



DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS



27 APR 2017

MEMORANDUM FOR DHA/HCE
ATTN: JEREMY T. NELSON

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled Self-regulation of the Primary Auditory Cortex Attention via Directed Attention Mediated by Real-Time fMRI Neurofeedback presented at/published to 2017 Radiological Society of North America Conference in accordance with MDWI 41-108, has been approved and assigned local file #17215.
2. Pertinent biographic information (name of author(s) title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: alice.houy.civ@mail.mil.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

Linda Steel-Goodwin

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

INSTRUCTIONS

USE ONLY THE MOST CURRENT 68 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

1. The author must complete page two of this form:
 - a. In Section 2, add the funding source for your study [e.g., 59 MDW CRD Graduate Health Sciences Education (GHSE) (8G5 O&M); 8G5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP); Grants; etc.]
 - b. In Section 2, there may be funding available for journal costs, if your department is not paying for figures, tables or photographs for your publication. Please state "YES" or "NO" in Section 2 of the form, if you need publication funding support.
2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.
3. Attach a copy of the 59 MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g. case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box.
4. Attach a copy of your abstract, paper, poster and other supporting documentation.
5. Save and forward, via email, the processing form and all supporting documentation to your unit commander, program director or immediate supervisor for review/approval.
6. On page 2, have either your unit commander, program director or immediate supervisor:
 - a. Print their name, rank/grade, title; sign and date the form in the approving authority's signature block or use an electronic signature.
7. Submit your completed form and all supporting documentation to the CRD for processing (59crdpubspres@us.af.mil). This should be accomplished no later than 30 days before final clearance is required to publish/present your materials. If you have any questions or concerns, please contact the 59 CRD/Publications and Presentations Section at 292-7141 for assistance.
8. The 59 CRD/Publications and Presentations Section will route the request form to clinical investigations, 502 ISG/JAC (Ethics Review) and Public Affairs (59 MDW/PA) for review and then forward you a final letter of approval or disapproval.
9. Once your manuscript, poster or presentation has been approved for a one-time public release, you may proceed with your publication or presentation submission activities, as stated on this form. Note: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.
10. If your manuscript is accepted for scientific publication, please contact the 59 CRD/Publications and Presentations Section at 292-7141. This information is reported to the 59 MDW/CC. All medical research or technical information publications/presentations must be reported to the Defense Technical Information Center (DTIC). See 59 MDWI 41-108, *Presentation and Publication of Medical and Technical Papers*, for additional information.
11. The Joint Ethics Regulation (JER) DoD 5500.07-R, *Standards of Conduct*, provides standards of ethical conduct for all DoD personnel and their interactions with other non-DoD entities, organizations, societies, conferences, etc. Part of the Form 3039 review and approval process includes a legal ethics review to address any potential conflicts related to DoD personnel participating in non-DoD sponsored conferences, professional meetings, publication/presentation disclosures to domestic and foreign audiences, DoD personnel accepting non-DoD contributions, awards, honoraria, gifts, etc. The specific circumstances for your presentation will determine whether a legal review is necessary. If you (as the author) or your supervisor check "NO" in block 17 of the Form 3039, your research or technical documents will not be forwarded to the 502 ISG/JAC legal office for an ethics review. To assist you in making this decision about whether to request a legal review, the following examples are provided as a guideline:

For presentations before professional societies and like organizations, the 59 MDW Public Affairs Office (PAO) will provide the needed review to ensure proper disclaimers are included and the subject matter of the presentation does not create any cause for DoD concern.

If the sponsor of a conference or meeting is a DoD entity, an ethics review of your presentation is not required, since the DoD entity is responsible to obtain all approvals for the event.

If the sponsor of a conference or meeting is a non-DoD commercial entity or an entity seeking to do business with the government, then your presentation should have an ethics review.

If your travel is being paid for (in whole or in part) by a non-Federal entity (someone other than the government), a legal ethics review is needed. These requests for legal review should come through the 59 MDW Gifts and Grants Office to 502 ISG/JAC.

If you are receiving an honorarium or payment for speaking, a legal ethics review is required.

If you (as the author) or your supervisor check "YES" in block 17 of the Form 3039, your research or technical documents will be forwarded simultaneously to the 502 ISG/JAC legal office and PAO for review to help reduce turn-around time. If you have any questions regarding legal reviews, please contact the legal office at (210) 671-5795/3365, DSN 473.

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement:

"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components"

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving humans:

"The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02_AFI 40-402."

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving animals, as required by AFMAN

40-401_IP:

"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1. TO: CLINICAL RESEARCH		2. FROM: (Author's Name, Rank, Grade, Office Symbol) Jeremy T. Nelson, CTR, DHA/HCE		3. GME/GHSE STUDENT: ☐ YES ☒ NO		4. PROTOCOL NUMBER: WSU IRB: WSRI-2015-4	
5. PROTOCOL TITLE: (NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.) Alternate Tinnitus Management Techniques Developed Using Blood-Oxygen-Level-Dependent MRI with Neurofeedback							
6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED: Self-regulation of the primary auditory cortex attention via directed attention mediated by real-time fMRI neurofeedback							
7. FUNDING RECEIVED FOR THIS STUDY? ☒ YES ☐ NO FUNDING SOURCE: FA8650-16-2-6702							
8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES: ☐ YES ☒ NO							
9. IS THIS MATERIAL CLASSIFIED? ☐ YES ☒ NO							
10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.? ☒ YES ☐ NO NOTE: If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.							
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☐ 11a. PUBLICATION/JOURNAL (List intended publication/journal.)							
☐ 11b. PUBLISHED ABSTRACT (List intended journal.)							
☐ 11c. POSTER (To be demonstrated at meeting: name of meeting, city, state, and date of meeting.)							
☐ 11d. PLATFORM PRESENTATION (At civilian institutions: name of meeting, state, and date of meeting.)							
☒ 11e. OTHER (Describe: name of meeting, city, state, and date of meeting.) This abstract was submitted to the 2017 Radiological Society of North America conference. Abstract is pending invitation to the conference.							
12. HAVE YOUR ATTACHED RESEARCH/TECHNICAL MATERIALS BEEN PREVIOUSLY APPROVED TO BE PUBLISHED/PRESENTED? ☐ YES ☒ NO ASSIGNED FILE # _____ DATE _____							
13. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC NOTE: All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC). DATE _____							
14. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email) Camou, Elsa, N. elsa.n.camou.ctr@mail.mil						15. DUTY PHONE/PAGER NUMBER 210-292-7324	
16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript							
LAST NAME, FIRST NAME AND M.I.		GRADE/RANK		SQUADRON/GROUP/OFFICE SYMBOL		INSTITUTION (If not 59 MDW)	
a. Primary/Corresponding Author Sherwood, Matthew S.		CIV		Wright State University (WSU)		WSU	
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d. Ganapathy, Subhashini		CIV		WSU		WSU	
e. Parker, Jason G.		CIV		WSU		WSU	
17. IS A 502 IBG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? ☐ YES ☐ NO							
I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401 JP, AND 59 MDWI 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.							
18. AUTHOR'S PRINTED NAME, RANK, GRADE Jeremy T. Nelson, CTR				19. AUTHOR'S SIGNATURE Jeremy Nelson Digitally signed by Jeremy Nelson Date: 2017.04.19 10:42:17 -0400		20. DATE 19 Apr 17	
21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE LaKeisha R. Henry, Col, Division Chief, DHA HCE				22. APPROVING AUTHORITY'S SIGNATURE HENRY LAKEISHA R. 1177319542		23. DATE 20 Apr 17	

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1st ENDORSEMENT (59 MDW/SGVU Use Only)

TO: Clinical Research Division 59 MDW/CRD Contact 292-7141 for email instructions.	24. DATE RECEIVED April 20, 2017	25. ASSIGNED PROCESSING REQUEST FILE NUMBER 17215
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26. DATE REVIEWED April 26, 2017	27. DATE FORWARDED TO 502 ISG/JAC
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28. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES: ☐ NO ☒ YES If yes, give date April 20, 2017 ☐ N/A

29. COMMENTS ☒ APPROVED ☐ DISAPPROVED
Abstract presentation of IRB approved research conducted through CRADA with WSU. Appropriate disclaimers included. Approved

30. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Kupferer/GS13/Human Research Subject Protection Expert	31. REVIEWER SIGNATURE KUPFERER KEVIN R. 1056667270	32. DATE April 26, 2017
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2nd ENDORSEMENT (502 ISG/JAC Use Only)

33. DATE RECEIVED	34. DATE FORWARDED TO 59 MDW/PA
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35. COMMENTS ☐ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

36. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	37. REVIEWER SIGNATURE	38. DATE
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39. DATE RECEIVED April 26, 2017	40. DATE FORWARDED TO 59 MDW/SGVU April 27, 2017
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41. COMMENTS ☒ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

42. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Inuma, SSgt/E-5, 59 MDW Public Affairs	43. REVIEWER SIGNATURE	44. DATE April 27, 2017
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4th ENDORSEMENT (59 MDW/SGVU Use Only)

45. DATE RECEIVED	46. SENIOR AUTHOR NOTIFIED BY PHONE OF APPROVAL OR DISAPPROVAL ☐ YES ☐ NO ☐ COULD NOT BE REACHED ☐ LEFT MESSAGE
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47. COMMENTS ☐ APPROVED ☐ DISAPPROVED

48. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	49. REVIEWER SIGNATURE	50. DATE
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Self-regulation of the primary auditory cortex attention via directed attention mediated by real-time fMRI neurofeedback

M S Sherwood, MSc, Dayton, OH; E E Diller, MS; J Nelson, PhD; S Ganapathy, PhD; J G Parker, PhD

PURPOSE

To determine the potential efficacy of treating auditory cortex hyperactivity by self-regulation of the primary auditory cortex (A1) based on real-time functional magnetic resonance imaging neurofeedback training (fMRI-NFT).

METHOD AND MATERIALS

10 healthy volunteers with normal hearing (no more than 1 frequency >40 dB on a standard audiogram) underwent 5 fMRI-NFT sessions. Each session was composed of a simple auditory fMRI followed by 2 runs of A1 fMRI-NFT. FMRI data was acquired using 2D, single-shot echo planar imaging during all 3 runs using a 3T. The auditory fMRI was comprised of 6 blocks, each containing a 20s period of no auditory stimulation followed by a 20s period of white noise stimulation at 90 dB. A1 activity, defined from a region using the activity during the preceding auditory run, was continuously updated during fMRI-NFT using a simple bar plot, and was accompanied by white noise (90 dB) stimulation for the duration of the scan. Each fMRI-NFT run contained 8 blocks, each separated into a 30s relax period followed by a 30s lower period. Subjects were instructed to watch the bar during the relax condition and actively lower the bar by decreasing A1 activity during the lower condition. The average A1 activity was measured from the simple auditory task from each session. Average A1 deactivation was extracted from each fMRI-NFT run, representative of A1 self-regulation performance.

RESULTS

A one-way ANOVA evaluated the effect of session on A1 activity during the simple auditory task. The main effect of session was not significant ($p = 0.41$, sphericity assumed, two-tailed). A 5x2 (session by run) ANOVA was carried out on A1 deactivation during fMRI-NFT. There was a significant effect of session ($p = 0.0275$, sphericity assumed, one-tailed) and a significant interaction effect ($p = 0.0395$, sphericity assumed, one-tailed). The most successful subjects reportedly adopted mindfulness tasks associated with directed attention.

CONCLUSION

For the first time, fMRI-NFT has been applied to teach A1 self-regulation using more than 1 session. This is important to therapeutic development as it is unlikely a single fMRI-NFT session will reverse the effects of tinnitus.

CLINICAL RELEVANCE/APPLICATION

Chronic tinnitus has implications of impaired auditory and attentional networks. Our study indicates that fMRI-NFT may provide an innovative approach to alter of these systems simultaneously.

The views expressed are those of the author(s)/presenter(s) and do not reflect the official views or policy of the Department of Defense or its Components.