

June 27, 2011

## Today is PTSD Awareness Day

This webinar is sponsored by the Department of Veterans Affairs Employee Education System, Palo Alto Health Care System, and Office of Public Health



# Diagnosis & Treatment of TBI and PTSD



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Moderated by

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# Disclaimer

The views expressed in this presentation are those of the authors  
and Do NOT reflect the official policy of the

Department of Veterans Affairs  
or  
the United States Government

# Background- TBI

- ❑ Traumatic brain injury (TBI)
  - ❑ Injury to the intracranial structures following physical trauma to the head
  - ❑ vs. Head Injury both intracranial and extra-cranial structures (scalp and skull)
- ❑ Epidemiology
  - ❑ >1.5 million Americans suffer a TBI each year
  - ❑ >57 million individuals worldwide hospitalized by 1 or more TBI
  - ❑ It is referred as the “signature injury” of OEF/OIF
  - ❑ TBI is the major cause of disability in young adults

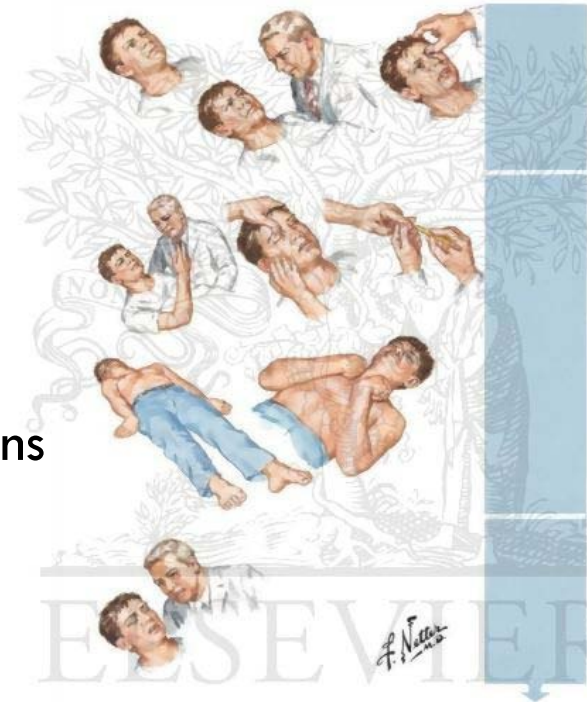


# Background - VA/DOD Definition of TBI

- A traumatically induced structural injury AND/OR physiologic disruption of brain function as a result of an external force with a new onset or worsening of at least one of the following clinical signs immediately following the event:
  - Any period of loss of consciousness
  - Any loss of memory for events immediately before or after injury
  - Any alteration in mental state at the time of injury
  - Neurologic deficits
  - Intracranial lesion

# Background - TBI Classification

- Mild, moderate, or severe based on simple cognitive and motor evaluations such as the Glasgow Coma Scale (GCS)
  - ▣ GCS 13-15 Mild
  - ▣ GCS 8-12 Moderated
  - ▣ GCS <8 Severe
- Mechanism:
  - ▣ Primary injuries - direct result of trauma
  - ▣ Secondary injuries - complications of 1<sup>o</sup> lesions
- Location
  - ▣ Penetrating/open
  - ▣ Blunt/closed



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# Background - mild TBI (mTBI)

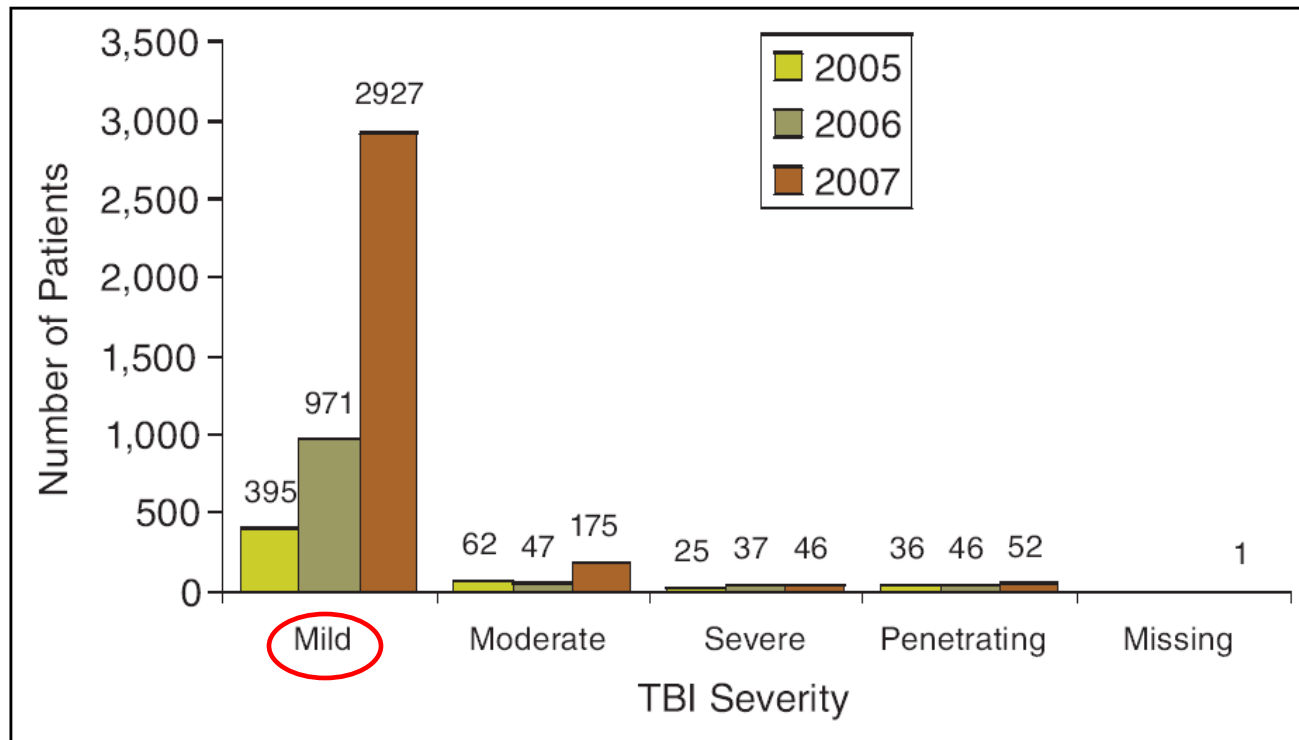


FIGURE 2-1 Severity of TBI cases treated at DVBIC Sites, 2005–2007.  
Source: Labutta, 2008.

# Prevalence, Duration and Characteristics of mTBI in OIF/OEF Veterans

- Approximately 18% of returning soldiers have been identified as having mild Traumatic Brain Injury, primarily due to exposure to blasts (see Hoge et al, 2008)

# Posttraumatic Stress Disorder

## (DSM IV criteria)

- Re-experiencing /intrusive symptoms (1 of 4)
  - Flashbacks
  - Nightmares
  - intrusive recollections of trauma
  - intense psychological distress or physiological reactivity
- Avoidance/Numbing symptoms (3 of 7)
  - avoid thoughts feelings or conversations related to trauma
  - Avoid situations related to trauma
  - social withdrawal
  - emotional numbing
- Hyper-arousal symptoms (2/5)
  - sleep disturbance
  - Poor concentration
  - outbursts of anger, irritability
  - exaggerated startle response.
- Duration >1 month



# TBI and Rates of PTSD

2525 Army infantry soldiers 3-4 months after return from year long deployment

| <b>Injury with loss of Consciousness (n=124)</b> | <b>Injured with Altered mental Status (n=260)</b> | <b>Other Injury (n=435) *ref</b> | <b>No Injury (n=1706)</b> |
|--|---|----------------------------------|---------------------------|
| 43%  | 27%   | 16%                              | 9.7%                      |

\* Hoge et al, 2008 NEJM

# Traumatic Brain Injury

**Steven Z. Chao, MD, PhD**

Department of Neurology

VA Palo Alto Health Care System

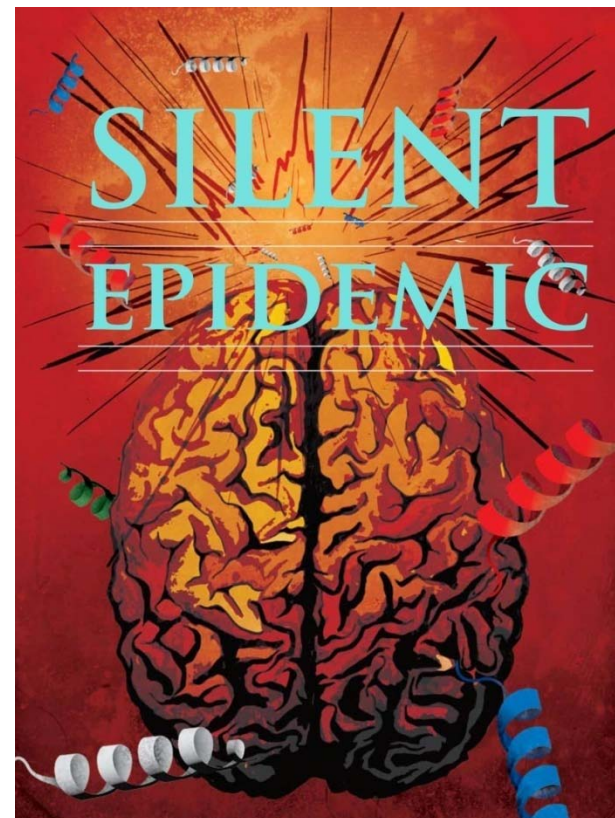
# Background-mild TBI

- Head Injury Interdisciplinary Special Interest Group of the American Congress of Rehabilitation Medicine -mTBI
  - ▣ Any period of loss of consciousness
  - ▣ Any loss of memory for events immediately before or after the accident
  - ▣ Any alteration in mental state at the time of the accident
  - ▣ Focal neurologic deficits that may or may not be transient
- American Academy of Neurology - concussion
  - ▣ Grade 1
    - Transient confusion with no loss of consciousness and concussion symptoms that resolve in less than 15 minutes
  - ▣ Grade 2
    - Similar, except that symptom resolution occurs beyond 15 minutes
  - ▣ Grade 3
    - Any loss of consciousness



# Background-mTBI

- mTBI - “silent epidemic”
  - ▣ Diffuse changes resulting in disruptions of the axolemma and neurofilament organization
  - ▣ Multifocal lesions are labeled diffuse axonal injury or traumatic axonal injury (TAI).



# How do we diagnosis TBI

- ▣ Clinical history
  - Witness/ medical records
  - Self report
- ▣ Residual symptoms
  - Cognitive impairment
  - Physical limitation
  - Mood/Anxiety
- ▣ Biomarkers
  - Blood/CSF
  - Imaging
  - Pathology

# Complicated Mild TBI

- When clinical neuroimaging findings are present following a mTBI, the classification changes to “complicated mTBI,” which has a 6-month outcome more similar to moderate TBI

Williams et al., *Neurosurgery* 1990;27(3):422-8.

Kashluba et al., *Arch Phys Med Rehabil* 2008; 89(5): 904-11.

From Belanger, 2009

# Imaging Classification of TBI

## *Primary injury*

### Extra-axial injury

- Epidural hematoma
- Subdural hematoma
- Sub-arachnoid hemorrhage

### Intra-axial injury

- Axonal injury
- Cortical contusion
- Intra-cerebral hematoma

### Vascular injury

- Dissection
- Carotid cavernous fistula
- Arterio-venous dural fistula
- Pseudoaneurysm

# Imaging Classification of TBI

## *Secondary injury*

### Acute

- Diffuse cerebral swelling/dysautoregulation
- Brain herniation
- Infarction
- Infection

### Chronic

- Lepiomeningeal cyst
- Hydrocephalus
- Encephalomalacia
- Cerebrospinal fluid leak



# Neuroimaging in TBI

- **X-ray**
- **CT**
- **MRI**
- **Functional study**



# Neuroimaging- X-Ray

- ▣ Poor predictors of intracranial pathology
- ▣ mTBI - rarely demonstrate significant findings
- ▣ Severe TBI - Negative findings may mislead medical management



# Neuroimaging in TBI

- X-ray
- **CT**
  - ▣ Indication
  - ▣ Limitation
- MRI
- functional study



# Neuroimaging - CT

## □ Indication

Le and Gean. Mount Sinai J Med 2009

▣ Moderate and severe TBI (GCS < 12)

▣ Mild TBI

- Age >60 years
- Persistent neurological deficit
- Headache or vomiting
- Amnesia, loss of consciousness longer than 5 minutes
- Depressed skull fracture
- Penetrating injury
- Bleeding diathesis or anticoagulation therapy

# Neuroimaging - CT

- Modality of choice in acute setting
  - ▣ Fast, widely available
  - ▣ Highly accurate for skull fractures and intracranial hemorrhage
  - ▣ Life-support and monitoring easier than MR
  - ▣ Better at radio-opaque foreign bodies
  - ▣ Non-contrast CT first for hemorrhage
  - ▣ CT angiography has better resolution

Le and Gean. Mount Sinai J Med 2009

# Neuroimaging - CT

- Limitation-Low sensitivity for mild TBI  
abnormal findings on clinical computed tomography
  - ▣ 5% GCS 15
  - ▣ 20% GCS 14
  - ▣ 30% GCS 13

Borg et al. J Rehabil Med 2004

# Neuroimaging in TBI

- X-ray
- CT
- **MRI**
  - ▣ Indication
  - ▣ Compare to CT
  - ▣ FLAIR
  - ▣ GRE (T2\*)
  - ▣ DTI
- Functional study



# Neuroimaging - MRI

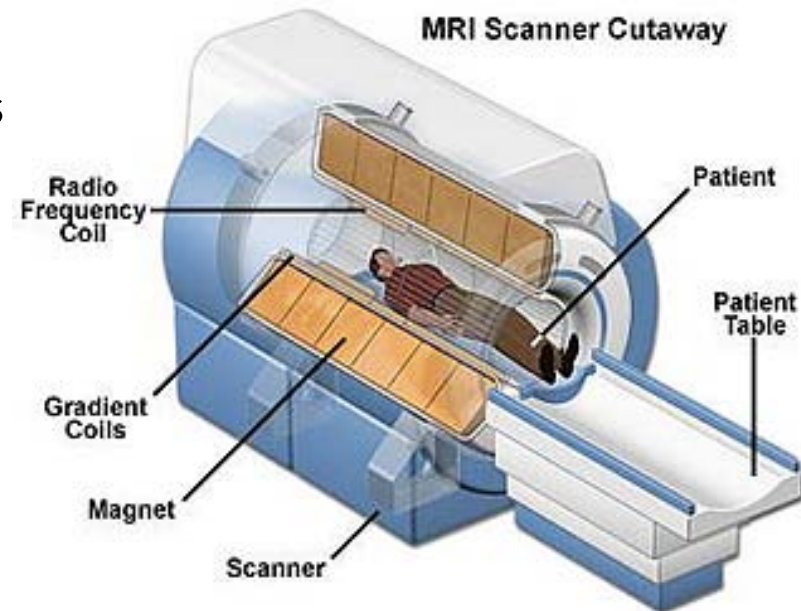
## □ Indication

### ▣ acute TBI

- neurological findings are unexplained by the CT findings

### ▣ subacute

### ▣ chronic TBI

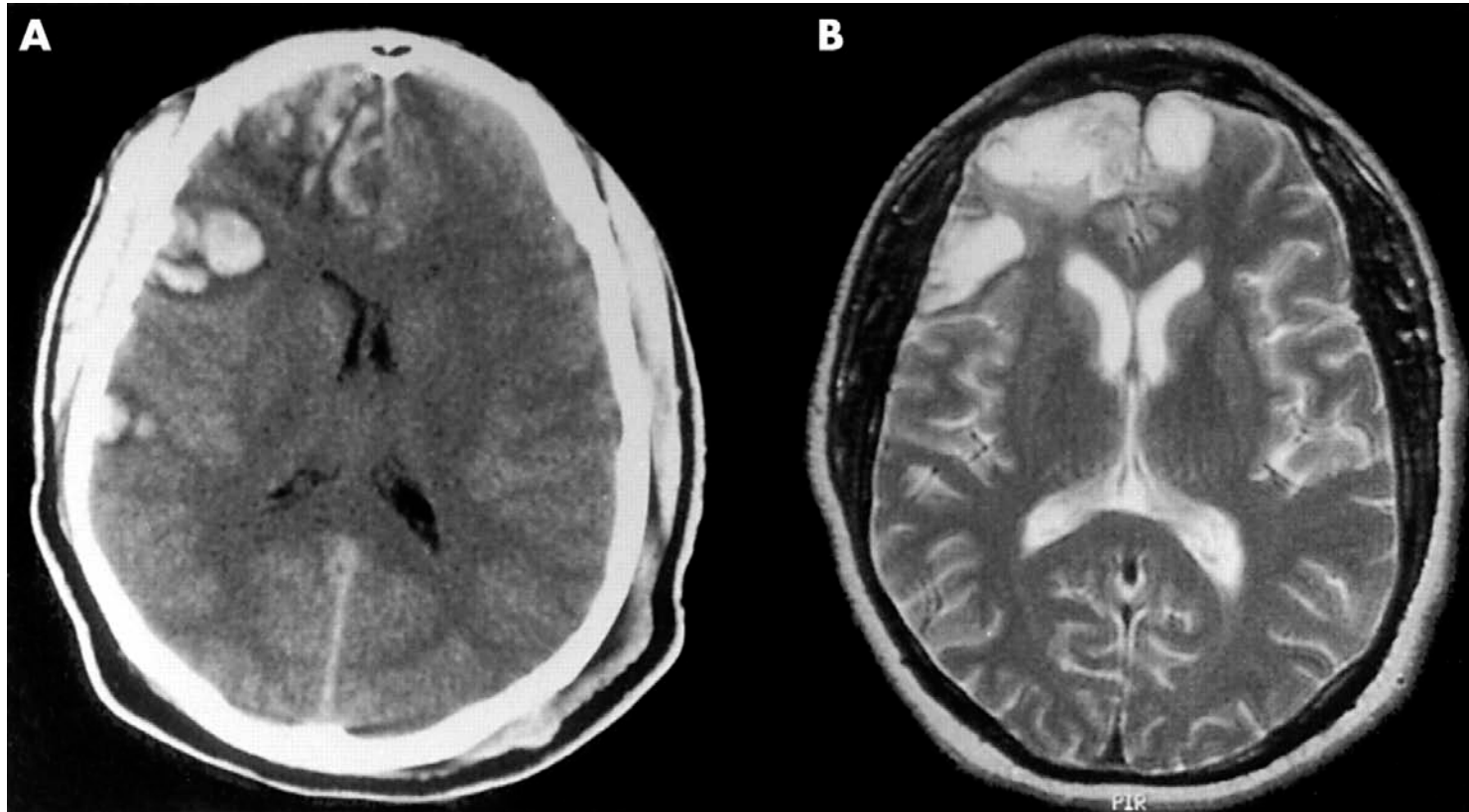




# Neuroimaging - MRI

- T2/Fluid Attenuated Inversion Recovery (FLAIR)
  - ▣ Focal cortical injuries (e.g. contusions)
  - ▣ White matter shearing injuries
  - ▣ SAH by suppressing the bright CSF signal (FLAIR)
  - ▣ Diffuse axonal injury (DAI) particularly can be seen in the corpus callosum and the fornix
    - Sagittal and coronal FLAIR

# Neuroimaging - MRI

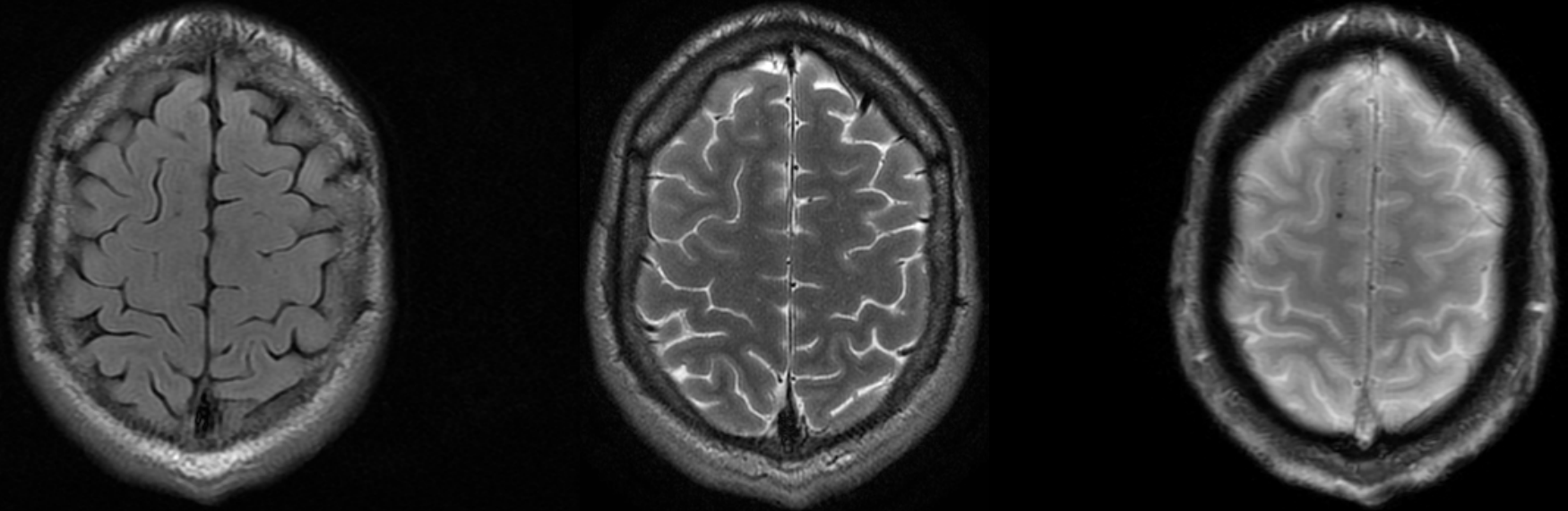


*Greenwood, J Neurol Neurosurg  
Psychiatry 2002*

# Neuroimaging - MRI

- Gradient-Recalled-Echo (GRE)/ T2\*-Weighted /Susceptibility weighted imaging (SWI)
  - Highly sensitive to ferritin & hemosiderin (breakdown products of blood)
  - Hemosiderin can persist indefinitely- good for remote TBI
  - Limited in the evaluation of cortical contusions of the inferior frontal and temporal lobes because of the inhomogeneity artifact induced by the sinuses and mastoid air cells.

# Neuroimaging - MRI



# MRI vs. CT

- Comparable
  - ▣ Acute epidural hematoma(EDH)
  - ▣ Subdural hematoma (SDH)
- More sensitive (43-68% mTBI has negative scan)
  - ▣ Subtle extra-axial smear collections (blood)
  - ▣ Nonhemorrhagic lesions
  - ▣ Brainstem injuries
  - ▣ Subarachnoid hemorrhage (SAH)
  - ▣ 93% of nonhemorrhagic lesions were detected by MRI but only 18% were appreciated on CT
  - ▣ Among TBI patients with normal CT scans 30% had abnormal MRI (Bazarian 2007)

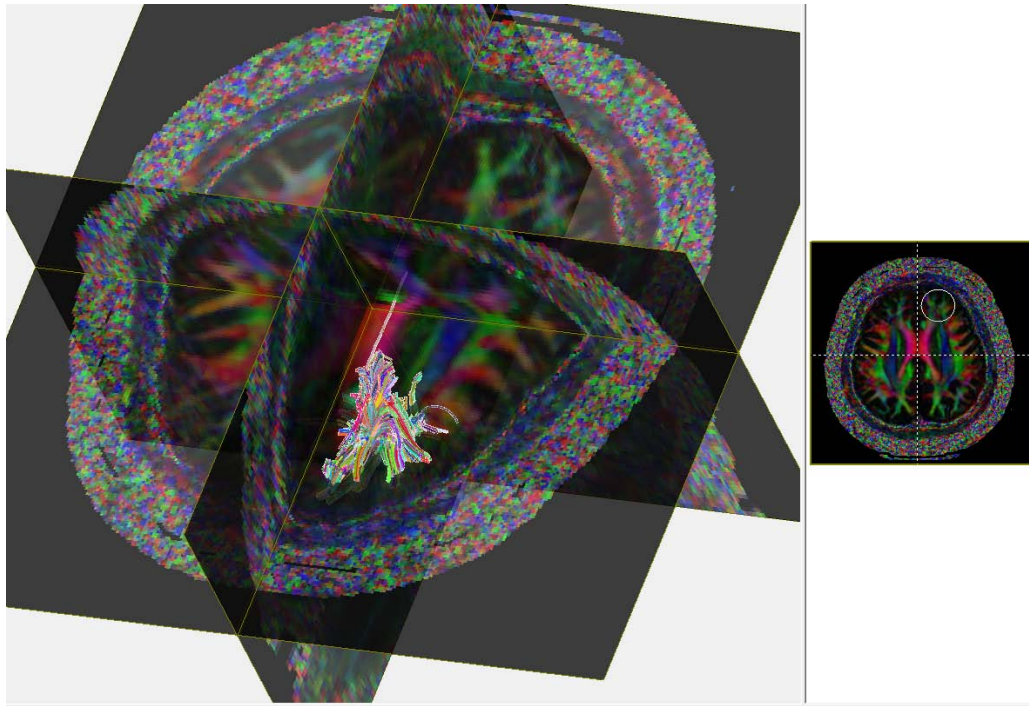
Hofman et al, Am J Neuroradiol 2001  
Hughes et al , Neuroradiology 2004  
Gentry et al, AJR Am J Roentgenol1988

# MRI still misses many lesions

- Post concussive syndrome
  - ▣ Headaches, dizziness, fatigue
  - ▣ Anxiety
  - ▣ Attention deficits and memory problems
  - ▣ Mild encephalopathy (a few days to weeks)
  - ▣ 30% continue to have persistent syndrome
  - ▣ 43-68% mTBI has negative MRI scan



# Neuroimaging – MRI-DTI



## □ Diffusion Tensor Imaging (DTI)

- Identify and quantify the microstructural changes that cannot be detected by CT and conventional MRI
- Certain DTI parameters may serve as a biomarker for microstructural white matter injury
- May serve as better assess mTBI at both acute and chronic stages.

# Neuroimaging – MRI-DTI

- *Changes in DTI metrics at acute and chronic time points in symptomatic TBI patients*

|                       | <b>Acute TBI</b> | <b>Chronic TBI</b> |
|-----------------------|------------------|--------------------|
| Fractional anisotropy | ↑                | ↓                  |
| Radial diffusivity    | ↓                | ↔ or ↑             |
| Axial diffusivity     | ↔ or ↓           | ↔ or ↑             |

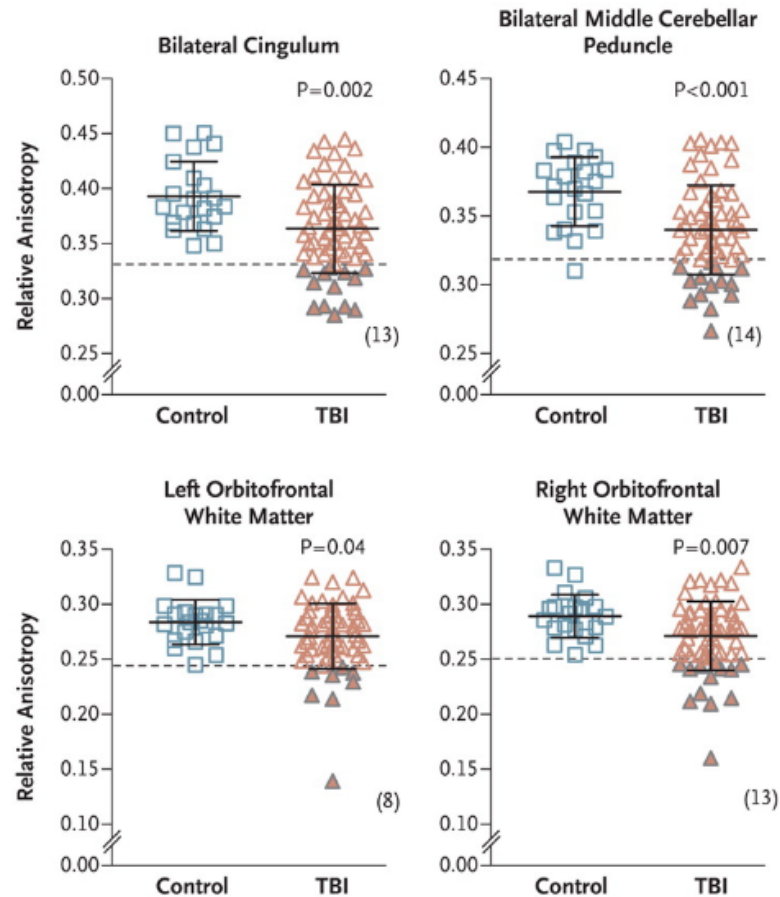
*Niogi & Mukherjee, J Head Trauma Rehabil 2010*



# Neuroimaging – MRI-DTI

- Abnormalities revealed on DTI with mTBI
- None had detectable intracranial injury on CT head
- In 18 of the 63 subjects with TBI, a significantly greater number of abnormalities were found on DTI.
- Follow-up DTI scans in 47 subjects showed persistent abnormalities

*Mac Donald et. Al. NEJM 2011*



# Neuroimaging in TBI

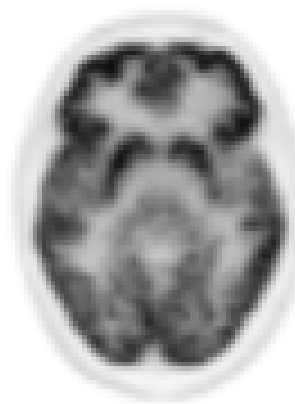
- X-ray
- CT
- MRI
- Other functional study
  - ▣ PET
  - ▣ SPECT
  - ▣ f-MRI

# Neuroimaging – PET

- Positron Emission Tomography
  - ▣ Measures regional brain metabolism with 2-Fuoro-deoxy-glucose(FDG)
  - ▣ In animal studies
    - Acutely injured show increased glucose metabolism
    - Followed by a prolonged period of regional hypometabolism lasting up to months
  - ▣ Human studies has no consistent results
    - Both hypermetabolism and hypometabolism in the same regions across different TBI patients

# Neuroimaging - PET

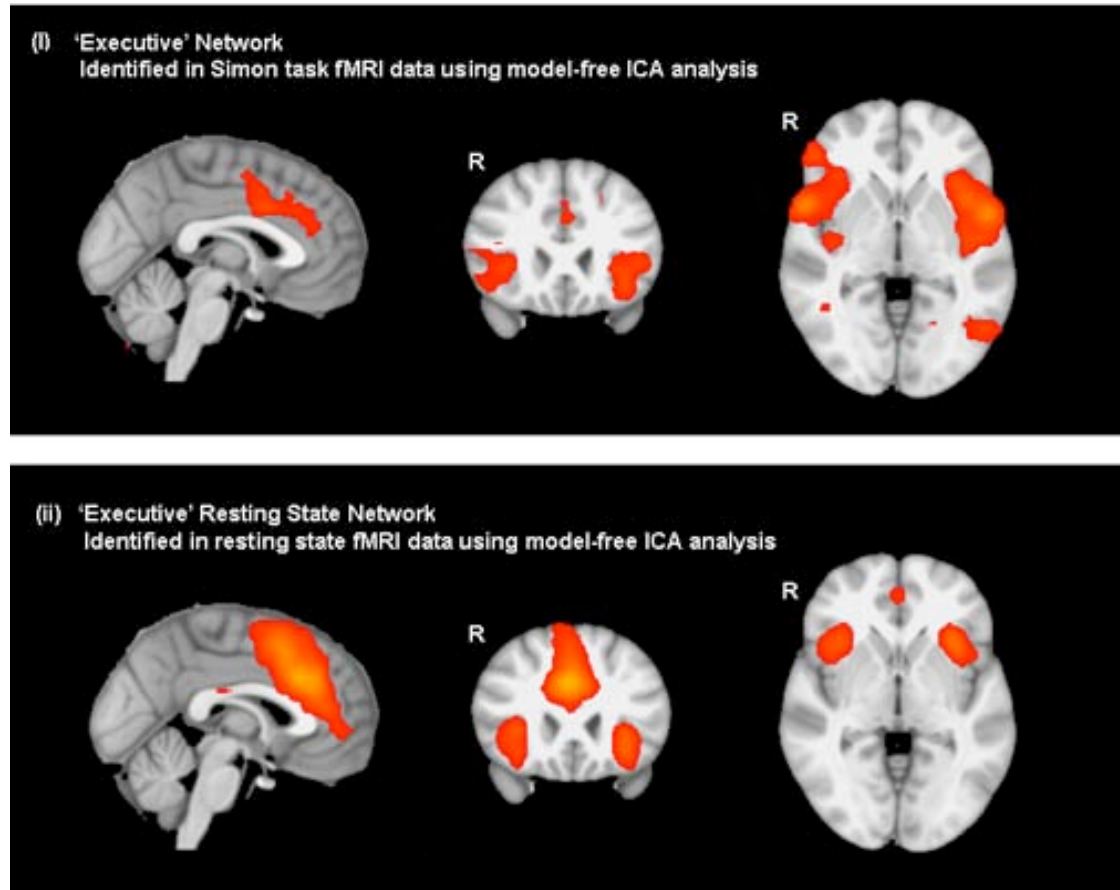
- 16 WRIISC pt with TBI history
- 4 abnormal MRI
- 5 abnormal PET



# Neuroimaging- SPECT

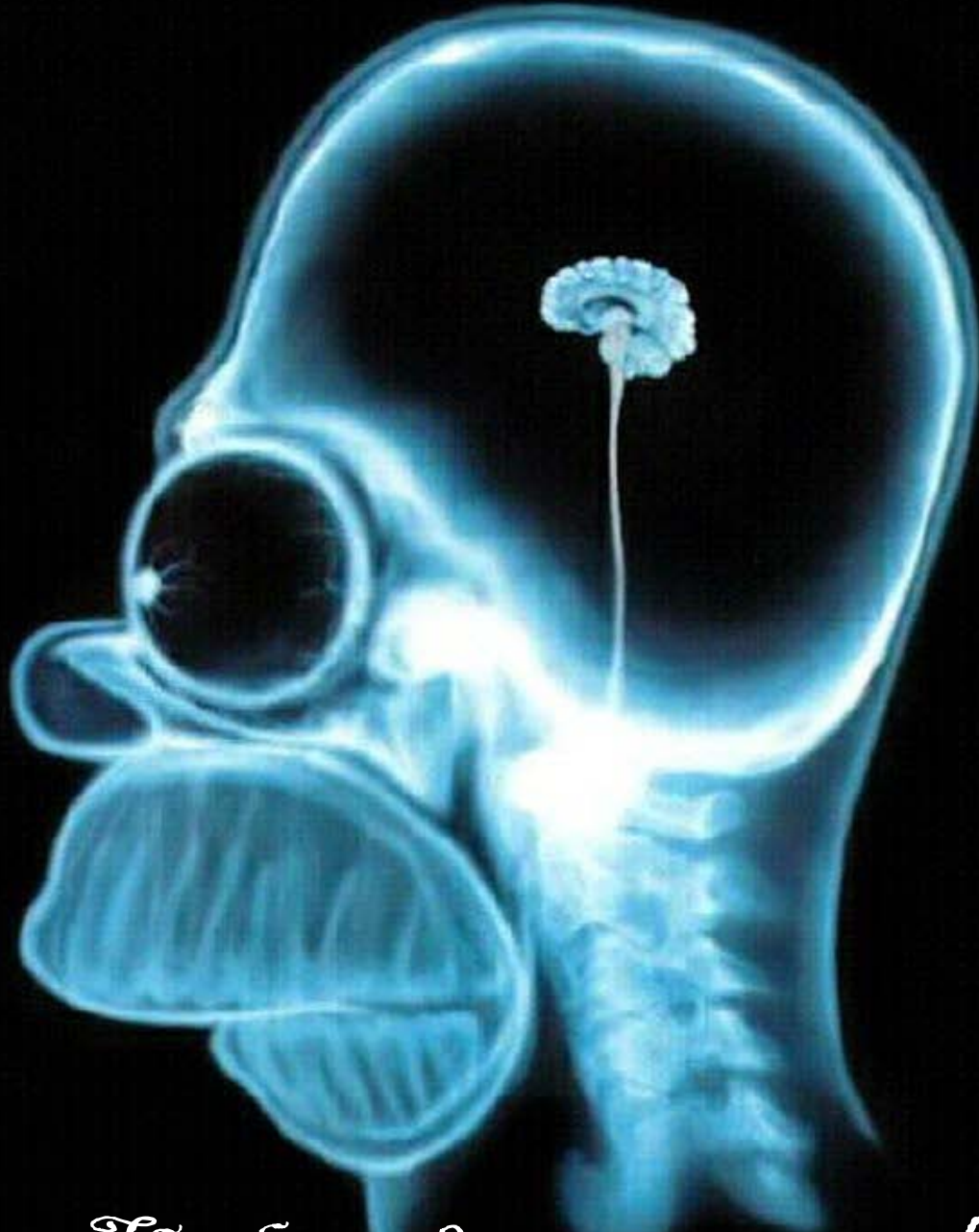
- Single Photon Emission Tomography (SPECT)
  - ▣ Nuclear medicine study that measures cerebral blood flow (CBF)
  - ▣ Potentially provide a better long-term prognostic predictor
  - ▣ Worse prognosis
    - multiple CBF abnormalities
    - larger CBF defects
    - involve the basal ganglia, temporal and parietal lobes, and brainstem
  - ▣ less sensitive in detecting small lesions that are visible on MRI
  - ▣ SPECT imaging is complementary to MRI

# Functional MRI - Resting state



# Neuroimaging- What else?

- Diffusion-Weighted Imaging
- Diffusion-Spectrum Imaging
- Magnetic Resonance Spectroscopy
- Magnetization Transfer Imaging
- Magnetic Source Imaging
- Functional MRI



*Thank you for your attention!*



# mTBI and PTSD: Applicability of Skills Training in Affect and Interpersonal Regulation (STAIR)

## **Marylene Cloitre, PhD**

Associate Director of Research,

National Center for PTSD

Professor,

Department of Psychiatry

New York University Medical Center

# Traumatic Brain Injury: Defined by severity of injury at time of event

| <b>Mild</b>   | <b>Moderate</b>                           | <b>Severe</b>                             |
|---|---|---|
| Altered or Loss of Consciousness (LOC) < 30 minutes with normal CT and/or MRI | LOC < 6 hours with abnormal CT and/or MRI | LOC > 6 hours with abnormal CT and/or MRI |
| Glasgow Coma Scale (GCS) 13-15  | GCS 9-12                                  | GCS < 9                                   |
| Post Traumatic Amnesia (PTA) < 24 hours                                       | PTA < 7 days                              | PTA > 7 days                              |

# Post-Concussive Syndrome (ICD-10 Criteria)

- History of Traumatic Brain Injury
- Three or more of the following:
  - Headache
  - Dizziness
  - Fatigue
  - Irritability
  - Insomnia
  - Concentration difficulty
  - Memory Difficulty
  - Intolerance of alcohol or emotion

# Post-Concussive Syndrome (DSM-IV Criteria)

- History of Traumatic Brain Injury
- Cognitive Deficit
  - ▣ Attention (focus, sustained tracking)
  - ▣ Memory
- Symptoms persist more the 3 months
- Symptoms that begin/worsen after injury
- Exclusion of dementia from other cause

# Prevalence, Duration and Characteristics of mTBI in OIF/OEF Veterans

- Approximately 18% of returning soldiers have been identified as having mild Traumatic Brain Injury, primarily due to exposure to blasts (see Hoge et al, 2008)

# Prevalence, Duration and Characteristics of mTBI in OIF/OEF Veterans

- Majority of cases resolve in 4-12 weeks (Collins, 1999; Moore, 2006)
- However, longer duration of post-concussive symptoms have been noted with substantial numbers having symptoms from 12 to 36 months.
- Longer recovery associated with presence of comorbid psychiatric disorders including Posttraumatic Stress Disorder, Depression, Pain and Substance Abuse

# Posttraumatic Stress Disorder (DSM IV criteria)

- **Re-experiencing /intrusive symptoms (1 of 4)**
  - Flashbacks
  - Nightmares
  - intrusive recollections of trauma
  - intense psychological distress or physiological reactivity
- **Avoidance/Numbing symptoms (3 of 7)**
  - avoid thoughts feelings or conversations related to trauma
  - Avoid situations related to trauma
  - social withdrawal
  - emotional numbing
- **Hyper-arousal symptoms (2/5)**
  - sleep disturbance
  - Poor concentration
  - outbursts of anger, irritability
  - exaggerated startle response.
- **Duration >1 month**

# TBI and Rates of PTSD

2525 Army infantry soldiers 3-4 months after return from year long deployment

| <b>Injury with loss of Consciousness<br/>(n=124)</b> | <b>Injured with Altered mental Status (n=260)</b> | <b>Other Injury<br/>(n=435) *ref</b> | <b>No Injury<br/>(n=1706)</b> |
|--|---|--------------------------------------|-------------------------------|
| 43%  | 27%   | 16%                                  | 9.7%                          |

\* Hoge et al, 2008 NEJM



# TBI and Rates of PTSD: Most frequently reported (percent endorsed) postconcussive symptoms

|                        | <b>Injury with loss of Consciousness (n=124)</b> | <b>Injured with Altered mental Status (n=260)</b> | <b>Other Injury (n=435) (Ref Group)</b> | <b>No Injury (n=1706)</b> |
|------------------------|--|---|---|---------------------------|
| Irritability           | 57*  | 48  | 37                                      | 25                        |
| Concentration Problems | 31 *   | 26  | 18                                      | 10                        |
| Memory Problems        | 25 *   | 16  | 14                                      | 7                         |
| Ringing in Ears        | 24 *   | 18  | 14                                      | 6                         |
| Balance Problems       | 8 *  | 7   | 3                                       | 2                         |

\* Sig greater than ref group

Hoge et al, 2008 NEJM

# TBI and Rates of PTSD: Most frequently reported (percent endorsed) postconcussive symptoms

|                        | Injury with loss of Consciousness (n=124) | Injured with Altered mental Status (n=260) | Other Injury (n=435)<br><i>*ref group</i> | No Injury (n=1706) |
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| Ringing in Ears        | 24 *                                      | 18   | 14  | 6                  |
| Balance Problems       | 8 *                                       | 7  | 3   | 2                  |

\* Sig greater than reference group    **PM** – PTSD mediated

Hoge et al, 2008 NEJM

# Distinct and Overlapping Symptoms

**PTSD**

**TBI**

Flashbacks

Irritability

ringing in Ears

Nightmares

Balance Problems

Memory problems

Avoidance of Trauma  
Cues

Headaches

Concentration Problems

Startle Response

# mTBI and PTSD share associated problems

- Depression
- Anxiety
- Interpersonal problems (aggression)
- Physical health problems (muscle, joint, back pain; gastric distress)

# Significance of Comorbidity: Physical Health and Service Utilization (percent endorsing)

|  | <b>Injury with LOC<br/>(typically <math>\leq</math> 2-3 min)<br/>(n=124)</b> | <b>Injured with Altered mental Status<br/>(n=260)</b> | <b>Other Injury<br/>(n=435)<br/><i>*ref group</i></b> | <b>No Injury<br/>(n=1706)</b> |
|--|--|---|---|-------------------------------|
| $\geq$ 2 medical visits for physical condition | 43 *   | 33  | 29  | 20                            |
| $\geq$ 2 missed workdays due to illness        | 23 *   | 16  | 15  | 7                             |
| PHQ score $\geq$ 15                            | 25 *   | 16  | 11  | 5                             |
| Poor overall health                            | 13 *   | 7   | 7   | 2                             |

**\* Sig greater than reference group**

Hoge et al, 2008 NEJM

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|  | <b>Injury with LOC<br/>(typically <math>\leq</math> 2-3 min)<br/>(n=124)</b> | <b>Injured with Altered mental Status<br/>(n=260)</b> | <b>Other Injury<br/>(n=435)<br/>*ref</b> | <b>No Injury<br/>(n=1706)</b> |
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| $\geq$ 2 medical visits for physical condition | 43 * PDM   | 33  | 29                                       | 20                            |
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| PHQ score $\geq$ 15                            | 25 * PDM   | 16  | 11                                       | 5                             |
| Poor overall health                            | 13 * PDM   | 7   | 7  | 2                             |

\* Sig greater than reference group

PDM – PTSD and Depression mediated

# Treatment Recommendations

VA Consensus Conference on Practice Recommendations for Treatment of Veterans with Comorbid PTSD, Pain and PTSD (2010)

- For TBI
  - ▣ Education to normalize symptoms and provide expectation of rapid recovery
  - ▣ Symptom-specific relief
- For TBI and PTSD
  - ▣ Interdisciplinary Treatment Planning
  - ▣ Family Engagement
  - ▣ Use current clinical practice guidelines for mTBI and PTSD in an integrated way

# Treatment Recommendations based on Evidence

- Cognitive-Behavioral Treatment (CBT) is widely accepted as treatment for PTSD (Foa et al, 2008)
- Two case studies support use of CBT for patient With PTSD After TBI (Batten, & Pollack, 2008; McGrath, 1997) .
- One RCT of mild TBI with ASD. Patients were able to complete and benefit from CBT and was superior to supportive therapy (Bryant et al, 2003).



# Domains of Cognitive-Behavioral Techniques

- ❑ Exposure Procedures
- ❑ Anxiety Management Procedures
- ❑ Cognitive Restructuring

# Cognitive Processing Therapy

- Psychoeducation
- Written exposure
  - ▣ impact of trauma on thoughts about self and others
  - ▣ interpretations about traumatic event(s)
- Challenging patient's interpretations about traumatic event(s)
- Cognitive restructuring of more generalized beliefs disrupted by traumatic event(s)

# Exposure Therapy

- Techniques to promote confrontation with feared objects, situations, memories, and images
- Prolonged Exposure
  - ▣ Psychoeducation
  - ▣ Breathing retraining
  - ▣ Prolonged, repeated exposure to the trauma memory (imaginal reliving)
  - ▣ Repeated *in vivo* exposure to objectively safe situations being avoided due to trauma-related fear

# Other Considerations in the use of CBT

- CBT may be of particular value to people with cognitive impairments because of structured, educative and interactive nature
- VA Consensus Conference on Practice Recommendations for Treatment of Veterans with Comorbid PTSD, Pain and PTSD (2010) *acknowledged the potential value of skills training and recommend continued research*
- Application of enhanced CBT treatments which focus on ***emotion dysregulation*** may be relevant

# Complex PTSD

## DSM IV: “Associated Features of PTSD”

- Criterion A : Chronic, repeated, prolonged traumas, often beginning in early life and of an interpersonal nature
  - Childhood Abuse
  - Domestic Violence
  - Prisoner of War
  - Exposure to civil war (genocide)
  - Prostitution Brothels/ Global Slave Trade

# Emotion Regulation Difficulties

## DSM-IV “Associated Features of PTSD”

- Easy provocation, high reactivity to emotionally evocative stimuli, difficulty calming down
- Examples:
  - ▣ fear/dissociation
  - ▣ anger
  - ▣ anxiety
  - ▣ sadness

McDonaugh-Coyle et al,  
2001

Orsillo et al, 2004

Protopopescu et al, 2005

Tull et al, 2007

# Interpersonal Problems

## DSM-IV “Associated Features of PTSD”

- Martial and dating problems
- Low satisfaction in relationships
- Parenting problems
- Poor functioning at work
- Social isolation
- Low perceptions of support

Briere et al, 2004

Claussen et al,  
2002

Punumaki et al,  
2004

# PTSD as an Emotion Dysregulation Disorder

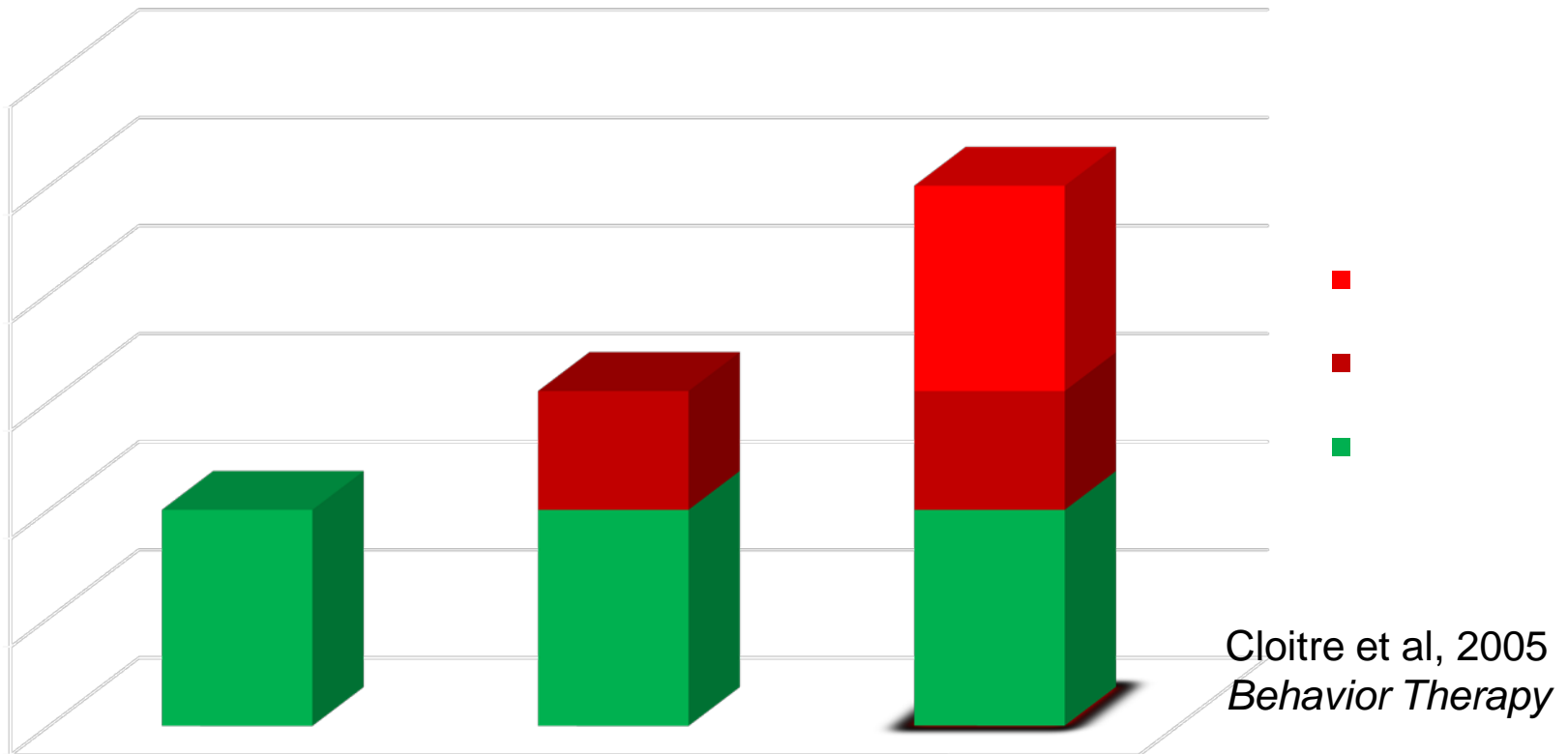
- Alternating symptoms of hyperarousal and emotional avoidance/numbing (affect dysregulation)
- Detachment and constricted affect vs. outbursts of anger and aggressive behaviors



# Consequences of Emotion Regulation Difficulties

- Among problems that PTSD (veterans) patients complain about- anger is common and distressing to patients (Pitman et al, 1987)
- It has been directly linked to interpersonal disturbances
  - ▣ In intimate and social relationships (Riggs et al, 1992)
  - ▣ In parent functioning and relationships with children Bosquet & Egeland, 2006; Weems & Silverman, 2006)

# Functional Impairment



# Treatment Implications: Hybrid of DBT and PE

## Two - Phase Treatment:

- I. Skills Training in Affective and Interpersonal Regulation (STAIR)  
*8 weekly sessions*
  
- II. Narrative Story Telling (NST)  
a modified version of prolonged exposure (PE) via repeated narration of events, meaning analysis, self-other schema analysis *8 weekly sessions*

# PHASE I: STAIR

## SKILLS TRAINING IN AFFECT AND INTERPERSONAL REGULATION

### THE RESOURCE OF HOPE

Session 1: Introduction to Treatment

### THE RESOURCE OF FEELINGS

Session 2: Emotional Awareness and the Power of Naming

Session 3: Emotion Regulation

Session 4: Emotionally Engaged Living

### THE RESOURCE OF CONNECTION

Session 5: Understanding Relationship patterns (Schemas)

Session 6: Changing Relationship Patterns (Alternative Schemas and Role)

Session 7: Agency in Relationships (Assertiveness and Control)

Session 8: Flexibility in Relationships (Multiple Working Models)

# Definition of Emotion Regulation

NOT Anxiety Reduction

# Definition of Emotion Regulation

- ❑ Processes by which an individual monitors, modifies and expresses emotions to achieve goals (Thompson, 1994)
- ❑ The capacity to manage internal arousal within a performance optimizing range (Cicchetti et al., 1991)
- ❑ The ability to inhibit or control emotions as well as activate behaviors guided by feelings for a particular purpose (Valiente & Eisenberg, 2006)

# Definition of Emotion Regulation

- ❑ A “Comfort Zone” that allows the individual to live in the moment and engage fluidly with the environment
- ❑ Involves not only down-regulation of negative affect
- ❑ But also enhancement of positive affect

# Assessment of Emotion Regulation : Negative Mood Regulation Scale (NMR)

When I'm upset I believe that:

*"That's not like me..."*

*That's a lot like me"*

## Physiological Domain:

If take a walk I'll feel better  
I can breathe my way through

Score of 100 =  
Community Average

## Cognitive Domain:

I tell myself it will last only a little while  
I distract myself

## Behavioral/ Interpersonal Engagement Domain:

I can call a friend  
I do something nice for some one

*Negative Mood Regulation Scale*  
Cantanzaro & Mearns, 1990



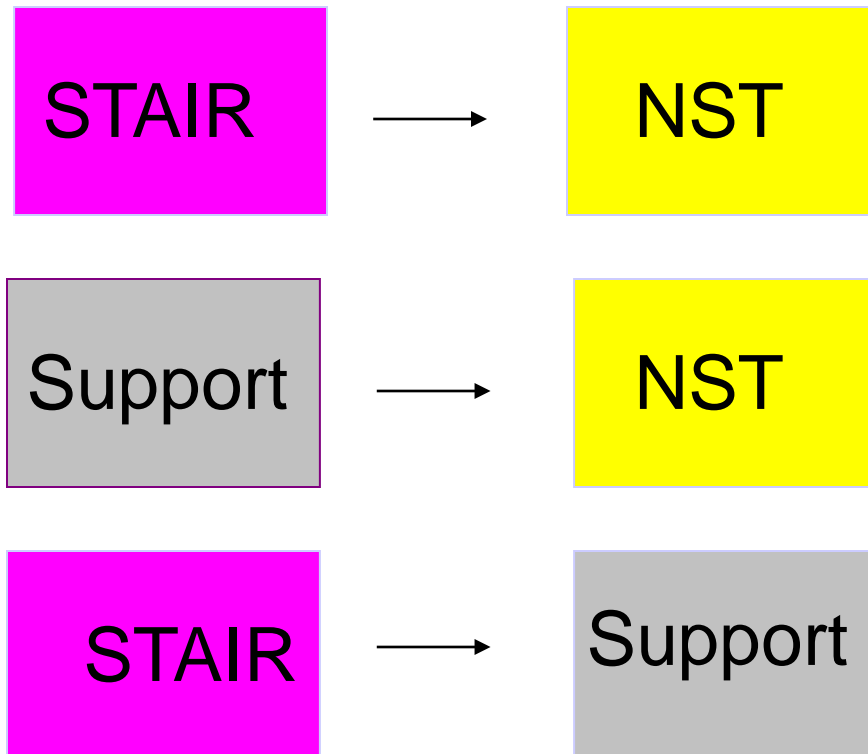
# Emotion Regulation Strategies

- **Breathe** – Entraining cognitive and bodily processes (decrease disorganization)
- **Problem Solving Skills** – create boundaries around problems they become manageable, not overwhelming (cognitive-somatic-behavioral strategies to targeting problems )
- **Enhance Self-Soothing Skills** – exercise, walking, listening to music, quiet places, shower (learn triggers/be proactive)
- **Learn Distress Tolerance** in service of identified goals (identify goals, use all of the above to reach them).

# Impact of Emotions on Relationships and Social Functioning

- Education about patterns of relationships/role of emotions
- Role play in practicing alternatives in sessions
- Practice at home
- Different actions are required in different settings an different relationships (learn what they are)

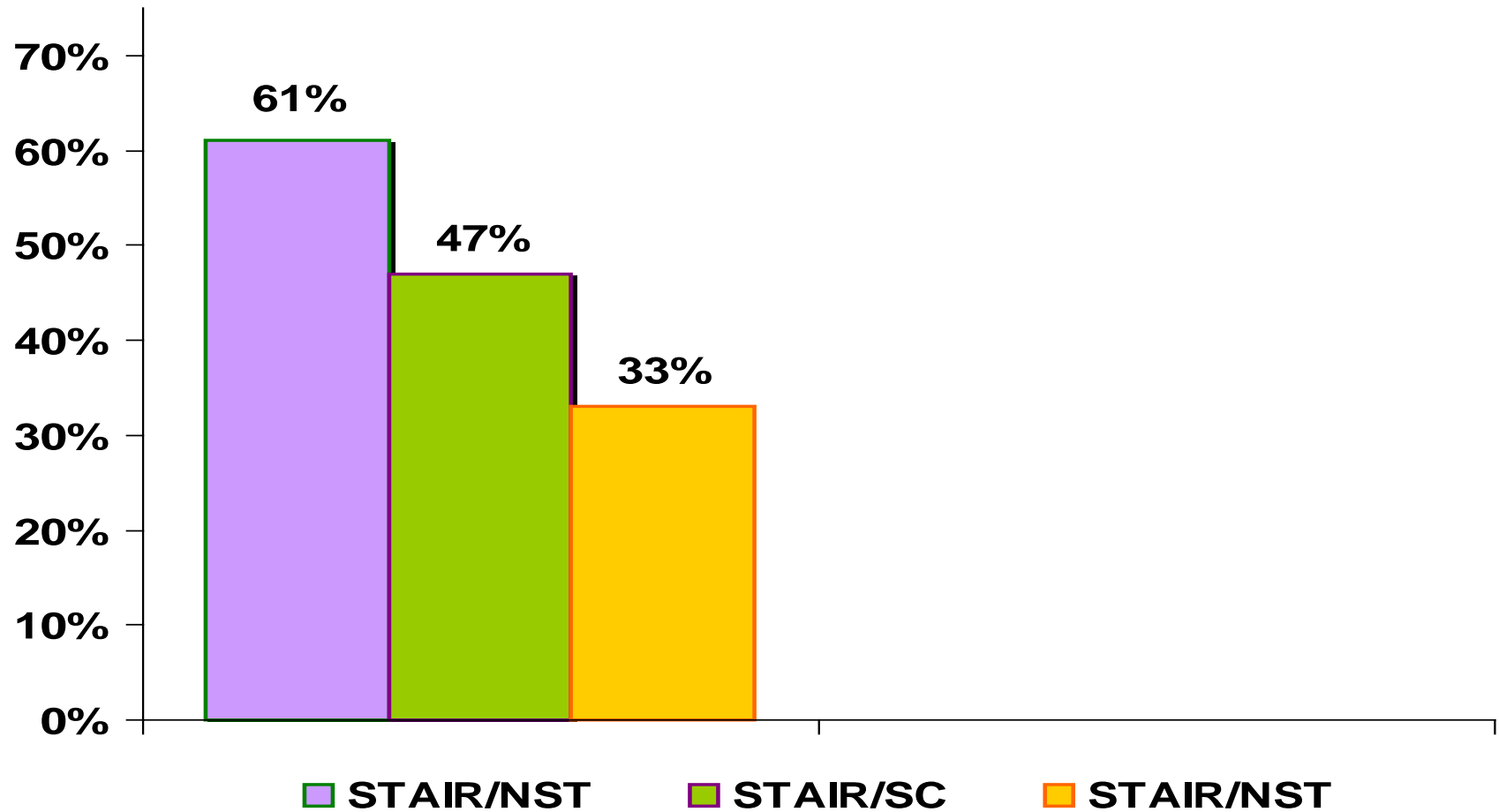
# Study Design: RCT with Three Treatment Conditions



# OUTCOMES

# CAPS Diagnoses at Post Treatment

PTSD-free



Cloitre et al, 2010,  
*AJP*, 167:915-924

# PTSD (n= 104)

ITT

70.0

60.0

50.0

40.0

30.0

20.0

10.0

PSS-SR

Pre-Tx

MidTx

Post-Tx

3MFU

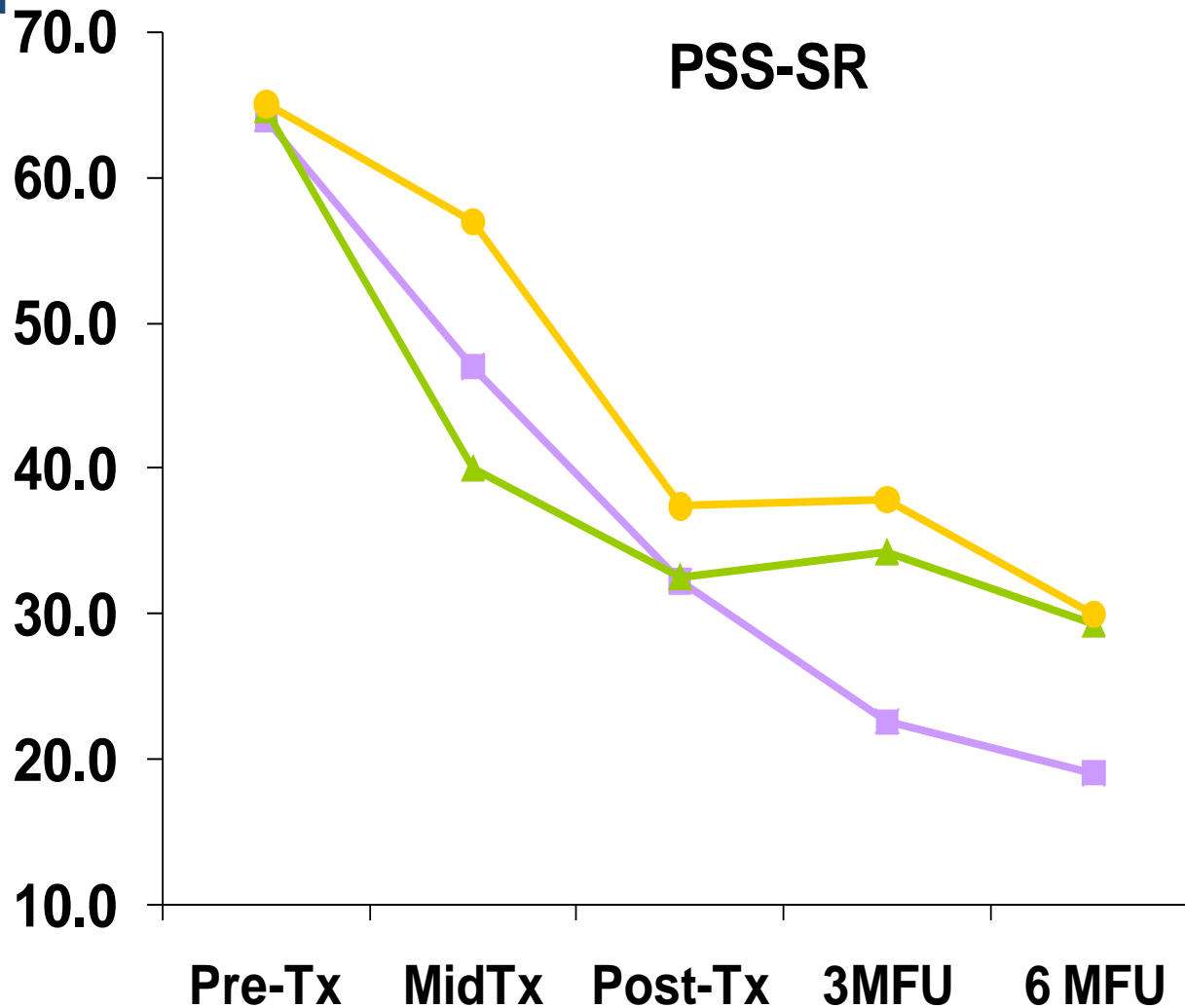
6 MFU

■ STAIR/NST

▲ STAIR/SC

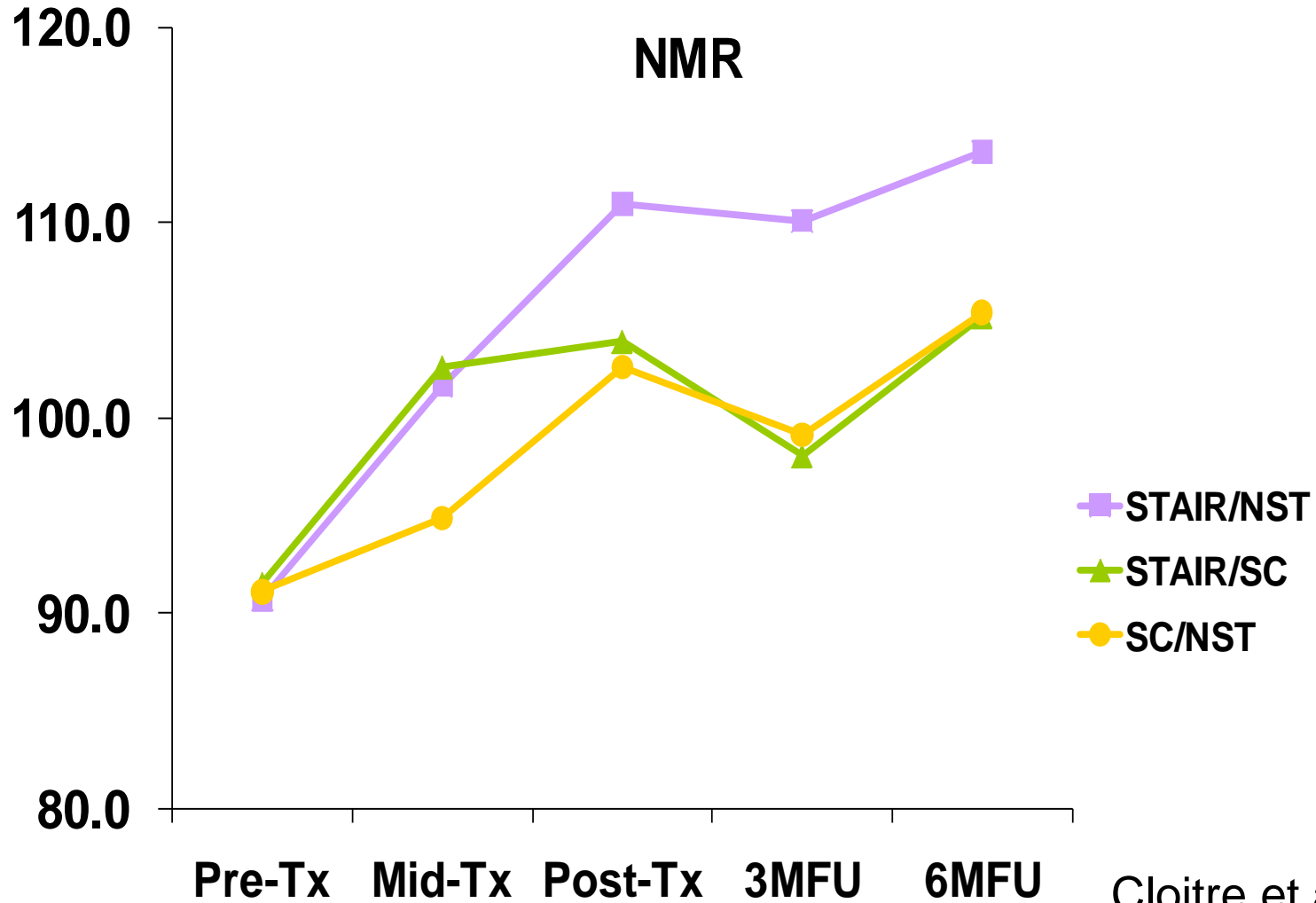
● SC/NST

Cloitre et al, 2010,  
*AJP*, 167:915-924



# Emotion Regulation Problems

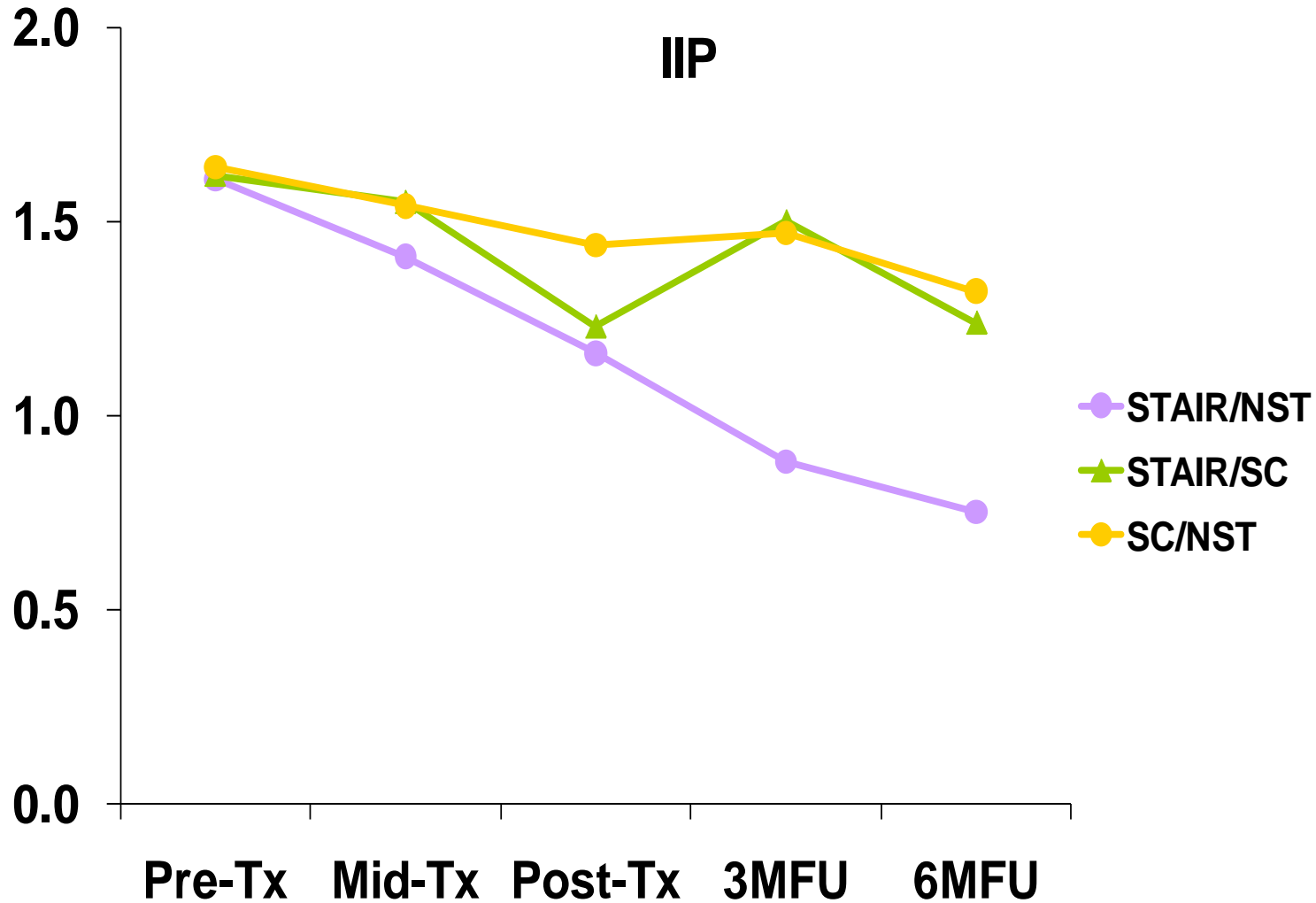
ITT (N=104)



Cloitre et al, 2010,  
*AJP*, 167:915-924

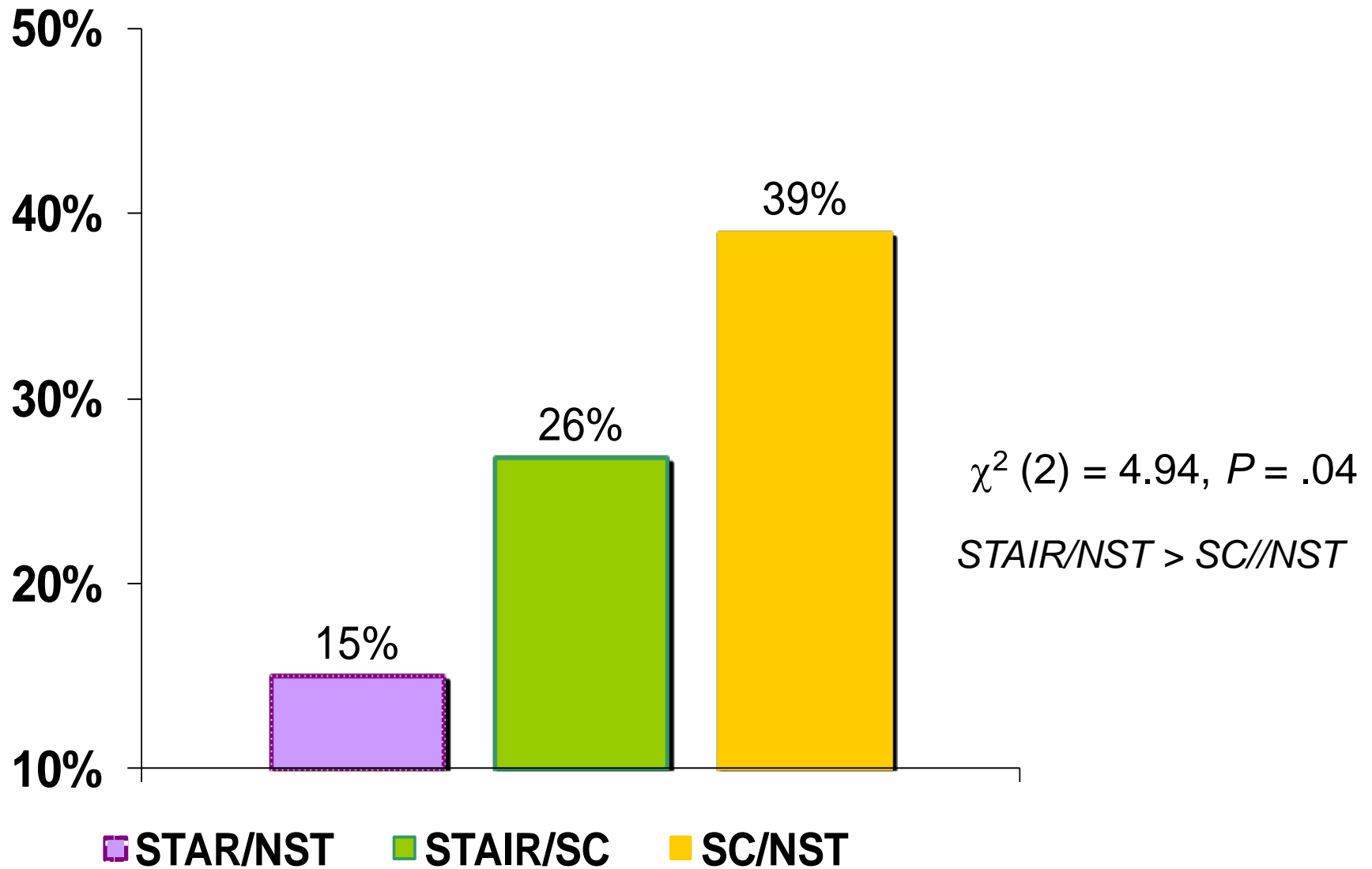
# Interpersonal Problems

ITT (N=104)





# Dropout Rate by Treatment Condition



Cloitre et al, 2010,  
*AJP*, 167:915-924

# SYMPTOM WORSENING: A clinically meaningful deterioration (7 points worse than previous period)

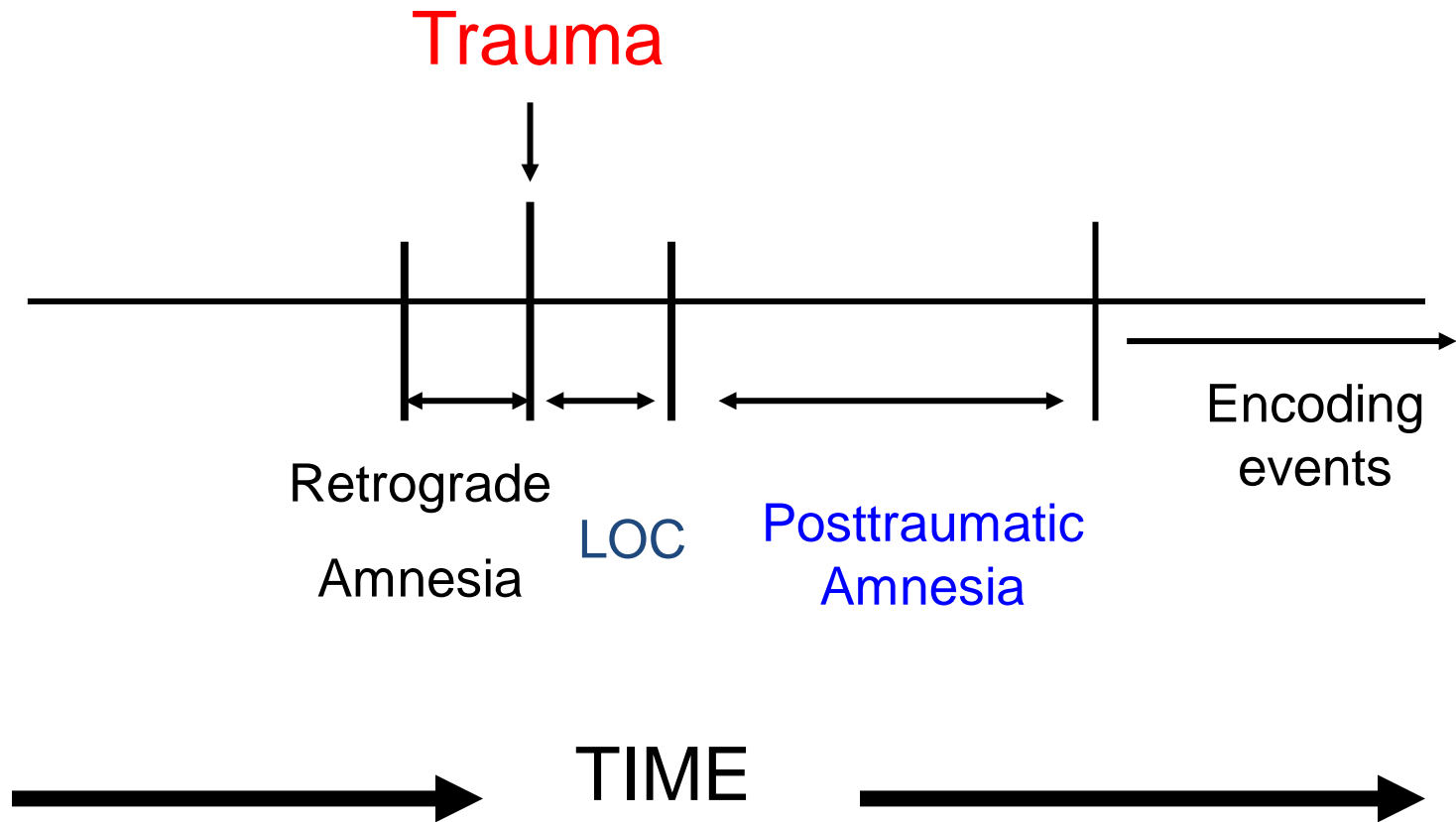
| Assessment Period | STAIR/NST     | STAIR/SC       | SC/NST         | Sig<br>(p-value) |
|-------------------|---------------|----------------|----------------|------------------|
| Pre-to-Post       | 3.6%<br>(n=1) | 7.4%<br>(n= 3) | 15.0%<br>(n=5) | ns               |
| Post-to-6Mo FU    | 0%<br>(n=0)   | 22.7%<br>(n=5) | 31.3%<br>(n=5) | .006             |

Cloitre et al, 2010,  
*AJP*, 167:915-924

# Benefits of Phase-Based Treatment

- ❑ Reduces Dropout relative to exposure focused treatment
- ❑ Provide good outcomes in multiple domains:
  - PTSD, Emotion Regulation and Interpersonal Functioning
- ❑ Makes a difference in distress during trauma memory work
- ❑ Provides continued improvement after treatment ends compared to both treatments

# Posttraumatic Amnesia



Thanks John Kirk, PhD  
Lisa Brenner, PhD

# Explanations for PTSD despite loss of consciousness

- Fear conditioning occurs automatically (nonconsciously) and can explain distress upon exposure to trauma related cue (Criterion B)
- There are “islands” of traumatic memories
- Traumatic nature of memories post-event experiences (dead bodies, surgery)
- Inferencing of an event, and reconstruction of memory

# Alternative:

## Using STAIR alone or in stepped-fashion with Exposure?

- Exposure targets re-experiencing symptoms (intrusive thoughts) and avoidance and has typically required that client required patient to have at least one clear memory of trauma
- Many of the shared symptoms of PTSD and mTBI are “hyperarousal” symptoms (irritability, poor concentration) that skills training is intended to directly address

# Using STAIR alone or in stepped-fashion with Exposure?

- If patient has no or few re-experiencing symptoms (possibly related to lack of memory of trauma):
  - ▣ Begin with and complete skills training
  - ▣ Re-evaluate presence of PTSD and mTBI symptoms
  - ▣ Add exposure or cognitive processing of trauma if PTSD is still present
- Research needed comparing STAIR alone versus Exposure or in step based algorithm

# Summary of STAIR/Ex Research and Activities

## □ **Published Trials**

- STAIR/Ex vs. WL (Cloitre 2002, *JCCP*)
- Comparison Study (Cloitre 2010, *AJP*)
- Flexible Application of STAIR/Ex with 9-11 PTSD (Levitt et al. 2007, *BRAT*)

## □ **Ongoing Trials**

- STAIR+PE vs. STAIR+EMDR (Ehring et al, Amsterdam)
- STAIR+Rescripting vs. Rescripting alone (Olf et al, Amsterdam)
- Open Trial (n=31) w fMRI scans obtained before and after treatment

## □ **Next Steps**

- Multi-site study in Civilian Public Sector Clinics in U.S. (NIMH)
- Web-based Training for STAIR (NCPTSD)



# Questions?



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**J. Wesson Ashford, MD, PhD**

**Thank you**

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