Highlights of the Annual Meeting in Raleigh
This Summer 2001 issue of the Biofeedback Newsmagazine includes a rich variety of articles, hopefully something for every reader! I am grateful to our authors, editors and reporters for making this issue possible.

Seb Striefel opens the Professional Issues department by exploring new issues that emerge when behavioral professionals work in the primary care clinic. John Perry describes practical progress in biofeedback telemedicine. A demonstration at AAPB’s annual meeting in Raleigh showed that telemedicine works now for several biofeedback applications.

Feature articles this issue includes an article by Jeffrey Leonards conveying a vision of a partnership between behavioral medicine and primary care. A team of six authors from Mexico, led by Benjamin Dominguez Trejo, describes their fascinating research project with survivors of Hurricane Pauline, using psychophysiological monitoring in assessing victims, and using stress management education to reduce the traumatic effects of the disaster. Jeffrey Bolek describes innovative ongoing work at the Cleveland Clinic’s motor control program using surface electromyography in pediatric rehabilitation.

Christopher Edwards and Wendy Webster give us a glimpse of the person behind the research, in their biographical article on Robert Freedman. Dr. Freedman has pioneered in the investigation of physiological mechanisms in human thermoregulation, with applications to Raynaud’s syndrome and menopausal hot flashes. John Perry also provides a personal tribute to William Farrall (1929-2000), founder of Farrall Instruments. Bill Farrall was a creative engineer who remained involved in the evolving field of biological monitoring from the late 1960’s into the 1990’s. He contributed significantly to the fields of sexual function research, therapy for pedophiles, and incontinence therapy, among many others. He will be missed!

Jeffrey Cram contributes a technical note, describing the need to calibrate the “Myoscan™ EMG sensors used on several instrumentation systems. The Biofeedback Newsmagazine now welcomes “technical notes” on any currently used biofeedback instrumentation and software. The objectives of technical notes are: 1) to assist practitioners in mastering the use of specific instruments or software, 2) to address technical problems such as artifact or calibration, or 3) to discuss problems in adapting a device to specific patient groups or disorders.

David Wakely reviews an edited volume on cancer patients and their families, with articles focusing on disease course, coping strategies, and psychological interventions. Colleen Shaffer provides a review of two books on menopause, and recommends both for client use. We welcome volunteers to review new books on biofeedback, applied psychophysiology and behavioral medicine. We also welcome suggestions on books to be reviewed.

The Program Highlights section provides summaries of presentations from the AAPB 2001 Annual Meeting in Raleigh Durham, North Carolina, and photo glimpses of the meeting.

Finally, the Association News and Events section carries information about many exciting developments taking place within AAPB this year. It is important for every reader to learn about AAPB’s new Home Study Program, as well as a new AAPB arrangement with the Digiscript company providing online audio-visual access to about twenty hours of AAPB’s 2001 annual meeting. The President, Executive Director, President-Elect, and Membership Chair also have messages for the membership. Finally, don’t miss the announcement of a new special fund-raising campaign to provide additional student scholarships for future annual meetings.
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Articles should be of general interest to the AAPB membership, informative and, where possible, factually based. The editor reserves the right to accept or reject any material and to make editorial and copy changes as deemed necessary.

Feature articles should not exceed 2,500 words; department articles, 700 words; and letters to the editor, 250 words. Manuscripts should be submitted on disk, preferably Microsoft Word or WordPerfect, for Macintosh or Windows, together with hard copy of the manuscript indicating any special text formatting. Also submit a biosketch (30 words) and photo of the author. All artwork accompanying manuscripts must be camera-ready.

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About the Authors, Winter Issue 2001
Emerging Ethical Issues in Primary Care
Sebastian “Seb” Striefel, PhD, Logan, Utah

Abstract: The primary care service arena offers many opportunities for the biofeedback practitioner who is informed and competent. He or she should be aware of, and able to deal with, the existing and emerging ethical and practical issues related to services within primary health care. Areas of interest include issues of competence, published support for interventions used, confidentiality, advocacy and support, and integrated treatment.

Introduction
Kiesler (2000) pointed out that behavioral health programs (i.e., mental health and substance abuse treatment) have not been integrated with medical health care for 88% of managed care populations. Generally behavioral health programs (which would generally include biofeedback and other applied psychophysiology) have been covered by separate contracts called “carve-outs.” He then argues that several studies show that dollars could be saved by integrating behavioral health programs into general health care creating “carve-ins.” Doing so will be more efficient because there would be only one entry point into the whole health care system and patients would access whatever services they need from multidisciplinary teams of cooperating professionals. He predicts a rapid shift to “carve-ins,” which has many implications for biofeedback practitioners. The implications include issues of competence in additional areas, published support for the interventions used, confidentiality, advocacy and support, and treatment integration.

Competence
Most non medical practitioners have been inadequately trained to function in primary health care settings where the emphasis is on collaborative care models, cost-effectiveness, solution-focused and time-limited activities, and outpatient services (Twilling, Sockell, & Sommers, 2000). Biofeedback practitioners need to be prepared to work collaboratively with physicians to provide biofeedback and other applied psychophysiological services for certain aspects of both acute and chronic diseases. Being located in the same office complex as the primary care physician is an advantage in that it provides opportunities: to become personally acquainted with physicians; to educate them about the skills of a biofeedback practitioner; to be easily accessible for an immediate referral, assessment, treatment, or consultation; to learn what the other professionals in the primary care practice do, and the constraints of time that they regularly encounter; and to increase efficiency and therefore cost-effectiveness. Biofeedback should be attractive to both primary care physicians and managed care companies because it is solution-focused, objective data is readily available demonstrating the outcomes achieved, most applications are time-limited, and the cost of health care may well be reduced (Twilling et al, 2000). All of these are desirable goals. There is still a strong need for educating primary care physicians and third-party payors about the utility of biofeedback and other applied psychophysiological interventions.

The Association for Applied Psychophysiology and Biofeedback (AAPB) has for the last several years been providing workshops on biofeedback in primary care settings in an effort to increase competence. Have you attended one of these workshops yet? Perhaps you should, if you are going to survive as an ethical practitioner in the 21st Century.

Missing Ingredients
Some missing ingredients still exist. First, there is a need for more review papers that attest to the effectiveness and efficiency of biofeedback treatment. Vye, Leskela, Rodman, Olson and Mylan (2001) reported that there is also an increasing emphasis or developing practice guidelines that encourage service delivery that is consistent with the existing treatment outcome literature. A paper by McGrady, Andrasik, Davies, Striefel, Wickramasekera, Baskin, Penzien, and Tietjen (1999) on the treatment of chronic headaches, published in Primary Care where physicians are likely to see it, is one example of a published review paper that can be used by practitioners, consumers, third-party payors and other professionals. Another series of reviews was published about five years ago in the journal, “Professional Psychology: Research and Practice,” by members of AAPB on several topics. Copies of these papers and their exact references are available from the AAPB’s publication catalog. The AAPB started to revise and update its White Papers on various biofeedback applications several years ago. To date, those papers have not been finished, and thus, are not readily available for dissemination to the membership or other professionals. Such papers would receive more visibility if published in the journal of Applied Psychophysiology and Biofeedback or other appropriate journals. Such papers could serve to provide another missing ingredient, which is to educate physicians and third-party payors on the
utility of biofeedback as a treatment component in the management of both acute and chronic conditions. A survey of Health Maintenance Organizations (HMOs) by Chow (1997) reported that third-party payors will pay for a service, such as biofeedback, if enough of their clients ask for the service. At the time of that survey, the clients of only 21% of the HMOs were requesting biofeedback services. More public education needs to be done to encourage clients to ask for such services.

It is unethical to fail to inform clients about the treatment of choice for their disorder, and about risks and benefits associated with that treatment, if an effective treatment of choice is available. Clients should also be informed about the major treatment alternatives and their risks and benefits. One dilemma faced by health care professionals, in general, is the lack of a consensus on what the treatment or treatments of choice are for many of the conditions that they treat. As such, the most common basis for recommending specific interventions, e.g., biofeedback or medications, is that there is some level of published support for use of the recommended treatment. Practitioners also rely on their own past experience in terms of what treatments worked with clients with similar disorders. Practitioners need to have a rationale for recommending a specific treatment to a client. That rationale is strengthened if it is based, at least partially, on the published literature.

For how many conditions is biofeedback the, or one of, the treatments of choice? For what conditions that you treat is there published support? Those conditions that are treated with biofeedback where there is little or no support would be considered non-validated; clients should be so informed during the informed consent process. Clinical practice generally includes some non-validated treatments because competent practitioners often see how a specific treatment might well apply to conditions where research support is, to date, still lacking. This is one of the practical realities of clinical practice and one of the factors that identifies areas where research is needed. Research also identifies new applications that can be used clinically. Clients need to be able to make informed choices. As such they need to be aware of the rationale and support that exist for a treatment recommended by a practitioner.

What literature can you cite, to support biofeedback or other applied psychophysiological intervention, as the treatment of choice, as a supported treatment, or as a non-validated treatment but one where a reasonable rationale exists? The increasing ethical emphasis on the need to provide the treatment of choice for clients, also underscores the importance of having more published papers available to attest to biofeedback’s effectiveness (Striefel, in press). Without such papers, providing true and meaningful informed consent can be difficult because the published literature is often confusing, and contradictory results are sometimes reported. These contradictory results are often due to differing methodologies, differing research subject populations, and differing durations of treatment. Freedman (1993) reviewed much of the existing literature on Raynaud’s disease, and concluded based on that review — and on some of his own research — that skin temperature biofeedback plus training while the hands are being cooled now appears to be “the most efficacious treatment for primary Raynaud’s Disease” (p. 263). It should be noted that the medication of choice at that time was nifedipine, a calcium slow-channel blocker which decreases vasoconstriction (Freedman, 1993). Are Freedman’s conclusions still valid today?

How many similar conclusions are you aware of that could be used by practitioners to support an argument that biofeedback is the, or one of, the treatments of choice for treating an acute or chronic condition? If you are not aware of such published support for the treatments that you provide, you must inform clients of such factors to obtain meaningful and ethical informed consent? See Striefel’s (1998) presidential address for more information on issues related to the need for more research and education of the public and professionals alike on the utility of biofeedback.

**Confidentiality**

As more and more use is made of technology, such as computers and the Internet, the risk of confidentiality violations increases. For example, electronic billing has become very common. A practitioner has no control over what happens to the information once it leaves his or her office. Increasingly information supporting the billings is being placed into centralized data banks accessible by people not involved in the client’s treatment. Are your clients being informed of the risks of information going into centralized computer banks that can be accessed by others? Raw (2001) reported that a hacker recently downloaded the files of 5,000 clients from the University of Washington Medical Center in Seattle. If you have client records on a computer hooked to the Internet, do you have the appropriate security measures to prevent someone from accessing your clients’ files? You should have the appropriate security measures in place, e.g., passwords, encrypting, etc.

**Advocacy and Support**

The membership of AAPB is relatively small (around 2000), and thus the financial and people resources available for promoting biofeedback and applied psychophysiology are limited. One mechanism that can magnify advocacy and support efforts are the joining of a “guild” (or labor union) as was done recently by AAPB members in New York and New Jersey (one contact is Susan Antelis at bionet53@yahoo.com).

Raw (2001) reported that pediatricians, clinical social workers, medical doctors, optometrists, acupuncturists, practitioners of Oriental medicine, pharmacists, optometrists, and biofeedback practitioners have joined the Office of Professional Employees International Union which is affiliated with the American Federation of Labor - Congress of Industrial Organizations (AFL-CIO). A group the size of the AFL-CIO has an immense level of bargaining power with third-party payors. It will be important for biofeedback practitioners who belong to the guild to educate other professionals and members of the AFL-CIO as to the utility of biofeedback and to ask for such treatment to be included in contracts with third-party payors.

AAPB can help in this effort by making written information and expertise available.
I am pleased to report that the world’s first “public” demonstration of a remote evaluation of “private” pelvic floor muscles was a smashing, resounding success! It worked flawlessly.

On Sunday morning, in front of a large audience at the AAPB Convention in Raleigh, NC, I conducted a live “evaluation” of the pelvic muscles of a female “patient” who was sitting in front of her computer in San Jose, California on the other side of the continent.

Microsoft’s standard “NetMeeting” program provided live two-way audio and video (“web-cam”) connection, and the TeleVital’s Internet software provided the biofeedback program — all at the same time. The simultaneous video and audio were extremely valuable for observing patient postural shifts and other artifacts that would appear in the EMG graphs. For demonstration purposes, we used a “wireless” T-1 internet device at the convention hotel, but the same set up has been used with a 56K dial-up modem with good results.

The pelvic evaluation was conducted using a new “Glazer-Perry Protocol” designed for evaluating pelvic muscle dysfunctions, such as incontinence and vulvodynia. In addition, Naras Bhat demonstrated a Cardiac biofeedback program and Yair Lurie demonstrated an EEG session using the same subject. The entire demonstration was LCD-projected on a screen for everyone to see.

Some years ago a European Psychologist commented on a virtue of my then-new inserted vaginal EMG sensor. Referring to our ability to assess this private part of the body without personally invading the patient’s privacy, he said, “It’s amazing. You can actually ‘be there’ without ‘being there’. ” Now it appears that we can even ‘be there’ from a very safe distance of 3,000 miles.

The system still has some technological “rough edges.” For instance, there was often a nearly 1-second delay in video updates, and the audio speakerphone, set up for benefit of the live audience, produced an echo. But the biofeedback itself functioned flawlessly and the audience was quite impressed. It should be obvious that modalities that do not require rapid refresh rates (such as EMG, temp, etc.) easily fit within the available Internet bandwidth, whereas multi-site EEG is still somewhat constrained.

The TeleVital system presently works with biofeedback hardware from J&J, Thought Technology, and East3, with more to come. One of these devices is connected to the patient’s computer’s serial or USB port, and everything else is handled by JAVA-based software residing on the TeleVital website. All session data is processed and stored on the TeleVital site as well, and is available at any time for review by the clinician.

In addition to clinician-to-patient connections, it is also possible to have a three-way supervisor-clinician-patient set up for therapist training or supervision purposes. The same set up can also be used by a single patient for “at home” practice. In that case, the therapist can later log in to review all the practice graphs and statistics.

In the current programs, the therapist (or the supervisor) can control the gain and speed (x and y axes) of the display on the fly, and the changes are immediately reflect-
Behavioral Medicine and Primary Care: Greater Collaboration in the New Millennium

Jeffrey T. Leonards, PhD, Farmington, Maine

Abstract: There is abundant literature documenting the relevance of psycho-behavioral factors in the pathogenesis and treatment of medical conditions. Despite this, primary care providers have tended to remain committed to biomedical therapies, frequently overlooking behavioral interventions that in the long term could enhance clinical efficacy with their patients. This article reviews mounting evidence to support working partnerships between family and behavioral practitioners, especially as managed care encourages efficiency, effectiveness, and accountability from health care networks. Such interdisciplinary alliances are conceptualized as integrated delivery systems that not only optimize treatment outcomes, but also provide insurers with a greater capacity to control costs.

Introduction

Historically, psychotherapy and medicine have operated as entirely separate disciplines with divergent philosophies, segregated work settings, and little more than perfunctory communication between them. Such a split is best understood by considering the analytic and rather esoteric approach of early psychotherapy in contrast to the positivistic and empirical approach of 20th century medicine. Though still resilient, the historical division between medicine and mental health began to lose its philosophical justification as behaviorism attempted to legitimate its theories through the same type of scientific rigor as modern medicine (Kazdin, 1978). Research methodology and experimental design have become cornerstones of graduate psychology programs and have spawned an enormous literature on neurobehavioral and psychophysiological disorders having profound implications to the field of medicine (e.g., Knesper, Riba, & Schwenk, 1997). The long held stigma of the behavioral sciences being considered irrelevant to primary care medicine has given way to epidemiological, treatment, and prevention research in which behavioral interventions have proven pivotal to medical outcome.

Behavioral medicine, as a health-care discipline, was born out of this research and has demonstrated its utility in offering an important, yet largely missing, dimension to primary care medicine. The time now seems particularly ripe for alliances between these two disciplines. Friedman, Sedler, Myers, and Benson (1997) point out that integration of behavioral and biomedical care is not only compatible with current changes in health care, but that integrated delivery would provide clinical and economic benefits to both patients and society. Though many in the mental health profession have felt victimized by managed care, it could be that managed care itself which, in the effort of promoting “one-stop shopping” and brief, yet cost-effective treatment, may actually be leading to more opportunities for behavioral practitioners in primary care and even specialty medical clinics (Bray & Rogers, 1998; Rabasca, 1998). This momentum suggests that the 21st century will bring strong growth to the field of behavioral medicine (Feinstein & Brewer, 1998) along with increased use of and need for applied psychophysiological interventions.

Historical Perspective

Behavioral medicine refers to the ipso facto relationship between mental health and medical well-being. Mostofsky and Piedmont (1985) point out that as a discipline behavioral medicine is a very recent outgrowth to the centuries-old approach to medical care that has been referred to as allopathic medicine. Allopathy encompasses the more familiar, westernized approach to medicine with techniques and protocols commonly identified as the “medical model.” It is worth remembering, though, that allopathic medicine has a significantly different orientation, philosophically and pragmatically, than what people were exposed to in earlier times. Consider that in the days before the terms “physician” and “medicine” were even conceptualized, people in poor health might have consulted with an esteemed religious figure or spiritualist for relief from their suffering. Suffice it to say that most patients today are inclined to visit not their cleric, but a primary care physician (PCP) for diagnosis and treatment. Generally, this approach will account for some degree of problem resolution, often considerable.

When a patient fails to respond as expected to medical intervention, however, there is frequently concern about somatization, hysteria, or even malingering. A patient will often report that their doctor now believes the problem to be “all in my head.” Instead of a medical problem, the diagnostic formulation changes to a psychiatric disorder with the assumption that the problem in question is no longer medically credible and therefore a waste of valuable physician time.
and resources. To believe that whatever fails to show up in the body must be an artifact of the mind suggests reasoning dating back to the writings of Rene Descartes. What then became known as Cartesian dualism provided the philosophical basis for what many now recognize as an arbitrary division between medicine and psychology. Nevertheless, this split between body and mind, medicine and psychology, has typified the 20th century medical model, and has promoted a dichotomous rather than integrated delivery network which behavioral medicine endeavors to change.

Problems with the Traditional Practice of Primary Care

Some of the shortcomings endemic to the traditional primary care model can be illustrated by considering the plight of a hypothetical patient with a long-standing pain condition. In an attempt to diagnose the cause of pain, most such patients, at least initially, receive considerable attention from the medical community, including referrals to neurology, psychiatry, orthopedics, and possibly even physical therapy. Let us assume that this is like so many cases involving soft tissue injuries where, despite a multitude of studies (EMG, MRI, CT, NCS, etc.), pathophysiology remains uncertain. Usually by that point, considerable time has elapsed with secondary gains now reinforcing both pain behaviors and disability. The PCP, feeling somewhat at a loss, may begin a lengthy process of outpatient pharmacotherapy as the primary, if not exclusive treatment. Only after considerable time and expense with perhaps little, if any, improvement in patient symptomatology might the physician be inclined to then perceive the problem no longer as medical, but psychological (or in worker’s compensation cases, possibly even a case of malingering).

Whether or not such assumptions have validity, referral to a behavioral specialist is often a “last resort” intervention, sometimes occurring years later, which may then communicate to the patient that the doctor has given up, that the patient’s symptoms (in this case, pain) are no longer credible. The pain has now shifted from being interpreted biologically to being thought of as an emotionally driven phenomenon. The irony is that when a physician wittingly or unwittingly communicates this to their patient, it may not only invalidate the symptom, but the patient as well (Sullivan, Turner, & Romano, 1991). Paradoxically, when a patient comes to feel rejected by the physician (often the perception when referred to mental health), a self-fulfilling prophecy can develop with the patient feeling alone, misunderstood, and ultimately depressed. This perception of emotional abandonment promotes a profound sense of loss, which tends to seriously compromise the healing process with the patient now feeling, perhaps for the first time, genuine suffering (Fordyce, 1989). In short, the psychiatric issue reifies, serving only to exacerbate the initial pain problem, though now with possible suicidal and/or other dysfunctional behaviors.

What is noteworthy about this vignette is the dichotomous and rather fragmented process involving a medically orchestrated delivery of services followed, often much later, by a totally separate psychiatric process of its own. The idea that body and mind could be meaningfully connected is one that for practical purposes is often ignored, particularly at an early stage of assessment. This certainly does not imply, though, that the body/mind connection is unknown to the medical community. In fact, it has been widely reported in medical journals that a significant percentage of patients wishing to be seen by their family physicians may actually be suffering from some unresolved emotional problem, despite initial presentations with ostensibly medical symptomatology (Rosenberg & Hoffman-Wilde, 1989).

In a vast number of cases, however, these problems are not recognized as having psychogenic implications when they are first seen (Hoepner, Nycz, & Regier 1980). Consider, for example, the type of conditions that commonly present to a family practitioner. These might include colds, influenza, insomnia, headaches, gastrointestinal disorders, incontinence, high blood pressure, chronic pain, infectious diseases, broken bones, or a variety of other possibilities, including malignancies. There is no question that the physician can diagnose and treat many of these conditions without referral to mental health. On the other hand, behavioral medicine evaluations on this same population frequently reveal masked affective disturbances, concomitants of prolonged exposure to psychosocial stress. Moreover, highly stressed individuals tend to exhibit pronounced autonomic arousal which often leads secondarily to the very medical problems that the PCP is inclined to treat as primary.

Although identification of psychogenic issues is critical to long term treatment efficacy, another problem is that physicians as a group are often reluctant to address them (McLeod, Budd, & McClelland, 1997). This may be a function of time constraints, insufficient knowledge, or simply a lack of interest. One study, for example, reported that “primary care doctors appear to miss the diagnosis of psychiatric disorders in individual patients about 50% to 75% of the time” (Coulehan, Zettler-Segal, Block, McClelland, & Schulberg, 1987). Another study pointed out that “despite the recognition of serious alcohol problems by the physicians, the problem is not addressed routinely, even among patients that are recognized as alcoholic” (Cleary, Miller, Bush, Warburg, Delbanco, & Aronson, 1988).

Research

Having evolved from a recognition that what is real in the mind can and does have real implications in the body, behavioral medicine as a discipline has a fraternal and even symbiotic relationship with allopathic medicine. In the multidisciplinary setting, which is a cornerstone of behavioral medicine, there is an understanding by both physician and psychologist that emotional problems can ultimately lead to diagnosable medical conditions and vice versa. Such beliefs are based on an enormous literature showing established links between biological and psychological conditions.

While it is beyond the scope of this paper to review that literature, a brief sampling should illustrate some of these relationships. Consider, for example, the co-morbidity between depression and other medical disorders. One recent study conducted by the National Institute on Aging suggested that depression, when present for at least six years, was associated with an increased risk of cancer (Penninx, Guralnik, Pahor,
Ferrucci, Cerhan, Wallace, & Havik, 1998). Holland, Kozun, Tross, Silberfarb, Perry, Comis, & Oster (1986) have shown that depression is often the first symptom of pancreatic cancer, and others have found depression to be not only common in diabetics (Wilkinson, Borsey, Leslie, Newton, Lind, & Ballinger, 1988), but a frequent side effect of cancer treatment (Massie & Holland, 1987). Depression is also a sequela of Parkinson’s disease (Starkstein & Robinson, 1989), multiple sclerosis (Schiffer & Babigian, 1984), and cerebral vascular accidents (Robinson, Kubos, Starr, Rao, & Price, 1984).

Depression is not the only emotion to co-occur with disease states. In reality, there is an equal representation of studies that associate other mood states with disease. Sometimes these affective disturbances appear as causes, sometimes as consequences, but their importance to medical conditions seems inarguable. Booth-Kewley & Friedman (1987), for example, document consistent co-morbidity between coronary disease and such negative emotions as hostility, anger, anxiety, and depression. Even suppressed anger, particularly when combined with genetic and environmental factors, seems causally related to hypertension (Taylor & Aspinwall, 1990). In a related vein, research on nicotine use suggests a causal relationship with anxiety (Gold, 1990), depression (Lerman, Caporaso, Main, Audrain, Boyd, Bowman, & Shields 1998), and even pain (Gatchel, 1996). Insomnia, another condition commonly seen in primary care practices, has itself been shown to co-vary with a multitude of psychological conditions (Morin, 1993).

While studies such as these illustrate the important interplay between psychology and physiology, there is also abundant research showing not just efficacy, but frequent superiority of behavioral interventions over more traditional allopathic approaches when treating a wide range of medical conditions. The literature on treatment for chronic pain disorders reflects as well as any the importance of behavioral as opposed to more traditional biomedical approaches. A fairly recent article, for example, published in the Journal of the American Medical Association (NIH, 1996), cited strong evidence for the use of cognitive-behavioral techniques, relaxation, and biofeedback in treating chronic pain and insomnia. In his book, Psychological Management of Chronic Headaches, Martin (1993) outlines a promising behavioral strategy for managing intractable headaches that suggests greater long-term efficacy than conventional medical treatment.

Although differential diagnosis is critical in distinguishing among the many variants of headaches, it is clear that a significant percentage of sufferers ultimately prove refractory to pharmacotherapy. This is a population for which bio-behavioral interventions could be essential in finding any semblance of relief. Even among those for whom medication has proven effective, many patients are averse to depending on medications and are instead motivated to learn more effective self-control and prevention strategies. Judging from auspicious literature reviews, there is certainly reason for such patients to expect improvement from behavioral approaches. A recent study, for example, by Wittrock & Myers (1998) suggests that a significant variable to consider in headache phenomenology are the differences in coping strategies between headache patients as compared with non-headache controls. Training in coping skills could not only reduce the frequency, severity, and intensity of chronic headaches, but seems to prove equally effective with chronic pain patients in general, regardless of circumstances. In their book, Coping with Chronic Pain, Hanson and Gerber (1990) allude to such a model by presenting cognitive-behavioral approaches to self-management. Gatchel and Turk (1996) follow a similar theme in outlining a variety of non-pharmacological approaches for effective pain management. Together, these authors advocate exercise, biofeedback, bibliotherapy, hypnosis, operant conditioning, distraction, recreation, cognitive restructuring, as well as both group and family therapy.

It is imperative to recognize that psychophysiological research is as enormous as it is compelling, and the few citations presented above reflect only the barest cross-section dealing with mind-body interaction. Friedman et al (1997), for example, reported that since 1972 over 2700 articles have been published relating to relaxation alone. Our purpose in mentioning this literature is to emphasize that mind/body relationships are not only inexorable and well-established, but that for medicine and psychometry to practice without dialogue can only increase the chance of overlooking important variables that affect treatment outcome.

**Clinical Utility of Behavioral Medicine**

An overarching tenet of behavioral medicine is that a multitude of medical problems from which people commonly suffer can be ameliorated, cured, or prevented in the first place through changes in thinking and/or behavior. Achieving optimal behavioral outcomes presupposes a psycho-educational component, so that our hypothetical pain patient, for example, would learn that, unlike pain in the acute stage, chronic pain should not be interpreted to mean the discontinuing of any activities that promote discomfort. Simply knowing that, with respect to chronic pain, there is no causal relationship between hurt and harm becomes a cognitive change that for the patient can mark a breakthrough in terms of his/her receptivity to approaching pain management behaviorally rather than just pharmacologically.

This brings to mind one of the chief flaws in contemporary primary care: prescribing practices involving psychotropic medication. In a setting where patients become accustomed to receiving medications as the primary and often exclusive avenue of treatment, patients learn to assume a passive role, largely depending on the medical provider for relief. Rarely in such settings are self-management skills taught, which makes the patient more likely to have recurrences of the same presenting problems. Perhaps not surprisingly, a review article in the American Journal of Psychiatry (Orleans, George, Houpt, & Brodie, 1985) reported an abundance of literature to suggest that PCP’s actually tend to over-prescribe psychotropics. Elsewhere it has been reported that “primary care practitioners provide a larger percentage of psychotropic drug visits than psychiatrists in every psychotropic class except...lithium” (Beardsley et al, 1988).
This literature on psychotropic prescribing practices (see also Pincus et al., 1998) seems to underscore how ubiquitous psychogenic disorders are in the primary care setting, a point which by itself should highlight the need for behavioral health as an important component of primary care. It is also important to realize that when medications become the primary treatment for psychiatric patients, the initial therapeutic gains, which are admittedly rapid, are often eclipsed by recrudescence over the long run. While there is no doubt that the unidimensional approach of traditional medicine can frequently prove helpful, its widespread promotion by the insurance industry seems to have more to do with short-term cost-benefits than with long-term clinical outcome. Indeed, longitudinal research on primary-care patients having biopsychosocial issues has shown that outcomes at one, five, and ten-year follow-up tend to be optimized through multi-component interventions with strong behavioral features.

While the medical model can be extremely effective by itself, it would appear to be strengthened rather than compromised when it is joined in an interdisciplinary partnership with behavioral medicine. Patients receive the benefits of high-tech medical and pharmaceutical interventions while simultaneously being coached in self-efficacy training. In contrast to traditional allopathy, behavioral medicine promotes a paradigmatic shift in which the patient is encouraged to become more active and responsible in cultivating healthy lifestyle changes. Approaching wellness through behavioral change can dramatically improve self-confidence and lead to significant improvements in systemic functioning, as exemplified by impressive research in the field of psychoneuroimmunology.

**Current Trends**

Embryonic in scope, there are nevertheless important changes occurring in primary care with respect to clinical training and practice that auger well for behavioral medicine as a burgeoning component in health care delivery. With the increasing acuity of patients in ambulatory care settings, colleges of osteopathic medicine, for example, are undergoing significant changes in curriculum in order that medical students receive more comprehensive training in behavioral sciences (Magen, 1992).

Considered an integral component of internal medicine, behavioral medicine is also reported as being slowly incorporated into medical residencies (Rosenberg & Hoffman-Wilde, 1989). Such training would seem to be motivated by a growing sentiment that “closer working relationships(s) between general practitioners and mental health workers is productive and valued” (Thomas & Corney, 1993). Aside from enhancing the treatment competency of physicians, this medical training should promote an increase in behavioral medicine referrals.

Increasingly, PCP’s are recognizing an assortment of behavioral interventions including relaxation, biofeedback, counseling, diet, and exercise as “legitimate medical practice” (Berman et al., 1998). Attitudes such as these have made for some unprecedented change in the status of health psychologists. For example, psychologists at the UCLA Medical Center have not only become an integral part of the primary care team, but have been made full voting members of the medical staff, allowing them to be “equal partners in the delivery of health care” (Rabasca, 1998). A similar theme is echoed by Robinson (1998), who reports that on-site mental health services enable PCP’s to improve their quality of care to depressed patients.

While these trends may be auspicious for behavioral clinicians, it is clear that many practitioners in the field of mental health have neither the training nor the experience to work effectively in primary care settings (Bray & McDaniel, 1998). To bridge this gap, some doctoral psychology programs, albeit few at this stage, have modified their curriculum to include co-training with physicians (Murray, 1999). A prototype, operating out of Louisiana State University, provides internship training geared to promoting better collaboration between physicians and psychologists.

Once trained, behavioral clinicians should expect to find growing opportunities not only in primary care, but also in corporate settings, such as the Sleep Easy Education Program (SLEEP) initiated by Kaiser Permanente to help patients overcome insomnia. It is also conceivable that the same “schemes” to attract psychiatrists to work in primary care settings (Barber & Williams, 1996) will eventually be extended to behavioral medicine specialists. Equipped with skills in applied psychophysiology, these practitioners typically provide measurable treatment for a diverse assortment of conditions commonly seen in primary care, such as headaches, bruxism, anxiety, chronic pain, diabetes, IBS, TMJ disorders, fibromyalgia, and addictions (Schwartz, 1995).

**Conclusion**

Because of well-established mind/body principles, behavioral medicine is increasingly regarded as having enormous value to primary care and ultimately to society at large. Studies abound as to the efficacy of behavioral interventions, distinguishing this approach from alternative medicine because of the latter’s largely unproven methodologies. A partnership between allopathic and behavioral medicine avoids duplication of services, which is among a multitude of factors demonstrating it’s cost-effectiveness (Sobel, 1995). Expanded training across provider groups should promote growing recognition of the implicit value in this type of professional alliance, and with this should come stronger incentives including better coverage for such partnerships from the insurance industry (Lehrman, 1996).

There is already momentum at the national level for recognizing behavioral medicine as an integral part of primary health care. Fueled in part by a landmark publication, *Primary Care: America’s Health in a New Era* (Donaldson et al., 1996), Congress in 1997 recommended the development of standards for preparing behavioral clinicians to work in primary care settings. As such models are being developed, credentialing will be needed to document competency among those who aspire to work in this environment, and accreditation procedures should be designed to evaluate graduate-level training and regulate future practice. Notwithstanding the mechanics of implementing these objectives, behavioral medicine is at an epochal stage in its evolution. That medicine and...
mental health can no longer afford to operate in a vacuum should be apparent. With the politics of isolation being clearly outdated, interdisciplinary collaboration should carry us convincingly into the new millennium.

References


Abstract: Throughout life people are exposed to a variety of experiences, including stressful and traumatic events. The individual's coping during and after such events determines the eventual need for assessment and treatment for Post-traumatic Stress Disorder (PTSD). The authors summarize several models which account for the varying degree of impact traumatic events have on the individual, including the psychosocial model and the psychophysiological model. They also review methods utilized to measure the impact of stress and natural disasters on the individual: a) self-reports, b) performance tests, c) psychophysiological measures, and d) biochemical assessment. Multiple measures are often more effective. The authors report on an intervention with survivors of Hurricane Pauline in Mexico. Psychometric questionnaires, psychophysiological monitoring, and biochemical indices were used to assess the relative impact of the hurricane on victims of the disaster. Stress management workshops and Pennebaker-style emotional journal training were conducted with hurricane survivors. The workshop reduced the symptoms of post-traumatic stress disorder and improved immune function. The authors are hopeful that their non-invasive assessment techniques and the self-regulation workshops will provide useful tools not only for individuals, but also for entire disaster-stricken communities in the underdeveloped world.

Brain/Emotions

We already have rather good evidence about our psychological reactions, i.e., thoughts, beliefs, emotions, etc., physiological responses, i.e., hormonal and autonomic changes, and overt behavioral answers to a wide variety of events. Once an event occurs, some of the more than 10 million neurons begin to interconnect with neurons in other places. Changes in our emotional state occur and a new muscular state is produced (Wolf, 1998). The measurements of the amount of transmitters or neuropeptides and the density of receptors in specific brain areas helps us to identify specific circuits in a functional and dysfunctional perspective. This certainly is valuable information. Nevertheless is not enough to explain how, when and especially in whom the emotional, behavioral and cognitive patterns change in response to the effects of the “everyday as well as exceptional” events. Perhaps, in this field, the most important future task will be to determine and deal with the environmental or organically real and impalpable afferent influences (stresses) capable of producing a disturbance in the healthy and normal “neural traffic” responsible for appropriate adaptation to the life experience (Vanderwolf, 1998).

The emotions occupy a predominant place in human life. Without any doubt for most of us love is a far-reaching issue in close intimate relationships, friendship, and in the relationship between parents and their children. The fear of offending members of our social group is still an essential part of our evolutionary endowment. The same kind of evolutionary concept can also be applied to the so called “positive” and “negative” emotions. In spite of all this, research on emotions has only very recently gained the appreciation and attention of the scientific community. The modern science of psychology, despite recognizing the role of emotions, devoted incomparably more effort to traditional areas like perception, learning, and intelligence (I.Q.). It is important to differentiate among emotions, states of mind, and emotional tendencies. In general, emotions appear to suddenly interrupt any previous activity organizing our mind to deal with a situational change. In contrast, states of mind do not emerge so abruptly, and can last for hours or months. Finally, emotional tendencies have much in
common with personality features and are the basic fundament of individual differences (Jenkins, Oatley, & Stein, 1998).

**Stress and Environmental Changes**

Stress is the preservation of life as a dynamic balance of superior order, against the many adversities, while facing a state of constant threat to such balance. Organisms produce adaptive tendencies that counterbalance the forces (stresors) disturbing homeostasis. The survival of an individual, and therefore finally of its species, depends on his ability to adapt to a continuously changing environment (Chrousos & Gold, 1995; Kutas & Federmeier, 1998; Porges, 1995).

Single-cell organisms adapt themselves through appropriate biochemical changes. Multi-cell beings do it through complex and well-coordinated neural, humoral and cellular changes that involve multiple organs and tissues. Social organisms, whose survival depends on community cooperation, have developed extremely refined social links in their group that contribute to environmental adjustment.

The stress system receives information from external sources, i.e., the environment, and from internal sources, i.e., the body, through various sensorial systems. The afferent information that the “thinking brain” receives has already passed through midbrain areas like the amygdala and the hippocampus, often referred to as parts of the emotional brain (LeDoux, 1998). These midbrain systems are supplied in turn by the mesocorticollimbic system. In vulnerable individuals exposed to constant, frequent or severe stressors the stress system can lose its maintenance function and turn maladaptive (McEwen, 1998). Excessive activation of this system can produce psychological and physiological pathologies; in addition dysregulation of the stress system can cause serious harm to mind and body. Atypical or seasonal depressions, the fibromyalgia/chronic fatigue syndromes and many auto-immune diseases are related to inadequate glucocorticoid responses to inflammatory stimuli and thus are excellent examples of cases where one or more components of the stress system are hypoactive and/or hyper-reactive. Progress in understanding molecular aspects of the stress system (Chrousos & Gold, 1995) might enable us to identify intrapersonal risk factors, including individual vulnerability to an often-underestimated number of human health problems. It will also enable us to develop benign preventive, pharmacotreatment, and perhaps not far in the future, genetic interventions to counteract the adverse effects of stress (Postel-Vinal, 1998).

**Emotional Impact and Psychophysiological Evaluation**

Each day the risk increases for world populations to be exposed to life-threatening events, severe injuries, and violence (Trauma Responses, 2000). Such probabilities leave many individuals in a state of helplessness or loss of control, and often in a state of severe anxiety or fear. Nevertheless only about 25% of individuals exposed to objectively traumatic situations will finally show the pathological reactions we know as PTSD. One of the main challenges in psychological research in general, and psychophysiological monitoring in particular, is to identify and describe factors that help distinguish those individuals who develop PTSD after traumatic exposure from those who do not. We need to better understand how many individuals are able to proceed with little or no professional help from the status of “victim-to-survivor-to-witness”. This kind of research would not only have serious practical impact, it would also have important financial implications. Diagnosis treatment of these populations could be refined. Another benefit of this kind of research would be to allow the simultaneous identification of subtle “background” variables like the influence of cultural factors in the ability to cope with traumatic episodes and its externalization (Pennebaker, 1995).

Contemporary theoretical approaches can be categorized into those emphasizing psychological factors and those stressing biological ones. The importance of dispositional factors in the development of Post-Traumatic Stress Disorder (PTSD) has already been recognized. It has also been found that pre-trauma and trauma factors interact to define the meaning of a particular traumatic episode. Davidson and Baum (1995) illuminated the psychosocial perspective when they described reaction patterns to trauma. They created a conceptual model that took into account characteristics of the individual, as well as boundary conditions of the environment. In this sense, characteristics of the individual (how he or she perceives, understands and responds to the event) interacts with characteristics of the social and physical environment. In some cases the psychosocial factors can facilitate the individual’s recovery from the trauma.

A more recent trend in PTSD theories emphasizes the role of central and peripheral physiological processes and the role of injuries in the Central Nervous System (CNS) provoked by the trauma. In such case, the processes triggered since the psychological evaluation and the processing of the trauma are analyzed.

It is crucial to have observations of how individuals respond to adverse situations challenging normal “functioning,” in order to appropriately evaluate the emotional impact of these events. Psychophysiological monitoring is one of the most useful techniques to accomplish this objective. Initially psychophysiological monitoring was known as a “Stress Interview” (Middleman & Wolff, 1942). More recently they have been called “Psychophysiological Stress Profiles” (PSP) (Domínguez, Martínez, Hernández, Esqueda, Olvera, Lizano, Flores, Morales, & Tam, 1998a). Basically, the PSP is an interview in which a subject’s behavioral/emotional and physiological stress indicators are monitored during alternating rest and challenge periods. The PSP is a more conclusive technique than statistical comparisons, because it allows one to link (or to dismiss) significant emotional events to changes in bodily states as a reliable index of emotional impact.

**Verbalization after Stressful Events**

Experimental evidence has accumulated showing that stories told by survivors of stressful events can be seen as a specific indicator of the way these people have coped with environmental changes. These descriptions vary dynamically with the time that has passed after the event. Descriptions show the meaning that an individual assigns
to a traumatic event. Old Mayas used to say that “It was healthier to talk [to re-make a story] than to keep the sorrows” (Lopez Austin, 1993). In the sixteenth century, during the widespread European plagues, everybody painstakingly looked for cures and devices to survive. One saying, “Happy men do not become infected with the plague” (Thomas, 1971, p. 8), was passed by word of mouth as a powerful remedy. Modern research has confirmed the importance of these kind of phenomena (Pennebaker, 1995). Kiecolt-Glaser and Glaser (1992) commented on the relationship between verbal expression and adaptation to stress: “At the beginning broken up, but finally coherent and with a great personal/emotional meaning, the expression of a verbal or written description” appears in parallel to an important reduction of symptoms and adaptive behavioral changes, and even with positive immune changes.

For the individual, this verbalization process seems to go along with a new sense of personal control (see Table 1). People go through several stages, beginning by considering themselves to be victims, later seeing themselves as survivors, and finally progressing to regarding themselves as witnesses. This transition can happen in a short period of time. The individual may continue to report the same adversities, discomforts and invasive thoughts and images. But after making a cognitive adaptation the individual no longer has difficulty tolerating the event, and will feel that he or she has gained control over the event (Wegner & Wheatley, 1999).

In trauma research it remains an unresolved question whether changes in the attribution of meanings of an environmental events (“There are never hurricanes in Acapulco”): 1) are merely an epiphenomenon that occurs after the physiological, behavioral and emotional changes, or 2) play an instrumental and causal role as facilitators for health improvements and emotional relief. Clinical evidence produced by our project showed that when people cope with “environmental adversities” by sharing it with others and coming up with personal interpretation, this can have a positive influence on their abilities to cope with such events. Persons who discussed

<table>
<thead>
<tr>
<th>PSYCHOLOGICAL FACTORS THAT “MODULATE” THE IMPACT OF DISASTERS</th>
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<tbody>
<tr>
<td>1. Objective characteristics of a traumatic event: a) intensity, b) duration, and c) time of exposure to the event (physical proximity).</td>
</tr>
<tr>
<td>2. Subjective characteristics of a traumatic event: a) held meanings: “It’s God will”, “Nothing goes on forever”; b) perception of control: “There is no choice,” and c) immune/emotional impact.</td>
</tr>
<tr>
<td>3. Response to an event: a) response to the event (acute reaction), b) response after the event (chronic reaction), c) influence on the recovery and how much one benefits from the available help, and d) comorbidty/ premorbidity.</td>
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**Table 1**

<table>
<thead>
<tr>
<th>PSYCHOLOGICAL INTERVENTIONS IN DISASTERS (NATURAL AND MAN-MADE)</th>
</tr>
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<tbody>
<tr>
<td>1. Modify the role of psychological help depending on the time of intervention.</td>
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<tr>
<td>2. Provide information that contributes to community security.</td>
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<tr>
<td>3. Educate the public about coping with traumatic events (appropriate/inappropriate adaptations).</td>
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<tr>
<td>4. Define the time at which specialists should withdraw from intervention (allowing for events which are indefinite or prolonged in impact).</td>
</tr>
<tr>
<td>5. Importance of the concepts: “People do not heal easily”, “PTSD can not be healed”, and “traumatic memories do not magically disappear.”</td>
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</table>

**So how can we help affected people?**

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**Mind and Brain During and After Disaster**

Nowadays the traditional image of the human brain as a receptor full of connections and switches is no longer appropriate. Neither is the beliefs valid that the brain reaches its final stage of development early in life, with each function localized in the cortex and with sensations and cognitions producing a “chain reaction” with input stimuli and output responses. Psychological research has shown, and now brain imagery techniques confirm, that the brain works in a way very different from this simplistic concept. PET (Positron Emission Tomography), magnetic resonance imaging (MRI) and physiological monitoring have shown in an impressive way that the mind does not follow a predefined “train of thinking.” On the contrary, thinking is performed in a neural network or in a group of neurons well coordinated in their activity but not necessary proximal in location. Often neurons simultaneously firing in response to a discrete event are located in separated areas of the brain (Vanderwolfe, 1998; Kutat & Federmeier, 1998). In this sense, our brain is an active builder of sensations, patterns, meanings and interpretations (Gazzaniga, 1998; Freeman, 1995). Additionally, the brain shows a surprisingly high level of plasticity. That is, there can be considerable cerebral structure changes in response to an experience (Freeman, 1999).

From an evolutionary perspective it is critical to ask: What is the goal of a neural structure like this? If we apply evolutionary thinking to the evolution of the stress system we have to ask ourselves: What adaptive function does this system serve? The answer is not too difficult: The neural system is facilitates the individual’s adaptation to environmental changes. Biology and the evolutionary or Neo-Darwinian Psychology
already provide an answer. “The brain works to make decisions that favor reproductive success” (Gazzaniga, 1998).

With the capability to perform such a task many others that appear like gifts are implicit. The researchers devote substantial effort to study them while they are not paying attention to reason of the existence of the brain. When we acknowledge that the brain can only be explained in terms of how it manages information and makes decisions, we considerably increase our understanding about mind-brain relations.

**Measuring the Effects of Trauma**

There are four main methods to measure stress triggered by abrupt environmental changes: a) self-reports, b) performance tests, c) psychophysiological measures, and d) biochemical assessment. Generally, it is considered that in order to obtain an optimal measure that provides a clearer and wider understanding of stress, a multi-method approach should be applied and more than two of the mentioned methods should be simultaneously used (Davidson & Baun, 1995; Domínguez et al, 1998a). Self-report scales tap into the somatic experiences, the emotional changes and the classification of the surrounding events to the initial stressor. Sympathetic Nervous System (SNS) activity is related to emotional functioning produced by the environmental events. We monitor SNS activity via indicators such as heart rate, blood pressure, and changes in galvanic skin response and peripheral temperature. These indices can be accurately assessed using psychophysiological monitoring devices. Finally, many biochemical changes occur inside of the body during periods of stress (Kielcolt-Glaser & Glaser, 1992; Domínguez, 1998b). Such changes can be evaluated in the blood, in saliva, and in some cases, in urine. Using a multi-method strategy for assessment, it has become possible to collect data, in cooperation with other researchers (Davidson & Baun, 1995), about their usefulness, for example, in correctly identifying up to 95% of the individuals affected with PTSD.

**Biochemical Measurement of the Effects of Trauma: A Research Report**

Somatic physiological consequences to stressful events include a dysregulation of biochemical mediators in the hypothalamic-pituitary-adrenal axis (HPA-axis) that triggers an immunodepressive reaction related to the response to perception of the threat (Porges, 1995). This reaction is mediated by higher levels of circulating cortisol. One of the characteristics of experienced distress is a decrease in the production of immunoglobulins, mainly of IgA, that constitutes the primary body defense to the invasion by pathogenic agents, mainly in the superior respiratory tract. Research shows that the decrease in levels of IgA is a causal factor in the frequency of contagious diseases, especially upper respiratory infections (Marquez, 1998).

We therefore carried out an investigation on survivors of hurricane Pauline, to determine whether we could: a) identify by psychometric, biological and psychophysiological measures which individuals would develop PTSD following this disaster, and b) deliver workshops on coping strategies, that would effectively reduce PTSD symptoms.

**Methodology:** Collection of saliva and quantification of IgA: A modification of the Kirschbaum and Hellhammer (1994) procedure was adopted in the collection of saliva. Serologic pipettes and sterile polystyrene test tubes were used. For their preservation the samples were stored at 5 and 0°C, and then frozen at –40°C. The laboratory analysis was carried out through the turbidimetric method to quantify IgAs (immunoglobulin A in saliva).

**Research Sample:** The sample consisted of 510 survivors, victims and witnesses of the “Paulina” hurricane in Acapulco, México, that occurred in October, 1997.

From this sample a subgroup of 68 adults of both sexes was selected for further analyses: Their age ranged from 7 to 80 years. Most of them had no profession and mainly took care of the house. The underlying common characteristic and the reason why they were selected from the larger population was their resettlement as a consequence of the “Paulina” hurricane. They all were suffering from serious material and/or human losses. There were also 99 teenagers from the Daytime Junior High School No. 10 “Margarito Damian Vargas”.

**Workshop Intervention**

The researchers provided eight group workshops on coping strategies to sixty-eight adults and nineteen teenagers and children. The first workshop was conducted for an adult group with the highest scores on PTSD measures, seven months after the hurricane. During six site visits in the period from April 4, 1998 to Mach 27, 1999 a total of eight stress management group workshops were provided. Each of the six visits lasted up to seven days and included the participation of four experts in the field of traumatic stress. The workshop were performed under outdoor conditions (110°F) and included: a) education about coping strategies, b) instructions on utilizing the Pennebaker emotional disclosure exercises to verbalize emotions (written or aloud) about the hurricane, and c) training in relaxation skills.

<table>
<thead>
<tr>
<th>SETTINGS</th>
<th>WOMEN</th>
<th>MEN</th>
<th>TOTAL</th>
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<tr>
<td>Renaissance City Gymnasium &quot;shelter&quot;</td>
<td>130</td>
<td>20</td>
<td>150</td>
</tr>
<tr>
<td>American University of Acapulco</td>
<td>20</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>National Pedagogical University of Acapulco</td>
<td>73</td>
<td>23</td>
<td>96</td>
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<tr>
<td>&quot;Tutzingo&quot; Housing Buildings</td>
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<td>53</td>
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<tr>
<td>CORRET SEDESOL 1, Housing Building</td>
<td>18</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>General Daytime Junior High School No. 10 &quot;Margarito Damian Vargas&quot;</td>
<td>70</td>
<td>38</td>
<td>108</td>
</tr>
<tr>
<td>&quot;Moctezuma&quot; Housing Buildings</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>
Instruments

Seven widely used diagnostic instruments for adults were chosen and tested for use in this study. They were translated into Spanish and specially adapted to the needs of this project. Finally, only one of these seven instruments passed the clinical criteria. One was used for the adult sample, and one for the teenagers.

"Stressful Life Events" (long version). For the general public, 20 items questionnaire; estimated application time: 5 to 10 minutes per subject. Goal: diagnosis of the most important stressful events in life.


"Parent Form, Post-Traumatic Symptoms Scale" (PTS). Target population: Children and teenagers. Application time: 5 minutes. Scale: 32 items.

"Last Unpleasant Traumatic Experience." (Dominguez & Pennebaker, 1996). Target population: general public; scale: 12 items; application time: 5 to 10 minutes.

"Coping Styles" (see above). Designed for the general public. 13 items in open form.

"General Interview." Instrument exclusively designed for this projects. Collects information about demographic aspects, signs, and symptoms of PTSD.

"Psychophysiological Stress Profile of Peripheral Temperature and Heart Rate." Temp-time digital thermometers and a Cat-Eye counter of heart rate (Biomedical Instruments) were used. As continuous monitoring device these portable equip-ments were used in the initial assessment period, as well as in the subsequent development of the stress management workshops.

"Mexican-Made Portable Biofeedback Equipment." Field assessment with prototypes was performed to obtain psychophysiological measures of bilateral peripheral temperature. They were constructed according to advice and supervision of the UNAM- National Institute of Cardiology-ESIME-IPN. This allowed the adaptation of the devices for use in relevant environments (Tropicalization of the printed circuit).

"Assessment of Immune Function." Immunoglobin A (IgA) levels in saliva were evaluated before and after the workshops on controlling and managing PTS for each community group.

General Results

In the case of the adult population, progress was made in improving the psychometric properties (reliability and validity) of the SQRAS for Mexican populations. The SQRAS is a self-report instrument that accurately assesses reactions to traumatic stress. It further turned out to be applicable to correctly classify the groups that showed traumatic consequences after exposure to hurricane "Paulina".

For the teenage group we were able to refine and adapt the self-report questionnaire in a way to finally obtain 80% accuracy in detection of post-traumatic symptoms (Parent Form of Post-Traumatic Symptoms Scale, PTS).

It was found that high scores on the PTS were related to low levels of immunoglobulin A (IgA) in saliva. This confirmed the validity of the scale in discriminating subjects who are more vulnerable to stress from those who are not. We continue to analyze our data on the relationship between scores of the SQRAS and the coping styles used to manage the post-traumatic symptoms.

Homogeneity tests showed comparable variances for men and for women (5,12) = 2.74, p > .05. The t-Student test for comparing sample means yielded no statistically significant differences: t (10) = 1.53, p > .05. The two factor analysis of variance (ANOVA) allowed to test for the effect of the record phases of the stress management workshop (factor A), and the degree of PTS (factor B) on IgA levels. Results showed that the record phases as well as the degrees of PTS affect the IgA levels to a statistically significant degree. These effects turned out to be first order effects without being specified by a 2-way-interaction. There was no interaction between the record phase pre-intra-post-workshop and the degree of PTSD. Factor A: F (2,12) = 97.80, p < .05. Factor B: F (2,12) = 43.34, p < .05. AB Interaction (AB): F (4,12) = 2.24, 1 p > .05. The analysis of the immune profile was done applying basic statistics of central tendency and dispersion (arithmetic mean and standard error). It showed that subjects high on PTS scores had lower sIgA levels compared to subjects with low PTS scores.

In addition we were able to show that after the intervention with the stress workshop, there was an increasing tendency for sIgA levels to approximate the normal references, and in those obtained in the control group not affected by PTSD, mainly the men’s group. To validate the immune result, this was compared with the post-workshop record of heart rate and the bilateral peripheral temperature obtained for each participant. In the first case, a decrease in beats per minute (bpm) was found after the workshop (pre: 93.05 bpm and end: 87.97 bpm). The overall average difference was 5.08 bpm and was significant on the .05 level one way ANOVA: F (1,6) = 75.33, p < .05. This confirmed the importance of non-invasive assessment techniques and self-regulation for managing stress.

Sympathetic nervous activity decreased. The bilateral peripheral temperature increased its average difference from pre- to post-workshop, left hand (before: 0.14°C and after 0.33°C, difference: +0.19°C); right hand (before: 0.13°C and after 0.22°C, difference: +0.09°C). This increase was not significant in both cases, (left hand F (1,6) = 1.37, p > .05, right hand: F (1,6) = 0.71, p > .05). The variance of the average differences was homogeneous. Therefore, there were no statistically significant differences that suggest signs of relaxation in this physiological response. Nevertheless, the small gains in temperature in this interval indicated a tendency of vasodilation.
management workshops formed convenient, viable and affordable packages of therapeutic non-invasive intervention to reduce symptoms present in PTSD.

Evidence was collected that supports the efficiency of relaxation techniques and self-reflective emotional journal writing (Pennebaker, 1995), as forms of an efficient intervention in PTSD situations.

**Conclusions**

In the light of increasing global climatic changes and natural disasters it is necessary to accurately and appropriately identify and assess the surviving population affected by disasters, and to effectively intervene to assist their physical and emotional recovery.

Results obtained in our study suggested that providing workshops to the subjects suffering from PTSD lead to an improvement in immune status as measured by salivary IgA. The psychophysiological profiles also showed meaningful changes from pre- to post-workshop measurement. Before the workshop the subjects showed low IgA levels, high heart rates and low peripheral temperature. After the workshop, IgA levels and temperature tended to increase, while heart rate decreased. These changes suggest that the population affected by the natural disasters produced by “El Niño” were in the primary stages of physiological and immunological recovery.

The concept of individual stress vulnerability allows physiological, psychological and immunological conceptualization, and in a very accurate manner, to predict who can overcome these effects more quickly following the disaster, with minimal or no assistance, and who will need professional attention for a longer time.

The field of research reported here complements research that has found climatic changes to affect human behavior in a non-linear way. Natural disasters can be regarded as natural experiments from which we can learn a great deal. Focusing our research on the development of prevention and adaptation tools can be beneficial for the individual as well as for the community.

**Footnotes**


ii In Spanish: “Perfil Psicofisiológico del Estrés”.


**References**


Surface Electromyography in Pediatric Rehabilitation: A Meld of Science and Art
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Abstract: A cursory look at surface electromyography in pediatric rehabilitation suggests that this treatment modality is rather simple theoretically and straightforward in application. Unfortunately this impression largely explains the equivocal results so often obtained after several treatment sessions. In reality, for a motor learning program to be effective, several facets of the treatment must work in concert or else failure is likely. The umbrella term “learning theory” best conceptualizes these facets. They include construction of the reward plan, consideration of the development of the four training stages and implementation of the plan within a predetermined learning paradigm. This article describes the theory, construction and implementation of such a program.

Augmented quantitative feedback uses instrumentation to provide visual or auditory feedback that gives information related to some aspect of performance … The results of investigations of efficacy are, however, equivocal. (Carr & Shepherd, 2000, p.70)

The application of surface electromyography (sEMG) in the rehabilitation of children with motor dysfunction has a checkered history. There are instances where the procedure appears to help and others where it is of no help or where the benefits appear temporary at best. The reasons behind these varied outcomes are of critical importance for the field of physical rehabilitation with children in general and surface electromyography in particular.

Work in this area is a specialty because the clinician frequently encounters multiple system involvement. Concomitant diagnoses such as seizure and genetic disorders, polypharmacological interventions and the ever-present growth factor necessitate constant attention beyond the presented problem.

It is frustrating when we are unable to devise a technique to help a child regain motor function, but it is especially frustrating when the program works in the clinic but nowhere else. This essay will explore some of the hurdles to effective intervention, and suggest strategies for successfully jumping these hurdles. The case of a child treated in the Motor Control Program at the Cleveland Clinic Children’s Hospital for Rehabilitation (CCCHR) will be used to illustrate successful rehabilitation strategies.

Pediatric Physical Rehabilitation

In this essay, “physical rehabilitation” refers to the return of motor function to a former level or the discovery of a new motor skill with sEMG as the facilitating agent. The dynamics involved in finding a lost motor function due to accident or in discovering a new motor skill due to a static medical condition are complex, vary with each patient, and may vary with/within each treatment session. These dynamics dictate the success or failure of the rehabilitation plan, and largely account for the equivocal efficacy of sEMG in motor rehabilitation with children.

Previous articles (Bolek & Somodi, 1998; Bolek, Mansour & Sabet, 2001; Bolek, 1998) explained the mechanics and “set-up” behind the techniques listed in this article. Briefly, it is critical to carefully think out the construction of the pre-reward, shaping, reward and training stages. It is critical to make quick, minute, adjustments in milliseconds/seconds to the onset, length, and termination of the reward interval, over the course of training. If any of these adjustments are not carefully planned, the training program will not work!

Case Study: Billy

Assume that a child is referred to the practitioner for help in learning to stand correctly. At the Cleveland Clinic Children’s Hospital for Rehabilitation, the child would enter the Motor Control Program. The therapist’s visual observation of the child will define what “correct standing” is for this child. A typical referral is a child with cerebral palsy, ataxic, age 5, who has been in physical therapy for some time and whose progress has lately plateaued. The therapist is curious if sEMG might increase the child’s motivation.

Assessment. On evaluation, it is found that “Billy” (an actual patient with name changed) largely uses flexion and extension of the upper body in attempts to stand. He has developed a repertoire of behaviors as a part of standing that are functional for him at the time, but work against the ultimate goal, standing unaided without the use of excessive contraction/relaxation (phasic vs. tonic contractions). The path to this goal has a number of road hazards along the way.

Prior to the first sEMG appointment, Billy will be observed in a physical therapy session to assess how he is attempting to stand. Appearances can be deceiving. There is no substitute for locating the target muscle and feeling what is going on while the child is working. For example, is there a...
tremor and if so how much tremor? Is there a noticeable difference from left to right? Does he tend to contract quickly or slowly? We must pay careful attention to the child’s initial strategies and effort patterns, because we are constructing a learning environment and if we do not do so correctly that environment will collapse, like a house built on sand.

The first question to address is whether Billy knows where his legs are. Children with cerebral palsy have wide variability in the somatosensory domain ranging from hyper- to hyposensitivity. In Billy’s case, he was not able to discriminate the limbs known as “legs” from his torso as well as “typical” children. He became increasingly frustrated when asked to use muscles that he was unaware existed.

Further observation reveals that Billy effectively used upper body and arm flexion/extension to locomote in his k-walker and has increased his independence at school via this method. However, he has done so at a cost. He cannot use his hands for tasks like reaching for objects because he needs them to propel his walker. His parents decided it would be best to help him gain functional independence in walking, and free up his arms.

Next, a plan must be designed to achieve this goal. Notice that the overall goal really has three interrelated components. He needs to find his legs, he needs to know what it feels like to “use” them, and he must learn to give up an existing functional but not optimal movement pattern.

For clarity, we will set aside a host of related problems that typically must be attended to. These include excessive recruitment of bilateral hamstrings and/or hip flexors, back-kneeling, overflow from posturing or “fixing” with the head or upper torso, increased whole body tone and holding one’s breath!

The rehabilitation program must be set up in such a way as to attend to the first component of the overall goal i.e., finding his legs. At CCCHR, the Motor Control Program is a multidisciplinary program. Over the course of over 3,600 treatment sessions for a variety of motor treatment patients, the psychologist (Head of the MCP) and therapist (P.T., O.T., or Speech Therapist) have jointly problem solved each case. This has led to the creation of multiple protocols and equipment to address each child’s unique needs. Some of the protocols are: the Minimax (sitting posture modification), treadmill gait modification, and standing balance training.

In Billy’s case, we needed to develop a reward program to address the frustration he feels when not rewarded for standing using his old flexion/extension pattern, and at the same time to gradually shape, through successive approximations, the desired new pattern, i.e., use of the quadriceps and gluteus maximus. The building up of the new pattern and extinguishing of the old occur simultaneously, in real time.

Imagine a child sitting on a bench facing the equipment and a large television. The first few seconds of work can be critical. Electrodes are attached to both gluteus maximus and quadriceps. He is helped to stand by the physical therapist while readings on the sEMG unit are taken and the electrodes stabilize. When he is able to stand at the closest approximation to “good standing” that the therapist believes he is capable of, he is rewarded with the activation of a movie on a large screen television. The reason this is so critical is that some children discover what they need to do immediately. Children tend to remember the first few moments of this novel learning experience and if it is not set up correctly, it can be a hindrance rather than help. This program is actually a form of bandwidth corrective feedback, which is particularly useful in the early stages of learning (Campbell, Linden & Palisano, 2000).

Informative feedback is provided only when the learner performs outside a preset band of accuracy.

Another decision point will need to be immediately crossed, that is, how to set up the reward program, which must consist of all of the following stages: pre-reward, shaping (successive approximation), reward, and training.

The Pre-Reward Stage. During the pre-reward stage, Billy engages in a number of strategies that have worked in the past in order to stand and remain standing. Children (and adults) will throw their whole body into a motor task in the hope that they will master the correct movement. Having been given maximal assistance by the therapist to stand, Billy relies heavily on his arms and torso to find and maintain an upright posture. This is where the “unlearning” takes place and it is inevitably frustrating for any child. The old strategies will not work because Billy must use the quadriceps and gluteus maximus above a set threshold.

There is no way around this difficult period, which may last from several seconds to a few minutes. Crying and tantruming are often observed. For many children with a disability, this type of demand situation is a new, frustrating but very helpful learning experience. In fact, the data collected on the time the thresholds are met and/or the longest consecutive interval of having the reward on, can be just as valuable as the traditional sEMG data. In this application, we use surface electromyography as a tool to further motor learning.

In the CCCHR program the data points collected are either failures or successes for each sample of time (which can range anywhere from .10 to 1 second). Success is achieved at time x by meeting the threshold criteria set earlier. It cannot be overemphasized how different this approach to rehabilitation with children is compared to the approaches of many other clinics. Often a therapist in other settings will let the child set the tone for treatment by carefully structuring the session so that if not goal A then goal B or C or D will be worked on. In the CCCHR program, the child must focus his/her energies on one goal and for many children this is their first exposure to a very structured, task-oriented session. This has proved to be a distinct advantage in that the child learns a sense of discipline, perseverance, and satisfaction at achieving a goal.

If the pre-reward stage lasts too long, the child becomes frustrated and shuts down. Further, the preparation phase (cleaning the skin, attaching the electrodes) becomes a conditioned stimulus for this unpleasant event. Learning is unlikely to occur in this state of heightened arousal because the child’s focus is on maintaining a level of security (and searching for mother)!. If the pre-reward phase is too short, reinforcement of a less-than-desirable behavior occurs. Finding a compromise is part science and
part art.

There is a tension associated with the learning model of sEMG as presented in this paper. We have the pure science of the sEMG data, so familiar in the “digital” age, where information can be collected, stored and later analyzed in detail. However, we also have the artfulness of the application, and this is as important in determining the treatment outcome, as are the computer and software. The science of applying electrodes can be found in any atlas; the creation of an effective intervention resides in the artfulness of the therapist. One can “paint” a painting by numbers or paint as an artist. The likeness of the image will be apparent in both; the artfulness will be found in only one.

At some point, after considering the child’s age, emotional maturity, developmental level, degree of impairment, intactness of the five senses, style of upbringing of the parents, cultural diversity, tolerance for frustration, previous medical experiences, atypical somatosensory processing and rapport with the clinician, the therapist will find a starting point for successively rewarding approximations to the desired motor skill.

Intense learning can occur in the first session. It is the norm and not the exception for a therapist to report lasting change after one session. The change is often described as “He’s got it!” There is often carry over from work on sitting balance to locomotion in that the child has a new sense of where their center of balance is globally. These fast achievers are not necessarily the brightest as there is not a linear correlation between intelligence and speed of motor learning. Note the absent-minded professor (or past president Nixon) hopelessly fumbling with the operation of a cassette deck! Bright children occasionally find ways of circumventing (via muscle substitution) the motor pattern that we are attempting to encourage. At this point, the work of therapy truly begins.

The Reward Stage. The reward stage is another opportunity for the creative construction of a learning model. In Billy’s case, at least initially, the motor-response-contingent-reward interval is set to be instantaneous. However, children vary widely in how rapidly they move through the various stages (pre-reward, shaping, reward, training). Some children will pass through all stages in one session; others will spend weeks having their motor response slowly shaped by the program.

The reward needs to have enough valence or be valued highly enough by the child that he/she will work for it. It cannot be valued too highly or the child will become so engrossed in it that learning is compromised. Such is often the case with colorful animations or video game-like screens. Activation of smiley faces that smile or frown depending on one’s progress quickly grows old after a few minutes.

The best reward for children from two up to about five developmental years of age is one of their favorite videos. As a rule, it cannot be a new “Simpson’s” video (if “Simpson’s” is the child’s forte); a new video is too engrossing. Most preschoolers want and enjoy the repeated showing of a video, as any regular viewer of “Tellatubbies” will agree. The repetition of scenes within the video provides a perfect reward medium for this population. Older children like variety, but again if the reward is too appealing it can interfere with learning. The exception is when a child is far enough along that more enduring movement patterns (tonic) are to be encouraged. Here the focus shifts from motor learning to motoric endurance and progress is no longer governed, strictly speaking, by a learning model. An exception would be when a child, as part of the shift from quick (phasic) to longer lasting (tonic) muscle contractions is learning a new repertoire of muscle activation.

The Training Stage. The last stage is the training stage. The child has successfully mastered, through successive approximations, the motoric skill desired, enjoys the reward produced by executing the skill, can cause the reward to activate volitionally (i.e. has made the connection between the motor action and reward), and will do so on command (this is different from activating it volitionally). Training then consists of gradually increasing the difficulty of the program until the overall therapy goal is met. The generalization of this new skill to other situations is accomplished by pairing the new motor skill with a verbal cue. It does not matter what the verbal cue is as long as it is consistent. This is especially true with children ages two through nine or ten, the developmentally delayed, or the bilingual. If minor variations in the wording of the cue are used (“stand straight” and later “stand right” or “stand the way you’re supposed to”), generalization will be hindered. Facility with language is assumed by adults because it is automatic. This is not so with young children or those with special needs. The verbal cue becomes associated with the new movement pattern and becomes a link for the display of this new learning outside the clinic. At this point, the skill is internalized, and the therapist’s work is done.

Conclusion

Space does not allow us to address all of the issues involved in constructing rehabilitation programs of this type. Exciting and lasting changes can be made in a child’s life when the rehabilitation program is constructed scientifically and artfully. The excitement seen in children’s faces as they learn is our reward!

References


Abstract: Robert Freedman incorporated his own life experiences and the experiences of others into his research over the years. He began his training as a young child exploring the intricacies of objects in his environment and now uses the same principles to explore complex physiological phenomena. He is a pioneer in the development of thermoregulation and thermal biofeedback techniques, and the current article describes his personal and professional development as a leader and pioneer in resolving the complex puzzles of hot flashes, Raynaud's Disease, and scleroderma.

Citation
Robert Freedman was born on April 30, 1947 and raised in Philadelphia, PA. He attended college at the University of Chicago where he received a Bachelor's degree in psychology. He then attended the University of Michigan where he received his Master's degree and Doctorate in clinical psychology. Today, he serves as professor in the departments of Obstetrics and Gynecology, and Psychiatry at Wayne State University School of Medicine, adjunct professor in the department of Psychology at Wayne State University, and faculty in the Neuroscience program at Wayne State University. He has a younger sister, who trained in psychiatry and internal medicine and now is a board certified geriatrician in Cleveland.

Fantasizing Success
Robert Freedman (Bob) grew up in what he characterized as a “fairly typical” middle class family in a “Jewish ghetto.” His father was an electrical engineer and his mother was a homemaker during his younger years. Later, his mother became the secretary at a local school. As a young child he often found himself interested in how objects in his environment were constructed and functioned. He regularly sat in his father’s workshop and disassembled radios and other common household appliances. In addition, he spent a considerable amount of time reconstructing many of these appliances into contraptions he termed “oockets.” These oockets or fantasy machines were composed of parts from any and everything he could find in his household, and were often large enough to occupy the entire basement of the family dwelling.

Bob reported that his father, an electrical engineer, spurred his exploration of the environment and encouraged the development of his construction skills by providing spare parts and materials to be used in his fantasy “rocketships.” He indicated that one of these rocketships ignited and almost burned the family home. He later laughed aloud and indicated that his parents were very tolerant of his projects.

Bob’s exploration of the world was also encouraged in the classroom. With great admiration, he described unforgettable experiences with his 4th grade teacher, Mr. Momerella, who allowed him and two classmates to build an enormous paper city. As he reminisced about the past, Bob realized that at least one of these two students was probably autistic. Interestingly, the city was only one of many projects that were not only tolerated but also encouraged in the classroom. During another classroom endeavor, Mr. Momerella allowed the class to create their own TV show. Because they didn’t have cameras or other related equipment, they substituted similar looking toys that were constructed from cardboard boxes and other related materials.

As Bob went on to describe experiences from his early years, it became obvious that his early life facilitated curiosity and questioning, and more importantly, provided the foundation for his explorations of human existence and functioning. He described most of his early childhood experiences as “great fun” and a time of considerable learning, both in and outside of the classroom. He characterized his early education as “really good” and himself as a good student. He went on to say that, in comparison to the education that many students get today, schools back then were more “rigorous” and focused a lot more on basic skills like mathematics. He attributes much of his current success and ability to do most mathematics in his head without the assistance of a calculator to his education and to his father whose job as an engineer included the task of estimating costs for his company.

Around age 12 Bob became a HAM radio operator and constructed a small station in his home. Over time, he built larger and more complex radio systems in a manner that he described as consistent with the way he approaches his work today. He explained, “basically I take things apart, in...
this case aspects of the body… and figure out how they work.”

Bob found Junior High School to be boring, unfultilling, and something to be endured rather than explored. On the other hand, he viewed his four years in high school as a period of significant “enlightenment,” growth and development. He had the honor of being selected from among almost 2000 other boys who attended his high school in Philadelphia for advanced placement classes. He suggested that their education was very “rigorous… and very competitive.” He also worked several odd jobs during his high school years where he had the opportunity to further his understanding of electronics and develop the skills he later used to create biofeedback equipment before it was commercially available. He indicated that French, English and Mathematics were his favorite subjects and that he still finds these subjects useful in his work today. For example, he described a recent trip to France, where within only 3 days of exposure, he was able to again speak fluent French. This assisted his ability to not only communicate, but also effectively interact in a relatively unfamiliar environment. He described many situations like his trip to France where his previous school learning contributed substantially to his successes.

**Transformed by Sleep**

As part of this interview, Dr. Freedman was asked to describe his experiences in college. With a level of passion that he exhibited in many instances throughout the interview, he indicated, “going to the University of Chicago (UC) was the best thing that I ever did in my life. It was incredible!” He went on to say that the academic load was also “very hard.” He continued his response by indicating that his perceptions of himself and his academic skills were quite high coming from a competitive high school. However, when he began to take classes at UC without a clearly defined major and only an interest in engineering, he quickly realized that he was not as well prepared as he once thought. In fact, he indicated, “they were talking about stuff that I had no understanding of.” As he laughed, he indicated that he “got clobbered” in the first few semesters of college.

After a significant transformation in his attitude and approach to school, he ultimately finished the required core curriculum, began to experiment with several psychology courses, and attended many of the social science conferences. During one of his university classes, he listened intently to a lecture on sleep given by a researcher that he knew little about at the time.

The professor’s name was Dr. Allan Rechtshaffen. He described the presentation as “riveting” and indicated that it was so “mind-altering” and “powerful” that it remains a strong force in his life today. He further indicated that the field of sleep remains an interest, and Dr. Rechtshaffen has remained the role model that has guided his professional career for the past 30 years.

Dr. Freedman was asked to provide some insight into Dr. Rechtshaffen. He indicated that Dr. Rechtshaffen was “in some ways like my father… a pretty negative guy.” However, “he really pushed you… he pushed you to think.” As an example, Dr. Freedman referred back to a paper that he wrote with his girlfriend at that time. He indicated that Dr. Rechtshaffen forced him to do “draft after draft,” and although frustrating, the paper was ultimately better. He also indicated that he was encouraged to become a subject in many of the experiments that were conducted in the department, and to take graduate level courses.

He frequently participated in the sleep studies and was actually able to pay his rent by doing so. Interestingly, the same lab later employed him. As he ended his description of Dr. Rechtshaffen, he suggested that he had been the most influential person in his entire career, and that he was singularly responsible for his transition into the field of psychology.

Bob Freedman secured his first funded research grant from the National Science Foundation as a junior in college. Mentored by Dr. Phil Jackson, the Dean of the College of Education at UC, he initially studied developmental issues related to the academic environment and creativity. Dr. Jackson assisted his professional and intellectual development in many ways including taking him to England where they published professional papers and continued the educational process (Freedman and Sutter, 1969).

In 1969, Bob graduated from UC with a BA in psychology and entered the University of Michigan (UM). Due to his interests in sleep and dreams, the psychodynamically oriented program appeared to be the logical place to continue his training. However, the match proved to be less than perfect. His studies at Michigan were somewhat anti-climactic and plagued with conflict. He described their teaching as dogmatic but less rigorous than that he had experienced previously. He found his pursuit of a Master’s degree to be a great example of the conflict and obstacles he experienced. He obtained his Master’s degree in clinical psychology in 1973 by invoking an old departmental regulation. Because he had published two first-author papers, he requested and was ultimately granted his Master’s without writing a thesis. He indicated that this “flabbergasted” many faculty members in the department because no one had ever done that before. Following this episode, he took a 6-month break in his education and he and his girlfriend moved to California where they built a darkroom and ceramics studio. Still fascinated by psychology, he worked as a suicide prevention specialist in a program run by a local priest. He described that time in his life as one where he moved away from “the monolithic psychoanalytic attitudes at Michigan” and obtained some “real world” experiences. He ultimately returned to Michigan to complete his PhD in 1975.

Although tough, graduate school facilitated the development of several positive personal attributes within Dr. Freedman that influence his disposition today. In particular, the experience of graduate school added perseverance and tolerance to an already strong list of personal characteristics. When combined with his existing strong desire to succeed, there were suddenly no obstacles that could not be overcome.

In 1975, Dr. Freedman also stumbled upon the woman that he would ultimately marry, while on his way to an APA meeting.
He indicated, “I had been driving this old Oldsmobile that my grandfather gave me…about 3 days before the meeting, and I was coming home from work one day…and the engine blew up.” He ultimately received a ride from a woman in the clinical program he identified as Carol. He described Carol as “gorgeous and exotic” and a woman that he really wanted to pursue. Interestingly, and also in the car was a young lady by the name of Mary Ann Morris. They were introduced and the rest is history. He found his future wife Mary Ann to be “extremely smart and interested in the same things as he” (psychology, music, literature, architecture, food, etc.). They rented a house together and dated for a “long time.” They were married in 1980 and now have a teenage son. When ask how their marriage had survived, he indicated that Mary Ann is very understanding and tolerates him even when he is not the “easiest person to get along with.” He went on to say, “we both like to argue. Its like my favorite sport.” He described his wife in the most favorable terms and indicated a love for her and his son.

From Sleep to Biofeedback

Dr. Freedman suffered from insomnia as an adolescent and was motivated to understand the disorder as a senior level graduate student. Following several conversations with his father and professors of experimental psychology in the department, he settled on a dissertation that would include biofeedback and insomnia. He obtained a small grant from the graduate school to buy polygraph paper, persuaded Dr. Jim Papsdorf to convert his animal lab into a sleep lab, and constructed all of the equipment including electrodes necessary to do biofeedback. He stated Dr. Papsdorf “was a terrific guy… I mean he would stay up all night with me” while I ran subjects. He characterized him as “impressive” and certainly agreed that his level of dedication is not often seen today. He eventually published the paper based on his dissertation work (Freedman and Papsdorf, 1976), a paper that denoted the start of a long and distinguished career in biofeedback and psychophysiology.

The level of skill and understanding he developed during his training as a suicide prevention specialist — providing resolutions for a variety of individuals often with very diverse thinking and demographics from his own — remained important as he pursued his first job with vigor. He worked at the Lafayette Clinic with a patient population consisting primarily of African American Ford Motor Company employees. As one of his professional responsibilities, he found himself lobbying for his patient population before the local legislature that was also predominantly African American. Although he had very little experience with African American patients prior to this time, he found that he was able to make friends quickly and notably effectively, and on a consistent basis secure needed money for the clinic. Eventually, he became the director of behavioral medicine at the clinic.

Dr. Freedman developed his skill in conducting biofeedback, and quite by accident, was inspired to work with Raynaud’s Disease. He reported that he received a call one day from a woman whose daughter played the cello, but had quit due to her Raynaud’s. His successful construction of thermal biofeedback equipment and treatment of her condition was picked up by the Detroit Free Press and was publicized widely to an audience apparently in need of these services. His clinic was flooded by calls from patients who suffered from the disorder. He eventually ran several successful pilot studies and ultimately received grant funding to confirm the efficacy of the procedure (Freedman et al., 1981).

Gynecological Psychophysiology

Over the next years, Dr. Freedman co-authored approximately 11 published papers in the areas of insomnia and Raynaud’s Disease (Freedman, Lynn, and Ianni, 1982). In 1985, however, the direction of his research changed substantially and without much warning.

As Dr. Freedman reported, “this graduate student named Lenny Germaine came to me on Friday afternoon and wanted to talk.” Lenny arrived at his office and based on observations and an understanding of Dr. Freedman’s work with patients who have Raynaud’s disease, asked a simple yet profound question; Given that you can make cold women hot, “can you take hot women and make them cold.” Lenny went on to describe that he had a close female family member with cancer in whom traditional estrogen replacement therapy (ERT) during menopause was contraindicated. Consequently, she suffered with uncontrollable hot flashes. After pondering this very intriguing question, Dr. Freedman admitted to the student “I don’t have a clue,” but he was certainly willing to find out. Needless to say, Dr. Freedman has spent a considerable portion of his career since that time trying to provide insight into this question (Freedman and Woodward, 1992).

Dr. Freedman described the area of gynecological psychophysiology as “fascinating” and “understudied.” He views the issue of hot flashes during menopause as sort of the opposite pole of Raynaud’s, but certainly linked via thermo-dysregulation. He went on to say that the value of behavioral and psychophysiological interventions continue to rise as the list of contraindications to ERTs increases. He indicated that his basic strategy for exploring behavioral interventions for hot flashes has been to (1) conduct basic treatment studies to demonstrate the efficacy of the intervention, and then using funded projects (2) conduct studies on the physiological mechanisms in an effort to understand how the treatment works. He has taken the lessons and models learned from many years of work with Raynaud’s disease and applied that technology to the study of hot flashes. He views his largest contribution to this area of study as the elucidation of the physiological mechanisms that underlie hot flashes.

Dr. Freedman indicated that Lenny correctly pointed out that hot flashes occur at natural or surgical menopause concomitant with the reduction of estrogen. However, perplexing is the fact that the levels of estrogen in women with flashes during menopause don’t differ at all from the levels of estrogen in women without flashes. He interpreted this finding to mean that the reduction of estrogen in women with menopause is contributory but in itself insufficient to produce hot flashes. Although, quite contrary to the prevailing theory of hot flashes at that time, which indicated that flashes were simply the rapid dissipation of heat produced as a result of
an increase in core body temperature (CBT), he began to ponder alternate and complex systems that would produce similar reactions. He ultimately pursued the neuroendocrine basis of flashes, and with a co-author published his first gynecological psychophysiology paper (Germaine and Freedman, 1984).

This lead to several other projects where he explored the basis of the previous theory of hot flashes by monitoring CBT. The technology of the time used rectal probes as an index of physiological functioning. However, after asking 12 female patients in a row to wear a rectal probe, and after 12 definitive and unequivocal rejections, he decided that he had to utilize a different approach to the study of this topic. After reading Popular Science magazine and being exposed to an advanced technology telemetry pill, he decided to use the technology to measure CBT in his female subjects. The pill could be swallowed and could easily generate the data needed to test the old hypothesis. To his surprise, he found support for the old hypothesis; CBT increased during periods of hot flashes.

Around the same time, an old theory was being reconsidered, the set point theory. This theory hypothesized a construct known as a set point, or threshold above which a physiological reaction was generated. This theory suggested that the set point in women with flashes had been transiently lowered, and thus, the hypothalamus would assess the body as being too warm and would initiate a heat dissipation reaction, the flash (sweating). Dr. Freedman originally considered this theory as being without much merit. However, over time, he began to see intrinsic value in the set point conceptualization. In the same fashion that he once built "oockets" from seemingly diverse and unrelated pieces of household appliances, he began to engineer a complete story of hot flashes that integrated set point theory and his work with CBT.

Although he didn't invent the null zone theory, Dr. Freedman assimilated information from multiple sources to present a coherent model of hot flashes (Freedman and Krell, 1999). Notably, an NIH Merit Award now funds his work in this area. He hypothesized that normally, there are both sweat (upper) and shiver (lower) thresholds and CBT varies comfortably within both. If and when CBT exceeds the upper threshold, the body reacts with sweating and attempts to dissipate heat. Similarly, if and when CBT falls below the lower threshold, the body reacts with shivering or attempts to produce heat. The thermal neutral zone within which CBT varied normally and without subsequent responses was relatively wide and sufficient to allow for normal body functioning. Certainly, without this null zone, the body would remain in a state of perpetual cooling or heating. After demonstrating empirically that the shiver and sweat responses were both associated with menopause, and that the set point for the shiver response was increased and the set point for sweat decreased, he was able to articulate a relatively complete story of explaining the women he had studied. His suggested that the thermal neutral zone in woman in menopause was significantly diminished if not non-existent, and consequently, small and normal variations in CBT resulted in constant thermal adjustment including both sweating and shivering. This final feat of engineering has thrust Dr. Freedman to the forefront as an expert in gynecological psychophysiology. He is currently collaborating with a team of investigators at the Wisconsin Primate Center to develop a monkey model of menopause specifically focused on flashes and chills.

Dr. Freedman conducted several studies that employed the use of deep breathing techniques and muscle relaxation as treatments for hot flashes. He was able to reduce the frequency of the flashes by almost 50% and eventually discovered that the active component was the breathing and not the relaxation. Although productive during the day, his patients reported that the breathing techniques proved relatively ineffective while the subjects were asleep.

Dr. Freedman was asked to prognosticate the future direction and impact of his current work. He indicated that his work will ultimately lead to the elimination of hot flashes for women during menopause and will continue to inform the area of gynecological psychophysiology. He believes that his previous work with biofeedback and psychophysiology, independent of any future developments, has provided a basis for the average clinician to better treat a number of psychophysiological disorders. He added that his recent work using microarrays (gene chips) to identify in 8 candidate genes the factors that may be involved in the pathophysiology of Raynaud’s disease moves him a step closer to solving this complex psychophysiological puzzle.

As the interview ended, Dr. Freedman indicated, "I want to solve hot flashes, Raynaud’s Disease, and scleroderma… and will keep working on those until I die or I lose the funding.” He humorously added, “which ever comes first.”

Reference


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William R. Farrall, PhD (1929-2000)
A Personal Tribute to a Pioneer in Psychophysiology
By John D. Perry, PhD

William R. Farrall, PhD, a pioneer in the development and manufacture of devices for psychophysiological measurement used in sex therapy, sex research, and biofeedback, died on December 15, 2000, in a Florida hospital. He was 71.¹

Bill and his company, Farrall Instruments, Inc. of Grand Isle, Nebraska, inaugurated the “second generation” of sex research when, in the late 1960s, they began “commercial” production of devices for direct genital measurement. Masters and Johnson, a decade before, had used only general-purpose measurement devices, such as blood pressure and EKG; and they had relied only on “observational” data, albeit using some clever photographic devices, to study genital changes.

Seeking empirical data, academic researchers soon invented mercury loop and stainless steel penile strain (size) gauges, and Farrall the Engineer standardized their inventions and made them available to other researchers. Then Farrall developed specific calibrated strip chart and data recorders which enabled their widespread use in basic sex research and in sex therapy, and eventually in the treatment of male sexual offenders. These devices were essentially “lie detectors” for sexual preference. They were also used in treatment programs involving operant conditioning.

Empirical research with female sexual arousal began when Bill started manufacturing Geer’s vaginal photoplythsmograph in the late-1970s. While male arousal had been easily accomplished by physical measurements, determination of female arousal was finally achieved by detection of color changes in the vaginal wall. In the year 2001 there are dozens of research projects underway using that same photocell device, as pharmaceutical companies seek to create and document a female equivalent to the popular drug Viagra™.

Farrall Enters the Incontinence Field

In 1981 Bill expanded his now successful engineering-business model to the field of electromyography. At the Biofeedback Society of America meeting in Louisville, I made three presentations on my new “vaginal myography” device and its usefulness in treating sexual dysfunctions and urinary incontinence.

Farrall approached me after one of the presentations and, after introducing himself, said “I’d like to make your device for you!” I already knew who he was, and I knew from making the first fifty vaginal EMG devices in my own kitchen that I didn’t want to run a factory. It was a marriage made in heaven.

After he mastered the production of sensors, he turned to the need for supporting EMG instruments. All of the existing portable EMG devices were focused on relaxation training, not rehabilitation. Together we designed the “Personal Perineometer,” the first biofeedback device designed specifically to treat pelvic muscle problems. A major new feature was the inclusion of a 10-second “Stop and Go” LED timer to cue contract and rest periods. The first prototypes had an LED “bar graph” display, but Farrall quickly realized that a circular display would be more appropriate for female patients, and the “Circle of Lights” became something of a Farrall trademark.

In late 1981 we were still focused primarily on sexual dysfunctions, as we had only just begun to treat urinary incontinence. The Personal Perineometer had two range scales, 20 and 60 microvolts – we intended to cover every possible patient. We quickly discovered that upper limits were not the issue; we needed to provide better feedback for patients with very weak muscles. A new model quickly appeared with 5, 10, and 20 microvolt ranges. It remained in production for more than a decade, and was featured in my own 1988 clinical trials paper (Perry, Hullett, & Bollinger, 1988) as well as in Howard Glazer’s famous vulvodynia biofeedback research (Glazer, Rodke, Swencionis, Hertz, & Young, 1995). For many years a few hundred of these devices were in constant use through an equipment rental company in Dallas.

In 1983 Farrall produced the “Clinical Perineometer,” an office instrument with the same built-in strip chart recorder he had used in his “Sex Plotter” instruments. It automatically recorded “peak” short contractions and averaged 10-second rests and holds, and even calculated the “time above 50%” for an endurance measure. A few years later this original protocol would be incorporated into computer-based instruments from several other manufacturers.

The familiar pink Farrall-made sensors were widely used in clinical biofeedback
research on urinary incontinence, including the famous studies published by Wells, Brink, Diokno, Wolfe, and Gillis (1991) at Ann Arbor and by Burns, Pranikoff, Reis, and Levy (1988) at Buffalo. After only a decade of popularity, however, clinicians and patients alike became concerned, first about herpes and then about AIDS. Farrall's sensors were easily sterilized – but the public became fearful. Interest in treating pelvic muscle disorders with biofeedback began to level off – until Verimed, Inc., developed a new “Single-User Sensor” in 1989.

Personally I don't believe that Farrall ever made a penny of profit off his primary love, his psychophysiological devices. His work in the treatment of sex offenders did lead him to earn a doctoral degree at the Institute for Advanced Study of Sexuality in San Francisco in 1988. He also served on their Board of Directors for several years.

Biofeedback for Tractors

Farrall’s bread and butter, for most of his 36-year career, was a certain metal detector that he designed and manufactured for Sperry/New Holland tractors sold in Europe. It was designed to kill the ignition instantly if the farmer was about to plow up an unexploded World War II bomb – a sort of “machine” biofeedback. Since there were a lot of bombs buried in fields of France, there was a very big demand for Farrall’s device. But when Ford bought the tractor company, they decided to take the device “in house,” and Farrall lost the lucrative contract.

Farrall was always involved in behavioral therapies, and supplied many of the devices used by psychologists in their labs. One of his favorite creations was a hearing-aid style radio receiver that allowed a trainee to receive private suggestions from a supervisor behind a one-way mirror. In his retirement he used its name, “Bug in the ear,” as his e-mail address.

Ironically, Bill Farrall should also have gained recognition as the father of isomorph imaging in biofeedback. Many years ago he invented and attempted to patent the concept of using color changes on computer images to indicate current physiological readings. Thus a hand that was cold would be shown as blue, and progressive color changes towards red would indicate increasing warmth. Unfortunately, Farrall’s patent attorney missed an important filing deadline, and the patent was never granted. Years later he sued the attorney, and apparently settled out of court.

He also created quite a stir, back in Grand Isle, Nebraska, when a Scientology group put ads in the local newspaper telling his neighbors about the “pornographic” set of stimulus slides that he produced to use in the treatment of sexual offenders. The slides showed individual clothed and naked children of various ages, but not any sexual activity. Farrall had worked under an agreement with two local District Attorneys for years. But a new Nebraska Attorney General decided to stop him, even though the slides were sold only to clinical psychologists treating sex offenders, and to agencies like the Justice Department, the Air Force and the Marine Corps.

The whole story was well documented in Contemporary Sexuality under the title “Bonfire of the Knuckleheads: How a Misguided Attack on Child Pornography Destroyed a Tool for Treating Pedophiles” (Williams, 1994). Today most states assume that sex offenders cannot be treated, only labeled, followed, exposed, and badgered for the rest of their lives. Bill believed they could be treated — but when the government stepped in to stop him, he finally just gave up and retired.

Bill Farrall will be remembered as the first engineer and manufacturer to appreciate the importance of psychophysiological measuring devices in both the sex and incontinence fields.

References


Footnote

1 A formal obituary appears on the website of the Grand Isle, Nebraska newspaper, www.thelndependent.com, under “Today’s Obituaries” for 12/19/00.
[Editor’s Note: The Biofeedback Newsmagazine welcomes "technical notes" on any currently used biofeedback instrumentation and software. The objectives of technical notes are: 1) to assist practitioners in mastering the use of specific instruments or software, 2) to address technical problems such as artifact or calibration, or 3) to discuss problems in adapting a device to specific patient groups or disorders.]

Many practitioners currently are using the Procomp based Biograph™, Biograph2™, or Multi-T race™ software programs. The comments below pertain only to these software products, and not to the Bio Integrator™. I am surprised at how many Biograph and Multi-T race users are unfamiliar with the need to calibrate their Myoscan Sensors. This technical note explains the need for this procedure.

Usually, calibration is thought of as a procedure that one carries out when the system is first delivered, and then can forget about it. Unfortunately, the calibration issues for these software platforms are more complicated than that. Please read on.

The Procomp Plus utilizes the Myoscan sEMG preamplifier. Unlike its EEG counterpart, the Myoscan needs to be calibrated to the software, using the “Zeroing Plug.”

This 1 1/2 inch zeroing plug is included with the Procomp equipment package. The reason calibration is necessary is that each Myoscan sensor has its own “0” value. In other words, 0 microvolts for one Myoscan sensor might be 0.2 microvolts for another Myoscan sensor, and 0.7 for another Myoscan. You get the picture! Without calibration, you might compare right and left upper trapezius muscles, for example, and your observations about the apparent symmetry of the two sites may be thrown off due to differences in the Myoscan Sensors, rather due to any true asymmetry in the patient’s sEMG activity.

Thus, when you initially receive your equipment, it is very important to calibrate each of your sEMG sensors, so that the sEMG values you record are accurate. In order to calibrate your sensor, Thought Technology supplies your system with the Zeroing Plug. You insert this into the end of the Myoscan Sensor, and then use an aspect of the Biograph, Biograph2 or Multi-Trace software to calibrate each sensor to an absolute 0 microvolt point. The actual procedure for doing this is explained in the manual that accompanies your software. I would refer you to your manuals to familiarize yourself with the procedure. Or call your distributor or Thought Technology to learn the procedure. The only word of advice I can offer is to label each of your Myoscan Sensors (A, B, C, etc.), so that they stay with the specific channel on the Procomp Plus for which they have been calibrated.

There is one more aspect of calibration that you must come to understand and appreciate. You must calibrate each Myoscan Sensor for each sEMG screen you use. In other words, the specific calibration information concerning your Myoscan Sensor is saved by the software as a specific Screen Attribute, and not as a general systems attribute (as is normally the case). So, each sEMG screen on the Biograph, Biograph2 and Multi-Trace needs to be calibrated for the specific Myoscan sensors. If you build yourself a screen to use, you will need to calibrate the sEMG sensor(s) for the new screen before you save it.

In an effort to keep your sEMG data clean, and to allow comparison of your results from one channel to another or from your clinic to that of others, paying attention to these calibration issues is imperative.

Footnote
i This technical note is reprinted with the permission of the author and the Biofeedback Society of California.
Cancer Patients and Their Families: Readings on Disease Course, Coping and Psychological Interventions.

Reviewed by David Wakely, PhD

In 1999, when he was President of the American Psychological Association, Richard M. Suinn called for the involvement of psychologists in cancer work. He introduced a special issue of APA’s monthly magazine on “Psychology and Cancer” (APA Monitor, June, 1999); hosted a “Presidential Miniconvention on Cancer” at APA’s annual meeting; and, along with APA executive Gary VandenBos, edited this volume of psychology and cancer readings.

To biofeedback practitioners such as nurses, social workers, physical therapists and medical psychologists, an emphasis on physical health and illness is certainly nothing new. The subtext in Suinn’s message to APA members is the now familiar chorus of mind-body connections and the multiple levels at which the mental and emotional impact the physical and determine health outcomes. In the preface to this volume, Suinn notes the purpose is “…to introduce the reader to the psychosocial research on psychology and cancer. We hope it will motivate some psychologists to develop expertise in psycho-oncology, a vital area in health care…with considerable potential for clinical work, research and funding support.”

To accomplish this, he and VandenBos have assembled a collection of recently (1988-1999) published articles, most (but not all) of which were gleaned from APA’s own list of publications. Any such collection of readings is probably best judged on a few well-selected criteria: Are the articles representative of the field, are they relevant to the specific topic, and do they accomplish the stated goals? On all counts, Suinn and VandenBos appear to have hit their targets, but with some warnings to the reader naïve about this field or to this manner of presenting the subject material.

Like many such collections of readings, Cancer Patients and Their Families has no subject or author index. Each article contains its own reference list, and finding material across articles is an exercise in page flipping. It would have been helpful, for example, to look up the term “biofeedback” in an index. More specific to this volume, the quality and scope of the articles chosen varies considerably. This is clinical research with diagnosed cancer patients, and there is little random assignment of patients to treatments. Instead, most of the studies utilize existing patients in various forms of existing psychosocial treatments, and use various questionnaires and psychological tests to assess psychological outcomes.

Cancer treatment outcomes, included in many of the studies, are traditionally measured in terms of recurrence, morbidity and mortality data. In all cases, the authors have readily acknowledged the shortcomings of this type of clinical research and have drawn conclusions that take these limitations into account.

Although this book is admirably up-to-date, there is a lack of information on the most recent cancer treatments. For example, there were no articles and few references on the recent increased use of bone marrow transplants to treat several forms of cancer, and the attendant psychological factors in the selection of these transplant patients and the psychological consequences of the treatment. Also, clinicians expecting to find “how to” information will be disappointed. This is not a treatment manual, and there are only passing references to Simonton’s directed imagery techniques or Siegel’s “exceptional patients”. Those interested in a purely psychological approach to treating cancer patients would be better served by APA’s Helping Cancer Patients Cope: A Problem Solving Approach.

These criticisms out of the way, this volume succeeds admirably in meeting its objectives. While the cancer researcher should find the articles quite familiar and appropriate as a graduate-level supplemental reading, even the seasoned health psychologist will find research insights that can inform clinical practice. For example, cancer support groups which emphasize or include a large amount of information about cancer and cancer treatment, were as effective, and in some studies more effective, than support groups that “only” emphasized mutual emotional support, even when outcome data involved long-term survival or cancer recurrence. Thus, while the book won’t tell the clinician exactly what to do regarding psychological approaches to cancer treatment, it certainly points in useful directions.

The well thought out comprehensiveness
As “baby boomers” age, the market and media tend to focus on this generation’s lifestyles and developmental phases. Hence menopause becomes an area of increasing interest and research, because women of this generation want and need to know their options. Let’s face it, menopause is part of the aging process and can’t be avoided. Thus, the major concern at this phase of life is to manage the symptoms of menopause, with the aim of providing some symptom relief. This is the focus of the two books reviewed here. They approach the same issue — menopause — but in different ways.

I will begin with an overview of the more traditional of the two texts, The Only Menopause Guide You’ll Need. This book is concise and well organized, a simple and quick read. I highly recommend it for clients because it is so informative. Michele Moore, a physician with an active practice in women’s health, wrote this book. Dr. Moore interweaves discussion of symptoms and interventions with stories of her own patients’ “journeys” through menopause, to illustrate the trials and tribulations of symptom management. These narratives should appeal to our clients.

Dr. Moore explains the symptoms and health risks associated with each phase of menopause. The book includes charts and checklists to assist the reader in developing a plan to manage one’s own symptoms. It dispels the “uniformity myth” that all cancer patients share largely similar traits and face similar issues and thus can be treated in similar ways. For example, in Barbara Anderson’s overview of psychological interventions to improve cancer patients’ quality of life, she notes the usefulness of looking at groups of cancer patients by morbidity risk. Low, moderate and high morbidity risk cancer patients clearly differ in terms of the types of issues they face and the treatments that are most appropriate for them. This is testimony to the advances in cancer treatment that have resulted in millions of cancer survivors.

With advances in both psychoneuroimmunology and neurofeedback technology, and with only a slight stretch of the imagination, it’s possible to foresee some future edition of this work that might include a more direct role for biofeedback in immune system functioning and cancer treatment. Meanwhile, this edition provides the one place to go for the practitioner who wants to keep up with today’s psychology and cancer research findings.

**BOOK REVIEWS**

**The Journey through Menopause: A Review of Two Books**


*Reviewed by Colleen A. Shaffer, LMSW-ACP*

As “baby boomers” age, the market and media tend to focus on this generation’s lifestyles and developmental phases. Hence menopause becomes an area of increasing interest and research, because women of this generation want and need to know their options. Let’s face it, menopause is part of the aging process and can’t be avoided. Thus, the major concern at this phase of life is to manage the symptoms of menopause, with the aim of providing some symptom relief. This is the focus of the two books reviewed here. They approach the same issue — menopause — but in different ways.
Moore provides a comprehensive review of the options for symptom management — traditional Western medicine, alternative medicine, and homeopathic options. Within Western medicine some of the options range from medications for managing mood swings and depression to basic exercise. The book has a twelve page chart with symptoms listed down the left, such as “hot flashes,” and on the right a break down of the possible options for managing each symptom — medical — diet and Hormone Replacement Therapy; complementary — cold wipes, fans, natural fibers; herbal — black cohosh, chickweed, Dong Quai, etc.; and homeopathic — Belladonna, Coffea, Lachesis, etc. There are twenty-one symptoms of menopause listed in this chart.

Dr. Moore advocates selecting hormone replacement therapies with an emphasis on preventing secondary health problems such as osteoporosis, cardiovascular disease and endometrial and breast cancers. She dedicates two chapters to explaining the various options for hormone replacement therapy. This chapter gives a good overview of estrogen, its role in menopause and general health, and the various types of estrogen. Dr. Moore promotes the use of Estriol for replacement therapy. According to her, Estriol is the dominant estrogen during pregnancy. This form of estrogen is non-carcinogenic (lower incidence of endometrial and breast cancers) and protective in nature. She recommends using this form of estrogen over the “estrone” based estrogens, such as Premarin and Menest, or the “estriol” based estrogens, such as Estrace or FemPatch. Dr. Moore encourages women to become well-informed partners in their own health management, which enables one to have an active and responsible role. Overall, this book is a good resource for menopause education.

The book provides reflection on emotions and moods, self-image, life review, intimate relationships, unfinished business, keeping perspective and acceptance and adjustment. Looking at the chapter concerning “Emotions and Moods,” the reflection reviews feelings — what they are, factors influencing feelings, becoming aware of feelings, understanding feelings, changing feelings and moods, and coping with feelings. Overall this chapter encourages women to become familiar with their emotions and become comfortable with these feelings. This journal allows one to discover the real person within and to utilize one’s strengths.

These two books complement each other by providing good basic information and providing an outlet and structure to develop one’s own plan for the journey. The Healing Journey journal book allows one to explore one’s own personal needs and expectations, and to develop management strategies based on one’s personal psychological perspective. The Menopause Guide gives basic education on menopause allowing empowerment through knowledge. Most female “baby boomers” will find these two books useful for “strategizing” their own menopausal journeys.

Footnote
[Editor’s Note] The reader may also wish to consult Christopher Edwards’ article in this issue of the Biofeedback News magazine, on the life and research of Robert Freedman. Dr. Freedman has developed a psychophysiological approach to assisting menopausal women with symptoms such as hot flashes.

Emerging Ethical Issues in Primary Care

continued from Page 5

Advantages of Mind-Body Treatments

When client treatment is not integrated so that both the mental and physical aspects of the client’s condition are assessed and treated, the risk is high that an under-diagnosis, misdiagnosis, or inadequate treatment will be provided (Twilling et al., 2000). As such, client dissatisfaction is likely to be higher (Twilling et al., 2000) and the practitioner is at risk of having a lawsuit or ethics complaint filed against him or her. Working collaboratively with other health care practitioners, such as primary care physicians, reduces the risk of not providing integrated care. Would it be worthwhile for you to relocate in the same space as a primary care physician?

References


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The AAPB 2001 Professional Development Workshop Series

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A 50 hour didactic workshop, covering the BCIA Blueprint, which meets the requirements for BCIA certification in general biofeedback.
Faculty includes: Dale Walters PhD, Tom Budzynski PhD, Judith Lubar MA LCSW, Doil Montgomery PhD, Richard Gevirtz PhD

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September 7, Friday • 7 hours
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This workshop will present an integrated mind-body approach to anxiety disorders, including live demonstrations of respiratory, heart rate variability and brain wave biofeedback.
Donald P. Moss PhD

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November 8-9, Thursday and Friday • 15 hours
“Respiration: Connecting the Mind and the Body”
The workshop will cover two content areas: 1) the Psychophysiology of respiration and 2) autonomic regulation of the heart, lungs and viscera. Clinical techniques in breathing retraining will be covered in detail. The workshop concludes with a focus on clinical techniques to re-establish homeostasis.
Richard Gevirtz PhD

November 10-11, Saturday and Sunday • 15 hours
“Fundamentals of QEEG and Neurotherapy”
This workshop will provide an introduction to the concepts of QEEG from the definition of what is a band to more complex issues such as spatial Nyquist and volume conduction. The second day will include instrumentation applications and approaches. This course is an excellent preparation for individuals who plan to take the comprehensive 40 hour Fundamentals of Neurofeedback program.
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Message from the President:
My Priority for the Coming Year

Donald Moss, PhD

Dear Members of AAPB and Colleagues in the Field of Applied Psychophysiology:

I am pleased and proud to serve as president of AAPB for the next year. I will devote my time and energy as president to one major priority. Biofeedback techniques and self-regulation principles are powerful tools that can benefit almost every one. No one should have to get sick to gain access to our knowledge and skills. It is crucial that we continuously develop new strategies to get our knowledge to the community where people can benefit. In the following I will discuss several strategies to serve this priority:

We must train more health professionals and educators to use biofeedback and teach self-regulation skills. AAPB has introduced several new educational programs in 2000, and more will follow in 2001. Visit our “Virtual Campus” on the website to explore AAPB’s home study program, online Digiscript videos and slides from annual meeting programs, online CE credits, online publications, and a list of upcoming workshops. (You can read more about the home study program and the Digiscript programs elsewhere in this newsmagazine issue).

We must simplify our skills and technologies so that they can be utilized by a wide variety of professionals, para-professionals, and lay people wherever there is a need. This will enable us to reach well persons—in schools, churches, fitness centers, sports and performing arts centers, primary care clinics, and families. Every parent should have access to information designed for children and teens, to help our young people self-regulate and better face the challenges of 21st century life.

AAPB’s Pediatrics and Education Sections are supporting a project that is dear to my heart. We are developing a written curriculum to teach middle school children self-regulation skills. Middle school children are a population at serious risk. The curriculum will cover biological self-regulation, emotional self-regulation, social self-regulation, stress-management, neural self-regulation, and moral self-regulation. A full day workshop based on this curriculum will be available at the March 2002 annual meeting.

Wherever possible we must identify ways to give our knowledge away. This means online information, community education, and popular publications. We lose nothing by giving our best information to the public. Rather, this creates a wider audience for our sophisticated skills. Love and knowledge are similar. The more one gives them away, the more one has. AAPB is currently exploring the creation of a consumer website, to supplement our association website.

There is an enormous interest today in Complementary and Alternative Medicine (CAM). Biofeedback belongs right in the center of CAM services, because the self-regulation approach rests on principles compatible with the orientation of complementary and alternative medicine. Many persons today are seeking a form of health care that returns control to the individual over his/her health. They seek a form of healing that is in better harmony with the body’s healing resources. They seek a higher wellness that will reduce future illness. Biofeedback places an emphasis on the individual as an active agent, learning self-regulation skills, and directing his or her recovery. Wherever possible we must fight for the inclusion of biofeedback as a centerpiece of CAM.

A crucial element in Complementary and Alternative Medicine is an emphasis on spirituality as part of health and healing. The March 2002 annual meeting in Las Vegas will be titled: The Circle of the Soul: The Psychophysiology of Body, Mind, and Spirit. Plan now to attend this exciting meeting.

Through AAPB’s Insurance and Legislative committee we must continue to advocate for wider reimbursement for biofeedback services. Last year brought a breakthrough when HCFA (the federal Health Care Finance Administration) decided...
Recently, I returned from a trip to Portland, Oregon where President Don Moss and I attended a meeting for the Chief Operating Officer and the Chief Elected Officer of Associations. There were about 40 association teams representing a range of groups from large national organizations to small state societies.

We covered a number of subjects: membership development, Board and volunteers, budgeting and planning. We spent a fair amount of time on communication. That last topic seems like a minor topic compared to the others but how really critical it is. How many times do you come out of a verbal interaction or disagreement saying, “That’s not really what I meant”. At AAPB we have a verbal triangle—the Board, the membership and the staff. You’ve probably heard the old adage that communication between two entities can only go wrong two ways—from A to B or from B to A. When there are three entities involved it multiplies to six possible ways to go wrong. Hence, the advice to say what you mean clearly.

The other major area we spent time on was future planning. It is so important for us to think in the future and so difficult when the challenges of today are almost all we can deal with. Yet, the sociological and demographics that are changing in the country demand we take a serious look for the health and survival of the Association.

AAPB is still a fascinating and complex Association. Our field has survived under incredible pressure. We faced threats on all sides including from within at times. We are multidisciplinary and multifaceted. We are still very small as associations go. And yet we continue despite these issues. Anyone who doubts that must have missed the meeting in North Carolina.

 Somehow the physical setting of the city of Portland brought an ambiance that removed the issues of concern and allowed us to work in creative unison to devise the elements of a future planning direction. Maybe it was the mountains or the river or the city setting—or even the beautiful classical Chinese Garden and the Japanese Garden that allow a sense of contemplation to overcome the chaos—but we came away refreshed and excited about launching this year.

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**Donate Your Superfluous Biofeedback Equipment and Lap-Top Computers**

Many students want to do research in biofeedback and psychophysiology but can’t afford to purchase equipment. There is currently no central source to arrange temporary loans of equipment. AAPB’s Research and Instrumentation Committee is working with the Behavioral Medicine Research & Training Foundation to fill this need. We need working biofeedback equipment less than 15 years old with all sensors in good condition. We also need older lap-top computers as much of the older equipment will not run on modern computers. We will loan the equipment to students who have approved psychophysiology projects in return for a small, refundable care deposit, and acknowledgement to AAPB and the Foundation in any publications resulting from use of the equipment. The Foundation is a Federally approved 501 c 3 non-profit organization so can provide you with a letter acknowledging your contribution, to support a tax deduction. For further information, please contact Rich Sherman at rsherman@nwinet.com or (360) 598-3853.

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**We Encourage Submissions**

Send chapter meeting announcements, section and division meeting reports, and any non-commercial information regarding meetings, presentations or publications which may be of interest to AAPB members. Articles should generally not exceed 750 words. Remember to send information on dated events well in advance (we may be able to publicize your event more than once if you get your calendar to us early enough).

Send Word (.doc) or text files by e-mail to the News and Events Editor:

Ted LaVaque, PhD tlavaque@dct.com by September 1 for the Winter Issue.
From the President-Elect
Paul Lehrer, PhD

Here’s a great quote from a founder of our organization, Neal E. Miller. It reflects the tradition upon which AAPB was founded, and perhaps we should now keep it in mind as we chart our path into the future.

“Be bold in what you try and cautious in what you claim to do.” (Quoted by Ron Rosenthal, in the Psyphy listserve, April 24, 2001)

**Being bold.** The great attraction of applied psychophysiology as a field, and of AAPB in particular, has always been our spirit of innovation. In the 1960’s doing biofeedback was to take a trip into uncharted territory. It was a trip for visionaries (or, perhaps, as some people may have thought, lunatics). It required a certain degree of bravery, nonconformity, and maybe a bit of irreverence for authority (maybe a common trait in that troubled time).

I remember having been at Harvard at that time, when the great BF Skinner was approached about the idea that people could use operant conditioning to control autonomic activity. He scoffed. To him it was axiomatic that vegetative activity was beyond the reach of operant processes. It took some bravery to take on a living legend like BF Skinner, right in his back yard. I wish that I could say that I was one of those brave pioneers, but, alas, I wasn’t. But my dissertation advisor, David Shapiro, was one of them, as was one of my fellow graduate students, Gary Schwartz. These are two of the people whom, to this day, I still admire the most.

Another person in this group went a step further. A young psychiatry resident named Lee Birk actually put his life on the line in order to demonstrate direct human control of autonomic behavior. At that time some of the skeptics thought that control of autonomic behavior occurred only through the mediation of muscular activity. To test if this was so, Lee actually had himself curarized and artificially ventilated. Sure enough, he was able to exhibit operant control of autonomic responses, even while his muscles were maintained in a state of nearly complete drug-induced flaccidity.

A few years later a noted Boston psychoanalyst came to the laboratory suffering from a case of drug-induced Raynaud’s disease, and offered himself as a candidate for biofeedback treatment. That was decades before the recent “rapprochement” of behavior therapists and psychoanalysts. He was one of the first documented cases of successful treatment of this problem by biofeedback.

Indirectly, Lee Birk’s bravery formed the basis for the “cognitive behavioral” revolution in the field of behavior therapy. In 1969 Gerald Davison wrote an influential paper challenging Edmund Jacobson’s notion that the anxiety-reducing properties of progressive muscle relaxation were a direct product of complete muscle relaxation. Davison noted that Lee, like a few other brave souls, reported having been extremely anxious during the curarization procedure, despite the fact that his muscles were completely relaxed. Davison thus hypothesized that the activity or mental focus involved in muscle relaxation was responsible for the anxiety-reducing powers of this technique, not muscle relaxation per se. From this, he and a group of colleagues developed much of what we now know of as “cognitive behavior therapy,” one of the great innovations in the mental health field, now accepted as a standard or preferred treatment of most anxiety disorders. (Actually I don’t completely agree with one implication of this paper: that deep muscle relaxation may be irrelevant to anxiety reduction. Recent research by Richard Gevirtz and David Hubbard has demonstrated a convincing connection between activity in the skeletal muscles and the sympathetic nervous system. So, to this day, I still practice and teach Jacobson’s original and more thorough progressive relaxation method, rather than briefer methods used by most cognitive behavior therapists that “suggest” muscle relaxation more than train it.)

In some ways, biofeedback has become a stodgy field. Although we still often aren’t accepted (and paid) commensurately with the validity and power of some of the methods we use (thus showing that the medical establishment is even more stodgier than we are), the basic idea that voluntary training of physiological activity is possible is now “old hat.” What are the bold areas now under investigation, the ones that would make eyebrows rise with astonishment and skepticism?

Some of these concepts circulate in the world of complementary and alternative medicine. “Energy therapy” is a good example. Is it possible that genuine “healing energy” can be transferred from one person to another, and that this energy has the power to heal? Can we measure it? Are there psychophysiological mechanisms for this effect? Is it possible that such energy can travel in a measurable way, either a few inches, or a number of feet (or, as some people claim, half way across the world)? This idea may not sound peculiar to a practitioner of external QiGong, Reikke therapy, or therapeutic touch. Maybe the body emits a sound, or even electromagnetic waves, or maybe the body’s bioelectrical activity can be detected from one person to another, by a medium analogous to electromagnetic induction. Does this sound crazy?
Maybe. But is this any more crazy than the 1960’s idea that operant conditioning can be used to affect heart rate and blood pressure? I suspect that there are today more people in China, Japan, and India who believe in the sense of these methods than there are people who receive biofeedback therapy in the United States.

Being cautious in what we claim to do. This injunction raises important issues that still separate clinicians from scientists among us. How much proof is necessary before we feel comfortable in advertising a method as an effective clinical intervention? Should we use the same standards of proof required for bringing a drug to market? If so, without the tremendous financial resources of drug companies, we might as well give up the prospect of ever offering services to the public. And, indeed, we should keep in mind that drug company research tends to ignore important and potentially embarrassing questions (relative effects vs. recognized nondrug treatments, long-term side-effects, etc.). When answered, these questions could well point to biofeedback as a preferred treatment strategy.

I have a sign up in my office, from the Sayings of the Fathers, one of my own sources of spiritual guidance. It says: “You are not obligated to finish the task, but neither are you absolved from trying.” I draw the following implications from this:

1) Knowledge is an evolving process. What we “know” today may be different from what we “know” tomorrow. We should be appropriately humble in advertising the degree of certainty to which we “know” anything about the effects of applied psychophysiology, or any other approach to treatment. All of our knowledge is based on probability assessments, with considerable variability caused by errors in measurement and simply not having asked the right questions. I am skeptical about people who are too definitive about what they say they know. This sometimes is bad for public relations, and it irritates the hell out of lawyers and journalists. But scientific and professional integrity are more important than salesmanship, in my system of values.

2) Let’s keep on top of the research process. One of the most exciting parts of the last AAPB meeting was the good attendance and excitement generated by the poster sessions. We all should feel obligated to keep abreast on the latest work in our field, and one of the best ways to do this is to attend research sessions at our annual meeting. Reading our Journal is another. It is one of the accomplishments about which AAPB can feel most proud.

Along these lines, it is important that we keep track of research and funding opportunities from outside our group that impact on applied psychophysiology. I hope to work with our organization within the next year to publicize such opportunities, and to create bridges linking researchers and students in our group and those both within and outside who might be helpful collaborators. I’m formulating some plans about this now, but please send me your own ideas.

Message from the President
continued from Page 1A

ed that biofeedback should be reimbursed for urinary incontinence. The research is strong supporting biofeedback interventions for incontinence, but skillful advocacy was still necessary. John Perry capably represented AAPB. I am grateful that he has agreed to head our advocacy efforts for the coming year. In this same direction, however, we must continue to initiate and support quality outcome research on the efficacy of biofeedback, neurofeedback, and applied psychophysiology.

8) We must reach out in our AAPB membership recruitment to new groups of individuals, including students and younger professionals in clinical and research settings, and under-represented professional groups, such as nurses, teachers, and others, who could benefit from the self-regulation approach. Our new Membership chair, Eliza Bigham, is developing an energetic strategy for recruitment, and President-Elect Paul Lehrer is leading a new fund-raising drive to help us provide more money for students’ scholarships for the annual meeting. I encourage each and every one of you to make a personal donation to assist AAPB in bringing more students to our annual meeting. Our students are the future of psychophysiology and biofeedback.

Please visit the AAPB website and my presidential page there: Under the “current priority projects” button on my page you will see several specific projects that support the priorities identified here:

www.aapb.org/president

I look forward to this year of serving the biofeedback, neurofeedback, and applied psychophysiology community.

Long-time AAPB member honored

John V. Basmajian, OC, MD, on May 11, 2001, was awarded the honorary degree of Doctor of Science (DSc) by McMaster University in Hamilton, Ontario, Canada, for his many contributions and innovations in research and teaching in Dynamic Anatomy and Rehabilitation Medicine. Dr. Basmajian, one of the founding members of the AAPB, served as its President in 1979.
The AAPB “Quick Update”

AAPB.ORG Redesigned

The main web site of the AAPB has now been completely redesigned and made more user friendly and informative. The process of web site updates is always a continuous one, but we hope the basic site structure and new features will prove useful to our members and attractive to biofeedback professionals world wide.

Please take a moment to visit the new site and let us know what you think. Comments should be sent to Michael Thompson mthompson@resourcecenter.com.

AAPB Membership Directory Now Online

In response to requests by members, the AAPB Board of Directors voted to put the membership directory on the web site, rather than in printed form. This will provide more accurate and timely information at a reduced cost. The online listings will be searchable by name, geographic location, specialty, and many of the demographic fields on the membership application. Members can make changes in their own listings by clicking on the appropriate link in the Member area, which is accessible by last name and Member ID. If you don't know your Member ID, you can have it sent to you by e-mail at the login screen.

Students and the Future of Applied Psychophysiology:

Our students represent the future of applied psychophysiology. Paul Lehrer, our president-elect, is working with Program Chair Eric Willmarth, and Membership Chair, Eliza Bigham, to find ways to make our organization and our next annual meeting more relevant for students. But if we want our students to participate at our annual meeting, we have to help them get to the meeting. Read Paul’s message in this AAPB Update about a new scholarship drive to increase our student scholarships, and visit the website to see progress toward our $10,000 goal: www.aapb.org/president/Students.html.

More AAPB Workshops in 2001:

AAPB has increased the number of workshops offered this year, in locations around the country. The following list gives hyperlinks to our website:

- July 24-28, Denver, Colorado—Foundations of Biofeedback
- July 23-28, Denver, Colorado—Foundations of EEG/Neurofeedback
- September 7, Washington, DC—ADD/ADHD
- September 7, Washington, DC—Migraines and IBS
- September 8, Washington, DC—Optimal Performance
- September 8, Washington, DC—Anxiety Disorders
- November 8-9, Chicago, IL—Respiratory Psychophysiology
- November 10-11, Chicago, IL—QEEG
- November 6-10, Chicago, IL—Foundations of EEG/Neurofeedback


“Digiscript:” Online Access to AAPB Annual Meeting:

Another priority for AAPB is making our scientific and professional information available for members who cannot attend the annual meeting. We have begun a partnership with Digiscript, a corporation that used a film and audio crew to capture about 20 hours of our annual meeting on video.

By paying a $10.00 fee, AAPB members can access the AAPB area on the Digiscript website. There you will find a video of the lecture, slides, a transcript of the presentation, and any handouts. For an extra workshop fee, you can attend two of our year 2001 workshops online, for CE credit. Go to the AAPB website: www.aapb.org. You will be able to use the Digiscript link there to access programs from our meeting in Raleigh.
PROGRAM HIGHLIGHTS OF AAPB’S 2001 ANNUAL MEETING IN RALEIGH, NORTH CAROLINA

2000-2001 President Doil Montgomery presides over the meeting of the Board of Directors at the 2001 Annual Meeting.

Dr. Montgomery chairs the business meeting in Raleigh-Durham, North Carolina.


1999-2000 Distinguished Scientist Edward Taub joins in congratulating Dr. Engel on receiving this award.

Dr. Montgomery presents John Perry with the Sheila Adler award for Distinguished Service.

Retiring Treasurer Alan Glaros is thanked for six years of service.

President Montgomery conveys the gratitude of all attending to 2001 Annual Meeting Program Chair John Arena.

Retiring Board Member Richard Sherman receives his plaque.

Retiring Past-President Dale Walters is thanked for his service.

Executive Director Francine Butler is honored and thanked for her service with roses.

Dr. Montgomery welcomes incoming President Donald Moss by presenting him with the gavel.

Dr. Moss explains his vision for the upcoming year of AAPB activity.

Even now, the 2002 Annual Meeting Program Committee is hard at work, planning for next year.
Distinguished AAPB Members Recognized At Annual Meeting

AAPB President Doil Montgomery, PhD, recognized outstanding contributions by several AAPB members before handing over his gavel to incoming President Donald P. Moss, PhD at the AAPB Annual Meeting in Raleigh-Durham North Carolina.

First on the list was John D. Perry, PhD, recipient of the 2001 Sheila Adler Service Award. Dr. Montgomery lauded the tireless efforts of Dr. Perry to further the recognition of biofeedback for the treatment of incontinence, including a major effort this year leading to the recognition of biofeedback by the Health Care Financing Administration and thus coverage by Medicare.

AAPB’s Distinguished Scientist of 2000 was Bernard T. Engel, PhD. Dr. Engel spent the bulk of his career as Chief of the Behavioral Physiology Section and Chief of Behavioral Sciences at the Gerontology Research Center of the National Institute of Aging at the National Institutes of Health. He was President of AAPB in 1981-1982.

Dr. Montgomery recognized the 14 students who received AAPB Foundation Scholarship awards this year, and thanked retiring Board Member Richard Sherman, PhD, along with outgoing Treasurer Alan Glaros, PhD, and John Arena, PhD, who chaired the Annual Meeting Program Committee. He then turned the gavel over to incoming President Donald P. Moss, PhD.

Dr. Moss presented Dr. Montgomery with a traditional clock so that he might “enjoy the passing of time with thoughts of AAPB.” He then announced that Paul Lehrer, PhD will serve as President-Elect for the coming year and that Carolyn Yucha and Judith Lubar have been elected to the Board. Steve Baskin, PhD will serve as Treasurer.

AAPB Launches New Web Site for Consumers

AAPB is proud to announce the launching of a new, consumer-oriented web site at www.biofeedback-online.org. This site is intended to provide general information on biofeedback to the public, and put them in touch with local practitioners who can help them. We encourage AAPB members to submit informational articles for possible posting on this site, such as patient education materials, or articles you have written for a popular audience. Please send them to Michael Thompson, Director of Communications <mthompson@resourcenter.com>.

The opening of this new web site will allow your association to focus its main web site (www.aapb.org) more on the needs of members and biofeedback professionals.

Award Nominations Sought

The AAPB membership is encouraged to submit nominations for the AAPB Distinguished Scientist Award and the Sheila Adler Distinguished Service Award. These awards recognize outstanding contributions to research in applied psychophysiology and biofeedback and service by a biofeedback professional.

Nominating letters should include the name and address of the nominee(s), name and address of the nominator and a brief statement describing why the person is being nominated for the award. Letters should be addressed to the Awards Committee, and received at the offices of AAPB no later than August 15, 2001, to permit time for the committee to consider the nominations and determine the recipients.

The awards will be presented at the 2002 Annual Meeting.

Liability Insurance Web Site Access

National Professional Group (NPG) is pleased to announce the creation of a Risk Management Resource Center for members of AAPB available only through our new web site: www.aapb-ins.com

NPG has always been a leader in advanced technology and has used its resources to bring a more meaningful partnership to our long-term relationship. We created this new web site for several reasons:

• So that members could get access to their endorsed program information and applications any time—day or night
• So that members could take advantage of the internet to apply for coverage.
• So that members could communicate more effectively with NPG on various issues
• So that NPG could internally link our policy processing system with the online applications for faster, more efficient policy issuance and tracking.

What you’ll find at the new website:

• Customer Service Center
• Risk Management Articles and Information
• Ability to request proofs of coverage and policy changes
• Online application to obtain coverage
• Highlights of coverage
• Ability to send e-mail messages

We invite and encourage you to visit the new web site now and often.

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NOTE: This program is for BCIA certified biofeedback providers.
Dear Members of AAPB:

I would like to introduce myself and thank each of you for this opportunity to serve as your Membership Chair. As a student, I feel fortunate to be involved with the Board Members and I look forward to working with the Membership Committee and the New Professionals Membership Network program.

This year’s Board Members are dedicated to maintain (and increase) the vitality of our field. They are increasing the involvement of students and newly trained professionals to bring new perspectives and energy to the field. As part of their commitment to increase involvement by students and newly trained professionals, they have expanded their student scholarship program and identified Annual Meeting programs, such as job banks, that are relevant to these groups. They have further demonstrated their interest in student participation at all levels by inviting me to become involved with membership.

I learned about AAPB in Richard Gevirtz’s psychophysiology class at Alliant University - California School of Professional Psychology, San Diego. When I attended the Annual Meeting that year, I was impressed with how welcoming the organization is for students. Compared to other conventions, I found this meeting to offer so much accessibility to experts in the field and publishers of the latest research. Also, there were workshops offered by some top notch professionals. I returned to the Annual Meeting the next two years with poster presentations. This year was particularly exciting as I was able to discuss my dissertation project with the publishers of my reference articles (remember being a student...this is BIG!) and, hold your breath, one of my main publishers invited me to consider a post-doc position. I’m convinced...students should start with AAPB!

I am excited about working with the Membership Committee this year to spread the word to students and newly trained professionals about how welcoming and supportive the members of AAPB are. The Committee is comprised of ten people with a wide range of professional backgrounds and from around the country. Together we have developed a New Professionals Membership Network plan that reaches out to students by establishing site representatives that are undergraduate or graduate students at different schools. The site representatives distribute information via monthly site rep kits which include distributable stuff, such as pencils, stickers, and “round tuits” as well as important information including submission notices and membership information. The site representatives will be a resource for their students throughout the year while earning credit toward their own Annual Meeting attendance. This is an excellent way for students to become involved with AAPB.

Newly trained professionals are professionals who are adding biofeedback or neurofeedback to their professional career. This group brings a dynamic force of their own as their backgrounds are as diverse as imaginable and their enthusiasm is grounded with experience. The New Professionals Membership Network plan reaches out to them by working with vendors and current AAPB members to distribute information at workshops and conferences in exchange for Annual Meeting credits. The Annual Meeting will also offer more workshops relevant to this group, such as basic instrumentation workshops and insurance reimbursement seminars. What’s great about this program is that everyone benefits!

Please contact me if you would like more information about the New Professionals Membership Network or nominating a site representative. Being a site representative is fun and informative and it is an excellent way for students to be involved and make meeting attendance a reality. Also, student poster presenters will have an extremely good chance of receiving full funding (that’s $300 for travel and free registration) due to the Board Members’ Scholarship Fund. Once there, students and newly trained professionals alike will enjoy Annual Meeting offerings designed with their needs and interests in mind. This is a great time for students and newly trained professionals to get involved!

If you would like to join those who are building the Scholarship Fund, you may pledge or send a check for a $300 travel scholarship or a $70 registration waiver to the AAPB Foundation c/o AAPB.

Eliza Bigham

Biofeedback Newsmagazine

Dale Walters, Ph.D., has agreed to serve as the Neurofeedback Division Editor for the Biofeedback Newsmagazine. He will be responsible to recruit authors for articles on EEG research, neurofeedback, and neurotherapy, and to suggest topic areas for future Newsmagazine coverage.

Dale Walters served as AAPB’s president in 1999-2000. Dale has had a long-standing interest in the brain wave training field, having worked with EEG neurofeedback since 1966 with Elmer and Alyce Green at the Menninger Clinic as a way to gain access to normally-unconscious processes, especially through experiencing hypnagogic imagery. Dale continues to work clinically with alpha & theta EEG neurofeedback training for imagery work, alcohol & drug addiction & post-traumatic stress disorder. In addition, he does individual EEG training for those who have ADD & ADHD & uses EEG neurofeedback for ADD/ ADHD in a high school in Topeka, Kansas. Also, he provides individual alpha & theta EEG training sessions for interested clinicians and students. I welcome Dale Walter’s capable assistance.

Donald Mass, Ph.D., Chief Editor
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<th>Location</th>
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<tr>
<td>St. Paul, MN</td>
<td>Jul 21 - 25, 2001</td>
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<td>SeaTac, WA</td>
<td>Aug 25 - 29, 2001</td>
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<td>San Francisco, CA</td>
<td>Sept 22 - 26, 2001</td>
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<td>Dallas, TX</td>
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#### 5-Day EEG Professional Certificate Program

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<td>St. Paul, MN</td>
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<td>Dallas, TX</td>
<td>Oct 18 - 22, 2001</td>
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<td>San Francisco, CA</td>
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#### Free 3-Day Workshops

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<td>RSA</td>
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<td>Chronic Pain, Headaches &amp; Biofeedback</td>
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<td>Pediatrics (2-Day)</td>
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<td>Addictions</td>
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- Alan Crane, PhD, ABCA Senior Fellow, BCIA Senior Fellow, BCIA


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- Mary Jo Sato, PhD, BCIA-EEG, Paul Binder, PhD, BCB Fellow, R. Alan Crane, PhD, BCIA Senior Fellow, BCIA

May 16-24, 2001...New York Aug. 5-11, 2001...New York Nov. 5-15, 2001...New York

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Friday, March 30, 2001
1:30 pm-2:30 pm
AAPB01-01
1 tape
KEYNOTE ADDRESS: Neuroimaging of ADHD
Xavier Casellassa, MD

AAPB01-02
1 tape
SYMPOSIUM 1: Treatment Approaches to the Complex, Chronic and Difficult Medical Patient
Donald Moss, PhD; Richard Gevirtz, PhD;
Olafur S. Palsson, PhD; Mary Edmonds, PhD;
Gabriel E. Silas, MD, MPH; MSc; Terence Davies, MD

AAPB01-03
1 tape
SYMPOSIUM 2: Cognitive-Behavioral and Psychophysiological Approaches to Pain Management: Science and Practice
Francis J. Keefe, PhD; Christopher Edwards, PhD;
Wesley Wiener, MD; Frank Andruske, PhD

AAPB01-04
1 tape
Physiological Bases and Practical Approaches to Wesly Sisoe, PhD; MPH; Jonathan Cowan, PhD;
Rae Tumenbaum, LCSW; Barry Stewart, PhD

Saturday, March 31, 2001
7:00 am-8:30 am
AAPB01-05
1 tape
SC 1: A Protocol for Clinical and Financial Effectiveness: Helping your Patients and Helping Your Practice
Avie J. Rainwater, III, PhD, ARPP; BCLA

8:30 am-9:30 am
AAPB01-07
1 tape
KEYNOTE ADDRESS: Social Context of Current Pain Management:
Richard Weitzman, PhD

10:00 am-11:00 am
AAPB01-08
1 tape
SYMPOSIUM 4: The Future of Biofeedback: Fun and Games?
Alan T. Pepe, PhD; Olafur S. Palsson, PhD;
Deborah Stewart; Lawrence J. Prindle III, PhD;
Jim Mitchell, MD

AAPB01-09
1 tape
SYMPOSIUM 5: Operant Conditioning or Conditioned Operation
Barry Stewart, PhD; Gail Peterson, PhD

10:00 am-12:00 pm
AAPB01-10
2 tapes R
CLINICAL FORUM
ichard Weitzman, PhD

11:00 am-12:00 pm
AAPB01-11
1 tape
KEYNOTE ADDRESS: Dysfunctional Breathing and Breathing Therapy
Jan van Dijk, MD, PhD

AAPB01-12
1 tape
SYMPOSIUM 6: Collaboration Between Primary Care and Applied Psychophysiology: Research, Education and Service
Anne McGrady, PhD, MEd, LPPC;
Margaret S. Davies, MD; Michael G. McKenzie, PhD;
Ian Wolkremetskaya, PhD

1:00 pm-2:00 pm
AAPB01-13
1 tape
DISTINGUISHED SCIENTIST ADDRESS: Biofeedback A Model for Integrating Physiology and Behavior
Bernard T. Engel, PhD

2:00 pm-3:30 pm
AAPB01-14
1 tape
KEYNOTE ADDRESS: Constraint Induced Movement Therapy: Efficacious Behavioral Treatment for Motor Disability After Stroke
Edward Taub, PhD; Steven Wolf, PhD

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AAPB01-15
1 tape
SYMPOSIUM 7: Low Resolution Brain Electromagnetic Tomography (LORETA) in Adult ADHD
Jarl Lutten, PhD; J. I. David White, Jr., MS;
Leslie Scharf, M.D; Marc A. Congelio

AAPB01-16
2 tapes Jan van Dijk, MD, PhD

AAPB01-17
1 tape
SYMPOSIUM 8: Towards a Standardization of Psychophysiological Investigative and Rehabilitation Biofeedback Modalities
Gabriel E. Silas, MD; Stuart Donaldson, PhD;
Jaim de Amorom, PhD; Arno Robnik, PhD;
Boguslaw Carneguesa, PhD

AAPB01-18
1 tape
SYMPOSIUM 9: Biofeedback and Related Interventions for Pediatric Headache: Approaches and Perspectives Around the World
Frank Andruske, PhD; Michael Lesser, MD; Peter Kropp, PhD;
Michel Smachthlin, MD; Luci Mazziotta, D.D.;
James P. Currier, MD; Elizabeth Stoehl, PhD

AAPB01-19
1 tape
KEYNOTE ADDRESS: Is Breathing Really Abnormal in Anxiet Disorder?
Wanda T. Roth, MD

Sunday, April 1, 2001
7:30 am-9:00 am
AAPB01-20
1 tape
SC 3: Mindful Eating:
Physical and Psychological Hunger
Naras Bhat, MD, FACCP; Ron Staln Bhat, PhD

AAPB01-21
1 tape
SYMPOSIUM 4: Basic Review of Neurons
Fred Suttorl, PhD; Frederick Frenkeli

AAPB01-22
1 tape
SYMPOSIUM 5: An Integrated Approach to Attaining Healthy Psychophysiology and Optimal Performance
Liana Mattubud, BCIA; CEEG; Arlyna LaBour, MD

9:00 am-10:00 am
AAPB01-23
1 tape
PRESIDENTIAL ADDRESS: Change: Detection and Modification
Dall Montgomery, PhD

10:30 am-11:30 am
AAPB01-24
1 tape
KEYNOTE ADDRESS: Symptoms and Science: Frontiers in Primary Care Research
Kurt Kroeneke, MD

AAPB01-25
1 tape
SYMPOSIUM 10: Advances in Real-Time Telebiofeedback Internet Applications
SueAnn Stretfleid, PhD; V. S. L. Luo, MS;
Naras Bhat, MD; J. A. Perry, PhD

12:00 pm-2:00 pm
AAPB01-26
2 tapes
FORUM 3 - KROENKE, MD

AAPB01-27
1 tape
SYMPOSIUM 11: Optimal Functioning Paradigms
Thomas Brownback, MEd; Linda Mann, MA;
Wesley Sisoe, PhD; Rose Tumenbaum, LCSW;
Lynda Kirk, MA, LPC; BCIA

AAPB01-28
1 tape
SYMPOSIUM 12: Computing - A Pain in the Neck: Psychophysiology of Healthy Computing
Erik Rappe, PhD; Richard Gevirtz, PhD;
Katharine Hughes Gibney
Learn from the EXPERTS THEMSELVES

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Calgary, AB T2X 1P1 Canada
Tel: (403)225-0900
Fax: (403)225-2389
Email: myo@cadvision.com

Call for Nominations for 2002 Board Positions

The AAPB Nominations Committee has the responsibility for presenting a slate of individuals to serve as officers and board members. The Nominating Committee seeks your suggestions for the following positions: President-elect and two openings on the Board of Directors. Board positions are for a term of three years.

Criteria for board positions include: current membership in AAPB; committee, chapter, or section service; contributions to biofeedback and the field; and past association governance experience. Board members are required to attend two meetings per year, and abide by AAPB ethical principles, including signing a conflict of interest statement.

In the event that an individual’s name is not on the official ballot, AAPB has a mechanism whereby a member, by using a petition process, may have his/her name placed on the ballot in addition to the Nominating Committee’s slate. Members who wish to use the petition process to place their name on the ballot must use the official petition form, available on the AAPB web site (www.aapb.org). Only the official form will be accepted by the Nominating Committee. Deadline for submission of petitions to the nominating committee is October 1, 2001.
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