



**BOSTON ASSESSMENT OF TBI-LIFETIME
BAT-L**

VA BOSTON HEALTHCARE SYSTEM

**THIS RESEARCH WAS SUPPORTED BY THE
TRANSLATIONAL RESEARCH CENTER FOR TBI AND STRESS DISORDERS (TRACTS)
A VA REHABILITATION RESEARCH AND DEVELOPMENT NATIONAL NETWORK CENTER FOR TBI**

BAT-L

The Boston Assessment of Traumatic Brain Injury-Lifetime (BAT-L) was designed to capture the unique injuries sustained during post-9/11 deployment with particular attention to blast injuries. In addition, head injuries incurred across the lifespan are evaluated. The emphasis of this semi-structured interview is to obtain a detailed account of the injury including the context and events occurring before, during, and after the injury in both civilian and military experiences.

Administration

The BAT-L was created for use in a research setting where detailed information regarding TBI incidence and severity is necessary. The instrument guides the examiner in gathering necessary information from veterans and service members about the three worst TBIs for each category of injury (military blast, military other, pre-military, and post-military). Information is reviewed by a TBI diagnostic consensus team consisting of at least three doctoral-level psychologists, including at least one neuropsychologist. The consensus approach is integral to the instrument. If used without a consensus team, review of selected cases is suggested to assure a consistent diagnostic approach. It may be used both independently as well as part of a larger clinical interview. Please contact the TRACTS team for consultation and training requests.

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BAT-L hybrid classification system for the diagnosis of mTBI into mild Grade I, II, and III injuries (adapted from Bailes and Cantu, 2001) and VA and DoD consensus criteria for TBI severity as defined in the *Clinical practice guidelines: management of concussion—mild traumatic brain injury (mTBI)*. (DOD, 2009).

Criteria	Mild			Moderate	Severe
	Grade I	Grade II	Grade III		
Loss of Consciousness	None	< 5 minutes	> 5 minutes and < 30 minutes	> 30 minutes and < 24 hours	> 24 hours
Alteration of Mental Status	0 – 15 minutes	> 15 minutes and < 24 hours	> 24 hours	> 24 hours; severity based on other criteria	
Post Traumatic Amnesia	0 – 15 minutes	> 15 minutes and < 24 hours	> 24 hours	> 1 day and < 7 days	> 7 days
Glascow Coma Scale	13 - 15			9 - 12	< 9

Department of Veterans Affairs and Department of Defense. (2009). VA/DOD clinical practice guideline for the management of concussion/mild traumatic brain injury. Retrieved from http://www.healthquality.va.gov/mtbi/concussion_mtbi_full_1_0.pdf.

BAT-L SUMMARY SCORE SHEET

POST-MILITARY:

Total # TBIs:	
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1 st Most Severe	2 nd Most Severe	3 rd Most Severe
Age	Age	Age
AMS	AMS	AMS
PTA	PTA	PTA
LOC	LOC	LOC
Severity	Severity	Severity
<input type="checkbox"/> Mild	<input type="checkbox"/> Mild	<input type="checkbox"/> Mild
<input type="checkbox"/> Moderate	<input type="checkbox"/> Moderate	<input type="checkbox"/> Moderate
<input type="checkbox"/> Severe	<input type="checkbox"/> Severe	<input type="checkbox"/> Severe
If Mild:	If Mild:	If Mild:
<input type="checkbox"/> Stage I	<input type="checkbox"/> Stage I	<input type="checkbox"/> Stage I
<input type="checkbox"/> Stage II	<input type="checkbox"/> Stage II	<input type="checkbox"/> Stage II
<input type="checkbox"/> Stage III	<input type="checkbox"/> Stage III	<input type="checkbox"/> Stage III
BATL Score (0 – 5)	BATL Score (0 – 5)	BATL Score (0 – 5)
Nature of Injury	Nature of Injury	Nature of Injury
<input type="checkbox"/> MVA	<input type="checkbox"/> MVA	<input type="checkbox"/> MVA
<input type="checkbox"/> Fall	<input type="checkbox"/> Fall	<input type="checkbox"/> Fall
<input type="checkbox"/> Sports-Related	<input type="checkbox"/> Sports-Related	<input type="checkbox"/> Sports-Related
<input type="checkbox"/> Physical Assault	<input type="checkbox"/> Physical Assault	<input type="checkbox"/> Physical Assault
<input type="checkbox"/> Penetrating Injury	<input type="checkbox"/> Penetrating Injury	<input type="checkbox"/> Penetrating Injury
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____

BAT-L Score (0 – 5):	BAT-L Lifetime Total Score
0 = no TBI	[Sum Military Blast BATL Scores] _____
1 = mTBI grade I	[Sum Military Other BATL Scores] _____
2 = mTBI grade II	[Sum Pre-Military BATL Scores] _____
3 = mTBI grade III	Sum Post-Military BATL Scores _____
4 = moderate TBI	
5 = severe TBI	
	BAT-L TOTAL LIFETIME SCORE TOTAL

BAT-L Total Score = Sum of the scores for the three worst TBIs across all categories of injury (blast-related, military other, pre-military, and post-military) (BAT-L Total Score: Range = 0 - 60).

Total Estimated Repetitive Blasts/Exposures: _____

Total Estimated Repetitive Blunt Exposures: _____

**At repeat query for repetitive blast and blunt subconcussive exposures if not asked at baseline. Provide brief context of participant's military and lifetime injuries from baseline to help him/her understand the definition of repetitive subconcussive blast or blunt exposure.*

BLAST FINAL QUERY:

Is there anything else related to your military duties that exposed you to a high rate of blasts or explosives? (Regardless of presence or absence of acute AMS/PTA/LOC)

Uncertain

No *If no, query specific causes listed below.*

Yes *If yes, What was the cause of the injury?*

Breaches or Breach training: # Occurrences: _____

Flashbangs: # Occurrences: _____

Large munitions (such as a Horwitzer): # Occurrences: _____

RPG or rocket propelled grenade launcher: # Occurrences: _____

SWAT or other shoulder launcher: # Occurrences: _____

Other: Type: _____ # Occurrences: _____

Total Repetitive Blasts/Exposures: _____

**If acute symptoms are reported, assess further following format for Blast Injuries in the preceding section.*

NON-MILITARY HEAD INJURIES

Next I am going to ask you about any head injuries you experienced following your discharge from the military.

POST-MILITARY:

Have you experienced other blows to the head after your time in the military? (Patient report, you will evaluate below)

Uncertain

No *If no, query further losses of consciousness or PTA, then discontinue questionnaire if none.*

Yes *If yes, What was the cause of the injury?*

MVA

Fall

Sports-related injury (e.g., football, hockey, baseball, basketball, soccer, lacrosse, boxing, wrestling, martial arts)

Physical assault/fights

Penetrating injury

Other: Type _____

Next, I am going to ask you about the [number 1 – 3] worst or most severe head injuries you experienced after your military service.

POST-MILITARY #1 (Most Severe):

Age (or best estimate) at time of occurrence: _____

1. What type of accident was it?

- MVA Physical assault
 Fall Penetrating injury
 Sports-related injury Other: _____

2. Do you remember the event itself? ***If yes***, Can you describe it to me? If you don't remember, can you tell me what other people said happened?

a. Were others seriously injured?

- Uncertain No Yes

b. What is the last thing you can remember just before the event?

c. What is the first thing you can remember just after the event? *Following pt's response ask, How long do you think that was after the event?*

d. Did you experience any changes in your vision or hearing after the event? *Establish that the pt is not reporting mental status change when was in fact hearing/vision change.*

Did you return to work/school/duties? _____
Did this event lead to medical leave of absence? _____

EVALUATE POST-MILITARY #1:

Using the questions above, or in spontaneous dialogue, evaluate the following:

Alteration of mental status:

NO YES

If yes, enter the estimated duration of the AMS? _____ hr / min / sec

*AMS = AMS + PTA + LOC

PTA:

NO YES

If yes, enter the estimated duration of the PTA? _____ hr / min / sec

*PTA = PTA + LOC

LOC:

NO YES

If yes, enter the estimated duration of the LOC? _____ hr / min / sec

Substance Related:

NO

YES

Does the patient actually recall this information themselves? (e.g., can provide specific information regarding what they were doing when injury occurred, etc., or was knowledge gained from the reports of witnesses?)

Uncertain No Yes

Emotional Context of Injury:

Traumatic

Non-traumatic

POST-MILITARY #2 (Second Most Severe):

Age (or best estimate) at time of occurrence: _____

1. What type of accident was it?

- MVA Physical assault
 Fall Penetrating injury
 Sports-related injury Other: _____

2. Do you remember the event itself? ***If yes***, Can you describe it to me? If you don't remember, can you tell me what other people said happened?

a. Were others seriously injured?

- Uncertain No Yes

b. What is the last thing you can remember just before the event?

c. What is the first thing you can remember just after the event? *Following pt's response ask, How long do you think that was after the event?*

d. Did you experience any changes in your vision or hearing after the event? *Establish that the pt is not reporting mental status change when was in fact hearing/vision change.*

e. Did you experience confusion or disorientation (not sure where you were, what day or time it was, perform simple math calculations/multistep commands, perform activities as expected) after the event? If so, for how long? *With this and the following question, try to determine if the pt experienced an actual change in mental status vs. vision/hearing difficulty associated with the blast/accident and the chaos surrounding the event.*

f. Did you experience a loss of consciousness at the time of the blast/accident (were you 'knocked out')? If so, for how long? If yes, was LOC witnessed (were you told by others you were knocked out/unconscious)? *Probe to ensure LOC is not due to anoxia/alcohol/substance overdose.*

g. Did you experience any of the following immediately after the event? *Note general Sx duration.*

- Headaches Duration: _____
- Trouble thinking Duration: _____
- Nausea Duration: _____
- Dizziness Duration: _____
- Fatigue Duration: _____
- Poor coordination, balance problems, or slowed reaction times Duration: _____
- Sensory changes (Hearing/Vision/Taste/Smell) Duration: _____
- Numbness or tingling Duration: _____
- Mood changes (Anxiety/Depression/Irritability) Duration: _____
- Sleep trouble Duration: _____
- Other: _____ Duration: _____

3. After the injury did you see a physician, trainer, or other trained personnel?

- Uncertain
- No
- Yes

4. After the injury were you restricted from school, work, or physical exertion?

- Uncertain
- No
- Yes

If Yes:

For how long were you away from work/school/duties? _____
 Did you return to work/school/duties? _____
 Did this event lead to medical leave of absence? _____

EVALUATE POST-MILITARY #2:

Using the questions above, or in spontaneous dialogue, evaluate the following:

Alteration of mental status:	<input type="checkbox"/> NO <input type="checkbox"/> YES If yes, enter the estimated duration of the AMS? _____ hr / min / sec *AMS = AMS + PTA + LOC	Substance Related:
PTA:	<input type="checkbox"/> NO <input type="checkbox"/> YES If yes, enter the estimated duration of the PTA? _____ hr / min / sec *PTA = PTA + LOC	<input type="checkbox"/> NO <input type="checkbox"/> YES
LOC:	<input type="checkbox"/> NO <input type="checkbox"/> YES If yes, enter the estimated duration of the LOC? _____ hr / min / sec	
Does the patient actually recall this information themselves? (e.g., can provide specific information regarding what they were doing when injury occurred, etc., or was knowledge gained from the reports of witnesses?)		Emotional Context of Injury:
<input type="checkbox"/> Uncertain <input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> Traumatic <input type="checkbox"/> Non-traumatic

POST-MILITARY #3 (Third Most Severe):

Age (or best estimate) at time of occurrence: _____

1. What type of accident was it?

- MVA Physical assault
 Fall Penetrating injury
 Sports-related injury Other: _____

2. Do you remember the event itself? **If yes**, Can you describe it to me? If you don't remember, can you tell me what other people said happened?

a. Were others seriously injured?

- Uncertain No Yes

b. What is the last thing you can remember just before the event?

c. What is the first thing you can remember just after the event? *Following pt's response ask, How long do you think that was after the event?*

d. Did you experience any changes in your vision or hearing after the event? *Establish that the pt is not reporting mental status change when was in fact hearing/vision change.*

e. Did you experience confusion or disorientation (not sure where you were, what day or time it was, perform simple math calculations/multistep commands, perform activities as expected) after the event? If so, for how long? *With this and the following question, try to determine if the pt experienced an actual change in mental status vs. vision/hearing difficulty associated with the blast/accident and the chaos surrounding the event.*

f. Did you experience a loss of consciousness at the time of the blast/accident (were you 'knocked out')? If so, for how long? If yes, was LOC witnessed (were you told by others you were knocked out/unconscious)? *Probe to ensure LOC is not due to anoxia/alcohol/substance overdose.*

g. Did you experience any of the following immediately after the event? *Note general Sx duration.*

- Headaches Duration: _____
- Trouble thinking Duration: _____
- Nausea Duration: _____
- Dizziness Duration: _____
- Fatigue Duration: _____
- Poor coordination, balance problems, or slowed reaction times Duration: _____
- Sensory changes (Hearing/Vision/Taste/Smell) Duration: _____
- Numbness or tingling Duration: _____
- Mood changes (Anxiety/Depression/Irritability) Duration: _____
- Sleep trouble Duration: _____
- Other: _____ Duration: _____

3. After the injury did you see a physician, trainer, or other trained personnel?

- Uncertain
- No
- Yes

4. After the injury were you restricted from school, work, or physical exertion?

- Uncertain
- No
- Yes

If Yes:

For how long were you away from work/school/duties? _____
 Did you return to work/school/duties? _____
 Did this event lead to medical leave of absence? _____

EVALUATE POST-MILITARY #3:

Using the questions above, or in spontaneous dialogue, evaluate the following:

Alteration of mental status:	<input type="checkbox"/> NO <input type="checkbox"/> YES If yes, enter the estimated duration of the AMS? _____ hr / min / sec *AMS = AMS + PTA + LOC	Substance Related:
PTA:	<input type="checkbox"/> NO <input type="checkbox"/> YES If yes, enter the estimated duration of the PTA? _____ hr / min / sec *PTA = PTA + LOC	<input type="checkbox"/> NO <input type="checkbox"/> YES
LOC:	<input type="checkbox"/> NO <input type="checkbox"/> YES If yes, enter the estimated duration of the LOC? _____ hr / min / sec	
Does the patient actually recall this information themselves? (e.g., can provide specific information regarding what they were doing when injury occurred, etc., or was knowledge gained from the reports of witnesses?)		Emotional Context of Injury:
<input type="checkbox"/> Uncertain <input type="checkbox"/> No <input type="checkbox"/> Yes		<input type="checkbox"/> Traumatic <input type="checkbox"/> Non-traumatic

BLUNT FINAL QUERY:

Is there anything else related to either your military duties or other life events that we haven't already talked about that exposed you to a high rate of repetitive blows to the head? (Regardless of presence or absence of acute AMS/PTA/LOC)

Uncertain

No

If no, query specific causes listed below.

Yes

If yes, What was the cause of the injury?

Sports-related (football, hockey, martial arts, boxing, roller-blading, biking, skateboarding, etc): # Occurrences: _____

Jumps: # Occurrences: _____

Combatives of any type: # Occurrences: _____

Assaults or Domestic Violence: # Occurrences: _____

Other: Type: _____ # Occurrences: _____

Total Repetitive Blows: _____

**If acute symptoms are reported, assess further following format for TBI Injuries in the preceding sections.*