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Health and Behavior

It is our good fortune to live in a time when the nature of living organisms is rapidly being elucidated. Recent advances in molecular and cellular biology exceed what anyone could have imagined as recently as a few decades ago. They link up with other fronts, such as neurobiology and human behavior.

Nowhere are the needs and opportunities for progress in the biobehavioral sciences clearer than in problems of health and behavior. These matters are documented in a new report from the Institute of Medicine (IOM), National Academy of Sciences.* Behavioral factors contribute to much of our burden of illness. Half of the mortality from the ten leading causes of death in the United States is strongly influenced by life-style. Known behavioral risk factors include cigarette smoking, excessive consumption of alcoholic beverages, use of illicit drugs, certain dietary habits, insufficient exercise, reckless driving, nonadherence to medication regimens, and maladaptive responses to social pressures.

One powerful stimulus to the biobehavioral sciences has been the remarkable progress of neurobiology pertinent to behavior, recognized in the Nobel Prizes of 1977 and 1981. There is now an unprecedented array of molecules, cells, circuits, systems, techniques, and concepts available for research on problems related to behavior and health. One crucial linkage of the biomedical and biobehavioral sciences is in the study of the final common pathway through which the brain controls the endocrine and autonomic nervous systems. Over the past several decades, much has been learned about these systems and their roles in mediating human responses to changing circumstances. A landmark in this line of inquiry was the characterization of several hypothalamic hormones. This research also contributed to an advanced technology for peptide analysis. Coinciding with the discovery of receptors in the brain, it led to a burst of neuropeptide discoveries in the past few years. This rapidly moving frontier is of great significance in understanding brain function and behavior—for instance, responses to stress. It illustrates how advances in neurobiology stimulate the scientific study of behavior.

Another opportunity arises from research on learning, a major thrust of psychology since its inception as a science. In recent years, a theory has emerged that clarifies the social context of human learning, is a balanced synthesis of cognitive psychology and behavior modification, and draws on experimentally verified principles of learning. Such principles are now being used in clinical and field experiments that test ways of changing behavior that affects health. During the past 30 years, epidemiologic studies have delineated objective measures as indicators of the likelihood of developing coronary disease and stroke—that is, risk factors such as high blood pressure, tobacco smoking, and obesity. Several large-scale studies have found that many people can diminish their health-damaging behavior and thereby decrease the likelihood that they will develop serious cardiovascular disease.

The IOM report assembles informed assessments by many leaders in the biomedical and behavioral sciences and highlights promising lines of scientific inquiry pertinent to understanding, treating, and preventing behavior-related components of the burden of illness. The report deals with diverse problems including smoking, alcohol, stress, aging, cardiovascular diseases, diabetes, mental disorders, sleep, work, and social disadvantage. Given the deep national concern about health and strong data linking behavioral factors and health problems, the delineation of these scientific opportunities indicates a logical response to this great challenge. Therefore the present low level of funding of such research deserves careful reexamination. Broadening of the life sciences in the context of health and behavior can have a profound impact in the remainder of this century.—DAVID A. HAMBURG, Director, Division of Health Policy Research and Education, Harvard University, Cambridge, Massachusetts 02138

*Institute of Medicine, *Health and Behavior: Frontiers of Research in the Biobehavioral Sciences* (National Academy Press, Washington, D.C., 1982).