

BUMED-7113-119W
3900

NAV1.960101.009

17 JUN 1971

Mr. John A. Edwards
Acting Associate Administrator for Research & Development
Research Institute
National Highway Traffic Safety Administration
U.S. Department of Transportation
Washington, D.C. 20590

Ref: Your ltr 43-01 dtd 14 Jun 71

Dear Mr. Edwards:

The Bureau of Medicine and Surgery is happy to cooperate with the National Highway Traffic Safety Administration by authorizing the release of research data concerning the dynamic response of the head and neck to impact acceleration.

By separate correspondence the Naval Aerospace Medical Research Laboratory, Pensacola, Florida has been authorized and requested to release this data to your office.

Sincerely,

LLOYD F. MILLER
CAPT, MC, USN
Director, Research Division

Copy to:
Capt Ewing
ONR 440
ONR 444

J
7/1-2
P
7/1-3

BUMED-7113-1:gw
3900
27 JUN 1971

From: Chief, Bureau of Medicine and Surgery
To: Officer in Charge, Naval Aerospace Medical Research
Laboratory, Naval Aerospace Medical Center, Pensacola,
Florida 32512

Subj: Release of research data; authorization for

Encl: (1) DOT ltr 43-0, dtd 14 Jun 71 w/encl

1. Enclosure (1) is a request for a work statement and cost analysis for release of data concerning the dynamic response of the head and neck to impact acceleration as contained in enclosure (1).

2. You are hereby authorized to release this data to Mr. John A. Edwards, Acting Associate Administrator for Research and Development, National Highway Traffic Safety Administration, Department of Transportation pending approval by DOT of a proposal for a technical report. Direct liaison with the DOT is authorized.

LLOYD F. MILLER
By direction

Copy to w/encl
Capt Ewing
ONR 440
ONR 444

Pch
7113



for comment
U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

WASHINGTON, D.C. 20590

71 _____
JUN 14 1971

IN REPLY REFER TO: 43-01

Dr. Lloyd Miller
Director of Research Division
Bureau of Medicine and Surgery, Code 71
U.S. Navy
Washington, D.C. 20390

Subject: Request for report on impact response of human
head-neck complex

Dear Dr. Miller:

The National Highway Traffic Safety Administration has an urgent requirement for a preliminary technical report on reduced data from experiments with 17 human volunteers exposed to impact of magnitudes from 3G to 10G, during which rate gyros and bi-axial accelerometers recorded accurately the relative displacement of the head and neck with reference to measurements at the 1st and 2nd thoracic vertebrae. This data is available at the Naval Aerospace Medical Detachment, Captain Channing L. Ewing, USN MC Commander, Michoud Station, NASA, New Orleans, Louisiana 70129.

The attached letter to Captain Ewing includes a draft of a work statement and request for cost analysis as a basis for interdepartmental transfer of funds for financing such a project.

The release of this data will materially aid us in specifying performance criteria for the head-neck complex of anthropometric dummies in a proposed Motor Vehicle Safety Standard.

Sincerely,

John A. Edwards

John A. Edwards
Acting Associate Administrator
for Research and Development
Research Institute

Enclosure



U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
WASHINGTON, D.C. 20591

JUN 14 1971

IN REPLY REFER TO: 43-01

Captain Channing L. Ewing, USN MC
Commander, Naval Aerospace Medical Detachment
Michoud Station, NASA Missile Facility
New Orleans, Louisiana 70129

Subject: Request for technical report on human head-neck
complex response to impact relative to 1st and 2nd
thoracic vertebrae

Dear Captain Ewing:

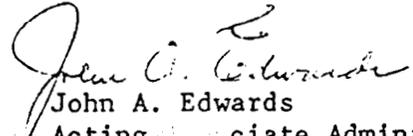
The National Highway Traffic Safety Administration has an urgent need for a technical report on the analysis of head-neck complex response to impact based on recorded electronic and high speed photographic data from human volunteers, applicable to performance criteria for anthropometric dummy standards.

Information required should include:

1. Ranges of head-neck complex motion relative to 1st and 2nd thoracic vertebrae as a reference base, from recordings of: (a) rate gyros; (b) X - Z bi-axial accelerometers; (c) analysis of highspeed motion picture profiles; and (d) time interval from start to peak of head motion.
2. Neck elongation for every 10° increment of head-neck motion to maximum.
3. X and Z axis displacements by 10° increments to maximum.
4. Plot of positions of the center of gravity of the head by half millisecond intervals, relative to 1st and 2nd thoracic vertebrae.
5. Angular and linear acceleration curves at ½ millisecond intervals for the center of gravity of the head.
6. The above should be for exposures in the 3 to 10 G range by 1 G increments, and for repeated exposures at 6 G on the same subject, selected from the 8 or 9 best subject data series. Data from subjects approximating the 50th percentile of anthropometric measurements will be of most value. Complete anthropometric descriptions of subjects should be included.

A proposal for producing this technical report and estimate of total cost for purposes of interdepartmental fund transfer should be submitted, as well as an estimate of time required for draft and final report.

Sincerely,



John A. Edwards
Acting Associate Administrator
for Research and Development
Research Institute