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## *Psychological Trauma and the Developing Brain: Neurologically Based Interventions for Troubled Children*

By Phyllis T Stien and Joshua C Kendall

Review by Richard J Moldawsky, MD

**I**n the past, psychiatric diagnostic systems divided syndromes into organic (brain-based) and nonorganic (mind-based) syndromes. Conceptualized this way, brain disorders were treated with somatic therapy, and mind disorders were treated with psychotherapy. In recent years, both research and clinical practice support the view that the progress of diagnosis and treatment is slowed by traditional dichotomies—for example, genes vs environment, biology vs psychology, and medication vs psychotherapy.<sup>1</sup> Today's perspective demands that we stop asking, “mind or brain?” and instead acknowledge that mind and brain are inseparable. There is no mind without brain. Treating people with mental illness (indeed, any illness) requires an appreciation of both mind and brain.

*Psychological Trauma and the Developing Brain* examines posttraumatic stress disorder (PTSD) in children. Defined by presence of an extraordinary stressor and certain emotional and behavioral symptoms, PTSD has been associated with structural and functional effects on the brain. The authors, Phyllis T Stien (a psychiatric nurse and child therapist) and Joshua C Kendall (a freelance journalist) endeavor to “connect the dots” between

trauma, brain, emotion, and behavior. The authors posit that optimal treatment must address the neurobiologic as well as the psychologic. This book, which seems to be geared for child psychotherapists, thus encourages a sort of consciousness-raising for that group of professionals trained to think more of mind than of brain. The book will also interest psychiatrists, pediatricians, family practitioners, and parents.

After reviewing elements of brain development and structure (a rewarding challenge for most nonmedical psychotherapists), the authors summarize research on the relations between the hypothalamic-pituitary-adrenal (HPA) axis, neural pathways (ie, between the cortex, thalamus, and limbic system), and the functions of serotonin. The authors explain, for ex-

ample, that chronic or severe stress causes release of corticotropin-releasing factor (CRF) from the hypothalamus. CRF stimulates pituitary release of ACTH, which stimulates release of adrenal cortisol, which then, when produced in excess, impairs the hippocampus. Most readers are familiar with the HPA axis as a mediator of stress; however, that the hippocampus is especially sensitive to cortisol is not so well known. As part of the limbic system, the hippocampus is central to memory processing. Memory disturbance (eg, amnesia, intrusive flashbacks) is a cardinal finding in PTSD. A generally held belief is that serotonin-reuptake inhibitors are effective drugs for

PTSD symptoms. These links, although not conclusively proven, do help us understand the nature of PTSD.

The authors propose specific types of treatment for childhood PTSD that purportedly capitalize on the ability of the child's brain to grow and to repair “faulty connections” caused by the trauma. These types of treatment include proven psychotherapeutic methods as well as judicious use of medication. The authors also see a useful role for more controversial treatment methods, such as eye-movement desensitization and reprocessing

(EMDR) as well as touch therapy. Sprinkled throughout the book are case examples illustrating use of these techniques. The authors cite the findings of other researchers as support for the idea that the brain is truly being repaired; as written, however, the authors' text appears to reflect their own conclusions, which these experts have not stated.

Using published references as current as 2002, Stien and Kendall have pulled together research and theory from developmental neuroscientists and trauma researchers. Much of this information seems to fit with clinical observations but cannot be said to completely explain PTSD. At times, the authors blur the distinction between correlation and causation. They seem aware of this pitfall, yet their conclusions are not fully supported by the

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data. In one such example of overreaching, the authors describe a boy's improvement as the result of "his brain growth [being] back on track" (p 67).

The writing style ranges from scholarly to colloquial. The introduction to a review of the psychobiology of PTSD includes the comment, "trauma causes the stress response to go out of whack ..." (p 81). The final chapter advocates funding for social programs that the authors believe will help prevent child abuse and facilitate better mental health services for children. A closing summary of the earlier chapters would have been more useful.

Emerson M Pugh, late professor of physics at Carnegie Mellon University, taught that "if the human brain were so simple that we could understand it, we would be so simple that we couldn't." Whether effective PTSD treatment repairs trauma's impact on neurobiology is an open question; the exact nature of these effects is still being elaborated. This book's broad perspective does increase our understanding, but readers are reminded how far we've yet to go. ❖

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## Sky Dwellers

The sky begins at the ground  
It goes all the way up to the stars.  
This means that we are all sky dwellers,  
albeit in the bottom of the sky.

— Fred Schaaf, astronomer