BIOFEEDBACK: A PARADIGM FOR THE SELF-REGULATION OF HEALTH CARE

David W. Jacobs
Director, Biofeedback Institute of San Diego
San Diego, California

The publication of reports in the 1960s concerning self-regulated physiological control led to much speculation about the advantages to be gained from biofeedback. It was an unfortunate time for serious researchers in the field. "Alpha" parlors sprang up around the country promising enhanced creativity, greater sexual awareness and other untold benefits. It was a number of years before these gimmicky aspects of biofeedback faded from public consciousness, but we have now reached the point where it is possible to consider, in a sober and careful way, the potential value of biofeedback for health care. The papers that follow will demonstrate this perspective in detail.

My purpose is to provide a theoretical analysis of this field in two areas. The first is a conceptual model of what biofeedback is and why it works when it does. The second is to examine some of the broader implications of biofeedback for health care.

We will begin this process by presenting a case history to illustrate how biofeedback is typically used in a clinical setting. The information will be used as a touchstone against which to examine the process called biofeedback.

This is the case of Mr. T., a 28 year old Caucasian male employed as an engineer in a local electronics firm. He was referred to the Biofeedback Institute of San Diego by a neurologist who had completed an examination after referral from the family physician. The chief complaint was daily chronic pain in a band-like area at the approximate level of the frontal muscles extending from the occiput to the forehead. Associated with this was soreness and occasional pain in the upper insertions of the trapezius and
sterno-mastoid muscles. This pain was described as at its low point during the morning, increasing toward the late afternoon and at its worst between 4:00 and 6:00 p.m. The overall pain pattern was typically reduced on weekends.

The patient had suffered from this problem for approximately three years prior to the time of seeing the neurologist. The problem had grown worse, starting with occasional headaches which gradually increased in intensity, frequency, and duration. His prior medical history was unremarkable, except for having had the measles and mumps as a child. There is no history of headache problems among members of his immediate family. The findings of both his physician and neurologist were negative, although the neurologist in his referring report indicated a certain amount of soreness and tenderness in the upper insertions of the trapezius muscles upon palpation.

This patient had been on an increasing regimen of medication for headaches during the three year period of the difficulty. He reported that the head pain had been responsive to aspirin in the early stages, but that this had become decreasingly effective and was replaced with medications like Darvocet, Empirin, and, when the head pain was unusually bad, Empirin with codeine.

His social history was rather conventional. The patient was married at the age of 24, after graduation from college, and has two children. He characterized his marriage as uneventful, if somewhat boring. He was sexually active with his wife and characterized his sex life as satisfactory. Some significant difficulties, however, were indicated with regard to his work. The industry in which he works is a highly competitive one and he was subject to many pressures from his supervisors. He found going to work increasingly distasteful and had, in the last year, begun to take time off from work because of his head pain. He reported that for the first time in his life he had begun to question his career choice. In his relations with peers he spontaneously offered a description of himself as a "loner," with no friends and few acquaintances. His only hobby was photography, which he typically indulged in by himself. He had no regular forms of exercise, although reporting that occasionally he and his wife played tennis together on Sunday mornings.

Initial myographic measurements from the frontal muscles were made with surface electrodes and filters set at 100-600 Hz. The readings during a 20-minute period with the subject in a semi-reclined position averaged 18 microvolts, about double the expected readings for a normal person. In the absence of other significant findings, a tentative diagnosis of chronic muscle contraction headaches was made, which was in concurrence with the diagnosis of both his family physician and the neurologist.