

Ministry of
Children and Youth Services



Ontario

Ministère des
Services à l'enfance et à la jeunesse

Seeing Beyond
the Challenges

Child and Parent Resource Institute

Au-delà
des défis

Making a
Difference

Une contribution
déterminante



The CPRI Brake Shop:

'for when it's hard to stop...'

**Dr. B. Duncan McKinlay, Psychologist,
Brake Shop Clinic
Crombie Building, CPRI,
600 Sanatorium Road
London, ON, N6H 3W7
(519) 858.2774 ext. 2344**

Child and Parent Resource Institute

Ministry of
Children and Youth Services

Child and Parent Resource Institute Catchment and Mission

Our mission is to enhance the quality of life of children and youth with complex mental health or developmental challenges and to assist their families so these children can reach their full potential.



'Leaky Brakes 101' Course ***now available via OTN!***



Child and Parent Resource Institute

Ministry of
Children and Youth Services

Putting the “Resource” into C.P.R.I.! (www.leakybrakes.ca)

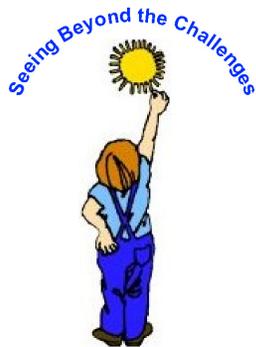
- **Strategy Documents:**
 - “Putting The Brakes on...” series
- **Resource Documents:**
 - bibliographies, websites, support groups, TS fact sheet, inspirational handouts
- **Virtual Services:**
 - FAQ’s, presentations, audio podcasts,
 - Leaky Brake Toolbox videos



Leaky Brakes: What they are. What they **AREN'T**

Presented by

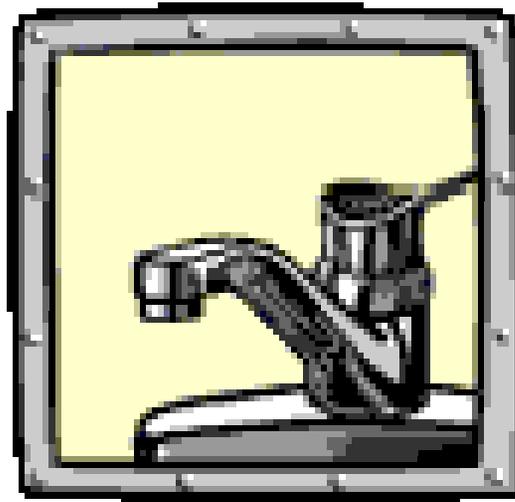
The Brake Shop service for Tourette
Syndrome & Associated Disorders



Child and Parent Resource Institute

Ministry of Children and Youth Services

I've Tried EVERYTHING
but the Kitchen Sink!!!!!!



What if you found that this child has a problem, rather than believing this child is a problem? A whole new kitchen sink would appear. Bigger and better than the last...

“What IS Inhibition, Anyway”??!

- **Restraint; ability to stop**
- **Cognitive control/regulation of oneself**
- **Resist habits to pursue goals**
- **Inhibition failures, or faulty neurocircuitry**



THE LONDON FREE PRESS, FRIDAY, FEBRUARY 18, 1972

Hyperkinetics studied Child 'like brakeless car'

Some children are like a car with no brakes, according to Dr. D. M. Cram, director of medical services for the London board of education.

Dr. Cram was referring to hyperkinetic children— those

who just can't stay quiet. He was one of four panelists at a symposium of the Ontario Psychologists Association which is holding its annual convention in the downtown Holiday Inn.

Between 400 and 500 psychologists from across the province are attending.

He said the affliction is caused by a damaged section of the brain and that the child is continually bombarded by impulses. Dr. Cram said most people are able to turn off these impulses, but the hyper-

kinetic child has to keep moving.

He said part of the treatment for some of these children is to keep them in an area where there is not too much stimuli and, in some cases, to administer amphetamines.

Dr. Cram said the amphetamines act in a way similar to putting the brake lining back in a car. He also warned of the danger of confusing a child who is simply active to one who is hyperkinetic.

The panelists, including Dr. Bradley Bucher, University of Western Ontario; Dr. Ben

Goldberg, Children's Psychiatric Research Institute and Dwight Merkley, of the London board of education, talked on both the medical and non-medical aspects of children so afflicted.

Dr. Cram said most children grow out of the affliction, but that some don't. He said there are usually some hereditary traits with the hyperkinetic and that some are so active even their sleep patterns are out of whack.

He said a high percentage of hyperkinetics are bed-wetters and have speech problems.

THE LONDON FREE PRESS,

Monday, February 14, 1972-

CPRI

Sir: Regarding letters to the editor Children's Psychiatric Research Institute concerning residents. Mental retardation should be treated with complete compassion and unlimited funds.

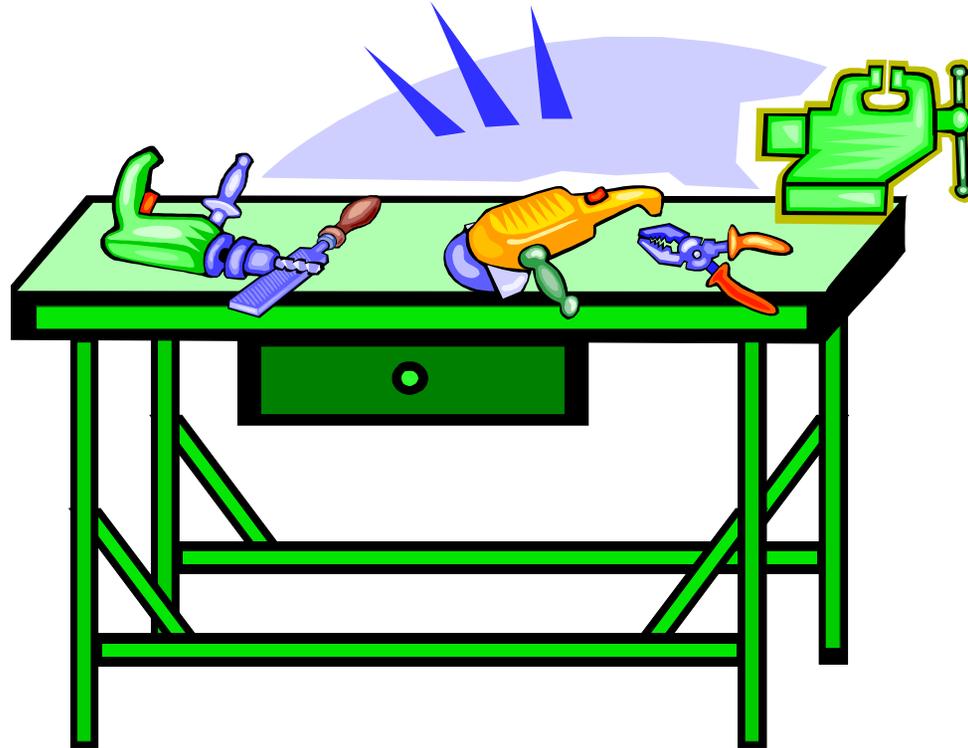
To play games with adolescents' lives, using intelligent sounding psychiatric labels is terrible and should be stopped.

W. J. HALEY

London

The Importance of Inhibition

- **Provides an inner work bench:**



- **inserts a 'pause' between event and response**

The Importance of Inhibition

- **Root of Consciousness?**
 - some say inhibition is the single thing that distinguishes us from other animals
- **Root of Personality:**
 - personality: housed in frontal lobes
 - when people describe 'personality change', often means a changed level of inhibition



The Importance of Inhibition

- **Childhood self-control impacts outcomes as much as low IQ or low SES does:**
 - it predicts:
 - *physical health*
 - *substance dependence*
 - *personal finances*, and
 - *criminal offending* outcomes
 - across *3 decades* of life, in *both genders*



The Importance of Inhibition

- **Childhood self-control impacts outcomes as much as low IQ or low SES does:**
 - effects persist when factor out intelligence, social class, mistakes made as adolescents
 - siblings with lower self-control have poorer outcomes **despite shared family background**
 - Dunedin Multidisciplinary Health and Development Study (following 1000 people from birth to 32 years)
 - *Moffit et al., 2011*



The Importance of Inhibition

- **Inhibition skills develop over time:**
 - frontal lobes mature until early adulthood
 - our culture values 'good brakes'
 - children are socialized accordingly...

'contain yourself!'
'hold your horses!'



- ...and do their best to comply

The Ongoing Struggle Of Inhibition

- **“Reptilian weenie wrapped in a cortical bun”**
 - imperfect design
 - brain doesn't work together: 'new' areas constantly fighting with 'old' areas



Brakes over many different things:

- movements
- attention
- sounds
- senses
- actions
- thoughts

What Happens If The Brakes "Break"??

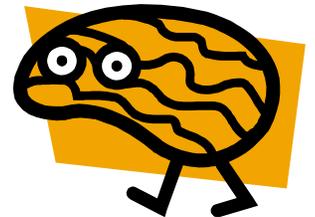
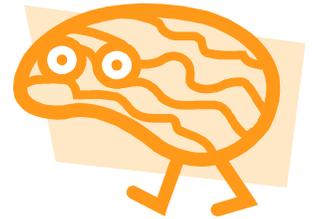
- **What if lost that cortex? Or if it worked imperfectly?**
 - **maturational delays**
 - **genetic predisposition**
 - **environmental influences (e.g. maternal smoking, alpha beta hemolytic streptococcal infection)**



● **And when the cat's away...**

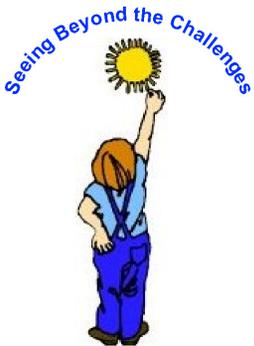
What Happens If The Brakes "Break"??

- What if it *never fully developed?*
 - maturational *delays* can occur:
 - maturational *disabilities* can also occur:



'Leaky Brakes' are a Developmental Disability.

*...not immaturity, attention-
seeking, or lack of
professionalism, motivation,
or intelligence*

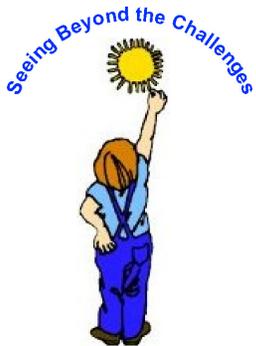




This is what Tourette's
feels like!!!!!!

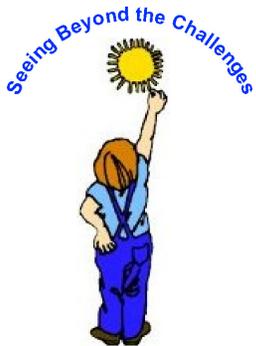
Leaky Brakes

...over movements and sounds



Leaky Brakes

*...in sensorimotor loop...
(motor and oculomotor)*

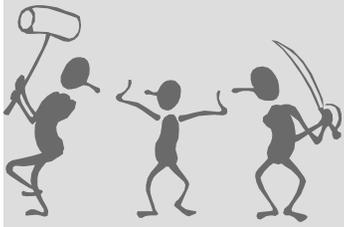


Gilles de la Tourette Syndrome

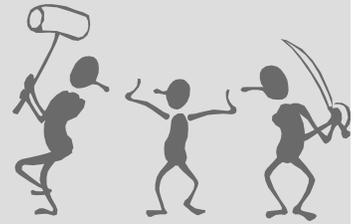


Child and Parent Resource Institute

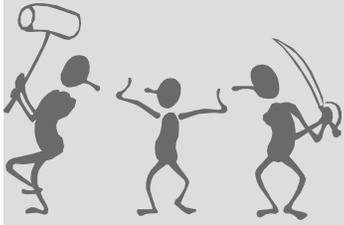




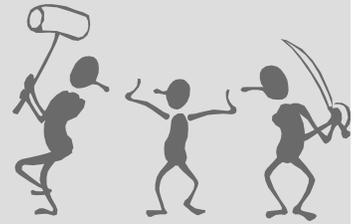
BEHAVIOURAL???



- **What about complex tics?**
 - e.g. echolalia, palipraxia
- **What about suggestibility?**
 - are you setting yourselves up?
- **What about 'enshrining'?**
 - OK, it WAS purposeful. At one point...



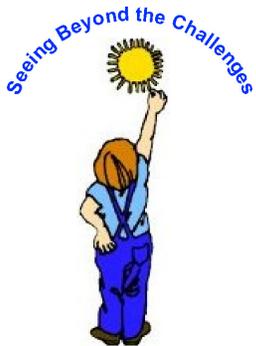
BEHAVIOURAL???



- **What about the effects of stress?**
 - **they'll show it more than you will**
- **What about suppression?**
 - **person receiving the brunt of symptoms is doing something RIGHT, not WRONG**
- **What about symptom embarrassment?**
 - **'behaviour' may be a mask (parakinesia)**

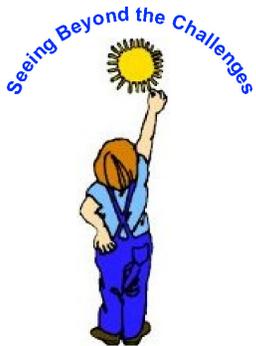
Leaky Brakes

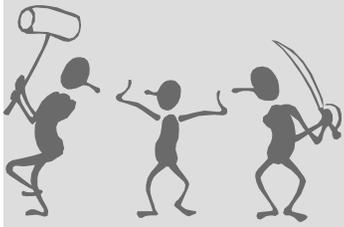
...over impulses...



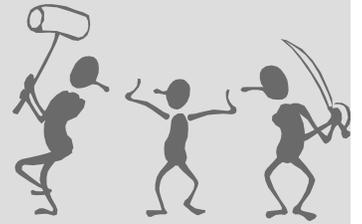
Leaky Brakes

*...in associative loop...
(dorsolateral prefrontal)*

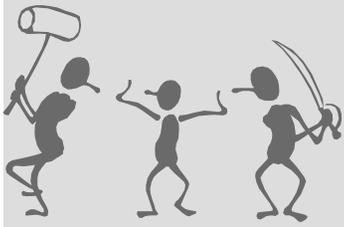




BEHAVIOURAL???



- **What about impulsive button-pressing?**
 - **disorder/child 'hybrid'**
- **What about distractibility?**
 - **(s)he might not have heard you**
 - **visited too many places between "A" and "B" to make implicit connections**



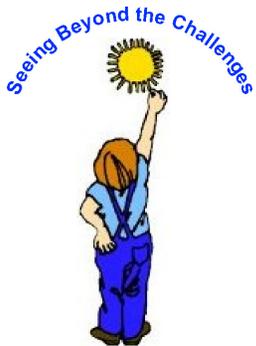
BEHAVIOURAL???



- **What about the 'Oh Crap' face?**
 - **of course (s)he knows better**
 - **(s)he's bright enough to figure out less embarrassing/more socially approved ways of gaining attention**

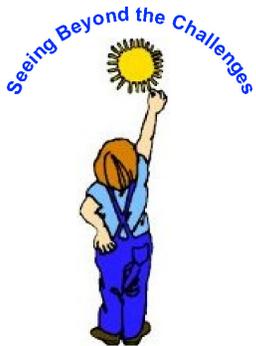
Leaky Brakes

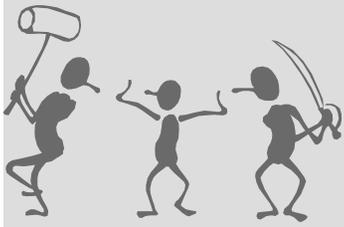
...over attention...



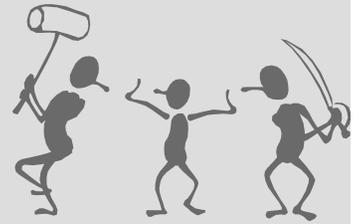
Leaky Brakes

*...in associative loop...
(dorsolateral prefrontal)*





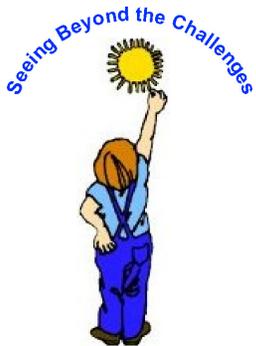
BEHAVIOURAL???



- **What about the selective attention?**
 - **brakes are only required FOR unenjoyable tasks**
- **What about the sustained attention to video games?**
 - **they naturally “attract” attention effectively**

Leaky Brakes

...over sensory input...

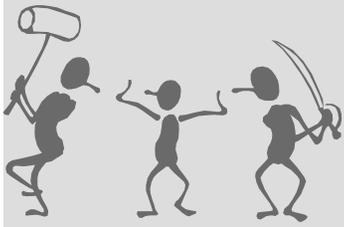


DIAGNOSIS

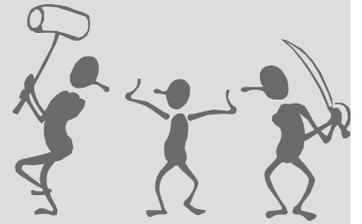
PROCESSING

DISFUNCTION

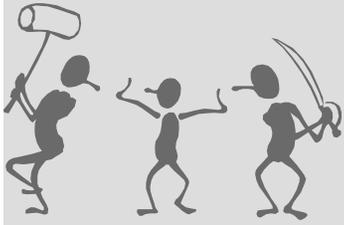




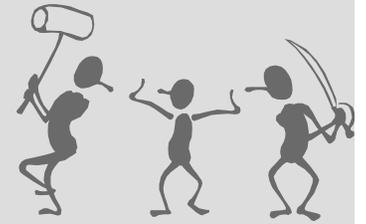
BEHAVIOURAL???



- **What about HYPERsensitivity?**
 - maybe (s)he **ISN'T** histrionic, attention-seeking, avoidant, or passive-aggressive...
 - **“fight or flight”** instinct primed; more apt to oppose/lash out



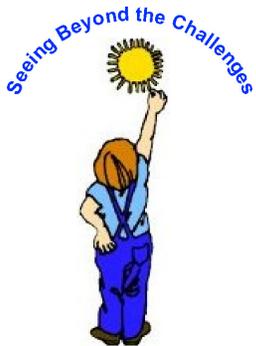
BEHAVIOURAL???



- **What about HYPOsensitivity?**
 - **knock-down, collision-filled play**
 - **(s)he might NOT know his/her own strength!**
 - **over-engage in this activity to counter a hyper-sense**

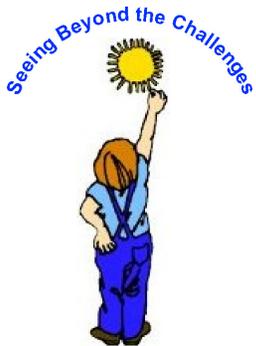
Leaky Brakes

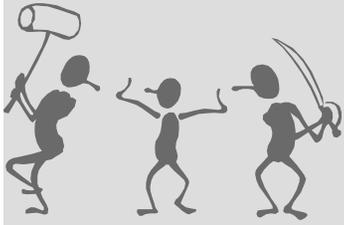
...over thoughts...



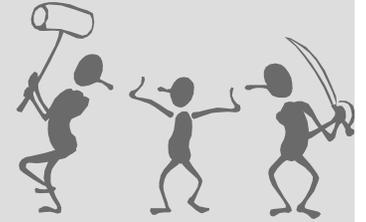
Leaky Brakes

*...in limbic loop...
(lateral orbitofrontal and
anterior cingulate)*

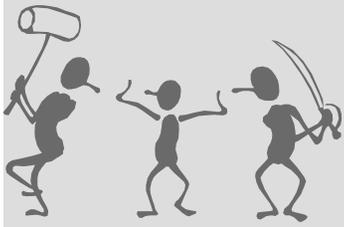




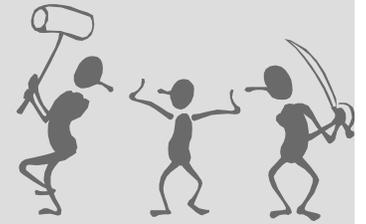
BEHAVIOURAL???



- **What about anxiety?**
 - **immobilizing; drowning**
 - **will seize on area of volatility:**
 - **'bad thoughts' subtype common – themes of violence, sexuality, religion**
 - **can result in continual questioning/ checking-in behaviours**
 - **commonly takes the form of unappeasable need for reassurance**
 - **if aggravates/upsets you, will worsen**



BEHAVIOURAL???



- **What about avoidance of that anxiety?**
 - **perfectionism, symmetry, neatness, counting, 'just right'ness obsessions easy fodder for written assignments**
 - **don't mistake it for WORK avoidance**
- **What about inflexibility?**
 - **may look like power struggle, appear as rudeness or arrogance**

Oppositional Defiant Disorder

- **Compliance = required to delay own goals and engage in imposed goals while regulating discomfort/arousal/frustration**
 - ◆ **ANYONE, in moment, inclined to say 'NO'**
 - ◆ **∴ oppositional and defiant behaviour is yet another manifestation of these 'leaky brakes'!**
 - ◆ **in this way, forcing compliance ∴ misses the point: THEY want to comply better, too...**



Oppositional Defiant Disorder

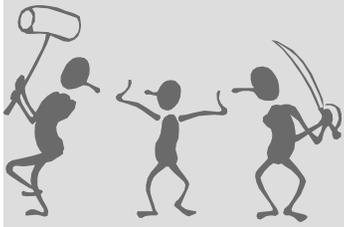
- **ODD as a manifestation of 'leaky brakes':**
 - ◆ **ODD RARELY IF EVER occurs in isolation**
 - ◆ **18% TS, 80% ADHD, 40% anxiety/OCD, etc...**
 - ◆ **Treatment of these co-morbid disorders causes ODD to remit!**
 - ◆ **e.g. use of methylphenidate in ADHD patients = remission of ODD (Gadow et al., 2007; Steele et al., 2006)**



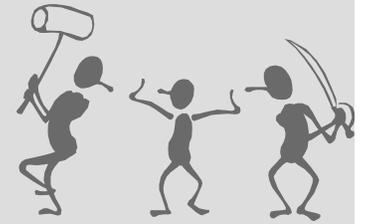
Oppositional Defiant Disorder

- **ODD as a manifestation of 'leaky brakes':**
 - ◆ **Treatment of leaky brakes also prevents development of ODD & other disorders:**
 - ◆ **e.g. stimulant treatment of ADHD = 1/5th the likelihood of developing depression, multiple anxiety disorders, ODD, or CD during a 10-year follow-up. Also less likely to have repeated a grade.**
 - **Biederman et al., 2009**

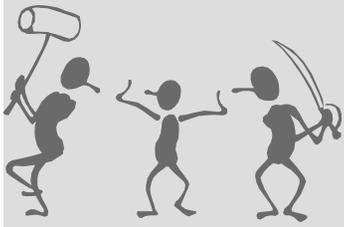




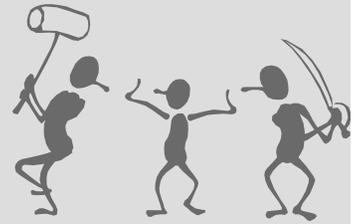
BEHAVIOURAL???



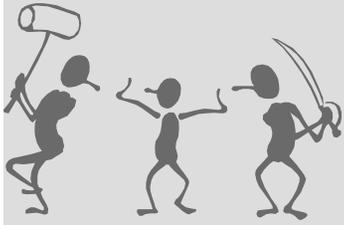
- **What about the resistance to behavioural modification?**
 - **sabotages own rewards; at odds with own self-interests**
 - **punished again and again, as self-esteem ebbs away...feel powerless to effect change**
 - **not that b-mod doesn't work – must apply the right solution to a problem though**



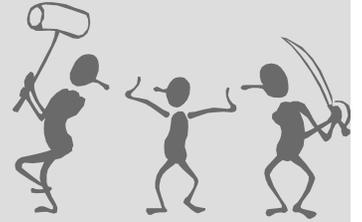
BEHAVIOURAL???



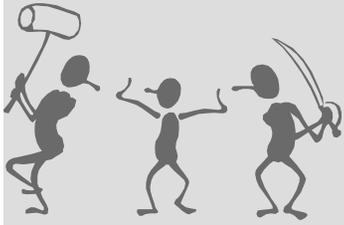
- **What about the resistance to behavioural modification?**
 - **working memory deficits (specifically executive attention and short-term memory) impede choice learning in behaviourally disinhibited individuals:**
 - **these deficits are unaffected by the use of reward/punishment**
 - **Endres et al., 2011**



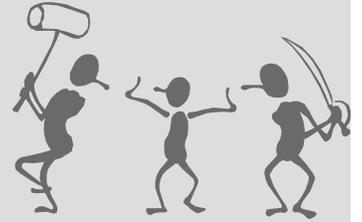
BEHAVIOURAL???



- **What about the resistance to behavioural modification?**
 - **response bias *is* affected by the use of reward/punishment approaches:**
 - **but behaviourally disinhibited individuals experience rigid modulation of responses due to poor affective processes**
 - **Endres et al., 2011**



BEHAVIOURAL???



- **What about the resistance to behavioural modification?**
 - **B-Mod excellent for motivating & for unlearning LEARNED things – only works:**
 - **if NOT motivated**
 - **if WAS a learned behaviour**
 - **IF memory of consequences accessible and meaningful at the time**
 - **∴ don't think PUNISHMENT. Think about fostering a 'culture of accountability'**

OVERAROUSAL!!!

+ blame and shame

+ more stress

TICS!

obsessions!

hypersensitivities!

hyperenergy!

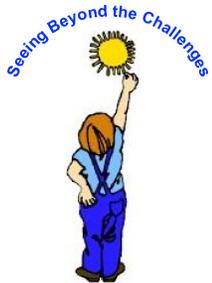
too much to pay attention to!!

Intermittent Explosive Disorder

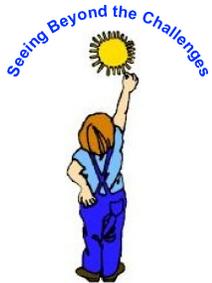
- **or throwing a rage**
- **or pitching a snit**
- **or having a tantrum**
- **or blowing your cool**
- **or...**



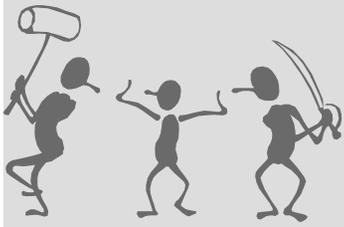
Intermittent Explosive Disorder



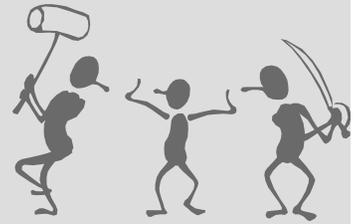
⚡ ⚡ **R A G E** ⚡ ⚡



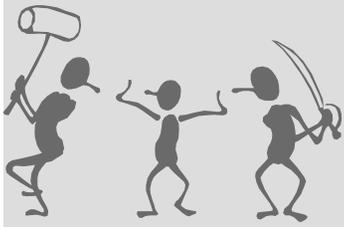
Child and Parent Resource Institute



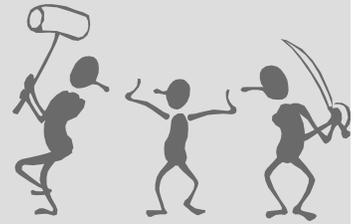
BEHAVIOURAL???



- **What about the loss of cortex?**
 - **hey, I NEEDED that!**
 - **braking systems overloaded**
 - **cannot access memory, personality, executive functions when most needed**
 - **self-abusive behaviour actually serves to reduce anxiety, fire cortex up again**



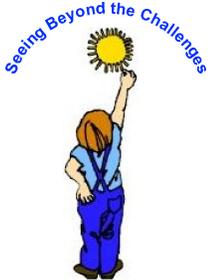
BEHAVIOURAL???



- **What about the embarrassment & remorse afterwards?**
 - **Mr. Hyde turns back into Dr. Jekyll:**
 - **73.7% feel guilty & regret their actions afterwards; 31.6% always have a guilty conscience (Kano et al., 2008)**
 - **this is why they lie, by the way...**
 - **lies of omission far more prevalent in this population than lies of commission**

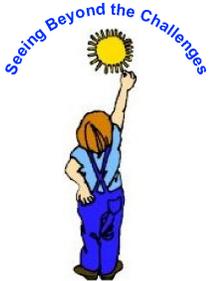
How To Strategize for Home and School

- Important to understand that, when the brakes don't work, this is not a chosen behaviour.
- Important to understand that these are chronic conditions:
 - ◆ OCD: 63% still receiving medication at 11-13 year follow-up; 57% continue to experience (sub)clinical symptoms with medication (Reddy et al., 2005)



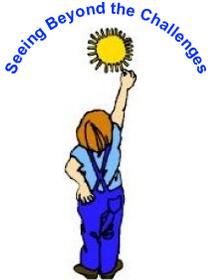
How To Strategize for Home and School

- Also important to **KNOW** these things. Otherwise...
 - ◆ will burn out from emotional costs
 - ◆ will further confuse the situation with your OWN issues
 - ◆ will blind you to successful strategies
 - ◆ will worsen the symptoms!!!
- Important to ask yourself:
 - ◆ is my motivation to stop the behaviour, or to punish for the sake of punishing?



How To Strategize for Home and School

- **Leaky brakes: therefore need to:**
 - ◆ **do a 'brake job':**
 - ◆ **cognitive-behavioural techniques**
 - ◆ **pharmaceutics**
 - ◆ **find a 'detour':**
 - ◆ **accommodate, as opposed to modify**
 - ◆ **"God couldn't fix my brakes so he made my horn louder".**
 - ◆ **provide an external brake:**
 - ◆ **compensate what is lacking internally**



The Road To Hell...



The Road To Hell...

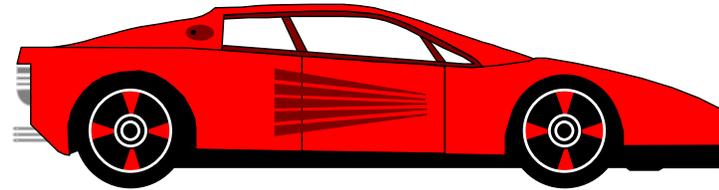
- **Don't worry about distinguishing neurology from behaviour:**
 - a guessing game
 - can encourage a sense of non-responsibility for symptoms
 - leads to 'scape-goating'
 - unacceptable behaviour must be modified, regardless of locus
 - we're the **BRAKE Shop**, not the **EXCUSE Shop** 😊



The Road To Hell...

- **Don't look to 'wean' the individual from their accommodations and/or external brakes:**
 - **continued reliance doesn't mean these are poor strategies**
 - **akin to 'weaning' a person from his/her wheelchair**
 - **fewer incidents, due to environmental modifications, IS a success!**
 - **DON'T use tools for rewards/punishments!!!**





Questions?

A Song?

Child and Parent Resource Institute

Ministry of
Children and Youth Services