NAV1.960101.006

BUMED-713:gw
1090
1 June 1971

FIRST ENDORSEMENT on NMNPRU ltr 3960/02/tf Ser 1478 of 26 May 1971

From: Chief, Bureau of Medicine and Surgery
To: Chief of Naval Personnel (PERS B2123)

Subj: Assignment of enlisted personnel as resear ubjects in study of abnormal work/rest cycles and p loss

1. Forwarded, recommending approval.

2. Subject request is necessary for the continuation of approved Bureau of Medicine and Surgery Exploratory Development work unit MF12.524.004-9008D. The continuing research on work/rest cycles and sleep loss, being conducted at the Navy Medical Neuropsychiatric Research Unit, is the only work of its kind in the Navy and has provided valuable information related to problems of work performance and health of naval service personnel.

LLOYD F. MILLER
By direction

Copy to:
NMNPRU

3960/02/tf
Ser 1478
26 May 1971

From: Commanding Officer
To: Chief of Naval Personnel (Pers B2123), Department of the Navy, Washington, D. C. 20370
Via: Chief, Bureau of Medicine and Surgery, Department of the Navy, Washington, D. C. 20390 (Code 713)

Subj: Assignment of enlisted personnel as research subjects in study of abnormal work/rest cycles and sleep loss

Ref: (a) BuPers ltr Pers-B2126-lgr of 26 July 1967, same subject
(b) BuPers ltr Pers-B2123 of 28 July 1969, same subject

1. Utilization of human volunteers was authorized by reference (a) and the duration of the study extended by reference (b).

2. Effects of different amounts and depths of sleep have been determined and effects on performance of sleep deprivation partially ascertained. Different shipboard noises, especially those involved in some sonar operations, may affect quality and recuperative effects of sleep. Research efforts sponsored jointly by Bureau of Medicine and Surgery and Ship Systems Command will be begun to assess the effects of some noises now under study by Ships System.

3. It is requested that direct liaison with the Commander, Naval Training Center, San Diego, and with the Commanding Officer, EPDOPAC, be authorized to provide for two weeks temporary duty en route to an ultimate duty station for no more than two recruits at any one time. It is further requested that recruits be assigned on a flexible schedule to allow skipping some weeks of testing at holiday periods and when the laboratory is catching up on data analysis. This flexibility should include timely requests from this Unit to the Commander, Naval Training Center to permit his orderly scheduling of recruit volunteers.

NEWELL H. BERRY
CDR MSC USN
Acting

BUMED-713:gw
1090
29 March 1971

From: Chief, Bureau of Medicine and Surgery
To: Commanding Officer, Navy Medical Neuropsychiatric Research Unit, San Diego, California 92152

Subj: Use of volunteer subjects in Project Alpha

Ref: (a) NMNPRU ltr 3960/02/tf Ser 14[illegible] 6 Mar 71 (w/encl)
(b) SECNAVINST 3900.39 OP07E [illegible] of 28 Apr 69
(c) NMNPRU ltr 3960/10/em Ser 695 of 6 Jan 67
(d) SECNAV ltr Ser 17PO7 of 21 Mar 67

1. Reference (a) with enclosures, outlining procedures for use of human volunteer in Project Alpha, has been reviewed within this Bureau.

2. Since the subject procedures, consistent with the provisions of reference (b), appear related to and no more hazardous than those outlined in reference (c) and already approved by reference (d), it is not considered necessary at this time to submit separate request of SECNAV approval for Project Alpha.

LLOYD F. MILLER
By direction

713

7198 3/10/71

NAVSO 5216/, (7-66) S/N 0104-504-1750

UNITED STATES GOVERNMENT DEPARTMENT OF THE NAVY

Memorandum

DATE : 10 Mar 71

FROM : CDR Wilson

TO : CAPT Brunett

SUBJECT : Human Volunteers

1. Would appreciate your opinion be[illegible] I draft a reply for Code 71. I have ~~an~~ attached copy o[illegible] [illegible]ences, re earlier approval for use of human volu[illegible] for slip loss studies.

prepare letter

[illegible] V/R

Pat

date of NPRU letter

2. call Newell

date ltr for NPRU 6 Mar 1971

UNCLASSIFIED MAIL CONTROL
BUMED 5216/8 (REV. 6-30)

7198

IDENTIFICATION

ORIGINATOR'S IDENTIFICATION DATA	DATE OF LETTER	DATE RECEIVED	REPLY DUE
[redacted]	[redacted]	[redacted]	

NAME OF INDIVIDUAL *(When applicable)*

SUBJECT IDENTIFICATION CODE

SUBJECT: [redacted]

INSTRUCTIONS

1. Each correspondence control desk shall detach a copy of this form and use it as its control log. On the log copy, indicate internal routing of correspondence. Remove extra carbons as copies are pulled.
2. When submitting correspondence to Code 1 and 2 for signature, submit at least the original and one copy of this form.
3. See BUMEDINST 5216.10 series for detailed procedures.

ROUTING AND CLEARANCE

ROUTING — *SYMBOLS: A-Action, CL-Clearance, C-Comment, I-Information, R-Retain, SC-Separate Copy, S-Signature

TO CODE		CONTROL DESK IN	CONTROL DESK OUT	COMMENTS BY CLEARANCE CODES If more space is needed, use memo and indicate below "Memo attached."	DATE	INITIAL
713	A				26/3	
71-B	C					
					3/18/71	CEP

ASSISTANT CHIEF Code						
DEPUTY CHIEF						
CHIEF OF BUREAU						

PREPARED BY *(Organization, Title and Code)* — TELEPHONE EXTENSION

FOR SIGNATURE MAIL

BRIEF ALL CORRESPONDENCE FOR SIGNATURE BY THE CHIEF OR DEPUTY (SUPPLY SIGNIFICANT DATA, OMIT MINOR DETAILS)

SIGNATURE *(Division Director)* — DATE

FOR CODE 1 OFFICE USE

RECEIVED	RETURNED

DISPOSITION: SIGNED / PICKED UP / MAILED / OTHER

SALUTATION:

COMMENTS: [redacted] (1) [redacted] PROGRAM CODE [redacted] AND [redacted]
(2) PROPOSED VOLUNTEER CONSENT FORM TO BE USED IN PROJECT ALPHA

Previous issues of this form and BUMED 5216/5 and BUMED 45-12 are obsolete.

A-27280

DEPARTMENT OF THE NAVY
NAVY MEDICAL NEUROPSYCHIATRIC RESEARCH UNIT

3960/02/tf
Ser 1440
6 March 1971

71

From: Commanding Officer
To: Chief, Bureau of Medicine and Surgery, Code 713, Department of the Navy, Washington, D. C. 20390

Subj: Use of unteer subjects; reporting of

Ref: (a) SF INST 3900.39 OP 07F Ser 102 of 28 April 1969
(b) ' tter 3960/10/em Ser 695 of 6 January 1967

Encl: (1) Brief on Project Alpha, ~~APRA~~ DARPA order 1596, Program Code OD20 and ID20
(2) Proposed volunteer consent form to be used in Project Alpha

1. Enclosures (1) and (2) outline the procedures to be used in Project Alpha, which this Unit is carrying out at the request of ~~APRA~~ DARPA. It will be noted that in the research design, volunteer subjects will be asked to go without sleep for a period of 48 hours to determine the effect upon their ability to control their alpha rhythm as recorded by EEG.

2. In the opinion of this Command, volunteer subjects in Project Alpha will not be exposed to any great hazard, as defined in reference (a), than those for which SECNAV approval was given by the fourth endorsement dated 24 March 1967 to the research project cited in reference (b).

3. Therefore, separate and formal SECNAV approval to use volunteer subjects in Project Alpha will not be requested, unless it is considered necessary by appropriate authority in BUMED.

RANSOM J. ARTHUR

OPTIONAL FORM NO. 10

UNITED STATES GOVERNMENT

Memorandum

TO : Commander Berry DATE: Jan 29, 1971

FROM : David Hord

SUBJECT: Research Project; The Alpha Project

Request for Volunteer Subjects from the Naval Training Center for the research project here designated the Alpha Project. The original title of this ARPA supported work unit was Relative Recuperative Value of self-regulated states and brief sleep for sleep loss and fatigue, and is dated Jan. 16, 1970.

Background: Two independent pilot studies, done in anticipation of the original work unit and utilizing volunteers from San Diego State College, have been undertaken since August, 1970. Pilot study #1 was titled Alpha Control: Effectiveness of feedback under two kinds of reinforcement and associated heart rate levels. Data analysis and write-up have been completed. The MS is now being circulated for final comments and is designated for submission for publication in Feb. 1971. The second pilot study is titled Frequency and Coherence characteristics of feedback facilitated high alpha states. Data collection for this study will culminate on Feb. 29, 1971. Subsequent computer analysis and data reduction are not expected to take more than a month; the ms for this study will probably be submitted for publication not later than June 1971.

The Alpha Project: Certain kinds of meditative states have been reported to be associated with abundant alpha activity. These states have also been associated with several beneficial effects - both physical and mental. Recent studies have shown that normal non-meditative volunteers can learn to increase the percent of alpha as indicated on the electroencephalogram merely by hearing a contingent auditory signal and learning to control the signal, ultimately to the point of showing high alpha for extended periods of time. The essential question to which we

are addressing ourselves in the Alpha Project in this regard is: To what extent can the average Volunteer military person benefit from, or show recuperative effects of, these self-regulated high alpha states? Specifically, can a man who has been subject to a degree of stress, in this case two nights of total sleep deprivation, use previous experience in an alpha training program to any advantage during the period immediately lowing the sleep deprivation period?

The procedure involves essentially an operant tioning paradigm in which the subject is made aware of alpha contingent digital-auditory feedback signal. The presence of the signal indicates to the subject that his brain is presently in an "Alpha State" and he is encouraged to keep the signal on as much as he can during the session. The presence of the tone is thus a positive reinforcer.

During a 3 day training period, the Volunteer will attempt to attain high alpha levels during two-hour sessions, using the feedback tone as a guide. There will be two sessions each day; one in the morning and one in the afternoon. The afternoon session will be followed by administration of a two-hour performance test battery. Following the training period, 48 hours of alert, wakeful vigilance will be maintained, during which the Volunteer will be prevented from sleeping, but will otherwise carry on a normal routine. On the morning following the 48 hour vigil, the Volunteer will again be prevented from sleeping, but will now be allowed to sit quietly and to attempt to control his alpha state both with the feedback signal and without it. After two sessions of attempting to keep his alpha level high, the battery of tests will again be administered.

An additional recovery day will follow the test day, during which alpha feedback will again be used to attain a high alpha state. A total of 6 days is involved in the experiment plus one additional day prior to the first baseline day for purposes of orientation.

Subjects- At least 15 subjects will be used in the study. The day of arrival at the lab will hopefully be on Monday or Tuesday. Wednesday will be the first of the three baseline Alpha training days. Saturday and Sunday will be the deprivation period. The following Monday and Tuesday will be the testing and recovery period.

Navy Medical Neuropsychiatric Research Unit
San Diego, California 92152

To: Volunteer, Alpha Study

You have agreed to help us in our research on the regulation of Alpha rhythms. What kind of job is it?

For eight days you will spend most of your waking time in the Psychophysiology Laboratory. You will spend the nights in Navy quarters. During the day, tiny discs will be fastened to your scalp, your chest, and fingers to pick up brain waves, heart activity, breathing, and so on. The discs are simply glued or taped to the skin and their application causes no pain. During your usual work period you will be asked to try to control very tiny brain waves, called alpha waves, by using the sound coming from a special electronic device as a guide. Scientists discovered several years ago that people can regulate these alpha waves if they can hear the sound produced by the alpha recorder. It is a kind of self control that has been reported to have beneficial effects for people who have lost sleep. During the experiment we will try to train you to control your own alpha waves during the first 3 days.

After attempting to control your alpha waves for an hour and a half, once in the morning and once in the afternoon, you will be asked to do some tests. Some of the tests are deliberately boring, like adding numbers for an hour, and some are relatively easy and interesting. Three days of alpha wave training and testing will be followed by two nights during which you will be kept awake constantly. Why are we doing this? To find out if people can still control their alpha waves after they have gone without sleep. And if they can control their alpha waves, can they do a

better job on the tests than if they didn't kno[illegible] rol[illegible] waves?

Is there any danger to you? While this specific experiment using alpha wave training in people who go for two nights without sleep has never been done before, similar studies of alpha wave training and of the effects of sleep deprivation have been done on hundreds of subjects with no ill eff[illegible]s beyond the period of the experiment. The only effect has been that c[illegible]eeling sleepy. Our laboratory has been conducting experiments [illegible]p for five years and no subject has suffered any ill effects beyond that from temporarily being without sleep.

Every day we will make permanent tape recordings of your brain waves, reaction time, etc., to be used in analyzing the effect of sleep deprivation on alpha wave control. However, if a subject does not complete the full testing and sleep loss schedule his records lose most of their value. Every volunteer who starts this experiment ~~must~~ should complete it, otherwise most of the time, energy and money spent will be wasted.

SO--WELCOME ABOARD!! We are very pleased that you have chosen to be a member of our research team. We hope you will enjoy turning on your alpha for science!

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20350

NMPRU 3960

NAVY DEPARTMENT

Ser 17P07

21 MAR 1967

71(6)

cy to 71, 71A

From: Secretary of the Navy
To: Officer in Charge, Navy Medical Neuropsychiatric Research Unit, San Diego, California 92152

Subj: Use of human volunteer subjects in research on fatigue, sleep loss, and abnormal work - rest cycles, request for approval

Ref: (a) NMPRU ltr 3960/10/em Ser 695 of 6 Jan 1967

1. The request contained in reference (a) has been reviewed and is approved.

RICHARD A. BEAUMONT
Deputy Under Secretary For Manpower

Copy to:
CNO
BUPERS
BUMED

NAVY DEPARTMENT

Op-07E/jr
Ser 16P07
17 MAR 1967

THIRD ENDORSEMENT on NMPRU ltr 3960/10/em Ser 695 of 6 Jan 1967

From: Chief of Naval Operations
To: Secretary of the Navy

Subj: Use of human volunteer subjects in research on fati[illegible], sleep loss, and abnormal work-rest cycles, reque[illegible] approval

1. Forwarded, recommending approval.

2. The basic correspondence with endorsements has been carefully reviewed. The program requirement has been validated by OPNAV. The personnel utilization has been approved by BUPERS. The adequacy of medical safety precautions and the necessity for using human subjects has been certified by BUMED.

3. A letter of implementation has been prepared and your signature is recommended.

HAROLD G. BOWEN, Jr.
Deputy Chief of Naval Operations
(Development)

Copy to:
OIC, NMNPRU
BUMED
BUPERS

DOMD-7:dap
18 January 1967

FIRST ENDORSEMENT on NNMPRU ltr 3960/10/cm Ser:695 of 6 Jan 1967

From: Chief, Bureau of Medicine and Surgery
To: Secretary of the Navy
Via: Chief of Naval Personnel

Subj: Approval to use human volunteer subjects in research on fatigue, sleep loss and abnormal work-rest cycles; request for

1. Readdressed and forwarded, recommending approval.

2. In accordance with reference (b) of the basic letter permission is requested to use human volunteers to study functional changes resulting from fatigue, sleep loss, and abnormal work-rest cycles.

3. The Navy Medical Neuropsychiatric Research Unit has developed an international reputation through studies of electro-encephalography and autonomic functioning, particularly as related to problems of sleep. During the past six months an improved experimental capability has been developed which permits study of the urgent Navy problems of fatigue and sleep loss.

4. Subjects participating in this study will be volunteer personnel of the naval establishment.

5. There is a minimum of danger to the health and life of the volunteers, and necessary precautions and protective measures will be taken.

R. O. CANADA
Acting

Copy to:
OIC, NNMPRU

3960/10/cm
Ser: 6[illegible]
6 Jan 1967

From: Officer in Charge, Navy Medical Neuropsychiatric Research Unit, San Diego, California 92152
To: Secretary of the Navy, Department of the Navy, Washington, D. C. 20350
Via: Chief, Bureau of Medicine and Surgery, Department of the Navy, Washington, D. C. 20390

Subj: Research use of human subjects; request for

Ref: (a) BUMED ltr BUMED-7121:cmc/MM06.05-002 of 4 April 1966
(b) Manual of the Medical Department, 1-11

Encl: (1) DD Form 1498 for Research Work-Unit, "Psychophysiological Effects of Fatigue, Sleep Loss, and Abnormal Work-Rest Cycles"

1. The research work-unit, described in enclosure (1) and formally approved by reference (a), will study functional changes in brain and central nervous system, biochemistry, and behavior resulting from loss of sleep, fatigue, and atypical duty cycles; the amount and depth of sleep necessary for recovery from effects of sleep loss and fatigue, and the kinds of performance most and least resistant to sleep loss and disruption of normal cycles of work and rest.

2. If approval is granted, the research unit will request volunteers, for a probable limit of 14 days per man, from Naval Training Center and Marine Corps Recruit Depot, San Diego.

3. The provisions of reference (b) will be scrupulously followed.

R. J. ARMOUR