Neuropsychology

HUMAN BRAIN FUNCTION

Assessment and Rehabilitation

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Neuropsychology

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Preface

In this volume of the series *Human Brain Function: Assessment and Rehabilitation* we cover the area of how brain function is assessed with behavioral or neuropsychological instruments. These assessments are typically conducted by clinical neuropsychologists or behavioral neurologists, and so we made an effort to present the somewhat differing approaches to these two related disciplines. Clinical neuropsychologists are psychologists who typically utilize standardized tests, while behavioral neurologists are physicians who generally assess brain function as part of the clinical neurological evaluation. Both approaches have much to offer.

The basic assumption of neuropsychological assessment is that the brain is the organ of behavior, and therefore, the condition of the brain may be evaluated with behavioral measures. Neuropsychological tests are those measures found by research to be particularly sensitive to alterations in brain function. An adequate neuropsychological test is a procedure that can be related to some objective measure of alteration in brain function. Over the years, these objective measures have changed, but generally involve documentation through direct observation of brain tissue, or through histological, pathological, neuroimaging, or other laboratory procedures. The methods described in the first two volumes of this series describe the neuroimaging procedures that are often used in the validation of neuropsychological tests.

In recent years, the field of neuropsychological assessment has become increasingly sophisticated and specialized. Because of these rapid changes, this book has been organized in a way that attempts to reflect the breadth and complexity of the field. One important consideration involves neuropsychological assessment across the life span. Procedures used to assess infants and young children, older children, adults, and elderly adults cannot be the same, and must reflect changes in brain function in the individual over time. Neuropsychological assessment is now specialized on a developmental basis as reflected in Chapters 2, 3, 4, and 5, each of which covers a different period in the life span.

The clinical aspect of neuropsychological assessment has also become specialized. Brain-behavior relationships in different clinical disorders vary extensively from each other, interacting not only with the development epoch during which the disorder appears, but also with the nature of the neuropathology. Some disorders, such as autism or Alzheimer's disease, only appear during certain periods in life. Other disorders, such as brain trauma, may appear at any time in life but may have differing consequences depending on developmental level. Chapters 6

through 14 provide detailed descriptions of neuropsychological aspects of a number of disorders frequently evaluated with neuropsychological tests.

A neuropsychological assessment typically consists of an evaluation of a number of domains of function, notably abstract reasoning and problem-solving, memory, language, spatial abilities, and motor skills. The neuropsychological literature contains extensive information concerning relationships both between brain function and the various domains and between basic research conceptualizations and development of clinical assessment methodologies and specific procedures. It has been said that the neuropsychological experiment of today is the neuropsychological test of tomorrow. In clinical practice, it is sometimes more useful to obtain an overview of each of the domains, while at other times it is more pertinent to concentrate the evaluation on a particular domain. However, both general and specialized assessment benefit from psychometrically and clinically sophisticated evaluation of the domains, regardless of whether they are tested in a brief or intensive manner. Chapters 14 through 19 provide presentations concerning specialized assessment in the major domains. Finally, we have a chapter that provides an extensive overview of how assessments are accomplished by behavioral neurologists and neuropsychiatrists.

We made a substantial effort to select authors who had what we viewed as among the best scientific or professional reputations in the topic covered by their chapters. The contributions of these authors uniformly fully lived up to their reputations. We express our indebtedness for the time, thought, and effort that must have gone into this writing, and can assure our readers that they can look forward to reading works reflecting superior expertise and scholarship. The lengthy preparation of this volume was sustained by continued support from Eliot Werner and Mariclaire Cloutier of Plenum Press. We offer our personal thanks, and hope that they are pleased by the product. We would like to acknowledge the support of the Department of Veterans Affairs for the work involved in preparation of this book.

Gerald Goldstein
Sue R. Beers
Paul David Nussbaum

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