The Faith Factor, the Placebo, and AAPB:

The Placebo is a Conditioned Response Composed of Credible Expectation and Vivid Memories of Health and Past Healing Events

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"You should treat as many patients as possible with the new drugs while they still have the power to heal" (Trousseau, 1854).

In this my last presidential comment, I would like to focus on some important issues in clinical psychophysiology. When it comes to our personal health, we all want to know (a) what works and (b) how reliably does it work? When it comes to our own health, we are sold on empirical efficacy. Empirical efficacy creates faith, and there is now at least correlational evidence that the faith factor can reduce morbidity and mortality (Levin, 1994; Levin, Wickramasekera, & Hirschberg, 1998).

Through what mechanisms does the faith or placebo factor work? I have theorized that it works through operant and classical conditioning (Wickramasekera, 1977, 1980, 1985). In medicine, the faith factor is called the placebo effect. One simple direct experimental prediction (Wickramasekera, 1980, 1985) from my conditioning model of the placebo effect is that learning (acquisition) that is intermittently associated with reinforcement (UCS) will be more resistant to empirical extinction than placebo learning that is continuously reinforced (UCS). Practically, this means that a placebo (CS) beta blocker for hypertension, will be less empirically effective (extinction) if it is initially given in association with continuous reinforcement (beta blocker or UCS is present in capsule 100% of the time) rather than on an intermittent reinforcement schedule (beta blocker is present in capsule only 85% of the time). This prediction from the conditioning model of the placebo (Wickramasekera, 1977, 1980, 1985) has already been confirmed with hypertensive medication in humans and with cyclophosphamide for lupus in rats (Ader, 1982, 1997). The placebo or faith factor is made of the repeated confirmation in experience of the expectation and memory of actual prior healing events (Wickramasekera, 1977, 1980, 1985). But, it is not enough to know or remember what works. It is also important to know why it works. A conditioning theory of faith enables you to create or abolish memories of empirical efficacy in patients and people. Now, you have a science. A science enables you to alter the expectations and memories of people at will. This is not the same as what is hot and what is not!

Currently, EEG biofeedback is hot. Multiple therapeutic applications are claimed ranging from resuscitating the near dead to PTSD. These multiple clinical claims may be empirically true if EEG feedback works in part through a powerful "top down" (Sperry, 1980) placebo or faith mechanism (Wickramasekera, 1977, 1980, 1985) propelled by the daily escalating credibility of the technology (CS) of neuroscience. Do we have data showing that positive clinical outcomes are tightly related to alterations in specific EEG responses (UCR) and locations on the scalp and are unrelated to non-specific EEG responses (CR) and placebo locations on the scalp? I would like to see such data with independent replication. It will immunize us against the memory of the devastating scientific scrutiny we received 20 years ago when carefully controlled clinical studies (Cohen, Graham, Fotopoulos, & Cook, 1977; Andrasik & Holroyd, 1980) demonstrated that specific physiological changes (UCR) accounted for only a small portion of the variance in positive clinical outcomes in biofeedback training. Further, even large magnitude physiological changes in temperature were related to the quality (warm vs. cold) of the human relationship between the trainer and the student learning temperature biofeedback (Taub, 1977).

One recent review of 5 drug and surgical treatments that have been abandoned today, found that when both patient and physician

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or surgeon believed in the technique, the mean placebo rate was not 36% but 70%!
This leaves only 30% to be accounted for by germ and genes. If this finding is replicated, it could cause a revolution in narrow biomedical science in favor of the biopsychosocial model of disease. There are some data suggesting that the trait or state of intense faith or belief (e.g., hypnotic trait or state) in healing is more important than the procedure (medicine, prayer, biofeedback, surgery, psychotherapy, etc.) in recruiting the neuroendocrine and immune system to heal (Barber, 1984; Levin, Wickramasekera & Hirshberg, 1998). Conditioning and psychosocial factors (Wickramasekera, 1979, 1998) impacting physiology should be the major focus of the applied psychophysiology of healing and the prevention of disease. It appears that conditioning procedures are the most powerful methods of installing the faith or placebo factor (Wickramasekera, 1977, 1980, 1985; Voudouris, Peck, & Coleman, 1990). This domain of mind-body healing and disease should be the central work of AAPB. If we accept this challenge, we can lead the science and practice of health care in the 21st Century. It is possible that the EEG folk have stumbled on to or rediscovered something that is permanently important about the mind and brain. But, we need to critically analyze its components in life and death clinical situations (e.g., surgery), not simply in academic psychology experiments that have trivial life consequences.

I remember how dramatically cured some severely dysfunctional patients seemed 28 years ago when I first started enthusiastically doing EMG, temperature, and alpha-theta biofeedback. Given enough feedback, some thought, they could walk on water. These cures occurred long before their hands got warmer or their EMG signal dropped. When I noticed this low correlation between specific physiological change and clinical outcomes, I was, at first, disturbed and later I became increasingly skeptical about all biofeedback. As my enthusiasm declined, my patients improved less dramatically than when I was confident and enthusiastic about my clinical methods. Shades of beginners mind in Zen.

Fortunately, even before I did clinical headache work in biofeedback, I had previously done basic empirical research to determine if EMG biofeedback could increase baseline hypnotic ability or suggestibility. This work (Wickramasekera, 1970, 1973, 1977) demonstrated that skillful, low arousal EMG and alpha-theta biofeedback training could at least temporarily increase hypnotic ability, and consequently the plasticity of human cognitions, perceptions, and memories (Wickramasekera, 1976, 1977, 1988). Others have independently replicated these increased suggestibility findings with EEG alpha and theta biofeedback (Budzynski, 1976; Engstrom, 1970, 1976). The finding that cognitions, perceptions, and memories become more plastic during low arousal biofeedback enabled me to reconstruct my faith in the utility of biofeedback and the broader domain of applied psychophysiology (Wickramasekera, 1976, 1988, 1995). I have proposed that spiritual beliefs stated as paradoxes (e.g., you have to lose your life to find it) that are immune to empirical disconfirmation may be the most powerful coping skills humans have (Levin, Wickramasekera, & Hirshberg, 1998). During biofeedback training, I observed in some people (e.g., people high on trait hypnotic ability) the powerful and immediate impact of psychosocial factors on physiology and these observations lead me in the 1970s to wonder, "Do beliefs have direct biological consequences for health and disease (Wickramasekera, 1976, 1977, 1979)? For example, if you had a perforated appendix but were unwilling to recognize your pain, and you had enough high hypnotic ability (a trait) could you unconsciously block the pain temporarily and end up dead. I have seen several high hypnotic ability patients and medical students who nearly killed themselves slowly or rapidly.

My interest in the direct effects of beliefs on physiology (e.g., regression of warts, breast enlargement, etc.) operating through empirically mappable psychosocial factors (Wickramasekera, 1979, 1988, 1998) has grown over the years. For example, 15% of the population who have high trait hypnotic ability (the Ferraris of psychophysiology), if motivated, can alter their physiology simply on instruction as in the hypnotically documented regression of warts and breast enlargement. Could biofeedback be used to even temporarily to make low and moderate trait hypnotic ability people (Pintos & Chevys) into Ferraris as in the Cinderella story? This is an exciting prospect, and has continued to keep me in applied psychophysiology and biofeedback in spite of only the intermittent reinforcement of my reconstructed belief system. Please note that intermittently reinforced beliefs, like my own, should be more resistant to extinction. We have not yet identified all the essential and sufficient conditions to reliably reproduce these physiological changes.

In the last 20 years, I have also been preoccupied with identifying what specific psychosocial risk factors can account for the largest chunks of variance in predicting the onset and offset of organic disease and health (Wickramasekera, 1979, 1988, 1998). I have found that all departments in a medical school, Family Medicine is the most receptive to applied psychophysiology and biofeedback. Adaptive belief systems about the cause of somatic symptoms in Family Medicine patients can speed up psychophysiological psychotherapy for diseases ranging from chronic pain to chronic fatigue syndrome. I have used the Trojan Horse Role Induction (Wickramasekera, 1988, 1993), up front, to systematically modify these patients' belief systems and to improve their clinical outcomes.

It is also quite clear now that Pavlovian and operant conditioning techniques are probably the most powerful and reliable methods of installing expectancies in humans or animals and are therefore a major component in mechanisms of efficacy of the powerful faith or placebo effect (Ader, 1988; Wickramasekera, 1977, 1980). I have asked Dr. Robert Ader, who has generated empirical data supportive of this conditioning model of the placebo, to speak to us in Vancouver. I think that the fruits of applied psychophysiology can be used most effectively in primary care medicine (e.g., Family Medicine, Pediatrics, Internal Medicine). Therefore, I have invited Frank De Gruy, MD, one of the brightest lights in Family Medicine (De Gruy, 1996), to meet and to talk to us in Vancouver. We should work to insert the empirical efficacy studies of biofeedback (Burgio, Locher, Goode, Hardin, McDowell, Dombrowski, & Candib, 1998; Wickramasekera & Kenkel, 1996a, b) into the continuing education curriculum of Family doctors in all the states of the union. Clinical psychophysiologists should position themselves to lead the complementary medicine clinics that I predict will open up shortly many the medical
schools and medical centers in the United States. I believe that understanding the mechanisms of faith, the placebo effect, and learning how to systematically use the power of the expectancy and the memory of prior healings is one of the most important long-term goals for health care in the 21st Century. Paradoxically, EEG clinical biofeedback may contribute to our understanding of the electrophysiology and the cognitive neuroscience of the language of suggestion and the placebo effect (Barabas, Barabas, Jensen, Calvin, Trevisan, & Warner, 1998).

References:
Wickramasekera, I. (1979). A model of the patient at high risk for chronic stress related disorders: Do beliefs have biological consequences?
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Instrumentation Committee
The Instrumentation Committee of AAPB is advocating including links to the psychophysiology and biofeedback equipment manufacturers as well as to suppliers and equipment distributors on the AAPB Homepage. Equipment manufacturers and distributors should forward their email address and web page address to Jeffrey E. Cassisi, PhD Department of Psychology, PO. Box 17550, Jackson State University, Jackson, MS 39217-0350, <jcassisi@ccais.jsuns.edu>. Placing a link to a particular website will not constitute endorsement of a particular company, service, or material by AAPB. It will be the responsibility of each company to maintain their homepage.
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