



**A Grouped Knowledge
Presentation**

Traumatic Brain Injury:

A Clinical Approach to Diagnosis and Treatment

by Mark L. Gordon, M.D.



Introduction to TBI - Neuroendocrinology

Disclosure

The following potential conflict of interest relationships are germane to my presentation:

Equipment: N/A

Speakers Bureau: Millennium-WAF TBI Network, Age Management Medical Group.

Stock Shareholder: Millennium Health Centers, Inc.

Grant/Research Support: Access Medical Laboratories, Millennium Health Centers, Inc.

Consultant: Access Medical Laboratories.

Consultant: Secretropin Rx

Consultant: University Compounding Pharmacy.

Status of FDA devices used for the material being presented: N/A

Status of off label use of devices, drugs or other materials that constitute the subject of this presentation: N/A

Disclaimer

- ❑ This course is called: *Traumatic Brain Injury – A Clinical Approach to Diagnosis and Treatment*, and therefore, we will not be discussing hospitalized patients.
- ❑ This course and the book were designed to address the 80-85% of patients who sustained a mild Traumatic Brain Injury (mTBI) and are considered highly functional ; **until they decompensate**.
- ❑ Many of these mTBI patients do develop an array of symptoms that have been generically categorized under the headings of **TBI and PTS**.

The Journey Begins

- **This 1 day program** will take you through a group of related lectures that will build one on top of the other forming a foundation.
- **The end-game** is to have you understand the progression and treatment of traumatic brain injury based upon the content of these lectures.
- **Neurotrauma** is usually thought of in 3 dimensions (causation, intensity, affects) but there is a fourth dimension of **TIME**.

The Journey Begins

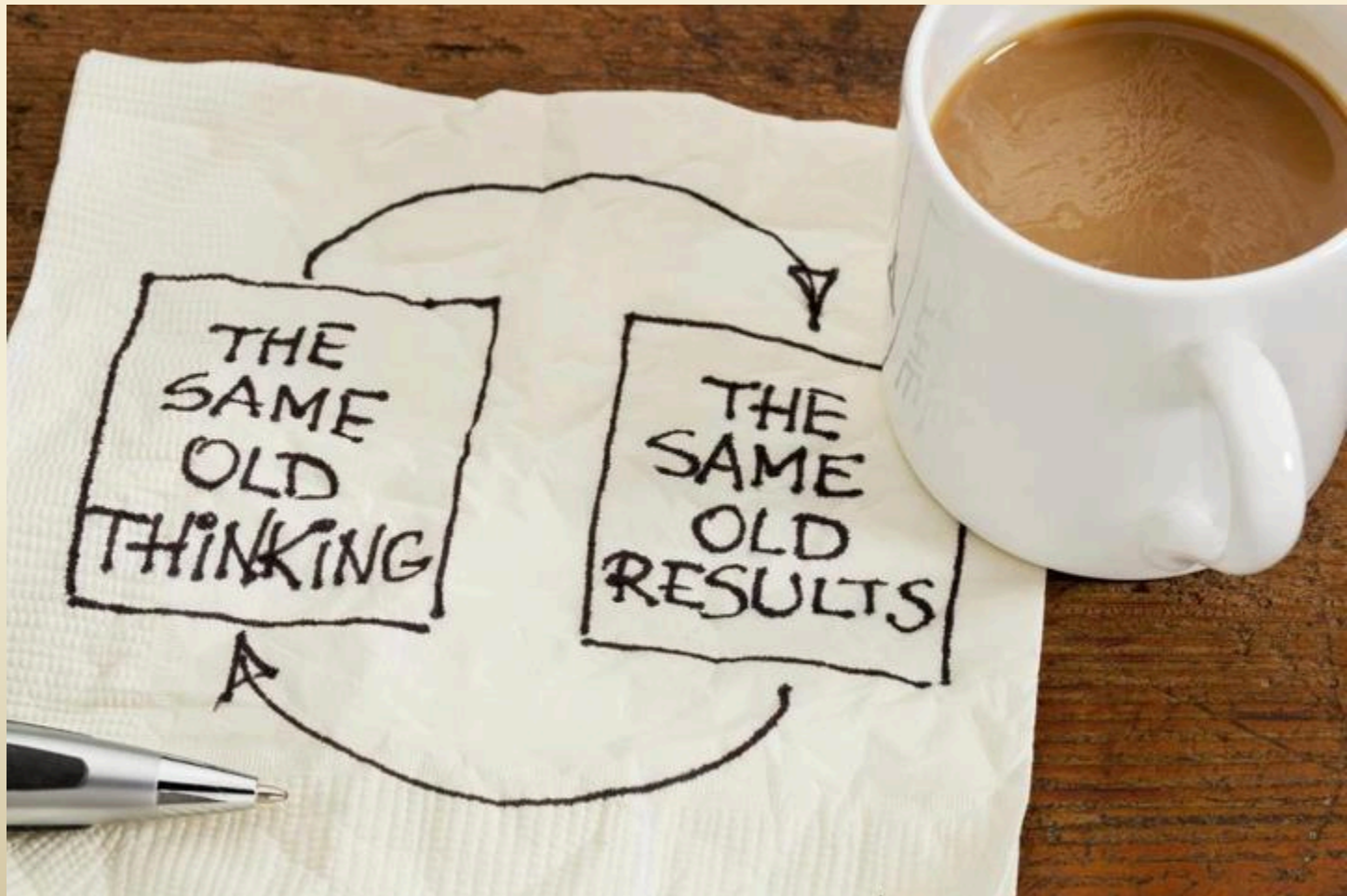
Rules of engagement:

There are no rules, just engage.

(1) Raise your hand. (2) When called upon please stand and identify yourself. (3) Ask your question or make a comment and then sit down.

Let's Begin

The Journey Begins



The Journey Begins

The Paradigm Shift has begun!



The Journey Begins

- ❑ Many individuals are under the false perception that only a head trauma that causes transient unconsciousness or a coma are valid TBIs.
- ❑ Furthermore, subclinical traumas can culminate, **in time**, with the same clinical symptomatology that is seen in someone who has had loss of consciousness.

- ❑ Results suggest that there are few differences in **concussive symptoms, psychological symptoms, and neurocognitive performance** between blast and non-blast mTBIs, although clinically significant impairment in cognitive reaction time for both blast and non-blast groups is observed.
- ❑ MLG: Again, we cannot guess who will develop sequelae from TBI, but we can measure its impact on the neuroendocrine system.

The immunology of traumatic brain injury: a prime target for Alzheimer's disease prevention.

Journal of Neuroinflammation 2012, 9:185. Brian Giunta, Demian Obregon, Renuka Velisetty, Paul R Sanberg, Cesar V Borlongan and Jun Tan.

- ❑ It has been suggested that a long-term process of amyloid-beta ($A\beta$) metabolism is initiated by Traumatic Brain Injury (TBI).
- ❑ The inflammatory-based progression of TBI has been shown to be active in humans for up to **17 years post TBI**.
- ❑ Inflammation inhibits microglial clearance of the amyloid-beta allowing it to accumulate and create further inflammation and destruction.

The Journey Begins

**Cognitive and
Neurobehavioral
Symptoms**

TRAUMA

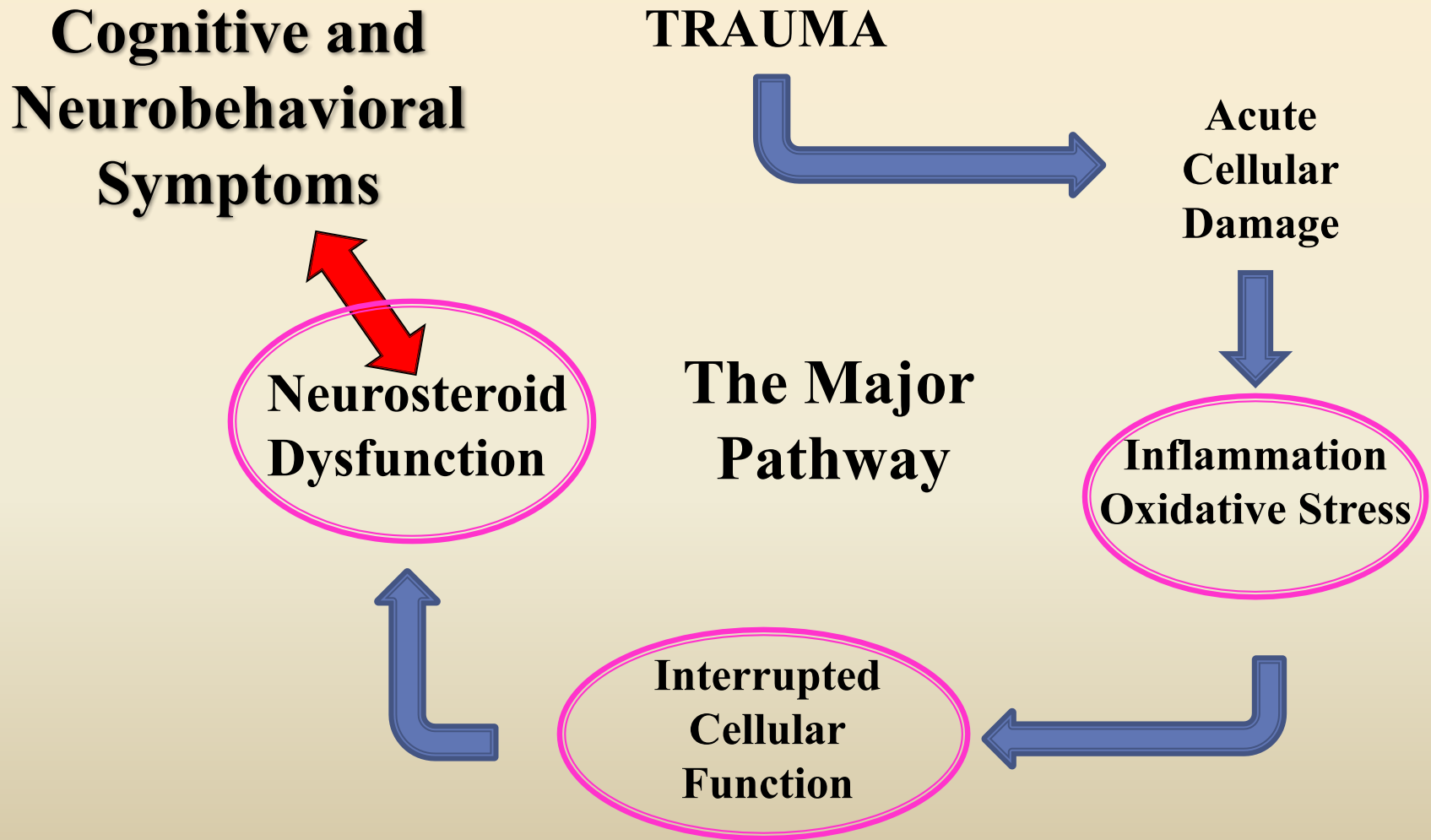
**Acute
Cellular
Damage**

**Neurosteroid
Dysfunction**

**The Major
Pathway**

**Inflammation
Oxidative Stress**

**Interrupted
Cellular
Function**



NFL Fatalities

What we know is that people with repetitive head trauma become suicidal.

Paul Oliver	29 y/o	09-2013	Gunshot	Chest
Junior Seau	43 y/o	07-2012	Gunshot	Chest
Jovan H. Belcher	25 y/o	07-2012	Gunshot	Head
Kurt Crain	47 y/o	04-2012	Gunshot	-
Ray Easterling	62 y/o	04-2012	Gunshot	-
O.J. Murdock	25 y/o	07-2012	Gunshot	Chest
Dave Duerson	50 y/o	02-2011	Gunshot	Chest
Kenny McKinley	23 y/o	09-2010	Gunshot	-
Andre Waters	44 y/o	11-2006	Gunshot	Head
Terry Long	45 y/o	06-2005	Anti-freeze	
Juston Strzelczyk	36 y/o	09-2004	MVA in Chase	
Mike Webster	50 y/o	09-2002	MI?	-

We Know: There are Higher Rates of Dementia in Former N.F.L. Players - NYTimes.com

Dementia Risk Seen in Players in N.F.L.

Study By ALAN SCHWARZ , September 2009

- ❑ A study commissioned by the NFL reports that Alzheimer's disease or DAT appear to have been diagnosed in the league's former players more often than in the national population — including a rate of **19 times the normal rate** for men ages 30 - 49.

410,000 Veterans Administration visits in 2012 for PTSD (TBI)

- ❑ **We Know** that a large number Veterans are returning with symptoms of PTSD based upon the number of recorded visits to VA Hospitals for psychosocial behavioral issues.*
- ❑ **We Know** that **20-33%** of returning veterans have symptoms of PTSD (mTBI). *The Nation*. April 16, 2013
- ❑ **We Know** that the use of polypharmacy does nothing to help with the underlying cause of the neuro-psychopathology associated with TBI.



That depends if you believe the Scheduling Records recently reported by the Veteran's Administration!!

One death-a-day: Military suicides reach terrifying rate.

- ❑ **We Know:** that more US soldiers are dying from suicide than from enemy fire according to findings released by the Dept. of Defense.
- ❑ The suicide rate for active duty soldiers in 2012 was around one per day.
- ❑ Approximately 40 veterans/soldiers and 113 civilians a day at a rate of one suicide every 9.5 minutes.

What we don't know?

1. Was your birth an easy one?
2. Have you every had an injury that involved your head?
3. Have you ever had any situation that caused jarring of the head or of your body?
4. While learning to walk? Falling out of bed?
5. Roller skates? Bicycling? Motor Vehicle?
6. Skier (water or snow)?
7. Military service? Combat? – *Combat Trauma Syndrome*
8. Sports? Football? Basketball? Soccer? Rugby?
9. Frequently exposed to ionizing radiation (x-rays).

We have not been asking enough of the right questions!

The Next 8 hours:

1. Introduction: An over-view of the program
2. Neurology:
 - a. Understand what disruption of the brains architecture means in terms of functionality.
3. Neuropathology:
 - a. Traumatic insults to the brain in terms of the physical components of Phase I and,
 - b. the inflammatory and biochemical impacts generated as Phase II.

The Next 8 hours:

4. Neuroendocrinology:

- a. The releasing and trophic hormones that regulate glandular hormones.
- b. The missing Neurosteroids (NS)

5. Neurolaboratory

- a. Neurosteroid and Neuroactive Steroid testing.
- b. Interpretation on an individualized basis.

The Next 8 hours:

6. Neuropsychology

- a. The impact of inflammation and neuro- and neuroactive steroid production on cognitive and emotional behaviors.

7. Supplementing for TBI

- a. Promoting a Neuro-Permissive Environment; a potential mechanism for repair.

The Next 8 hours:

8. Treatment and case studies
 - a. Putting it all together.
 - b. Walking through case histories, laboratory results and their interpretation, followed by
 - c. Treatment and follow-up.