

Impact Induced Injuries Onboard High Speed Boats

Retrospective web-based survey of US Veterans

**Survey conducted by:
CWO5 (ret) SWCC Ron Carpenter**

Human Impact Exposure onboard High Speed Boats

Why this survey?

- “This is more dangerous than many believe” We are breaking our people and causing irreparable damage to their bodies.
 - CWO5 (ret) SWCC Ron Carpenter (28 years Special Boat Operator)
- Need for updated numbers
- Lack of statistic data on injuries prior to 2000 and since
- Ensign et al. Year 2000 (Naval Health Research Canter):
A SURVEY OF SELF-REPORTED INJURIES AMONG SPECIAL BOAT OPERATORS (2000)
154 subjects, 121 injury events, 153 injuries

Objective

- How many get injured?
- What type of injuries?
- Location of injuries?
- Perceived causes of injury?
- Does impact exposure influence capacity and performance,
- combat-readiness, mental & physical capability?
- How many have lasting health issues?
- How many need treatment, medication?
- Are certain boat types more dangerous than other?

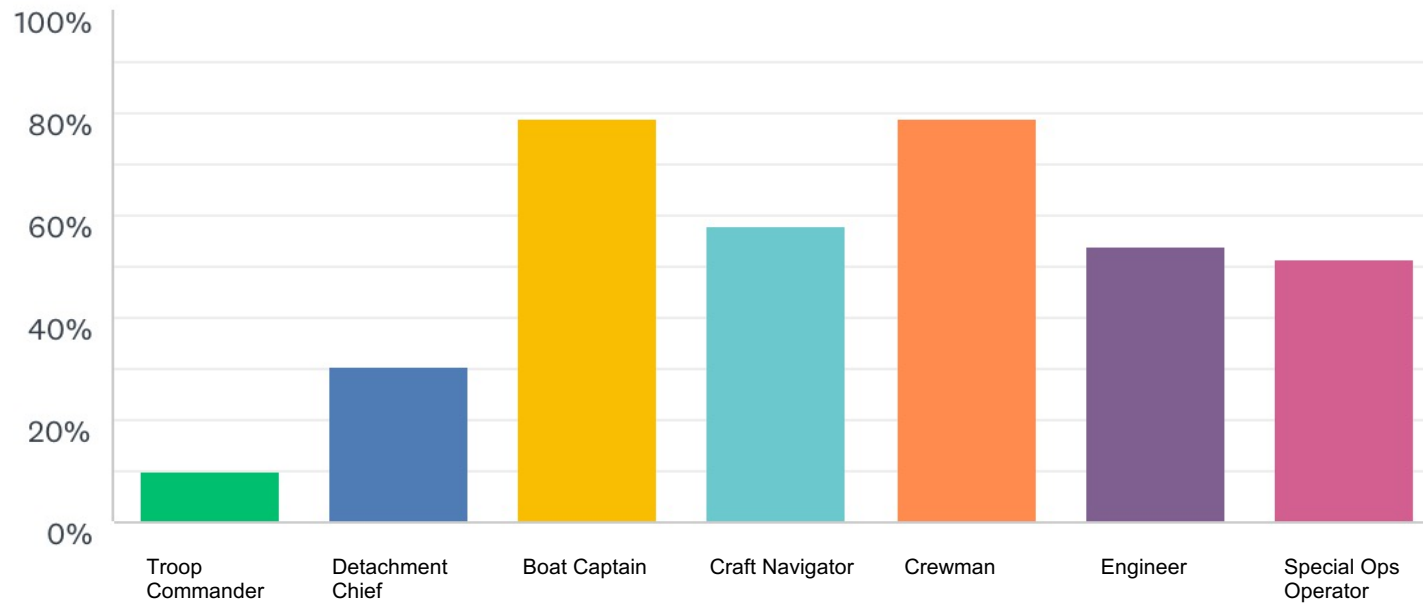
Survey design

- Retrospective study directed at retired or former US Navy high speed boat operators
- Self-reported injuries sustained onboard High Speed boats
 - While on active duty
- Fully anonymous
- Web-based questionnaire (SurveyMonkey)
- 31 questions
- Mean time to answer 10 min 22sec
- 214 responses in 10 days

Demographics

- 213 male, 1 female
- Mean age of subjects: 50 years
- US-Navy, 97% Special boat operators
- Average time served onboard: 10.7 years, (1-28 years)
- 200 out of 214 have been deployed (93.4%).
- Average age of first self reported injury: 27 years

In what capacity did they serve on high-speed boats?



214 operators reported 2460 injuries

91% had sustained an injury onboard a high speed boat

11.5 self-reported injuries per respondent

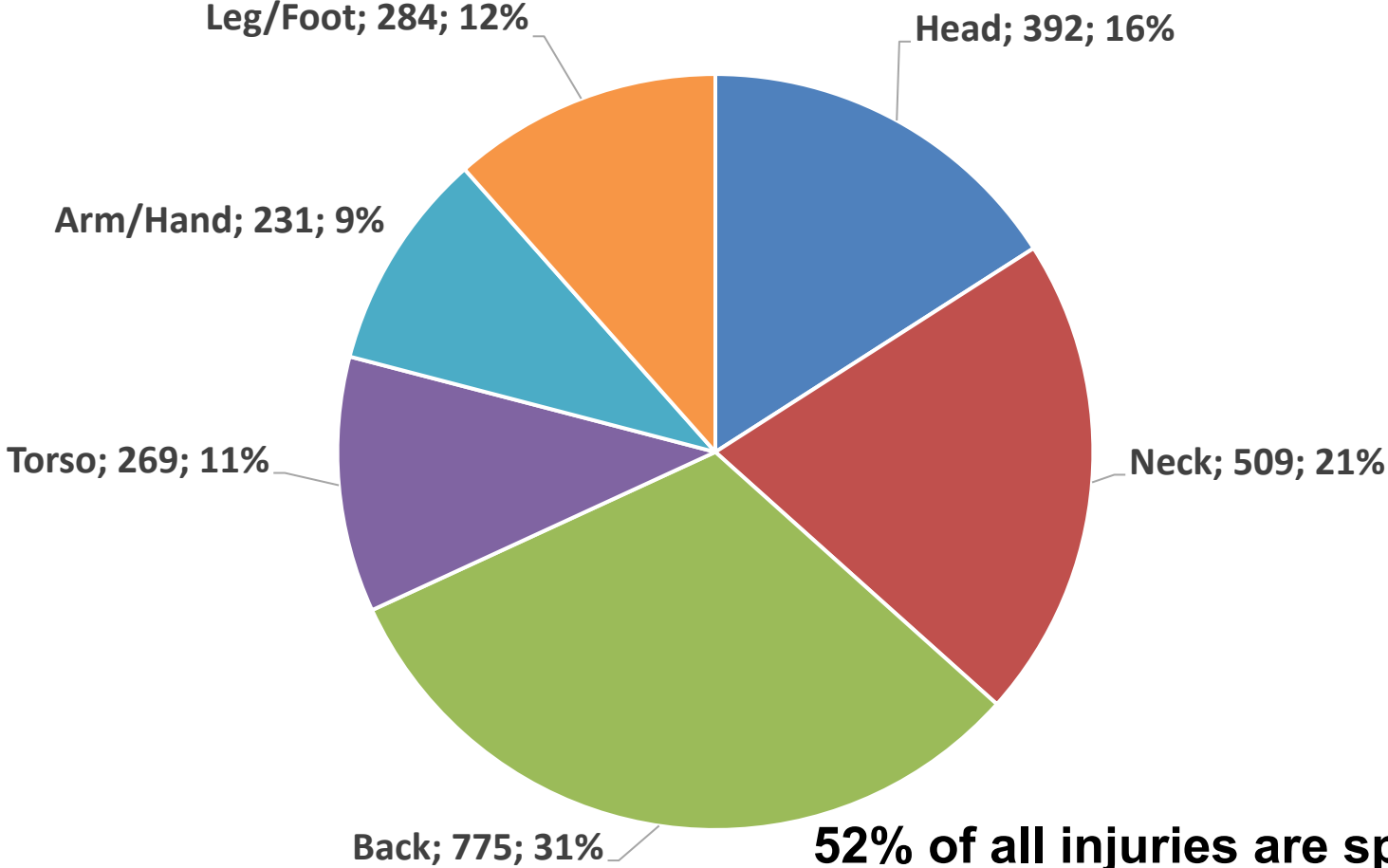
148 reported events of loss of consciousness

70% had experienced impaired capacity to do the job onboard due to impact exposure

49% had experienced cognitive impairment onboard due to impact exposure

67% reported at least one occasion of sick-leave from training or missions

Injury location over all



Surgery while on active duty

(For injuries sustained onboard while on active duty)

- **14%** had 1 procedure
- **9%** had 2 procedures
- **7%** had 3 procedures
- **10%** had 4 or more procedures

- **60%** did not have any surgical interventions

Surgery after military career

(For a condition related to high-speed boat operations)

- **15%** had 1 procedure
- **10%** had 2 procedures
- **9%** had 3 or more procedures

- **66%** did not have any surgical interventions

Constant or Recurring pain

Number of years:

7.8% reported pain between 1-5 years

26.9% reported pain between 5-10 years

57.4% reported pain for 10 years or longer

– Only **7.9%** did not report any pain

Pain medication currently:

42.1% daily

19.0% weekly

13.9% monthly

25% not on any current
pain medication

- Paracetamol: 38.6%
- NSAID: 80.7%
- Opioids: 21.1%
- Nerve blocks: 24.1%
- Alt./Acupuncture: 38.6%
- Other: 25.9%
 - gabapentin/Lyrica,
chiropractor, steroids,
alcohol ...

Veterans Administration Disability:

Rating	Proportion
90-100%	25.7%
70-80%	15.4%
50-60%	7.9%
30-40%	10.3%
10-20%	5.0%
0 %	36.4%

49% of respondents have a rating \geq 50%

Discussion

- Impact induced injuries seem more common than earlier reported
 - **91.2%** vs Ensign et al.: **64.9%**
- More than **50%** of injuries affect the spine
 - Ensign et al: **39.6%**
- Head injuries such as concussion/TBI are more common now
 - 48.4%** reported events of impaired mental capacity
 - Ensign et al: 2% head injuries
 - Note:* Ensign study was cross sectional, this study retrospective
- Lateral impacts seem more dangerous than purely vertical impacts
- Impact exposure does impair combat readiness and operational capability

Take Home Message

- High speed boat injuries seem more common and are more severe than earlier reported.
- More than 50% of injuries affect the spine
- Much higher number of Head injuries being reported
 - Concussions and Mild Traumatic Brain injury is becoming the norm.
48.4% reported events of impaired mental capacity
- Impacts containing lateral forces account for 4 times more injuries than purely vertical impacts
 - Operators blame lateral impacts for 80% of their injuries
 - Only 20% of the impacts are perceived as purely vertical

Questions

Suggestions

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