

## BOOK REVIEWS

### Toward a Neuropsychology of Healthy Aging

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*Nurturing the Older Brain and Mind*, by Pamela M. Greenwood and Raja Parasuraman. 2012. Cambridge, MA: The MIT Press, 326 pp., \$40.00 (PB).

Reviewed by KAREN POSTAL, PH.D., ABPP-CN, Lecturer in Psychology, Harvard Medical School, Boston, MA, USA.

Early in *Nurturing the Older Brain and Mind*, Pamela Greenwood and Raja Parasurman lay out evidence that age related cognitive decline and loss of plasticity are not universal. They pose the question, “Why do some individuals undergo cognitive decline late in life whereas others do not?” In asking this question, and in answering it, the authors push the field of neuropsychology down an important path: toward addressing critical questions of brain and cognitive health for patients and the general public.

In an intellectual endeavor reminiscent of Seligman’s (2000) foray away from psychopathology and toward positive psychology, *Nurturing the Older Brain and Mind* draws our focus away from the more familiar terrain of diseases of cognitive decline toward factors influencing healthy cognitive outcomes in later life. Particularly in the context of healthcare reform, where our profession’s relevance will depend, in part, on our ability to contribute to prevention and improve patient’s health outcomes, Greenwood and Parasurman’s book is particularly timely.

As it turns out, many of the same variables that positively influence cognitive outcomes in later life, such as exercise and low fat diets, also influence outcomes in the most common chronic diseases. As neuropsychologists educate patients who want to preserve their cognitive faculties (and who doesn’t?) about pathways to healthy cognitive aging, such as those found in *Nurturing the Older Brain and Mind*, we could simultaneously assist our primary care colleagues in their efforts to lower healthcare costs by avoiding costly chronic disease complications. By incorporating this type of “neuroeducation” into our assessment process (and letting our primary care colleagues know that we are doing so) we may begin to shift the perception of the neuropsychological assessment procedure from a cost “increaser” in the healthcare system, to a potential cost “decreaser”.

*Nurturing the Older Brain and Mind* reviews literature demonstrating that three common myths of cognitive aging are untrue: the number of 1) neurons, 2) dendrites, and 3) synapses between neurons, all inevitably decline with age. Instead, the review demonstrates that age related changes are more subtle and localized, and can be reversed in certain circumstances.

Chapter 4 introduces a central concept of the book: the interaction of both brain plasticity and cognitive plasticity produces successful cognitive aging. Greenwood and Parasurman hypothesize that aging brains can be reorganized both by responses to subtle losses in neuronal function that may accompany aging, and also by new cognitive demands. The system works, though, only when neuronal plasticity mechanisms are in place. The authors identify five factors that influence outcomes of cognitive aging by enhancing the mechanisms of plasticity and address these in separate chapters: novel experiences in childhood, exercise, diet and nutrition, estrogen and cognitive enhancing drugs, and cognitive training/learning.

As likely for most readers of this book, I found that I engaged with the text on multiple levels: as a professional searching for information to help my patients, as a lifespan neuropsychologist fascinated by advances in our understanding of brain development and aging, and as a person whose own brain is aging over time. Chapter 6 is particularly compelling on all of these levels. It reviews the evidence that aerobic exercise can reduce or eliminate cognitive changes associated with healthy aging, and most particularly improve executive function. Chapter 7 addresses diet. The research on restriction of calories for cardiovascular health is compelling, if difficult to put into practice. High fat, high calorie diets have negative effects on cognition, while resveratrol (found in red wine) may have benefit similar to dietary restriction.

The writing style of Greenwood and Parasurman varies, at times dramatically, throughout the book. In an effort to make the book accessible to a broad audience, the authors helpfully end each chapter with a summary section, reiterating main points and conclusions. At times they offer assistance to lay readers as research is described, including explanations of basic terms within the text, such as “meta-analytic research study.” At many other points, though, the writing is accessible only to those with a neuroscience background. Readers are left to sort through dense sentences involving neuroanatomy, with little or no commentary or assistance. Non-specialist readers will have difficulty making their way through much of the text.

As a neuropsychologist, *Nurturing the Older Brain and Mind*, invigorated and expanded my ideas about how I can help my patients in the context of a traditional diagnostic practice: I read this book with a growing intention to use the information to educate patients and primary care colleagues about lifestyle factors and actions patients can take to make cognitive health a more likely outcome as they age. As a person who regularly sees the ravages of unsuccessful cognitive aging in my practice, and sometimes worries that this is where I too will end up, I read the book with an eye towards adjusting my own lifestyle factors. Much to their dismay, as

the book addresses cognitive benefits of exercise and diet throughout the lifespan, including in childhood, my children's lifestyles have not escaped the effects of this book either. In writing this book, Greenwood and Parasurman take our field in a timely direction that will benefit our patients, our practices, and our own aging brains.

## REFERENCE

Seligman Martine E.P., & Csikszentmihalyi Mihaly. (2000). Positive Psychology: An Introduction. *American Psychologist*, 55, 5–14.

## NeurXercise and Its Application

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*Cognitive Remediation for Brain Injury and Neurological Illness: Real Life Changes*, by Marvin H. Podd. 2012. New York: Springer Publishing, 171 pp., \$69.95 (HB).

Reviewed by CHRISTINE CLANCY, PhD, ABPP-CN, *Department of Rehabilitation Psychology, Seattle Children's Hospital, Seattle, WA, USA.*

*Cognitive Remediation for Brain Injury and Neurological Illness: Real Life Changes* begins with an extremely brief and superficial outline of the history of cognitive remediation and the important role it plays in recovery from brain injury, which has limited clinical utility. The following chapter clearly delineates the need for a thorough neuropsychological assessment prior to beginning a program of cognitive remediation, but the main focus is on outlining the cognitive domains typically assessed by neuropsychologists and the tests most often used to assess those domains, which is too simplistic for the experienced neuropsychologist. The middle chapters of the book are somewhat redundant. Again, there is a review of pertinent cognitive domains along with an introduction of the use of the computer-assisted cognitive remediation software, NeurXercise, which was developed by Podd and his colleague, Don Seelig. The author then devotes an entire chapter to single case studies illustrating the application of the various NeurXercise tasks to different populations, e.g., head injury, stroke, subcortical disorders, geriatrics, learning disability, and attention deficit disorder. The chapter is laden with discussion of how various individuals perform over time as part of a cognitive remediation program using these

tasks without a thorough explanation of what is entailed in each task. The author includes many appendices at the end of the book listing cognitive domains, the standardized neuropsychological tests used to assess them, and the names of the NeurXercise tasks that could be used, but nowhere is an adequate description provided of what each of the NeurXercise tasks entails. Perhaps this has been done purposefully for copyright reasons or intellectual property concerns, but it makes the casebook chapter cumbersome and very difficult to read. As the reader progresses through the book, it becomes increasingly apparent that the title of the book is misleading. It is not a reference book or one that would be shared with students or trainees to learn more about cognitive remediation. Instead, it reads more like a proclamation of the longstanding work of Podd and Seelig. As such, a more fitting or accurate title of the book might be *NeurXercise and Its Application*. In addition to its limited clinical utility, the content is heavily grounded in Luria's brain functioning theory and the utilization of the Luria-Nebraska Neuropsychological Battery as it pertains to adults, which restricts its appeal and applicability to a wider range of professionals.