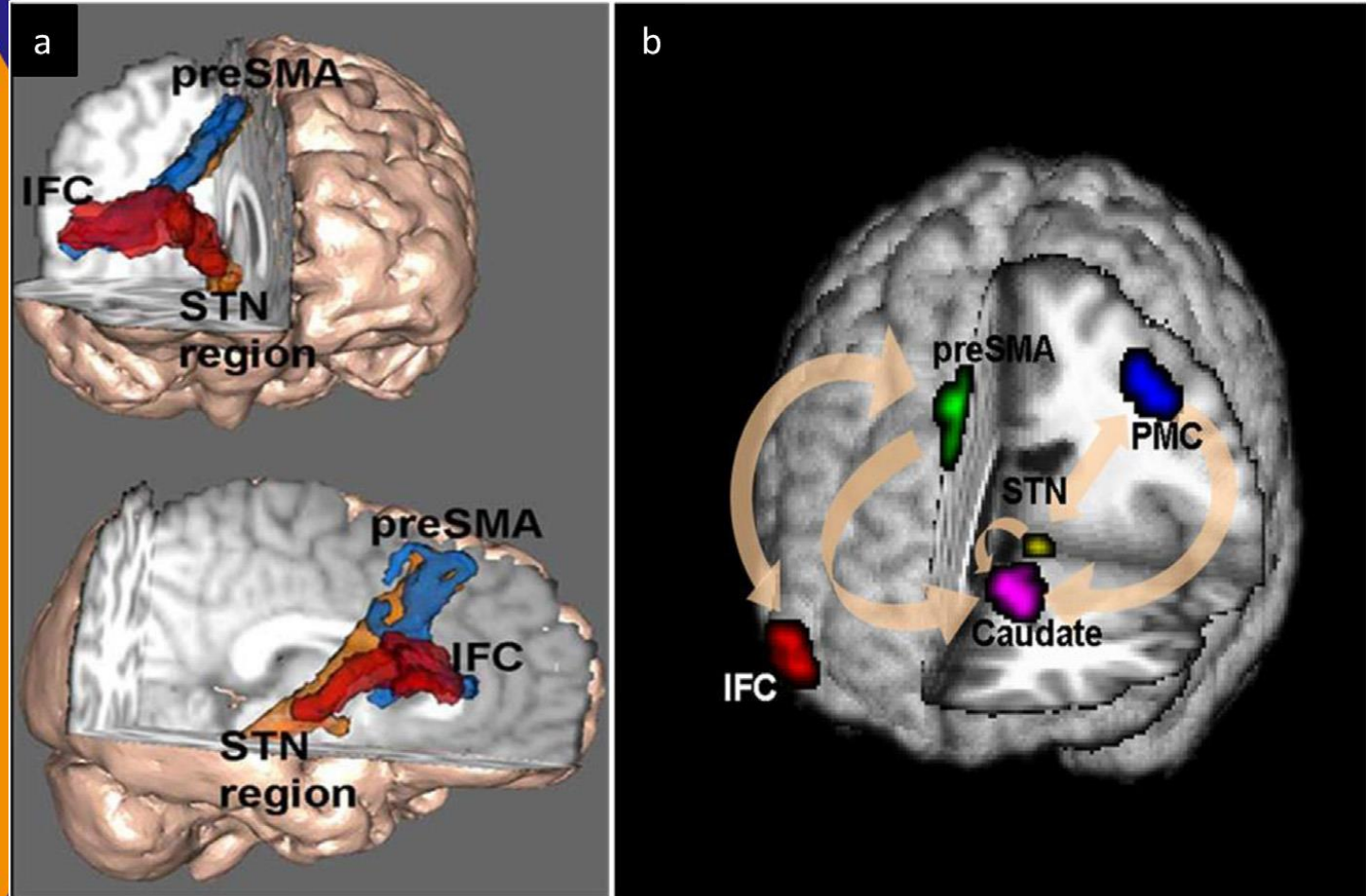


# Go, No-Go Unintentional inhibition

*Simmonds et al.,*

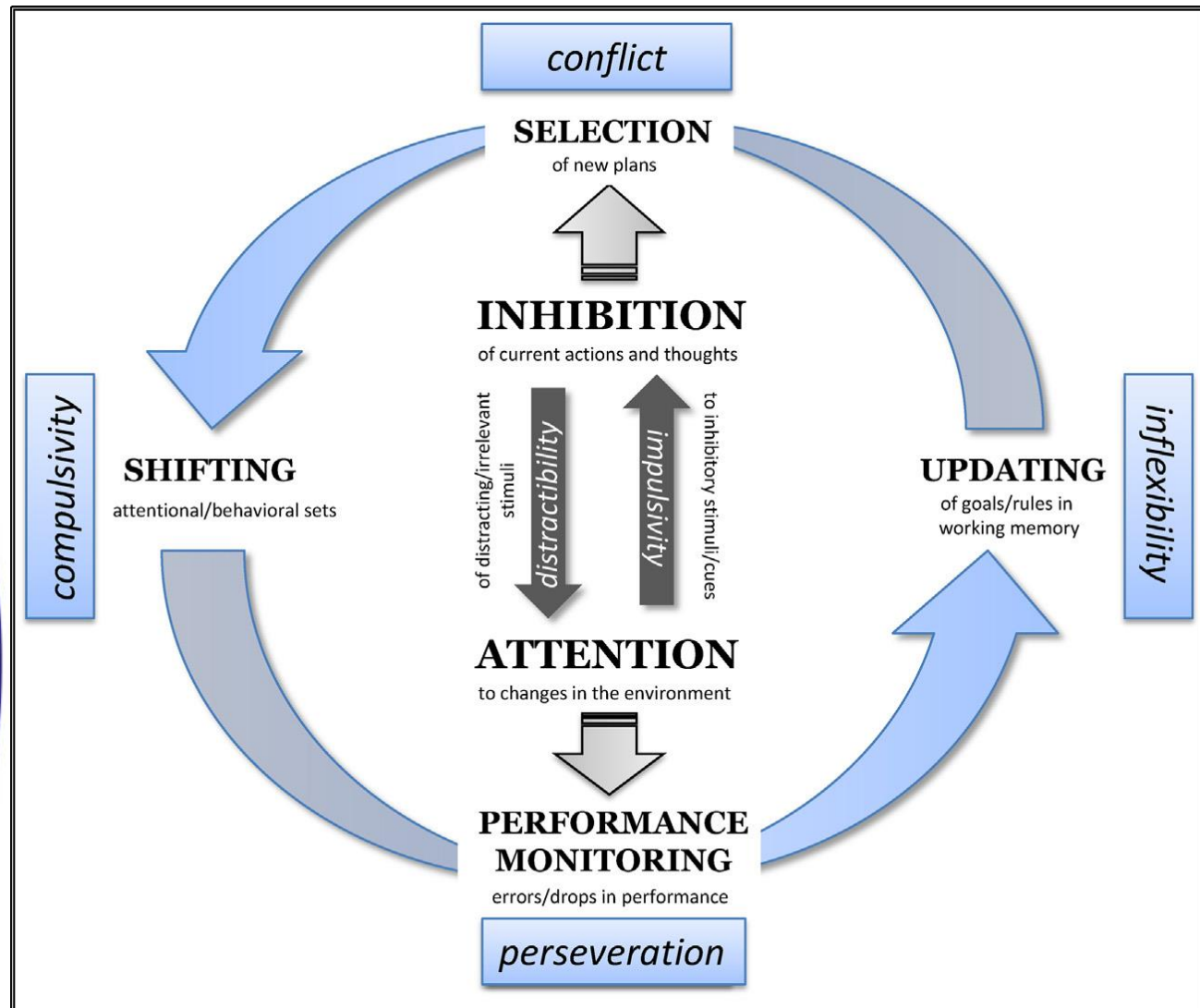


## Functional inhibitory circuit



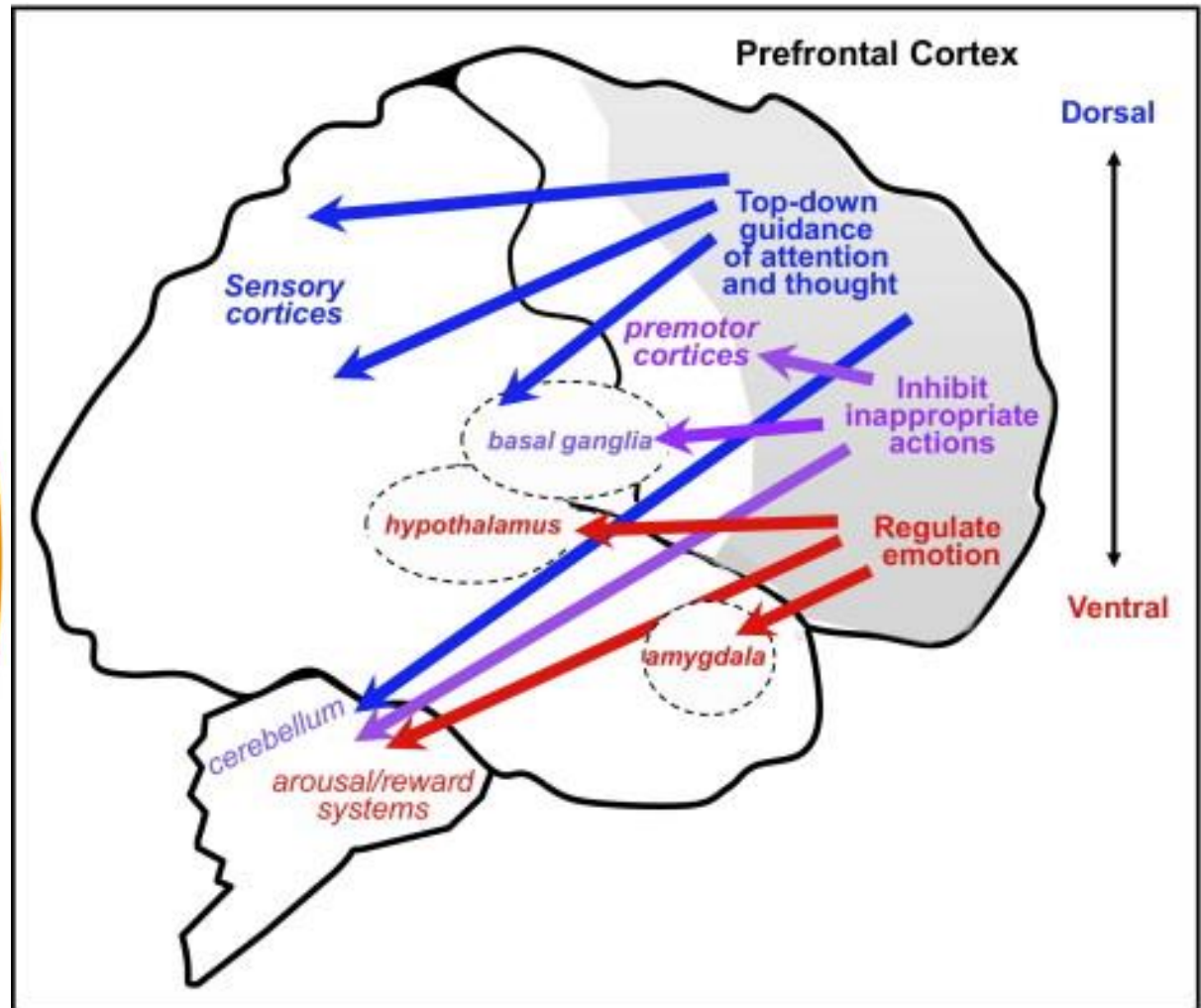
*Aaron et al 2007 in Bari & Ribbons 2013*

# Inhibition as central to executive control of action



Bari & Robbins, 2013

# Interactive inhibitory circuits



## Poor social cognitive and communication skills

- inappropriate choices of jokes, comments, questions, or conversations
- misunderstanding social relationships - believing a relationship is closer than it is
- not picking up verbal and non-verbal cues and feedback from others (e.g. not picking up disapproval, dislike or fear)
- awkward expression or inappropriate use of language
- difficulties with social communication skills such as eye contact, social distance, space, and appropriate touching, may also cause social behaviour that makes others feel uncomfortable or threatened.



## Inability to express sexual needs

- Opportunity to maintain or form relationships is reduced
- Relationships are still just as important to the persons' identity and self-esteem.
- Impaired cognitive, communication, and behavioural skills can reduce ability to make and keep new social and sexual relationships.
- Limited social opportunities and isolation can result in lack of understanding of appropriate behaviour



Being faced with disinhibited behaviour can be distressing, stressful and wearing.

Akin to bullying

Tantamount to abuse

Constitute assault



## Common response cycle to disinhibition

- Feel emotionally overwhelmed (revulsion).
- Try to stifle reaction (blush, leave room).
- Feel embarrassed at reaction, angry for being made to feel like this, upset with own response.
- Fail to discuss incident or feelings with others.
- Avoid client (fearful of response).
- Experience similar incident again in a chance encounter.
- Respond with heightened anxiety, anger, shame.





# Management approaches



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# Assessment of disinhibition

- Who else has observed the behaviour?
- Need a clear account of the 'disinhibited' behaviour (what, where, when, to whom, how long for)
- ABC forms, time-sampling, structured observations:-
  - How is it being reinforced?



# Assessment of disinhibition

- Take a good history
  - Premorbidly - attitudes, relationships
  - Post-injury – resolving, worsening, sudden onset?
- Level of risk (to self and others)
- Hypothesis testing (females, staff, age)
  - How much control/awareness is there?



# Measures of disinhibition

Response suppression

*Go – No Go; Hayling task*

Attention control

*Stroop, task switching*

Impulsiveness

Barratt Impulsiveness Scale (self-rater)

Behavioural disinhibition

DEX (self and other rater)

SASNOS (*social/sexual disinhibition*)

SASBA (*verbal comment, self/other touching*)



## Response options

Just ignore it?

- Often very difficult to ignore
- May escalate behaviour
- May positively reinforce the behaviour
  - Inadvertently, by blushing, getting flustered.
  - Directly, by increasing avoidance, isolation.



## What not to do...

- Ignore behaviour rather than taking action
- Laugh at the behaviour
- Do anything that belittles, patronises or humiliates the client
- Violate client confidentiality (due to embarrassment, anger or spite)
- Fail to communicate with other staff about your observations or concerns



# Environmental management

- Restrict any opportunity to engage in inappropriate behaviour (planning, proximity, opportunity and means)
- Try to predict situations where the behaviour is more likely
- Work out strategies ahead of time
- Setting limits on use of private areas (eg. no clients in one another's bedrooms)
- Clear boundaries for acceptable conduct
- Monitoring whereabouts of vulnerable clients
- Supervision of sensitive encounters
- Escorting vulnerable clients in the community

# Differential reinforcement

- Reducing occurrence of undesirable behaviour by selectively and positively reinforcing appropriate behaviour
- Breaking off a conversation/avoiding eye-contact for 5 seconds when the topic becomes too personal
  - Important to attempt to re-engage after 5 sec.
- Incorporate into reinforcement programme
  - Eg. reinforce a list of substitute behaviours (phrases etc) to replace specific undesirable acts



# Verbal feedback

- be immediate and early
- be direct
- be concrete and describe the behaviour
- give direction
- be consistent
- not reinforce or encourage the behaviour
- help the person to learn
- not be demeaning or humiliating
- not impose your own values

## Cue word (TSRP)

- Target-specific response programme:-
- Cue word delivered immediately after occurrence of action/comment
- Neutral word ( 'buzz' or 'ink' )
  - Discrete, idiosyncratic
- Semantic cue ( 'No' or 'stop' )
  - More potent?



## Verbal mediation programme

- Structured script to be repeated with client
- Rehearsed regularly, internalises prompts and becomes habitual.
- Can be adapted for immediate response or delayed feedback
- Promotes: awareness, empathy, social skills
- Requires: engagement, motivation, ability to translate knowledge into action.



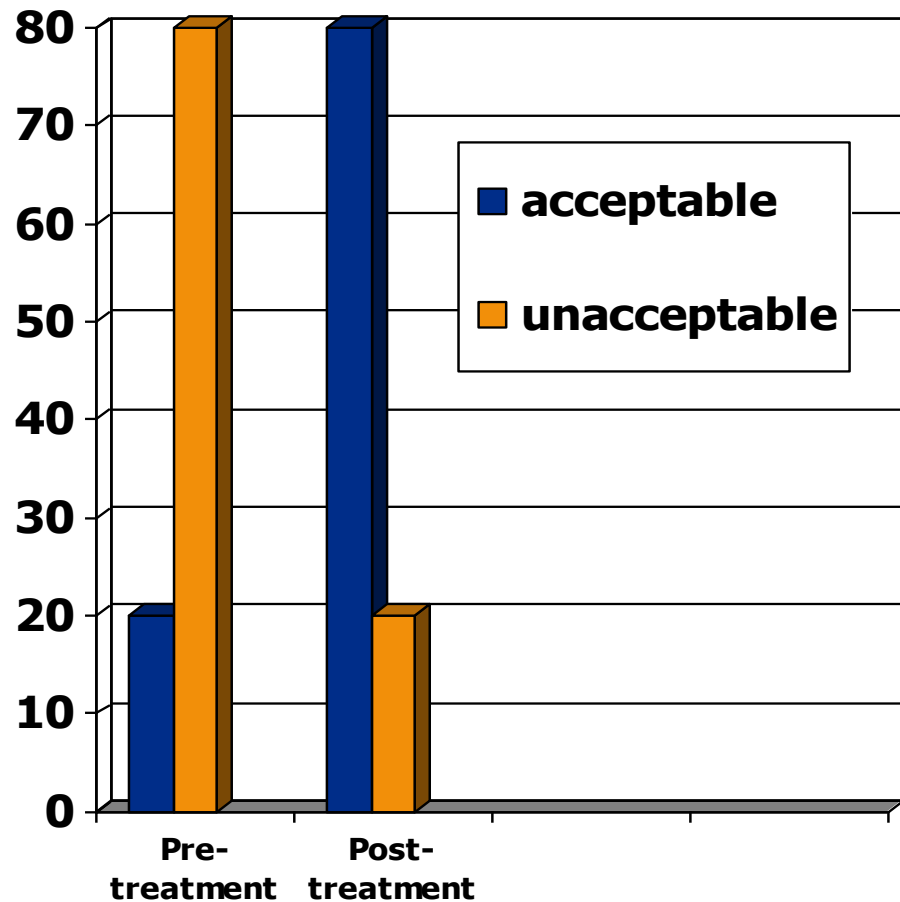
# Verbal mediation (for feedback)

- Baseline interviews with client
- Devise a draft script
  - ask the same questions, note the responses
  - encourage reflection, empathy and problem solving
  - discourage short-term, concrete thinking and ego-centricity
- Revise script = structured feedback dialogue



# Verbal mediation programme

- 45 year-old male
- History of drug abuse
- Very severe closed head injury
- Physically and verbally Aggressive
- Pre-occupation with talk of drugs and violence.
- Given set time for use of script: incl. positive reinforcement, set response, self-monitoring.



## Response - Cost

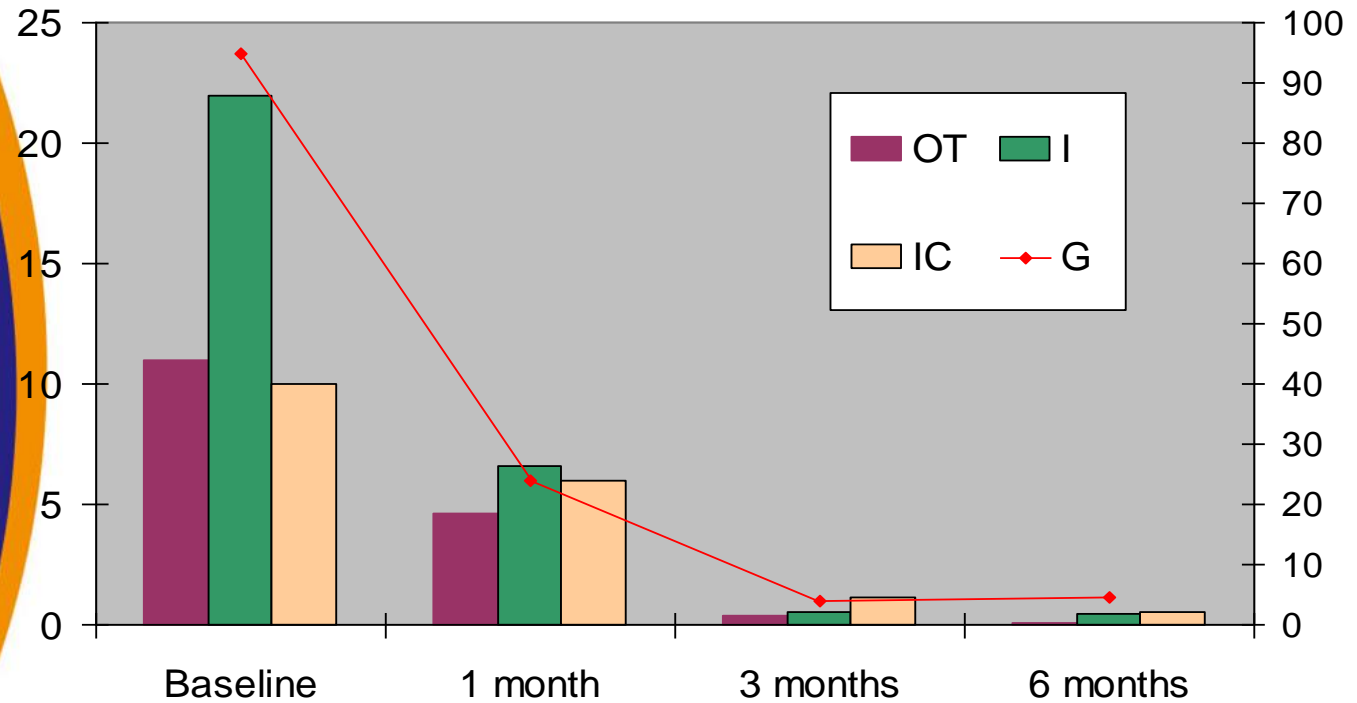
- A means of controlling contingencies of positive reinforcement.
- Involves use of points, tokens
- Failure to earn or withdrawal of tokens occurs in response to target behaviour
- Positive rewards associated with 'earnings'
- Points themselves become rewarding.



## Self Monitoring Training *(Alderman, Fry & Youngson 1995)*

- Baseline assessment of frequency of target behaviour
- Client records own behaviour unprompted
- Prompted self-monitoring
- Independent self-monitoring (reward contingent on reaching pre-determined level of agreement)
- Independent self-monitoring and reduction of target behaviour (reward contingent on graded reduction of frequency of target behaviour)

Self-awareness facilitates self-control

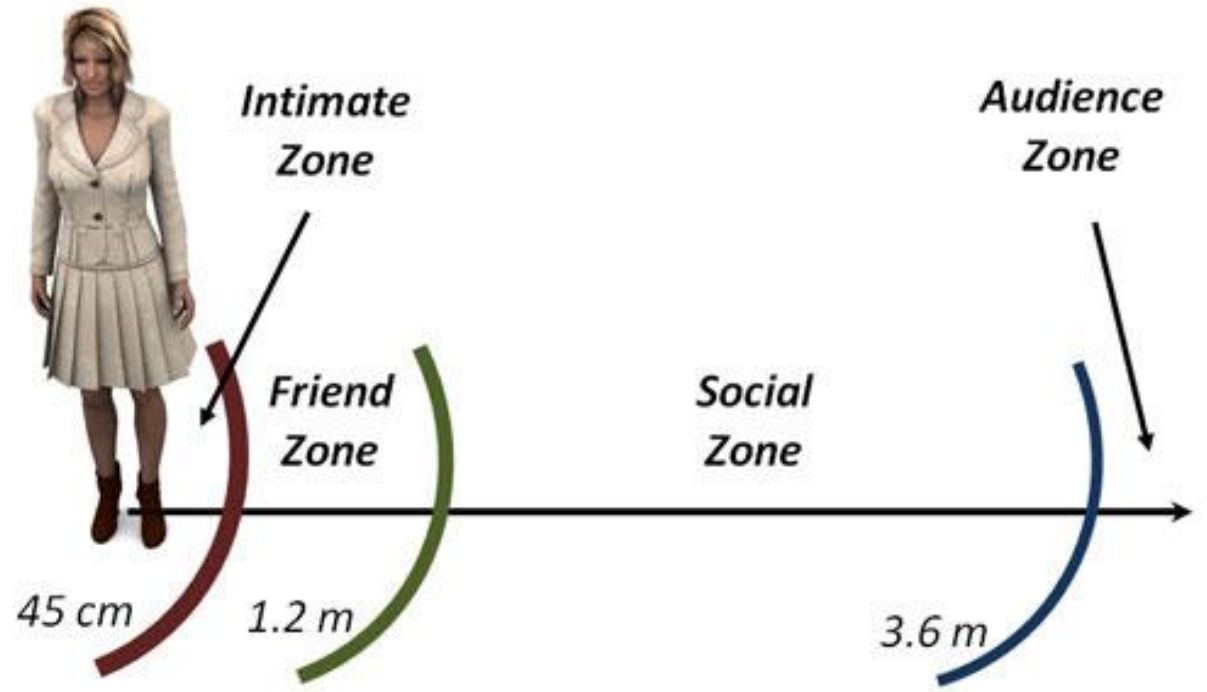




# Other techniques

- Social skills training
- Communication skills training
- Problem solving therapy
- Assertiveness training
- Increasing social & leisure opportunities





Personal Space

# Medication

- TCAs; SSRI's (fluoxetine, paroxetine) (lability)
- carbamazepine, valproate
- Dopamine agents (eg. amantadine)
- Medroxyprogesterone (Provera)
- Anti-androgens – (eg. Androcur)



Managing  
disinhibition  
over the next  
10-20 years

- More theoretically informed techniques
- Grounded in cognitive neuroscience
- More efficient interventions
- Increasingly technological in nature



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“The rehabilitation of inhibition-related disorders may therefore benefit from neuroplasticity-based training protocols aiming at normalizing inhibitory control proficiency and the underlying brain networks. Current literature on training-induced behavioral and brain plasticity in inhibitory control suggests that improvements may follow either from the development of automatic forms of inhibition or from the strengthening of top-down, controlled inhibition.”

*Spierer et al., 2013*

- **Bottom-up Automatic Inhibition**

Automatic inhibition develops in conditions of consistent and repeated associations between inhibition triggering stimuli and stopping goals. Once established, the stop signals directly elicit inhibition, thereby bypassing slow, top-down executive control and accelerating stopping processes.

- **Top-down Controlled inhibition**

Training regimens involving varying stimulus-response associations or frequent inhibition failures which prevent the development of automatic inhibition and thus strengthen top-down inhibitory processes rather than bottom-up ones.

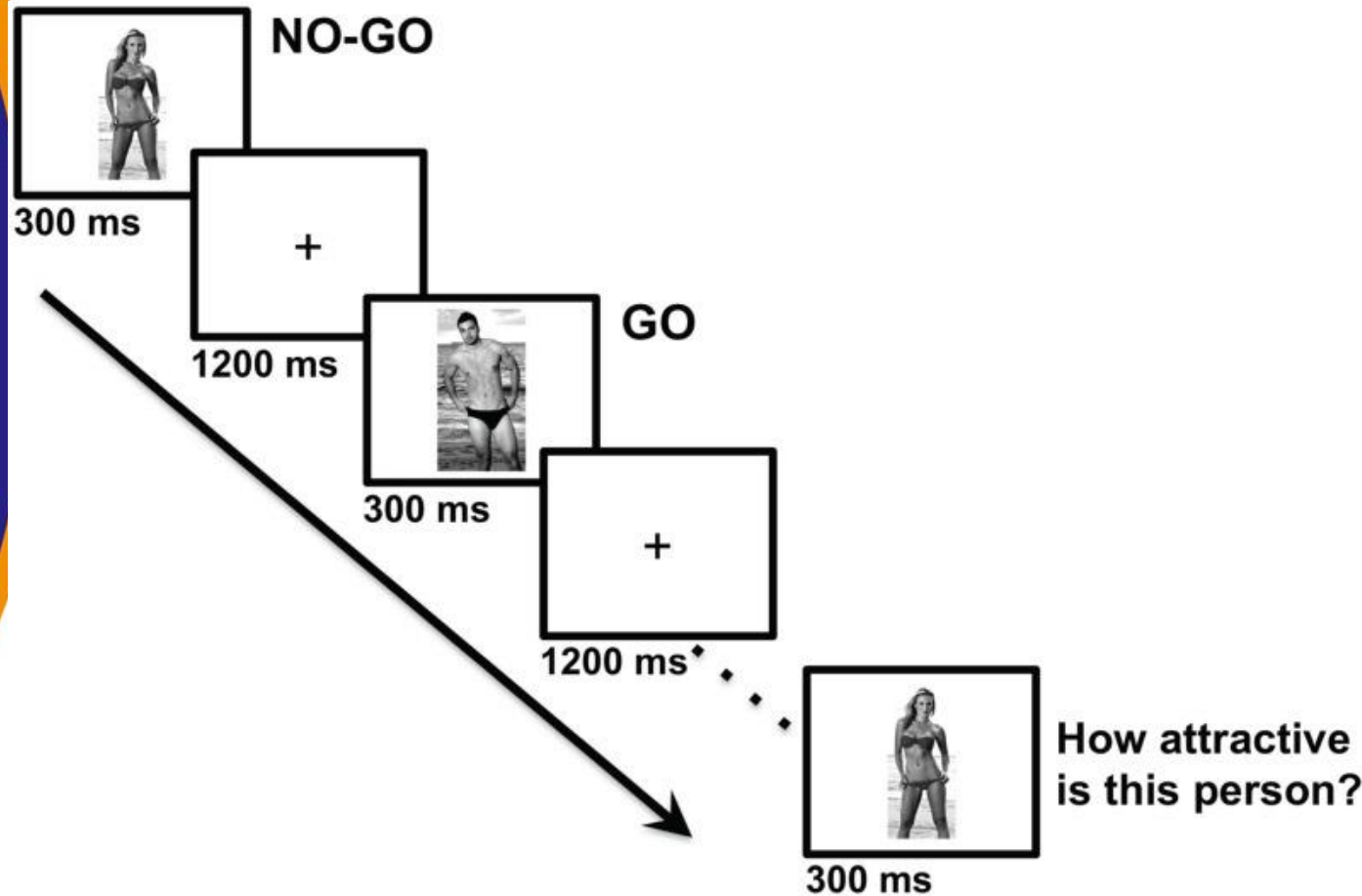


Sexually attractive images were rated as less attractive when previously encountered as No-Go (inhibited) than Go (non-inhibited) items.

## Go, No-Go tasks

‘Hot or Not’

*Ferry et al., (2012)*



# Inhibition based therapies?

“Evidence that inhibiting many images from a given stimulus category may lead to a generalized reduction in motivational drive toward other items of that stimulus type is particularly promising for the development of interventions aimed at selectively reducing the subjective appeal and motivational incentive of stimuli that trigger maladaptive behavior.”

“Our findings converge with other recent discoveries to support the possibility that the affective consequences of cognitive inhibition could be effectively harnessed for future clinical applications.”

*Ferry et al., (2012)*



## References

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