FRONTAL LOBE PARADOX

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The Disabilities Trust
Overview

1. Who am I?
2. Importance of the Brain
3. Impact of Brain Injury
4. Prevalence of Brain Injury in Prisons
5. Impact of Brain Injuries for Offenders
6. What can we do about it?
1. Who am I?
who am I…

• clinical psychologist…
• worked in forensic services
• with extra training in neuropsychology…
• Member of DCP / DFP / DoN
• work with adults with brain injuries and their families for over 20 years…
• from hospital to community and from high secure hospitals to prisons…
The Brain Injury Rehabilitation Trust (BIRT)

UK charity leading brain injury rehabilitation.

15 centres England, Scotland and Wales.

1,000 Clinical & support staff.

500+ services users supported p.a.
2. Importance of the Brain
what the brain does...

Everything! It is responsible for –

Thinking
Physical actions
Walking
Breathing

Talking
Seeing
Hearing
Emotions

Hippocrates realised its importance: “from the brain arises our pleasures, joy and laughter as well as our sorrows, pain and tears.”
what it’s made of...

- 100,000 million neurons (thinking cells) and about 10 times as many glial (support) cells.
- The neurons form connections with each other, across which they pass small electro-chemical messages.
- The complex circuits these neurons form are the basis of all our thoughts, feelings and perceptions.
‘neuro’science of learning...

- Neurons know how to grow dendrites (just like how a stomach knows how to digest food)
- Dendrites (fibres) grow out of the neurons when you listen / write talk / practice something.
- Learning = Growth of Dendrites
- New dendrites take time to grow
- And it takes a lot of practice to encourage them to grow
it’s nature...

...growth and synaptic pruning of neural connections

grey matter develops...
it’s nurture...

...romanian orphans

impact of stress...

Dynamic Brain Changes During Stress

Resilient Coping

Risky Coping

VmPFC

Z = -18

Z = -18
psychological cartesian dualism...
3. Impact of Brain Injury
causes of brain injury...

Multiple Sclerosis (MS)
Huntington’s Disease
Parkinson’s Disease
Alzheimer’s Disease

Degenerative diseases

Infection

Infection leading to inflammation

Alcohol related & other toxins

Toxic effects of alcohol / toxins on brain

Benign tumours
Cancers

Tumours

Trauma

Acceleration/Deceleration injuries
Penetrating injuries

Stroke

Blocked blood vessel
Bleeding in the brain

Hypoxia/anoxia

Lack of oxygen
impact of brain injury...

**Cause**
- Trauma
- Stroke
- Hypoxia/anoxia
- Alcohol
- Infection
- Tumours
- Degenerative diseases

**Injury**
- Frontal lobe
- Parietal lobe
- Occipital lobe
- Temporal lobe
- Cerebellum
- Other
- Multiple

**Effects**
- Cognitive
  - Communication/language
  - Physical/sensory
  - Emotional/behavioural
- Specific Impairments
  - e.g. Memory
  - Attention & concentration
  - Problem solving
- Planning
- Fatigue
- Disinhibition
- Reduced self control
- Reduced insight

**Impacts**
- Understanding & communicating
  - Mobility
  - Self-care
  - Marriage/Partner
  - Friendships
  - Family
  - Leisure
  - Work
  - Accommodation
  - Community participation
as a neuropsychologist I know...

injury to the brain causes changes in...

- cognition
- behaviour
- personality
- emotional experience
- physical abilities
‘frontal lobe paradox’ (Walsh, 1985) or the ‘knowing doing dissociation’ (Teuber, 1964)…
frontal lobe paradox...

• ‘knowing doing dissociation’ (Teuber, 1964)
• ‘The person should not be seen as knowingly or consciously denying their difficulties or lying’.
• Neuro-disability of the frontal lobes that are responsible for self-monitoring and developing insight
• ‘Paradox’ because person can appear entirely unimpaired in an office-based assessment, yet have significant functional difficulties in life.
the greater ‘Paradox’…

- Does the Criminal Justice System suffer from a Frontal Lobe Paradox in recognising the problem of Brain Injury within the Criminal Justice System?

- Does the Criminal Justice System suffer from a knowing doing dissociation?

- **TIME FOR CHANGE?**
4. Prevalence of Brain Injury in Prisons
general rates of brain injury...

- 12% (adults) have TBI with a LOC (Frost et al, 2013)
- Traumatic BI (falls, accidents, assaults) is the biggest cause of death and disability WORLDWIDE
- WHO estimate by 2020 up to 10 Million individual’s will be affected worldwide per year
- Age (toddlers, teens, retired), gender (male), urban location and social deprivation as key risk factors (Yates et al 2006)
47% history brain injury
73% suffered brain injury before first offence
42% under 18yrs when committed first offence
43% been in prison on more than 5 occasions
At time of arrest...

...80% had or were using drugs
...32% were drinking 20+units alcohol daily

The association between neuropsychological performance and self-reported traumatic brain injury in a sample of adult male prisoners in the UK
Pitman, I. M. et al; Oct 2014
...it’s an old story
the first case of insanity...

- James Hadfield (1771-1841)
- Battle of Tourcoing 1794
- 15th Light Dragoons
- struck eight times on the head with a sabre - the wounds being prominent for the rest of his life

- attempted to assassinate King George III in 1800.
- found to be insane
- Criminal Lunatics Act
- ‘a brain-damaged and deluded former soldier’
- permanently detained in Bethlem Royal Hospital
there is no doubt…

• association of brain injury and violent crimes (Devinsky 1984, Treiman 1986, Fazel 2009)
• meta-analysis prevalence 41% - 60% (Shiroma 2010, Farrer 2011)
• over 50% serve less than 6 months
• 58% of these were reconvicted within a year
5. Impact of Brain Injuries for Offenders
High levels of...anxiety...depression

Significant issues of...disinhibition...aggression...memory functioning...executive functioning

The association between neuropsychological performance and self-reported traumatic brain injury in a sample of adult male prisoners in the UK
Pitman, I. M. et al; Oct 2014
Offenders often have “thinking” problems...

‘Offenders cope poorly with life because they exhibit various ‘cognitive deficits’ (Ross and Fabiano, 1985, cited in Home Office, 2002; Joliffe 2004)

- lack impulse control
- poor at controlling emotions
- poor problem solving
- rigid and inflexible thinking
- don’t recognising consequences of behaviour
- can’t see another person’s perspective

Study of 2,919 young offenders found over 80% had problems with recognising the consequences of their actions (Cattell et al, 2013)
Does brain injury make people offend...

Could not possibly offend

No Injury

Injury

Will definitely offend
BI in offenders typically leads to...

- Poorer engagement in treatment
- Greater levels of infraction
- Higher level of re-conviction
- Often in areas of violence

Pitman (2015):
139 w TBI v 50 non-TBI
60% vs 38% violent crime

Fishbein (2002):
224 (71 TBI) prisoners
TBI = early dropout from tx & aggressive behave

Ray & Richardson (2017)
151 inmates
Post release 1.6 higher rate of recidivism
in prison poor behaviour may be...

- frequently misses appointments - as they are avoidant and irresponsible...
- talk about the same thing over and over – as they are trying to wind you up...
- make inappropriate personal comments – as they are rude and disrespectful...
- say they will do something but never get around to it – as they are trying to manipulate the situation...
or in prison poor behaviour may be...

- frequently misses appointments – due to impaired memory functioning
- talk about the same thing over and over – due to slow information processing
- make inappropriate personal comments – due to poor impulse control
- say they will do something but never get around to it – due to diminished executive skills

...as a result of a brain injury
6. What can we do about it?
be neuropsychologically informed in your practice...

Understanding of the nature of the Brain and how it can be injured

Methods of training and changing behaviour

Philosophy of community based rehabilitation
rehabilitation is…

• improve functioning
• reduce handicap
• enhance quality of life
• encourage adherence to plan

“I am determined to ensure that we build a prison system that has a renewed focus on rehabilitation.” Michael Gove MP Secretary of State for Justice in the Government Response to Harris Report 2015
prisons could be excellent rehabilitation environments...

- prison offers a very structured environment
- you know what to do, when and where
- rules, roles and boundaries are crystal clear
- people with executive impairments often respond well to this environment
- habitual learning rather than formal
- it is not always like that on the outside
but it’s a ‘**hidden disability**’…

<table>
<thead>
<tr>
<th>Severity</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEVERE</strong></td>
<td>5%</td>
<td>Obvious physical, behavioural &amp; cognitive problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dependency on others</td>
</tr>
<tr>
<td><strong>MODERATE</strong></td>
<td>10%</td>
<td>Some physical, behavioural &amp; cognitive problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Independent but unable to fulfill all activity may seek help</td>
</tr>
<tr>
<td><strong>MILD</strong></td>
<td>85%</td>
<td>‘Masked’ - subtle behavioural &amp; cognitive problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Independent in all activity but not always successful</td>
</tr>
</tbody>
</table>
Phrenology 19th Century
Franz Gall (1758 – 1828)
brain has 28 organs of various mental faculties
skull is shaped by the brain
criminal instinct is located above the ears (temporal lobe)
modern day...

- fMRI are relatively new research techniques
- relationship between brain and behaviour still unclear
- not all ‘risky’ behaviour can be explained by an immature prefrontal cortex or enlarged amygdala
- there is A LOT of inter-individual variability in both brain and behaviour
so what's the problem...

• there is no brain injury identification in prisons
• the structure of prison is helpful
• prisoners spend a lot of time in their cell
• prisoners are often in and out of prison
• 'mild' brain injury is a 'hidden disability'
1. Have you ever had a serious blow to your head that knocked you out or where afterwards you felt very dazed and confused?

- □ Yes
- □ No
- □ Don’t Know
- □ No Reply

[If ‘Yes’ go to question 2. If ‘No’ / ‘Don’t Know’ / ‘No Reply’ then go to question 5]

2. How many times has this happened in your lifetime?

- □ Once
- □ Twice
- □ Three Times
- □ Four Times
- □ Five Times
- □ More than 5
- □ Don’t Know
- □ No Reply

3. For each injury, how long did you suffer a loss of consciousness (LOC)?

<table>
<thead>
<tr>
<th></th>
<th>1st Injury</th>
<th>2nd Injury</th>
<th>3rd Injury</th>
<th>4th Injury</th>
<th>5th Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No LOC</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>2</td>
<td>LOC Less than 10 mins</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>3</td>
<td>LOC Between 10 mins &amp; 6 hours</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>4</td>
<td>LOC More than 6 hours</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

4. Following the injury(ies) did you… (tick more than one box if needed)

<table>
<thead>
<tr>
<th></th>
<th>1st Injury</th>
<th>2nd Injury</th>
<th>3rd Injury</th>
<th>4th Injury</th>
<th>5th Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to Hospital</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>See a Paramedic</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Visit a GP</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Ring NHS Direct</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Do Nothing</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Other (Please State):</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
use brain injury linkworkers...
Brain Injury Linkworker (BIL)…

- Identify individual’s with a Brain Injury who enter custody
- Develop a Rehab Pathway and provide dedicated support to those with a BI
- Raise awareness of BI within the establishment and support staff to manage / adapt to meet the needs of those individuals
purpose...

• Delivers a clinical service to individuals who screen positive for a history of self-reported brain injury

• Whilst there are some variations in the delivery of service between establishments the same pathway was followed
Brain Injury Linkworker projects…

- HMP Preston (Cat ‘B’)
- HMP Drake Hall (female)
- Closed Supervision Centres - HMP Wakefield & HMP Woodhill
- Oxfordshire – HMP YOI Aylesbury & HMP Bullingdon (Cat ‘B’)
- North East - HMP YOI Deerbolt & HMP Durham (Cat ‘B’)
- South Wales - HMP Cardiff (Cat ‘B’) & Mandeville House AP
The BIL-Rehab Pathway…

1. Identify
2. Assess
3. Interventions
4. Post-Release Support

(BI RT Brain Injury Rehabilitation Trust The Disabilities Trust)
Identify

- Pre screening Qu’s on induction
- Staff referral
- Self referral
What level of input does an individual require?

- educational information
- sign posting or referral on
- 1:1 support
Assess

- Semi-structured clinical interview
- Review of medical records (where possible)
- Corroboration with an informant (where possible)
- Completion of Mental Health, occupation and drug / alcohol use screening questionnaires
- consent
Intervention

Education / training

Behaviour guidelines

Indirect work

Cognitive remediation

Link in with others
Intervention

Psychoducation/increasing insight

Behaviour management

Director work

Cognitive remediation

Pre-release work and follow up
example of support pre-release work...

- Prior to release anxiety increases and it can be a difficult time for individuals.
- When there is an increase in anxiety we are likely to see a reduction in cognitive functioning and problematic behaviour.
- BIL supports individual to prepare for release in a number of ways.
pre release workbook covered…

- My day of release
- Sticking to the conditions of my licence and restrictions
- Planning my time
- Memory aids
- Useful contacts
- Managing stress
- Portable profile
Post release follow up

- Share information
- Maintain contact with individual
- Support links into community services
- Monitor progress and effectiveness of strategies and work completed within prison
- Structured pathway for follow up
our success...

- training with prison officers
- liaison with mental health staff
- established a joint clinic GP & SW
- established a review clinic with psychiatry
- 1:1 clinics
- attendance on wings
- attendance on the first night stay centre
- trained peer support
- establish outreach networking
- liaison with service to gain appropriate support on release
• Brain Injury is endemic within CJS
• Brain Injury affects behaviour and learning
• Prisons could be / should be excellent rehabilitation environments for injured brains
• BI Screening is vital (BISI)
• BI Awareness Training is essential
• BI Linkworker’s are desirable
future...

- Increase awareness and provision of training in prisons and custodial settings
- Continue to develop new services
- Support campaign for national screening
- continue to monitor effectiveness (BIL)
thank you for listening...

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