

iSNR



International Society for Neuronal Regulation

October 2006

Newsletter

Our mission is to promote excellence in clinical practice, educational applications, and research in applied neuroscience in order to better understand and enhance brain function.



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iSNR Newsletter

Editor

Merlyn Hurd, PhD
merlynh@aol.com

Managing Editor

Cynthia Kerson, PhD
office@isnr.org

Journalist for Best Practices and Tech Talk

Mike Gismondi, MA
mikegismondi@frontiernet.net

Journalist for MindFull

David Kaiser, PhD
davidkaiser@yahoo.com

Student Editor

Kimberly Weeks, MS
breetheasy@earthlink.net

Publisher

The Haworth Press

**International Society for
Neurofeedback and Research
2006-2007 Board**

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Judith Lubar, LCSW
judithlpsces@hotmail.com

Past President

Roger deBeus, PhD
roger.debeus@att.net

President Elect

Nancy White, PhD
nancy@enhancementinstitute.com

Secretary

Michael Cohen
mcoheneeg@yahoo.com

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reddavis@charter.net

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lesliesherlin@novatecheeg.com

Member at Large

Cynthia Ackrill, MD
ackrillmd@yahoo.com

Int'l Member at Large

Jacques Duff, PhD
jacquesduff@optusnet.com.au

Sergeant at Arms

Alfred Collin, PhD
acollins@gci.net

Interim Executive Director

Cynthia Kerson, PhD
office@isnr.org

Assistant Executive Director

AnnMarie Horvat
annmarie@isnr.org

Web site Coordinator

Brian Thiel
thiel@wporg.com

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Direct all correspondence and inquiries, including commercial advertising information and classified ads to:

iSNR, 1925 Francisco Blvd. E. #12,
San Rafael, CA 94901
Phone: (800) 488-3867
Fax: (415)485-1348
Email: office@isnr.org
Web site: www.isnr.org



ISNR MISSION STATEMENT

to promote excellence in clinical practice, educational applications, and research in applied neuroscience in order to better understand and enhance brain function.

Our Objectives Are . . .

- **Improve lives through neurofeedback and other brain regulation modalities**
- **Encourage understanding of brain physiology and its impact on behavior**
- **Promote scientific research and peer-reviewed publications**
- **Provide information resources for the public and professionals**
- **Develop clinical and ethical guidelines for the practice of applied neuroscience**

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PRESIDENT'S MESSAGE

Judith O. Lubar LCSW-BCD



It is a pleasure for me to report to you that we have just had a very successful conference. I would like to thank Noland White and all the conference committee members and volunteers for their excellent work throughout the year. Their efforts increased our knowledge of the field and provided an opportunity to exchange information. I would also like to extend the Society's appreciation to the vendors who have supported the ISNR for years and who, through their creativity and willingness to improve the equipment we use, have made it possible for us to improve

mately 250 neurofeedback machines and has started a study of the effectiveness of neurofeedback for ADHD in school settings. I hope

that when they finish this study they will share their results with us.

In the hope that we could have some of these interesting European people join ISNR, I have written a letter to them describing our society and stressing our mission in both clinical and research venues. The board has agreed to offer these potential members a full or associate membership at a fee based on the parity of their currency to ours. This information is also included in the letter. In order to have this invitation to join have maximum exposure, I have written a letter to all the vendors who exhibit at our conference asking them to e-mail this invitation to all current and potential customers that they have abroad. Some of them have already answered enthusiastically. I hope that this effort will be fruitful and that we can announce next year that we will have more members from overseas who will be sharing their clinical insights and research with us.

We are already planning our 15th annual meeting in San Diego, September 6-10, 2007 with pre-conference activities potentially on the 4th and 5th. We will be meeting at the Town and Country, a large and beautiful resort convenient to all that San Diego has to offer. We want to emphasize our commitment to the rapidly emerging discoveries in the neurosciences with excellent keynote speakers and new workshops. We welcome suggestions for program components and speakers. Let's break all previous records with more than 500 attendees and many new members!

**WE ARE ALREADY PLANNING OUR
15TH ANNUAL MEETING IN SAN
DIEGO, SEPTEMBER 6-10, 2007.**

our services and have given us new tools for refining our research and knowledge. Tom and Terry Collura invited all the attendees to a reception with a Celtic band to celebrate the 10th anniversary of their organization and I would like to thank them for this very successful gathering. I also would like to introduce our new board: Judith Lubar, President; Nancy White, President Elect; Roger DeBeus, Past President; Michael Cohen, Secretary; Richard Davis, Treasurer; Al Collins, Sergeant at Arms; Cynthia Ackrill, Member at Large; Leslie Sherlin, Member at large and Jacques Duff, International Member at Large. For 2007, both Noland White and Jay Gunkelman will be co-program chairs.

We have tried some new conference formats this year. Friday afternoon was left free so that our members had a better opportunity to interact with the vendors and see the equipment in a more leisurely manner. Like last year, we also had free vendor workshops at the end of the conference so that our members could save time by not having to take time for additional travel and yet could learn in depth about any equipment they were interested in. Please let us know how you feel about these changes for our consideration at future meetings.

As you may have heard, Darlene Nelson has decided to leave her position as Executive Director. She has been with our organization for many years and we wish her well. We were very lucky that Anne Marie Horvat took over the previous joint duties during the conference and admirably ran the registration office. We owe her our thanks. We were also very fortunate that Cynthia Kerson, a PhD candidate in the field of biofeedback, who is an ISNR member, a neurofeedback practitioner, and the Executive Director of the Biofeedback Society of California, has been willing to step in as Interim Executive Director.

The ballots for our new name were counted during the meeting and the results were announced at the ISNR dinner. We are now The International Society for Neurofeedback and Research.

When I presented with Joel Lubar a workshop in Prague, I met several people who felt that they would welcome more information about the field and were very interested in sharing clinical insights and information with other professionals. One of those attendees, a physician from Romania, Roxana Vasiliu came to our meeting this year. Another physician, Michaela Pakszys and her husband have started a group of interested professionals in Poland. Dr. Pakszys also obtained a grant from the Polish Government, bought approxi-

qEEG Certification Examinations Offered by the qEEG Certification Board

The qEEG Certification Board will be providing opportunities to become certified as a Technologist or Diplomate in the qEEG technology during the yearly ISNR conference. Other occasions can be arranged with board approval. You can visit our website, qeegboard.org, for information, a reading list and requirements for taking the examination. You can also contact Kirtley Thornton, PhD at ket@chpneurotherapy.com for more information regarding the examination. The reading list and examination will be revised prior to the September 2006 examination.

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San Francisco, CA	Dec. 2-6
Charlotte, NC	Jan. 20-24 (2007)
San Francisco, CA	Feb. 24-28 (2007)
Minneapolis, MN	March 17-21 (2007)

Professional 4-Day EEG Certificate Program

Ft. Lauderdale, FL	Nov. 16-19
San Francisco, CA	Dec. 7-10
Charlotte, NC	Jan. 25-28, (2007)
Minneapolis, MN	March 22-25 (2007)

Application Workshops

- 1-day Freeze Framer (Dec. '06)
- 5-day QEEG (Dec. '06)
- 1-day Advanced EEG (March, June, July)
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LETTER FROM THE INTERIM EXECUTIVE DIRECTOR

At ISNR last year in Colorado, Roger deBeus, our 2006 President, met me at the escalator and said that Jay Gunkelman thought it would be a good thing for us to meet and talk about ways in which I could help the Society. Jay said that I had good energy and was productive. Thanks Jay—look where that little intro got me.

Roger asked me to help with the Personnel Committee. ISNR was considering restructuring its executive office, he said. The personnel committee included me, Richard Davis and Judith Lubar along with Roger as President. We met monthly and discussed the needs of the Society and the

ferred my help as Interim Executive Director.

During this last month, I've delved deeply into the reorganization of the accounting, the Web site and the newsletter. Oh! Yeah—and we've changed our name, too. It's been a very busy month. However, I was gripped by the level of dedication and enthusiasm that the members of the Board exhibit for this Society. It's truly remarkable.



presentation summaries from the conference. We asked all of the presenters to provide theirs. Many responded and we made them available on our website to all attendees of the Atlanta conference.

I have spent hours on the phone and through emails with Noland White, Merlyn Hurd, Mike Cohen, Brian Thiel, Roger deBeus, Judith Lubar, Richard Davis and Ann

Marie Horvat, all working incredibly hard, at all hours of the day and night, to guide the Society through it's growth and keep it a viable entity in our ever-growing field. I hope that my contribution is deemed as valuable as the contributions made by these very dedicated people.

*Cynthia Kerson,
Interim Executive Director, ISNR
office@isnr.org*

...I WAS GRIPPED BY THE LEVEL OF DEDICATION AND ENTHUSIASM THAT THE MEMBERS OF THE BOARD EXHIBIT FOR THIS SOCIETY.

current structure of the executive office. Unfortunately Darlene Nelson chose to retire from her post as Executive Director. This left us to make some quick decisions. I of-

There are many issues that occur behind the scenes. Additionally, when members ask to be provided a service, we respond. For example a member asked us to provide the

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Advanced LENS Training

Chicago, January 4 – 6 2007

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With Len Ochs, Ph.D.

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FROM THE EDITOR

The iSNR conference was a wonderful success. The Clinical Corners were attended at a high level. Two of the write-ups of those exchanges are included in this newsletter and there will more be in the next one.

There have been several changes within iSNR before and during the conference. Cynthia Kerson is the new Interim Executive Director of iSNR and the Managing Editor of the Newsletter. What an assist! Kimberly Weeks is our official Student Editor and Mike Gismondi continues as the journalist for *Best Practices* and *Tech Talk*. Both are looking forward to writing up interviews with you, our readers, about your practices and issues of concern regarding student needs and technical questions. Please e-mail them your questions and concerns. Their e-mails are listed in the masthead. And, oh yes, we have a masthead on the newsletter!

We are all working hard to get the newsletter back on schedule so that the four editions are in your office during January, April, July, and October. Please let us know of places you would like the newsletters to be sent, such as universities, hospitals, other colleagues, and ones we have not even thought about. We'll send them at no charge to the addressee. Because we learned though Kimberly Weeks' article, which highlights how little our field is known in the universities that we need to make our work known. We can all make this the number one newsletter for our field.

Your cooperation in sending in case studies, write-ups of experiences in the QEEG and NF field and questions that cause us to initiate research are most welcome and will be considered for future issues.

Sincerely,

Merlyn Hurd PhD, BCIAAC/EEG Fellow

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RESEARCH FUND REQUEST FOR PROPOSALS

David Trudeau, M.D., Research Committee Chair

The ISNR research committee is pleased to announce a request for research proposals for the fourth year. Due to another exceptional fund raiser – a raffle at the annual meeting of ISNR this year in Atlanta, the fund is able to continue to support research in neurotherapy.

The Research Fund of the International Society for Neurofeedback and Research (ISNR) invites proposals for funded research in neurotherapy of up to \$20,000 per year renewable for up to five years. Special consideration will be given to proposals that involve large n multi-center studies for randomized controlled trials of a neurotherapy technique for remediation of MTBI, ADHD, PSUD or other conditions for which neurotherapy has been applied. The proposal may include the means for establishing a neurotherapy practice research network in order to complete its objectives. Fundable elements of the proposal may include monetary incentives for practitioners and client participants and salary for the Principal Investigator, who will be project coordinator. Continued funding year to year will be contingent on project performance and the success of ISNR in continuing fundraising. If the successful applicant is not a member of ISNR, the applicant will agree to accept complementary membership for the duration of the grant.

Applications for award in 2007 are accepted from now till January 1, 2007. The final date for revisions is February 1, 2007 and awards will be announced by March 1, 2007. Awardees will be offered a contract by iSNR specifying the terms of their work and remuneration.

The complete Submittal Form for Research Proposals and Guidelines for Research proposals can be found at the web site <http://www.isnr.org> or by contacting David L. Trudeau, MD, research committee chair at trude003@tc.umn.edu.

Researchers interested in applying for this grant may send their ideas in the form of a letter of intent to David Trudeau (trude003@tc.umn.edu). The committee will do preliminary review and give constructive feedback when requested. The ISNR Research Fund committee is composed of Joe Horvath Ph.D., Roger deBeus Ph. D., Joel Lubar, PhD, James Evans, PhD, Cory Hammond, PhD, Vince Monastra, PhD, Noland White, PhD, Judith Lubar MSW and David Trudeau, MD (chair).

NOTES FROM THE BOARD

The Board or Directors of ISNR is comprised of volunteers—very dedicated professionals with a shared passion to serve and support the membership of ISNR and to further the field. In the last year, the board, along with help from a few members developed a newly stated mission that better reflects the purpose of this organization.

ISNR has grown rapidly in recent years. The organization currently maintains two contracted positions. The rest of the work—time spent by the members of the board, including work on the journal, and conference planning and execution—is accomplished by volunteers. We pay key individuals a small stipend for editing the

journal and organizing the conference, but it doesn't come close to covering the time and effort they dedicate.

In the last year the board has moved to strengthen the infrastructure of the organization. As part of our fiduciary responsibility and because of our increasing membership, we engaged a CPA and have confirmed our relationship with an attorney for the organization. In response to some concerns brought to the Board, the Board asked two different accounting firms (including our current CPA) to review previous year books for ISNR that had been maintained without the benefit of any oversight from a CPA. Based on the review, both accounting firms said they had not identified any evidence of material problems with how previous books or funds were maintained. The board is glad to affirm the financial integrity of the organization.

As the organization swelled in numbers some individuals have worked incredibly hard to keep up with the growth and responsibilities and we thank them for their dedication. This is even more impressive considering the physical distances between these individuals.

Thank you to all who have worked so hard to help us grow with integrity. The Board is very eager to look forward and pursue projects that can further help our organization and field. It is through members help that this can be achieved. If you have ideas—or are willing to help, please email our one our Members at Large listed below. We will be sharing news and information about these endeavors as a regular feature in this newsletter, and we welcome your input. In serving the membership, the Board would like to invite anyone with suggestions or questions to approach us directly, so that we may understand and address these issues.

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2006-07 Board Members (l. to r.): Leslie Sherlin, Al Collins, Richard Davis, Mike Cohen, Nancy White and Judith Lubar (missing board members are Cindi Ackrill, Roger deBeus and Jacques Duff)

NEW—MINI-GRANTS FOR WRITERS

The Research Grant Committee and the iSNR Board are in the process of completing guidelines for “mini-grants”—awards of less than \$1000 to enable clinicians to develop research papers retrospectively from data that they have already collected. The money can be used to obtain data analysis and writing help from resources such as graduate students. If you have ideas for this proposal or would like to be considered for one of these grants contact David L. Trudeau, MD at trude003@tc.umm.edu.

SELF REGULATION OF WHAT?

Kimberly Weeks M.S.
Student Editor

One of the things I was asked when I agreed to take on the role of Student Editor for the ISNR newsletter was how could we start to get more student members in ISNR. Several ideas were floated, including send-

own completion and for distribution to students. For their participation, respondents were offered an e-mail containing a reading list on neurofeedback, biofeedback and psychophysiology, along with a list of

MOST OF THE CURRENT AND RECENT STUDENT MEMBERS OF ISNR ARE AFFILIATED WITH RELATIVELY FEW UNIVERSITY PROGRAMS,

ing copies of our newsletter and the Journal of Neurotherapy to psychology, social work, and related graduate programs; sending the journal to university libraries and/or sending information directly to faculty members, etc. As I tried to come up with more ideas about increasing visibility and what my role in this might be, I thought that it might be helpful to get some other student input on this topic, though that presented a problem of its own. Most of the current and recent student members of ISNR are affiliated with relatively few university programs, which have already established ties to this field. So I've embarked on a two-part pilot survey.

Part One, discussed below, is a survey of current and recent graduate students in psychology, counseling, social work, and related programs that do not include specific instruction in biofeedback, neurofeedback or psychophysiology. Part Two, which will be discussed in the next issue, will survey current and recent student members of ISNR and AAPB's Neurofeedback Division and at universities in which there is specific instruction in biofeedback, neurofeedback or psychophysiology.

For Part One, a 19-question qualitative (narrative response) survey was distributed twice via e-mail to 93 current or recent graduate students in psychology, counseling, social work, and education at 14 universities in California, Texas, Missouri, Maryland and Pennsylvania. I personally know all of these students to whom the survey was sent. The survey was additionally distributed twice via e-mail to a graduate student mailing list I belong to, and it was sent to 29 faculty members (all also personally known to me) at seven universities in California and Pennsylvania for both their

informational web links, and they were offered a one-time mailing of a copy of this issue of the newsletter if they provided a mailing address.

Thirteen current or recent graduate students responded to the survey, eleven of whom were in the initial distribution, one of whom received the survey forwarded from a recipient of the e-mail distribution, and one who is a member of the mailing list. No faculty members completed the survey and no responses were received resulting from their distribution of the survey, though several professors did respond explaining time or scheduling limitations, and one was prevented from distributing the survey, as it had not been submitted for IRB approval.

Of the 19 survey questions (which can be requested from me via e-mail):

- Three questions related to general familiarity with biofeedback (BFB), neurofeedback (NFB) and psychophysiology (PsyP);
- Three questions related to academic mention of BFB, NFB or PsyP;
- Three questions related to specific familiarity with BFB and NFB as interventions and about research;
- Three questions related to textbook mention of BFB, NFB or PsyP;
- Two questions related to non-academic knowledge of BFB or NFB, and impressions of these;
- One question related to the clinical importance of knowing self-regulation techniques for their client work;
- Four questions related to the importance to them of learning about BFB, NFB or self-regulation techniques either in the university or through continuing education; and

- One question related to how professional organizations could help them learn more about these topics.

Additionally, respondents were asked to provide their degree/academic program, university name, whether they were willing to have their name published, whether they wanted to receive the e-mail information in exchange for their participation, and if they wanted to receive this issue of the newsletter, their mailing address.

The universities and programs represented in the survey are:

- Alliant International University, Alhambra, CA (MA Industrial/Organizational (I/O) Psychology) - XL
- California State University, Northridge (MSW, MS School Psychology)
- Canterbury Christ Church University, UK (PhD Clinical Psychology) - RG
- Drexel University (MA Art Therapy) - MN
- Loyola University (MS School Counseling)
- Millersville University (MS Clinical Psychology, MS School Psychology)
- Pennsylvania State University (MS Counseling Education and Rehabilitation),
- Temple University (EdD Kinesiology) - HC
- University of Southern Missouri (PsyD in Counseling Psychology) - KC

Additionally, respondents cited additional coursework at Harvard University and Capella University. The initials listed above indicate respondents who provided particularly rich or specific information, or whose responses when taken together provide more information, and will be referred to below.

Only seven of the respondents stated having any familiarity with BFB: MH has used it personally and unsuccessfully for migraines, HC utilizes it as both a practitioner and client, XL participated in conducting a

Continued on page 10

SELF REGULATION OF WHAT? CONTINUED FROM PAGE 9

BFB undergraduate study*, KC had an undergraduate course in physiological psychology, and four others have passing familiarity with it from non-academic sources (“random discussions,” internet, browsing bookstores, magazines, etc.).

Because I have spoken to several academic colleagues regarding neurofeedback and biofeedback over the years, and these individuals are among those to whom the survey was sent, I was originally concerned that this might sway responses toward more familiarity, however that was sadly not the case.

In terms of familiarity with NFB, only three respondents had any familiarity with it and another two made educated guesses about it based on their knowledge of BFB. Of the three who are familiar, none gained their familiarity with it through their academic coursework: HC has been an intermittent client, MH has done some popular reading about the topic for personal migraine remediation which led to interest in learning more in relation to her work in brain injury rehabilitation, and MN works at an attachment disorder treatment facility** where neurofeedback is offered as an adjunctive therapy.

Two respondents were familiar with PsyP: HC whose degree is in kinesiology, and KC who had an undergrad course in physiological psychology. Three others guessed that a mind-body relationship or connection is being referred to, and six indicated no familiarity. One said it's the science of brains and neurons, and another guessed that it related to the placebo effect and how the will to live helps people to heal faster.

Nine respondents reported that none of these modalities had ever been mentioned in their academic coursework. HC had opportunity to do independent study through readings and conference attendance in these modalities for her kinesiology program, though none were in the curriculum when she started there 10 years ago. MN had a neurofeedback/art therapist as a guest presenter in her art therapy program. KC's physiological psych course made some mention of BFB. None had any specific coursework in BFB as part of their program. In terms of faculty impressions of these areas, most reported that there was no mention, or that there was a neutral if any impression.

In response to a question regarding what conditions BFB might be useful as

an intervention related to their field, HC indicated possibilities are endless, and four respondents did not know. Three listed pain management and relaxation; two mentioned fostering a mind-body connection; three mentioned anxiety with RG specifically mentioning regulation of arousal, describing how it could be useful for stress related health issues like cardiac health; one mentioned ADHD, going on to say that it would help to find out if there is a biological reason for some behaviors; one mentioned smoking cessation and weight loss; and one indicated she knew someone with stomach problems who had been helped. MN specifically mentioned that it could be helpful in “increasing the state of calm alert” in work with attachment disorders. Eight respondents did not know what NFB might be helpful for, the others listed the following conditions for which NFB might be a beneficial intervention: Pain/migraine man-

which had several mentions. None had any textbooks that mentioned NFB.

Most of the respondents indicated a somewhat limited positive impression or a neutral curiosity about BFB and NFB, indicating that they don't know enough to have a better impression. They tended to express that it would have “limited usefulness” or that it would “help sometimes”. MN and HC indicated strongly favorable impressions citing their experience with it as a modality either personally or professionally. Three respondents stated having no impressions.

Eight respondents indicated that it would be clinically important for them to know more about these BFB and NFB as a potential intervention, with one qualifying this importance as “if it can demonstrate superiority over talk therapy.” Three people were unsure if it would be important, though RG said, “I'd like to know more so I

NEARLY ALL RESPONDENTS INDICATED THAT IT WOULD HAVE BEEN HELPFUL IF BFB AND NFB HAD BEEN AT LEAST MENTIONED, IF NOT TAUGHT, IN THEIR ACADEMIC COURSEWORK OR THAT THESE SHOULD BE TAUGHT IN ACADEMIC PROGRAMS...

agement (2 mentions), sleep disorders (2), ADHD (2), PTSD, anxiety, depression (2), learning disorders, brain injury, autism, attachment disorders, various behavior disorders. The widest range of possible interventions was from MH who has done popular reading on NFB, and from MN. Only HC knew of any specific NFB research through her independent study work. MH knew of some through popular reading, and RG recently heard in the news about people with motor paralysis learning to communicate through brain-implanted electrodes, which he surmised was the result of research in the NFB field.

Only two respondents had any textbooks that mentioned BFB—MH's *Clinical Psychology*, 6th Ed. By Trull & Phares (2001) mentioned it as an intervention for various problems, and KC indicated she had several undergraduate texts that mentioned BFB: *Elements of Physiological Psychology* by Schneider & Tarshis, as well as a mention in a text used in a theories of learning course and in a general psych text

can make that judgment.” One school psychology respondent and an I/O psychology respondent both indicated that it wouldn't be important for them to know about these in their field. These same two respondents did not feel that self-regulation techniques were important for their work. One clinical psychology graduate student, when asked about the importance of self-regulation techniques, responded with “Self-regulation of what?” Six people responded that self-regulation techniques were definitely important and three others thought they might be important.

Nearly all respondents indicated that it would have been helpful if BFB and NFB had been at least mentioned, if not taught, in their academic coursework or that these should be taught in academic programs, though one school psychology respondent indicated that learning about these would not have been personally helpful to her but would be to “clinical” students, and a clinical psychology graduate student indicated that this would only be

helpful to “biopsych” students. Only XL indicated that it would not have been important to have as part of an academic program. Surprisingly, only five respondents said that it would have been more helpful to have learned self-regulation techniques in their academic program, with five be-

tioners who use the technique working in the area who might be prepared to come lecture.

Building on the suggestions made by the student respondents, perhaps it would be worth having a committee work to collect information that can be used by profes-

AS A FIELD WE CLEARLY CAN DO A BETTER JOB
GETTING THE WORD OUT ABOUT BOTH THE CLINICAL
AND RESEARCH WORK BEING DONE, AND PERHAPS
STARTING WITH ACADEMIA WOULD BE A GOOD STEP.

ing uncertain about this, two feeling that it would not have been helpful and one again asking “Self-regulation of what?” There was much more uncertainty about whether continuing education in BFB, NFB or self-regulation would be beneficial; only three individuals responded yes, one responded no, while nine responded that either they were unsure if continuing education courses would be helpful or that they would possibly be helpful.

This uncertainty can be viewed in the context of the eight responses received about how a professional organization could help them learn more; with most stating that conferences and trainings should be offered. Several of the respondents indicated that a professional organization should be started. Other responses included:

- Encourage the development of academic courses devoted to this area of study;
- Encourage more coverage of these topics in textbooks used in related courses;
- Work with academia to help educate students about what BFB, NFB, and PsyP are;
- Present information in academic programs;
- Offer training workshops through universities’ cooperative education or professional workshop programs;
- Advertise workshops and conferences more widely, particularly those leading to certification;
- Start working with professional CE presentation bodies to increase the visibility of workshops;
- Sponsor workshops for university professors in related fields;
- E-mail students information about it, along with information about practi-

sionals who want to “sponsor” or “adopt” a university in terms of educating faculty in related programs about neurofeedback and related interventions.

Interestingly, of the thirteen respondents, only two wanted to receive a copy of the newsletter and e-mail information, three others requested the e-mail information only, while the remaining eight wanted no information. One student who said she did not have time to respond and three faculty members did request the information as well.

As a field we clearly can do a better job getting the word out about both the clinical and research work being done, and perhaps starting with academia would be a good step. As one respondent stated, “It’s important for all professionals in the field to know about a variety of intervention techniques, whether they use them or not, so that at least they know these modalities are available for referral. It’s easier if we hear about interventions, even just roughly, in school and don’t have to go hunting to even learn that they exist; otherwise how will we know what we’re looking for.”

In the next pilot survey, I’ll be looking at suggestions current/recent iSNR and AAPB Neurofeedback Division student members have for helping to increase familiarity, reaching more students, and how the organizations can support student members more effectively.

*I was the other researcher in that undergraduate study with XL.

**I am one of the neurofeedback providers at the facility where MN works.

I completed my BA in Psychology at California State University, Northridge in 2003 and my MS in Clinical Psychology at Millersville University in 2005.

DRAWING WINNERS FROM THIS YEAR’S CONFERENCE

In an effort to collect as much feedback as possible from conference attendees we have gone to great lengths to encourage people to fill out the daily plenary session evaluation forms and the overall conference evaluation form. These lengths include bribes in the form of “ISNR Dollars” that can be used for membership dues, conference registration fees, workshops, DVDs, books, or anything else that ISNR has made available to members.

Every year we have more people complete and returned the evaluation forms, but we won’t be satisfied until every attendee takes a minute or two to complete the forms and let us know how we’re doing. The conference committee is very serious about obtaining this feedback from attendees. All ranked items are counted and averaged, and every comment is (anonymously) typed up and shared with the Conference Committee and the Board of Directors. As in the procedure, which started a few years ago, we’ll again be sharing the reported averages with each of the plenary session and workshop presenters.

This year’s winners of the \$50 ISNR Dollars for the daily drawings are Stephen Farr, Carol Counts, Carol Hammon-Paulson and Denise Olive. George Rozelle won \$150 in the overall conference evaluation drawing. Congratulations to the winners and thank you to everyone who took the time to share your comments with us!

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NEUROFEEDBACK THERAPY AS A TREATMENT FOR PSYCHOGENIC NON- EPILEPTIC SEIZURES

William Lambos Ph.D. and Charles Stark M.D.



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The history of neurofeedback treatment of patients with epileptic seizures, particularly focal seizures originating in the temporal lobes, is well established. In the 1970s Barry Serman discovered, quite serendipitously, that cats selectively reinforced to generate the sensory motor rhythm (SMR) were protected against seizures after exposure to monomethyl hydrazine (rocket fuel). Exposure to hydrazine causes severe seizures in mammals, but animals conditioned to produce SMR were far less susceptible to them.

This finding led to the successful treatment of human patients with epilepsy via SMR reinforcement in neurofeedback. However, a third or more of patients who present to epileptologists with seizure activity do not, when examined in video EEG studies, show the brain activity typical of epilepsy. That is, these patients experience the bodily symptoms of seizures, but no epileptogenic or paroxysmal brain wave patterns are recorded in their EEG. Such patients are instead diagnosed with PNES, or Psychogenic Non-Epileptic Seizures.

PNES patients are characterized by a history of trauma, usually sexual or physical abuse in childhood. Because of this, PNES is thought to be related to post traumatic stress disorder (PTSD) rather than to epilepsy. For the PNES patient, the psychogenic seizures seem to represent an avenue to escape situations which would otherwise cause unbearable levels of stress. The client is, in this sense, experiencing a dissociative condition in which the non-epileptic seizures allow for escape from an unbearable context. It is important to understand that PNES are not factitious, and the patients that present with such seizures are not malingering: their seizures

Continued on page 14

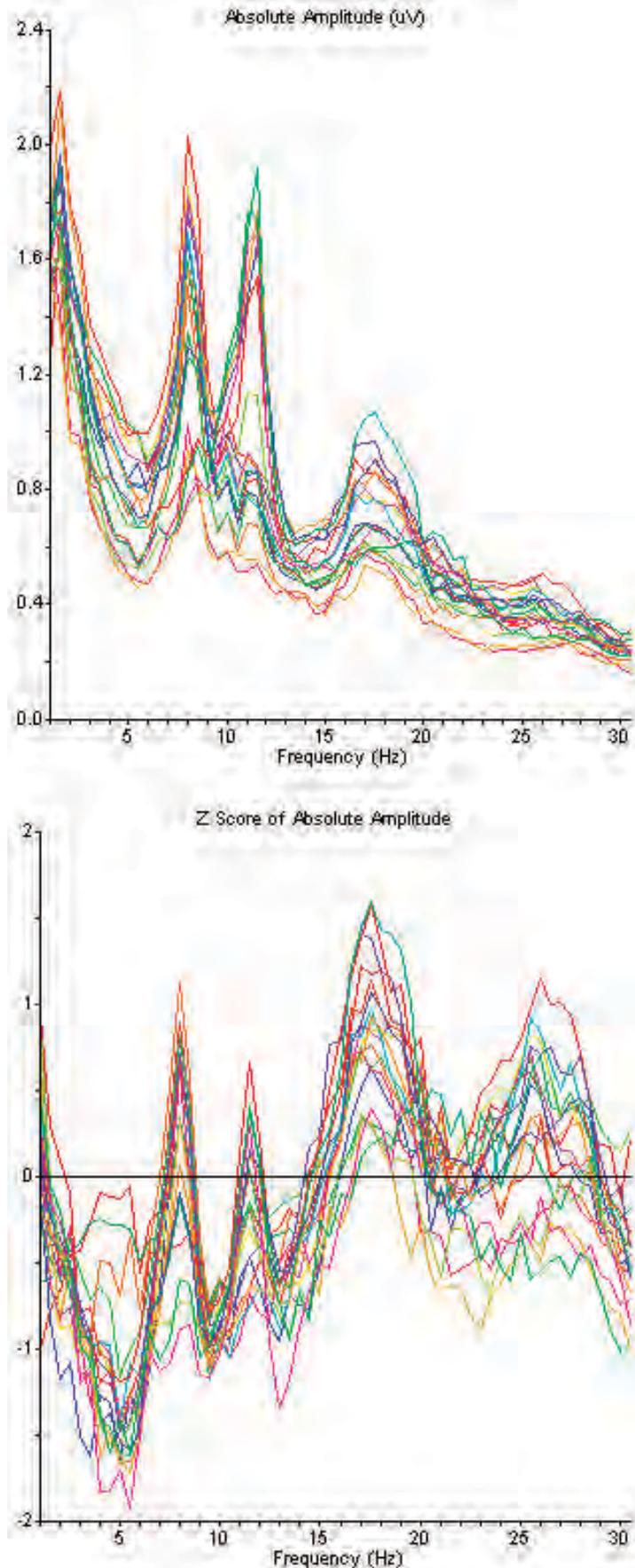


Figure 1a. (Q1)

**NEUROFEEDBACK THERAPY AS A
TREATMENT FOR PSYCHOGENIC
NON-EPILEPTIC SEIZURES
CONTINUED FROM PAGE 13**

trouble them greatly and they wish them to cease.

K.G., a 47 year-old woman, was referred to us by a neurologist and a mental health counselor who determined that her seizures were non-epileptic and likely related to a history of sexual abuse by her father and multiple deaths of significant individuals in her life. Karen had been given numerous incorrect diagnoses and prescribed numerous medications to control her seizures and associated symptoms (Tegretol, Lithium, Effexor, Neurontin, Lexapro, several benzodiazepines and others). In addition to the PNES, Karen presented to us with sleep disorder, depression and anxiety. These symptoms caused her difficulty at work, where they threatened her continued employment.

Prior to treatment, we assessed her with a QEEG (Q1) analyzed by both SKIL and Neuroguide databases and reporting software. In both cases, we found evidence of frontal hypercorrelation as measured by both coherence and comodulation. In the eyes closed recording, we also saw a finding that has become common in our PNES subjects: the presence of two frequency peaks in the alpha band. In her case, one peak showed at 8 Hz and we saw a second peak at 11 Hz. Figure 1a shows absolute amplitude and z score frequency distributions from the Neuroguide analysis (the same double peak was present in the SKIL analysis). We have come to regard the presence of two dominant frequencies in PNES subjects as indicative of psychogenic dissociation.

We chose a treatment protocol designed to break up the frontal hypercorrelation, reinforce SMR and suppress the lower peak at 8 Hz. Sensors were placed at sites C3-C4-F3-F4. On various 180-second blocks using the J&J C2+, and Serman's discrete trial 4-EEG training program, the subject was reinforced for raising one site while inhibiting a different frequency at another site (i.e. the subject was reinforced for producing 12-15 Hz at C3, while reducing 4 to 7 Hz at F4, or the corresponding inverse sites).

Following 20 sessions of neurofeedback, the subject reported that her psychogenic seizures had stopped. Her sleep pattern had returned to normal, her depression was

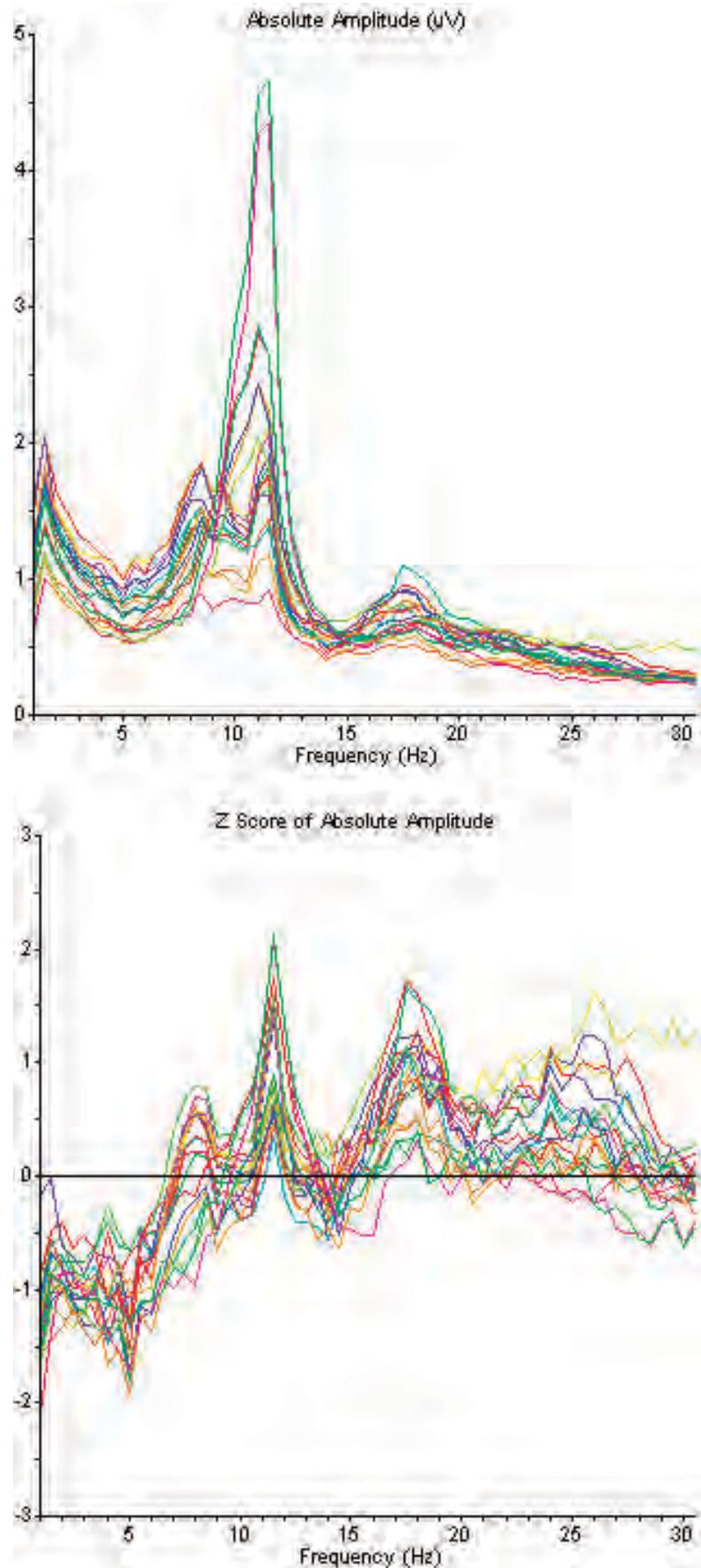


Figure 1b. (Q2)

much improved, and her employment was no longer threatened. She also found it possible to stop taking all medications. The client, in short, sees the neurofeedback therapy to date as a resounding success.

To determine whether the client's QEEG had changed significantly as a result

amplitude, after training the subject's dominant frequency peak at 11 Hz more than doubled in amplitude. In addition, z-scores are closer to norms across frequencies.

A series of paired t-tests was generated by Neurostat comparing absolute power, relative power, amplitude asymmetry, co-

We believe that the overlap between EEG changes across the pre- and post-treatment QEEGs and the client's reported clinical improvement is unlikely to be coincidental. Twenty sessions of targeted neurofeedback resulted in significant changes to the client's brain wave patterns and to significant abatement in her clinical symptoms. We conclude that these results show a profound potential for treatment of PNES, and we plan future, more rigorous studies to substantiate this claim.

William A. Lambos, Ph.D. Bill is an experimental and behavioral psychologist who now specializes in neuropsychology and mental health disorders. Charles (Dick) R. Stark, M.D. has practiced medicine for over 30 years and for 17 years worked at the National Institutes of Health in Bethesda, MD. Cognitive Neuro Sciences, Inc. is a Tampa, FL-based group that includes licensed physicians, psychologists and other mental health professionals and provides services in all these areas. Neurofeedback is the cornerstone of our practice.

TWENTY SESSIONS OF TARGETED NEUROFEEDBACK RESULTED IN SIGNIFICANT CHANGES TO THE CLIENT'S BRAIN WAVE PATTERNS AND TO SIGNIFICANT ABATEMENT IN HER CLINICAL SYMPTOMS.

of neurofeedback training, we recorded another QEEG (Q2). Following this, we generated spectral results for the second QEEG recording and subjected them to analysis using Neurostat paired t-tests. Figure 1b shows the spectral amplitudes and Z-scores after 20 sessions of neurofeedback as described. Note that while the lower frequency peak at 7 to 9 Hz was reduced slightly in

herence and phase lag between recordings Q1 and Q2. The differences were highly significant in both absolute and relative power at 10 and 11 Hz ($p < .001$). The reduction in amplitude of the lower frequency peak was not statistically significant. Significant differences were also seen in inter- and interhemispheric amplitude asymmetry and coherence.

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A STUDY OF SLOW CORTICAL POTENTIALS

John Anderson M.A.

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In 1875, Richard Catton identified what may have been the first evidence of slow cortical potentials (SCP) in an article in the British Medical Journal, entitled *The Electric Currents of the Brain*. He stated, "The cortex's Direct Current baseline waxes negative whenever it is more active. Gradients of 150-200 uV/mm are noted." He later noted "when any part of the gray matter is in a state of functional activity, its electric current usually exhibits negative variation." Some later researchers suggested that this signaled the discovery of the "steady potential" or the DC potential of the brain, though others have noted



and spontaneous electrical activity in animal studies. As technology improved, the ability of researchers to identify EEG rhythms also improved. Hans Berger is famous due to his description of alpha blocking with cognitive activity, made possible partly because of his use of more sensitive equipment (Niedermeyer, 1999).

the possibility of equipment based artifacts in his recordings (Niedermeyer, 1999).

During the period from the late 1800s through the early 1900s, research into brain electrical activity turned toward observations of electrical stimulation

Subsequent research into the electrical characteristics of the human brain became primarily focused on phasic phenomena from AC coupled recordings. This trend continues today with the current practice of EEG biofeedback or neurofeedback also focusing primarily on training AC frequencies, generally in the range of 1 to 60 Hz.

The study of slow cortical potentials continued in the area of physiology and animal research but only recently has there been increased interest in observing slow cortical potential values in the human EEG and correlating them with cognitive activity, sensory processing and motor activity. Slow cortical potentials are distinguished from short latency, event related potentials (ERP) up to 500 ms. SCP reflect cortical processes that require more than one second to complete and are associated with more global, task related activities. Such changes occur in task specific areas of the



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cortex and can be displayed using topographic maps. Areas of activation show surface negative potential changes (Altenmuller and Gerloff, 1999).

Operant conditioning of slow cortical potential changes is an even more recent area of study. One reason for increased interest in the training of SCP is the excellent work done by Birbaumer and colleagues at the University of Tubingen in Germany, demonstrating that SCP can be operantly conditioned with positive outcomes for a variety of disorders. The recent availability of DC coupled amplifiers for EEG recording has also contributed to this interest (Altenmuller and Gerloff, 1999).

According to Niedermeyer (1999), the term "DC" can mean several things. DC means direct current which is a current without oscillations. From an electrophysiological perspective "DC shifts" are ultra slow potentials, below the typical EEG in frequency of oscillation and are generally around 0.1-0.2 cycles per second, though they may extend up to 1 cycle per second. So SCP are not true direct current, though their oscillations are so slow that they are

"DC-like" phenomena.

DC also refers to "direct coupling" (Niedermeyer, 1999) and is a description of a type of amplifier that does not use capacitors between the stages of amplification and that uses an infinite time constant to provide for optimal DC recording. Until recently this has been quite difficult to achieve for EEG recording. Most conventional EEG amplifiers use capacitors in the input stage, which reject DC voltages and also create a finite time constant that also interferes with access to DC phenomena.

An approximation of DC information can be obtained from an alternating current amplifier through the use of a rectifier or by extending the time constant to approximately 10 seconds (Kotchoubey, et al., 1999). A thorough discussion of amplifier characteristics is beyond the scope of this article. Several excellent chapters relating to this subject can be found in Electroencephalography, (1999).

The source and nature of slow cortical potentials is in some dispute. Prevailing theory holds that negative SCP result from synchronous postsynaptic potentials in the

apical dendrites of cortical pyramidal cells. Others hold that SCP are supported and produced by glial cells within the cortex. It appears that pyramidal neurons may be the source of these potentials and that the glial system is the "sink" in electrical terms (U. Strehl, 2005, personal communication). Increased neuronal activity is associated with an increased outflow of potassium ions leading to increased extra-cellular potassium concentrations. Glial cells depolarize in the presence of increased extra-cellular potassium concentrations, resulting in intra and extra-cellular current flows that are similar to typical neuronal synaptic transmissions (Speckmann and Elger, 1999). Since glial cells are widely interconnected and have extensive processes, it appears likely that the glial system, in response to neuronal activity, is responsible for the potential changes that produce SCP values recorded from the scalp.

Despite some discussion regarding the source of slow cortical potential activity, it is clear that scalp SCP represent the

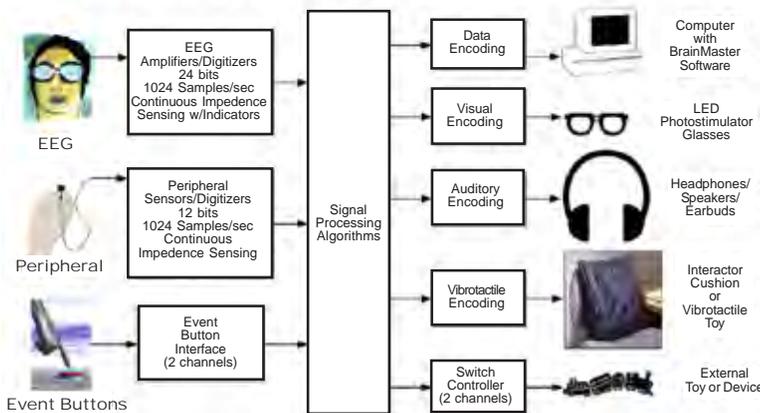
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A STUDY OF SLOW CORTICAL POTENTIALS CONTINUED FROM PAGE 19

excitability potential of the cortex. SCP negativity is associated with increased cortical excitability. High cortical negativity has been correlated with a greater likelihood of seizures (Speckmann et al., 1984) and migraines (Siniatchkin, et al., 2000) in susceptible individuals.

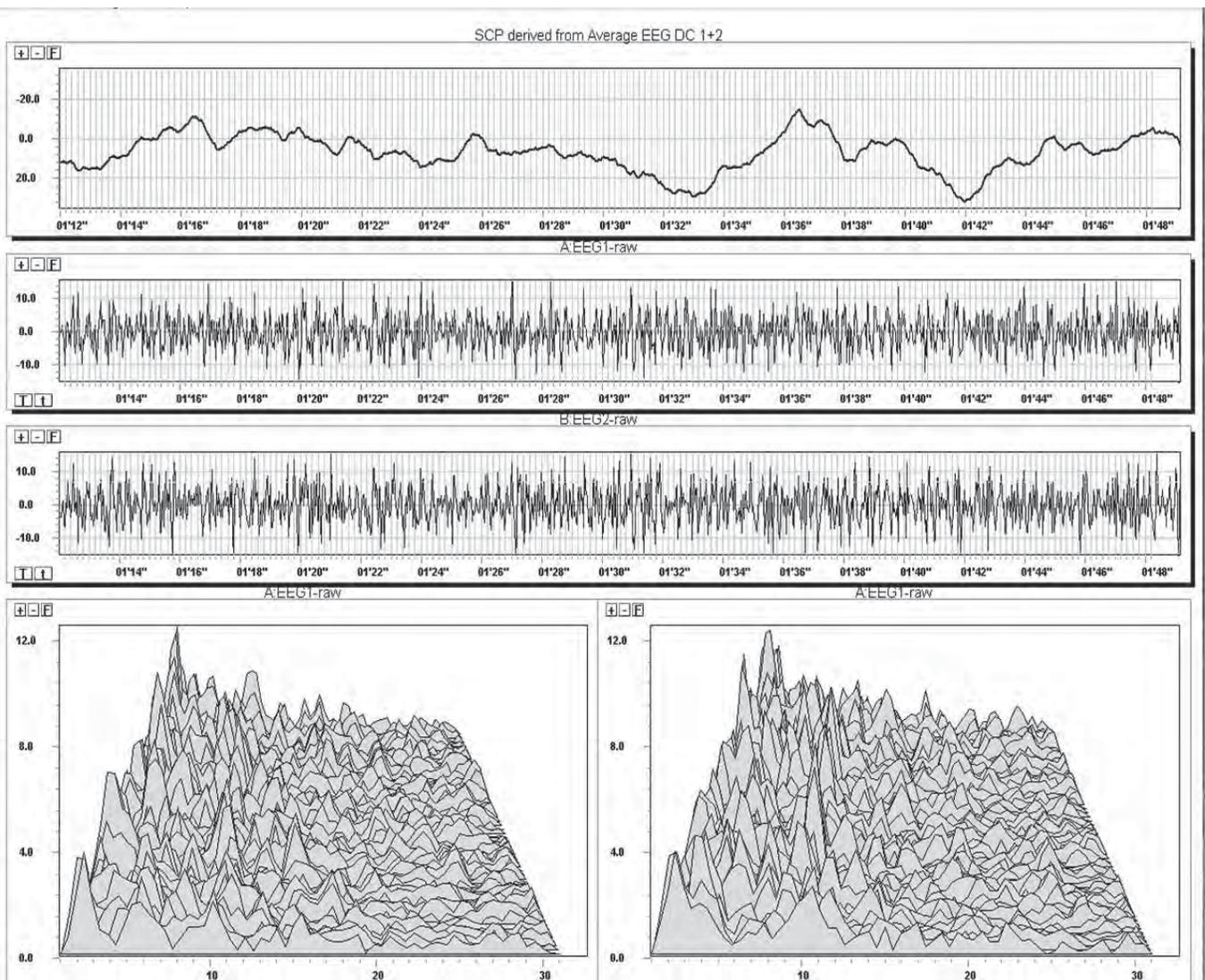
SCP positivity is associated with increased cortical inhibition. Higher than expected positive potentials have been noted in children with elevated blood lead levels (PbB) (Otto and Reiter, 1984) and a lack of self-regulation skills of SCP compared with controls was found in children with ADHD (Heinrich, et al., 2004). Slow cortical potentials have also been used to moni-

tor the depth of anesthesia during surgical procedures (Sebel, et al., 1997) because it appears to be an excellent indicator of level of arousal.

Recent studies have used slow cortical potentials to evaluate a variety of task oriented responses. Birbaumer and colleagues have trained SCP to reduce seizures (Kotchoubey, et al., 1997, 1999, 2001, 2002; Daum, et al., 1993) and other groups have applied SCP feedback training to improve ADHD (Heinrich, et al., 2004; Strehl, U., 2004 personal communication) and schizophrenia (Schneider, et al., 1992).

SCP feedback training appears to be an approach that targets general character-

istics of arousal using a single measure, as compared to other types of EEG training that often reward increases and/or decreases in certain combinations of frequencies to accomplish changes in arousal. SCP feedback may provide a less complex approach to training neuronal activity in the clinical setting; one that might also provide greater accessibility in the form of clinician supervised home training devices. Most research to date has been conducted using the Cz electrode site. However, at least one investigation involved training left hemisphere language sites. This approach demonstrated improved word processing results following the negativity training condition



Top graph represents slow cortical potentials from a two channel sintered Ag/AgCl Cz electrode with left and right mastoid references for channel 1 and 2 respectively. X-axis time scale is approximately 38 seconds. Y-axis scale is ± 35 μ V with negative polarity up - the common practice for SCP recording. The next two graphs represent "raw" EEG from channels 1 and 2 from the same recording electrode, with the same x-axis time scale and ± 15 μ V y-scale with positive up polarity. The two spectral displays reflect a segment of the same data with a 2 second epoch and 1/4-second refresh. Note the slow amplitude fluctuations of the SCP signal.

and diminished performance following the positivity condition (Pulvermuller, 2000). It would be interesting to study the effects of slow cortical potential training at other electrode sites.

-1 At present there are only a few clinically available DC coupled amplifiers capable of accurately identifying slow cortical potential activity. An Internet search yielded several devices clearly aimed at the research institution market with correspondingly high prices as well as a couple of other devices with prices within the reach of a clinical practice. A new 32 channel DC coupled data acquisition device for quantitative EEG assessments has also recently been released.

One potential attraction of using a DC amplifier is the capability of monitor-

ing and/or training both slow cortical potentials and typical EEG frequencies. This is because DC amplifiers are optimized for SCP but also have the capacity to record faster frequencies as well. This is particularly true for amplifiers with better analog-to-digital (AD) conversion characteristics (bit size, not sampling rate) because this allows them to record AC potentials without exceeding amplifier capabilities, which can be a problem in an amplifier without capacitors at the input stages. Higher A (analog) to D (digital) conversion values (more bits of data per sample) allow newer DC amplifiers to process EEG at a much lower voltage while retaining a high degree of resolution for signals that are often in the millivolt range (compared to microvolt values for most EEG signals).

The training of slow cortical potential shifts is a fairly new endeavor. Much remains to be learned about the effects of training both the positivity and negativity conditions at various electrode sites for individuals with a variety of presenting concerns and specific neurophysiological characteristics. Some recent, brief clinical experiences by this author suggest that training SCPs using new, more accurate amplifiers may result in more pronounced changes occurring more quickly. This occurred on several occasions, even when using previously well tested protocols alternating 8 to 10 second trials of both the positivity and negativity conditions. Thus it will be important to develop protocols with

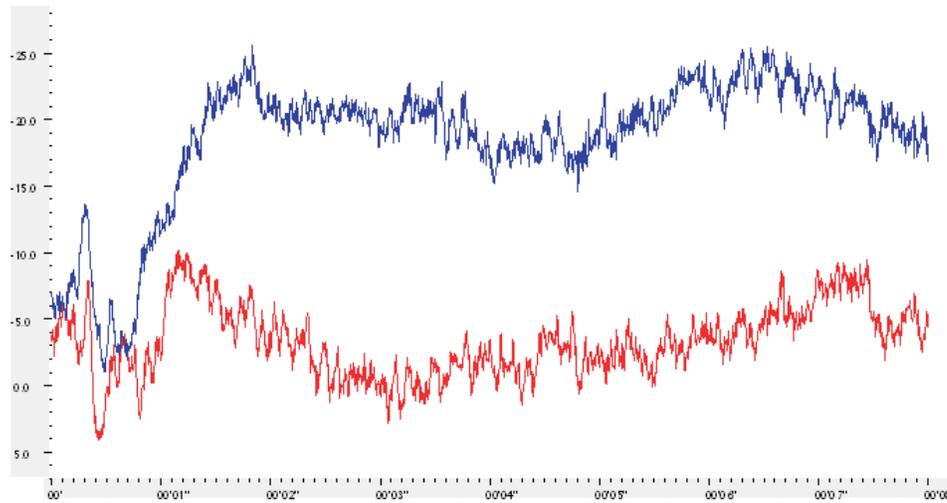
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BioTrace+ Physiological Report Version 0.99 (C) Mind Media Netherlands 2004/2005

Concise Client and Session information:

Client: John,Anderson [ID=120649]
 Session: SCP Trial 2
 Date Time: 3:53:56 PM 11/28/2005
 Duration: 10min57sec.

Averaged Response of channel 41: (Av.DC-EEG) over 8 Second Epochs.



2 types of EPOCHS have been found:

EPOCH type 1: Positive (feedback)
 EPOCH type 2: Negative (feedback)

Total number of Responses: 30.
 Total number of Responses: 35.

Samplerate of channel 41: 256 samples/sec.

This is a report indicating SCP changes averaged from 65 - 8-second trials. A simple image on the computer screen (not shown), a floating ball, represents the direction of the SCP signal. An arrow and a tone indicate to the participant which direction to try to direct the image. An up arrow with a higher tone means to make the ball float up and a down arrow with a lower tone means to make the ball float down. Trial conditions alternate in a semi-random pattern. Responses are averaged and the negativity condition (float up) is represented by the blue line and the positivity condition (float down) is represented by the red line. A successful series is shown, on average, by movement in the desired direction.

A STUDY OF SLOW CORTICAL POTENTIALS CONTINUED FROM PAGE 21

more specificity and flexibility to meet the needs of non-homogeneous client populations that also take into account changes in equipment and software characteristics that may affect the rate of skill acquisition and subsequent outcomes.

The author would like to thank Ute Strehl of the University of Tubingen in Germany, David Sever of Mind Alive, LTD in Canada, and Erwin Hartsuiker of Mind Media BV in the Netherlands for technical assistance in preparing this article.

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2006 ISNR RESEARCH GRANTS

David L. Trudeau, MD.

The research committee of the International Society for Neurofeedback and Research awarded two grants for 2006.

Joe Horvat Ph.D. and Jonathan Walker, M.D. will receive \$20,000 for a multisite study of TBI and EEG biofeedback. This study will also rely on substantial donations of equipment by Thought Technology. The study aims to estimate the efficacy of neurofeedback (NFB) to ameliorate neurocognitive symptoms in patients with traumatic brain injury. The primary outcome is total symptom score, measured on the neuropsychological symptom survey, the IVA, a patient constructed Primary Concern Scale and the Microcog. The authors hypothesize that patients assigned to NFB will exhibit significantly lower symptom scores as compared to patients receiving only standard care groups. The study will also examine changes in QEEG maps of patients treated with NFB for traumatic brain injury.

Graduate Student Andrew Hill of the UCLA, Psychology Department will receive a \$5,000.00 grant for his proposal "EEG Biofeedback Training of Lateralized Networks of Attention: What Actually Happens During EEGBF?" Proposal supervision will be by Dr. Eran Zaidel, Ph.D. and Dr. Jack Johnstone, Ph.D. The proposed research aims to vigorously assess EEG Biofeedback techniques in clinical use by combining assessment of ERP and spectral EEG with a new behavioral test of lateralized attention. This is especially important as clinical EEGBF practices differ widely regarding choice of left, right, and interhemispheric training.

Four other research proposals were considered for funding, and in all cases prospective investigators received valuable feedback from the research committee members and were encouraged to consider resubmission for the 2007 cycle.

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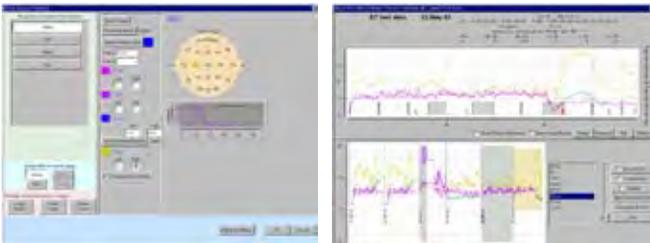
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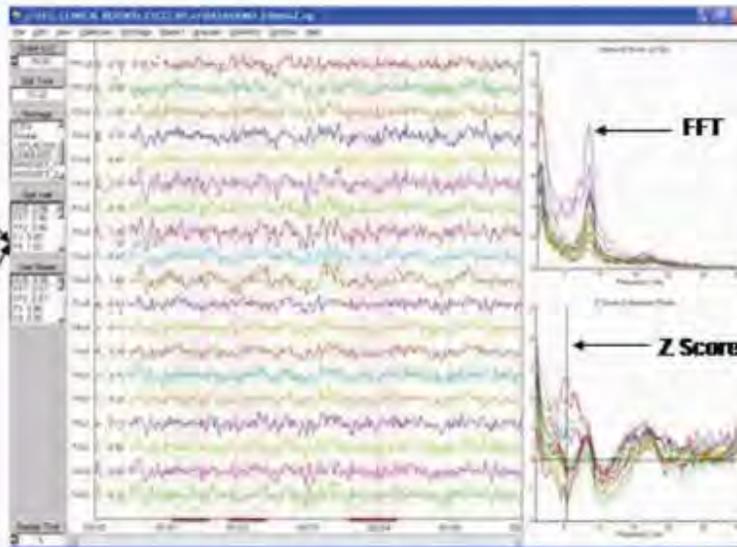
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MINDFULL

Sex Differences in the Brain

David Kaiser, PhD

A baby is born and the parents ask the doctors whether it has all its fingers and toes, but society (friends, onlookers) immediately pose another type of question: what type is it? Is it a boy or a girl? It is the only question fielded by all new parents. And the behavioral sciences are just as likely to ask it as Aunt Ethel and Uncle Joe are. Is it a boy or girl... who performed this act or made this choice or recalled this information? Gender comparisons are like the drunk looking for his car keys under a bright streetlight; the keys were lost in the dark alleyway but the light is so much brighter here. Because gender is so prominent, so easy to ascertain, surely it explains something if not everything.

Differences are important, especially when we adjust our decisions about someone's care based on differences they display from others (a norm, for instance), but as for the importance of sex differences I'm reminded of the advice given to me by my professor in playwriting. I confessed to him how I couldn't write a believable female character in any of my plays because I was unsure how any woman would think or act. He understood my dilemma and told me to resign myself to writing only male characters from now on, for the rest of my days, but with this point of advice: that I should give half of my male characters female names.

That was the best advice I was ever given about the sexes, perhaps far better than anything my parents had to share on the topic. But despite any behavioral commonalities, biological predispositions for each sex do exist. Our 23 pairs of chromosomes code for a number of sexual differences, within the brain and without. The most obvious in our species may be our physical size, sexual dimorphism it is called: adult males outweigh females by one-fifth on average, which is slight compared to gorillas and orangutans, but significant just the same; though we often forget how girls are larger than boys until puberty. Chromosomes also code for slightly larger brains in males, 1350 g to 1190 g, to help control the additional body mass (Klekamp et al 1989, Zilles, 1972; Wessely, 1970; & Witelson, 1985). The

major axonal bundles between left and right cortices, the corpus callosum, also reveal sex differences but more importantly handedness seem to mediate these differences. Right-handed individuals show less callosal area than non-right-handers, regardless of gender, 20



age and ten years after that another 6 were added to our collective lives thanks to hygiene and obstetrics, primarily. By 1954 the median age of death was 70, 75 by 1992. But most interesting in terms of gender is the uniqueness of our age. We are living in a phase of human history that may never be seen again, which seems so normal to us but is foreign to our species' history. In 1900 half of the elderly were men, and in 2040 half will be men again, but right now two-thirds

DIFFERENCES ARE IMPORTANT, ESPECIALLY WHEN
WE ADJUST OUR DECISIONS ABOUT SOMEONE'S
CARE BASED ON DIFFERENCES THEY DISPLAY FROM
OTHERS...

% less in males, 7 % less in females.

In terms of relative brain size, women have larger language areas, lateral frontal areas and more densely packed neurons in temporal and prefrontal areas (Harasty et al, 1997; Schlaepfer et al, 1995; Witelson et al., 1995; 2001, respectively). Men show larger medial frontal areas, as well as larger cingulate, amygdala and hypothalamus, more white matter volume, and more neurons overall (Goldstein et al, 2001; Paus et al 1996; Swaab et al, 1985; Gur et al., 1999; Pakkenberg & Gunderson, 1997, respectively). But anatomy can only take us so far in understanding the differences between men and women. Behavior is where the real action is or where the real confusion begins.

The simplest measure of behavior is quantity and in this century most of us will see twice as many days as our ancestors saw. Median life span during prehistoric time was less than 18 years, 20 in Aristotle's Greece, 33 in the Middle Ages, and merely 35 years when America was first settled. I am 41 years old and would be nearing the ends of my days in 1850. But 50 years later I would have 6 more years before my death on aver-

of the elderly are of the fairer sex.

In terms of specific behaviors men throw and catch better (Hall & Kimura, 1995) and women perform better at fine motor skills (Nicholson & Kimura, 1996). Men surpass women in mental rotation, navigation, and geographical knowledge (Collins & Kimura, 1997; Astur et al, 2002; Beatty & Troster, 1987, respectively), which is why we hate to ask directions; but females excel at spatial memory (McBurney et al, 1997), so they can better remember those directions. Girls have an early advantage over boys in math and show excellence at computation (Hyde et al, 1990) but men catch up and eventually excel at mathematical reasoning (Benbow, 1988). Women excel at sensory sensitivity (Velle, 1987), perceptual speed (Majeres, 1983), facial and body expression (Hall 1984), as well as visual recognition memory (McGivern et al, 1998) whereas men excel at aggression, if such a phrase is not oxymoronic.

Aphasia is nearly 4 times as common in males after left hemisphere damage than in females (48% in males vs. 13% in

Continued on page 26

MINDFUL CONTINUED FROM PAGE 25

females), suggesting bilateral representation of language in women and unilateral representation in men. But organizational differences may be more intra- than inter-hemispheric. Aphasia occurs in women in response to left-sided anterior damage

are mostly active on the left side (EEG, Corsi-Cabrera et al, 1997; MEG ,Reite et al, 1995, fMRI, Rossell et al., 2002) while women show a more symmetrical pattern (Rossell et al., 2002).

We are now well aware of how cultur-

terhemispheric (e.g., females have greater callosal connectivity) or intrahemispheric (e.g., dominance of verbal processes over non-verbal processes in the male left hemisphere)? Might they be strategic and transitory, such as when women employ verbal strategies for spatial tasks? Might some other chromosomal-driven variation play a major force behind what we observe, such as maturation rates, handedness, cognitive style, or hormonal differences?

Speaking of hormones, we could follow Norman Geschwind's example of 40 years ago and blame the differences on testosterone. Too much testosterone led to war, within oneself as well as without, according to him. It's a handy scapegoat and those are hard to come by. Or we could back up another 40 years to Freud and blame the parents. Hey, why not? It's Mom and Dad's fault that I have trouble with empathy or with asking directions. It works for me... 

WE ARE NOW WELL AWARE OF HOW CULTURAL
INFLUENCES CAN MAGNIFY ANY SLIGHT UNDERLYING
TENDENCIES SO THAT IT IS EASY TO REEL OFF
A LIST OF GROSS SEX DIFFERENCES...

(80 % of cases) but no unique lesion location is associated with aphasia in males (all are equally as good or bad on the left side). Similarly apraxia, which is difficulty in enacting or selecting purposeful hand movements, is associated with left frontal damage in women and with left posterior damage in men. During language tasks men

al influences can magnify any slight underlying tendencies so that it is easy to reel off a list of gross sex differences, for instance, as I have shamelessly done; but in terms of understanding brain organization we must be careful not to underestimate commonalities and always try to consider why we see what we see. Are sex differences in-

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SUMMARY FROM ATLANTA'S CLINICAL CORNER SESSIONS



Addiction

Nancy White Ph.D.

Ten members, including Nancy White as moderator, met to discuss their approaches and protocols for dealing with addictions. The conversation focused mostly on substance abuse and the need for broad reregulation of the neurobiological system as a prerequisite to lasting success. This was the theme that emerged during the meeting and indicated the need for a broad-based approach in the outpatient setting, as opposed to using alpha-theta alone (Peniston's subjects were inpatients).

Several of the participants described the broad-based protocols they used. Although specific practices varied they seemed to include common elements in addition to alpha-theta neurofeedback therapy, such as:

- Some type of nutritional regimen, including supplements. Procedures ranged from removal of common allergens (gluten, casein, lactose) from the diet to amino acid therapy to rebalance neurotransmitters. This frequently indicated the need for some combination of blood or urine work, quantitative EEG or physiological workup.
- A baseline measurement against which to assess change, usually some form of examination or psychological testing, administered before treatment and at its conclusion.
- A program approach that included such adjunctive modalities as cranial electrical stimulation (CES) mild exercise (tai chi, yoga) and biofeedback (e.g. HeartMath) that kept the client engaged for several hours at a time. Sometimes the qEEG indicates a special need to be addressed prior to – or concurrent with - alpha-theta.

ADHD at ISNR 2006

Edward H. Jacobs, Ph.D., Londonderry, NH

The clinical corner on ADHD had 10 attendees. We began with a discussion of starting neurofeedback protocols. There was a general consensus about starting training on the central sensory-motor strip, with C4, C3 and CZ as sites. We then discussed how long to maintain the same protocol when there is no apparent change in the client, before changing the protocol. There was discussion about staying with the same site and frequency bands for 5-10 sessions before making a change. Some practitioners take a more conservative approach, staying with the same protocol longer, while others change more quickly if no progress is noted. We discussed the advisability of first changing the frequency range of training before changing the training site in order to get a treatment effect.

One interesting training difference was between those who trained with reward and inhibit thresholds and one attendee who trained using percentages, rewarding the client when his or her SMR (12-15 HZ) percentage of the total EEG increased. The group discussed whether their equipment could be set up for this type of training.

The group then discussed where to train after the initial central strip training; whether to move forward or back on the head. There was discussion of using parietal sites to help control hyperactivity, such as PZ or P3-P4 with an alpha reward (8-11 Hz or 7-10 Hz).

We discussed ways to get hyperactive children settled in the office, including how to calm the child, and using a weighted vest (such as a children's lead dental vest), and how the parent's report about a child's misbehavior could affect the child's mood and behavior and provide a distraction to training.

Some discussed the use of other technologies, such as AVE, which can be rented out to the parents for home use, and psychotherapy. We discussed tracking symptoms and keeping track of when a child has made significant gains and has plateaued as an indication of when to stop. We discussed a 10 session period in which the child has maintained significant gains as an indicator of a good time to stop treatment.

UPCOMING CONFERENCES

- Australian Association for Applied Psychophysiology and Biofeedback in conjunction with ISNR-Pacific Rim Chapter, Sydney, Australia November 2-10, 2006
- Biofeedback Society of California 32nd annual conference Friday, November 3, 2006 8:00 AM; Sunday, November 5, 2006 12:00 AM; San Francisco, CA
- International Neuropsychological Society 35th Annual Meeting February 7-10, 2007 Portland, Oregon, USA
- Futurehealth Winter Brain Conference 15th Annual Meeting January 19-22, 2007 Palm Springs, CA
- Association for Applied Psychophysiology and Biofeedback 38th Annual Meeting Thursday, February 15, 2007-Sunday, February 18, 2007 Monterey California
- Biofeedback Foundation of Europe 11th Annual Meeting, Berlin, Germany, February 27 to March 3, 2007
- International Neuropsychological Society Midyear Meeting July 4-7, 2007 Bilbao, Spain

**DEAR ISNR MEMBERS
AND FRIENDS,**

As most of you already know, I've resigned from iSNR. I want to acknowledge with deep thanks your many kindnesses to me during the years I worked for iSNR and the *Journal of Neurotherapy*. I am most grateful for the many opportunities to grow, learn, and best of all, to work with dedicated people at all levels—clinicians, researchers, vendors, people who'd just heard about neurotherapy and wanted to learn more, parents looking for a therapist to work with their child, students eager to enter the field.

The holistic side of neurotherapy always fascinated me. I saw it work for my mother when Carla Hickey and Debi Elliot in Boulder worked with her on the pain from osteoarthritis in her back. She went from needing a cortisone injection in her back every six weeks to one every six months.

I'll miss being involved in the growth and evolution of iSNR and the *Journal of Neurotherapy*. It's been an integral part of my life for eight years. Although I've made the decision to move on, I still believe in iSNR and the Journal. I believe both will remain vital contributions to the field of neurotherapy to the extent that all of its members are actively involved.

Thank you for the opportunity to be a part of the evolution of iSNR and the Journal. Please accept my very best wishes for both and for every individual member.

Sincerely,

Darlene Nelson

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This year the conference committee decided to try something different for the Research Fund fundraiser. Two Dell laptop computers were purchased for use at the conference in the Cyber Café then raffled to two lucky winners. We appreciate all of our generous conference attendees who purchased raffle tickets. Those of you who didn't win a laptop are still winners through your contribution to the ISNR Research Fund. The lucky winners of the raffle drawings were Teresa Andreoli and Linda Rhees. 



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Gabriele Gratton, MD, PhD

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Brain Activation Using Real Time fMRI (rtfMRI) with Resultant Changes in Behavior (1 hour)
Christopher deCharms, PhD

K-4 KEYNOTE: New Directions in the Results of Analyses of the EEG (1 hour)
Karl Pribram, MD

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LORETA Neurofeedback: A Cortical-Subcortical Comparison (40 minutes)
Rex Cannon, BA & Joel Lubar, PhD

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David S. Cantor, PhD

I-2 INVITED: Relationship of qEEG Comodulation Findings in TBI and Congenital Vascular Anomalies to Recent Concepts of Brain-injury Biomechanics. (60 minutes)
M. Barry Serman, PhD

I-3 INVITED: A new QEEG, ERP Database and its Application for Neurofeedback and Transcranial Direct Current Stimulation (1 hour)
Juri Kropotov, PhD

I-4 INVITED: Transcending the DSM Using Phenotypes (1 hour)
Jay Gunkelman, QEEG-D

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WS-10: Advanced Applications of QEEG & Other Electrophysiological Techniques (3 hours)
David S. Cantor, PhD

WS-12: Mild Traumatic Brain Injury & Coherence Training (3 hours)
Joseph J. Horvat, PhD

WS-22: QEEG-Based & Symptom-Based Treatment Protocols for Neurofeedback Training (3 hours)
Jonathan Walker, MD

WS-25: Combining HRV, Breath & EEG Alpha Asymmetry Training: An Integrated Model for Successful Treatment of Depression (3 hours)
Roger Riss, PsyD, Elsa Baehr, PhD, & Dee Edmonson, RN

WS-27: Assessing & Correlating Behavior with qEEG Patterns Using the Interactive Self Inventory (3 hours)
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Hershel@biocomp.mpowermail.com
www.biocompresearch.org

Bio-Medical Instru- ments, Inc.

Brian Milstead
2387 East Eight Mile Road
Warren, MI 48091
800-521-4640
586-756-9891 fax
sales@bio-medical.com
www.bio-medical.com

BraInquiry Kamran Fallahpour

263 West End Avenue, #1D
New York, NY 10023
212-877-2130
212-937-2399 fax
kfneurocog@aol.com
www.brainquiry.com

BrainMaster Technologies, Inc.

Thomas Collura
24490 Broadway Avenue, #2
Oakwood Village, OH 44146
440-232-6000
440-232-7171 fax
tomc@brainm.com
www.brainmaster.com

BrainTrain

Joseph Sandford
727 Twin Ridge Lane
Richmond, VA 23235
804-320-0105
804-320-0242 fax
braintrain@braintrain.com
www.braintrain.com

Deymed Diagnostics

Doug Youngberg
1720 7th Avenue North
Payette, ID 83661
208-642-9300
212-504-3290 fax
douglas@deymed.com
www.deymed.com

EEG Info

Kurt Othmer
22020 Claredon, #305
Woodland Hills, CA 91367
818-373-1EEG (1334)
818-373-1331 fax
kurt@eeginfo.com
www.eeginfo.com

EEG Spectrum Inter- national

Ellen Vash
21601 Vanowen Street, Suite 100
Canoga Park, CA 91303
800-400-0334
818-728-0944 fax
evash@eegspectrum.com
www.eegspectrum.com

Electromedical Prod- ucts Intl.

Daniel Kirsch
2201 Garrett Morris Parkway
Mineral Wells, TX 76067-9484
800-367-7246
940-328-0888 fax
dan@epii.com
www.alpha-stim.com

J&J Engineering

Jan Hoover
22797 Holgar Court NE
Poulsboro, WA 98370
360-779-3853
970-697-4435 fax
engineer@jjengineering.com
www.jjengineering.com

New Mind Neurofeedback Center

Richard Soutar
770 Old Roswell Place, A-300
Roswell, GA 30076
770-649-8630
770-649-8630 fax
goodmind@bellsouth.net
www.newmindcenter.com

Nova Tech EEG, Inc.

Leslie Sherlin
8503 E. Keats Avenue
Mesa, AZ 85208
480-797-9304
lesliesherlin@aol.com
www.novatecheeg.com

Peak Achievement Training

Jonathan Cowan
1103 Hollendale Way
Goshen, KY 40026
502-228-0605
502-228-5228 fax
jon@peakachievement.com
www.peakachievement.com

Q-Metrx

Jack Johnstone
1612 W. Olive Street, Suite 301
Burbank, CA 91506
818-563-5409
818-842-2043 fax
jack@q-metrx.com
www.q-metrx.com

Real Time Feedback, Inc.

Margaret Ayers
427 N. Canon Drive, Suite 105
Beverly Hills, CA 90210-4840
310-276-9181
310-275-7894 fax
margaret@neuropathways.com
www.neuropathways.com

Roshi Corporation

Chuck Davis
4806 10th Avenue, Suite 4
Los Angeles, CA 90043
323-292-2550
roshicorp@roshi.com
www.roshi.com

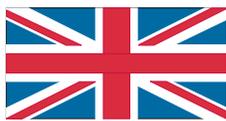
NEUROFEEDBACK RESEARCH AROUND THE WORLD

Swiss government funds neurofeedback research



A Swiss research group headed by Dr. Andreas Müller, in collaboration with university research groups in Norway and Macedonia, have received funding for a three year investigation of *EEG-defined subtypes of ADHD in adults*. The planned study will identify EEG and ERP clusters within a sample of adults with attention-deficit hyperactivity disorder. The identification of distinct EEG-defined subgroups of adults with ADHD would have considerable value for the use of EEG in the assessment and diagnosis of ADHD.

Neurofeedback research awards in the UK



A 4-year award from the Economic & Social Research Council will support an investigation of neurofeedback and stroke recovery. Student investigator Helen Brinson, is supervised by Karina Linnell and John Gruzelier of Imperial College, London. A three -year National Endowment for Science, Technology & Arts award is underway in collaboration with Trinity College of Music to apply neurofeedback to novice musicians of all ages.

German ADHD study receives award



Dr. Ute Strehl and Dr. Hartmut Heinrich have been awarded the 2005 Kramer-Pollnow Award for their research on neurofeedback and ADHD. The Kramer-Pollnow Award, funded by a European pharmaceutical firm, acknowledges outstanding research achievements in the field of Biological Child and Youth Psychiatry. Dr. Strehl, from the Institute of Medical Psychology and Behavioral Neurobiology, University of Tübingen, has been a past presenter at AAPB.

Canadian neuroscientists demonstrate efficacy of neurofeedback



An fMRI study of effectiveness of Neurofeedback for treatment of ADHD has been accepted for publication in *Neuroscience Letters*. Dr. Mario Beauregard and associates Johanne Levesque and Boualem Mensour reported fMRI data demonstrating that neurofeedback training has the capacity to normalize the functioning of the anterior cingulate cortex, the key neural substrate of selective attention.

Open-VIBE receives major funding in France



Marco Congedo and his colleagues have been awarded a three-year grant for a research project to support development of a software system for three dimensional real time feedback of brain activity, to support brain computer interface and neurofeedback training applications. The project, called Open-VIBE, received initial funding through an ISNR research grant.

Neurorehabilitation at National Institutes of Health



Dr. Niels Birbaumer, University of Tübingen, Germany and Leonardo Cohen, MD, Director of the NIH's Cortical Physiology Unit in Bethesda Maryland, collaborated on a phase one investigation of magneto-encephalographic biofeedback training of the motor cortex to promote recovery of upper limb function following stroke. Previous studies by Dr. Cohen's group suggested that transcranial magnetic stimulation and transcranial direct current stimulation of the motor cortex could develop into useful adjuvant strategies in neurorehabilitation.