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EMDR Treatment: Less Than Meets the Eye?

Eye movement desensitization and reprocessing has been hailed by many as a major breakthrough in the treatment of post-traumatic anxiety. It rests on a surprisingly weak foundation of research evidence.

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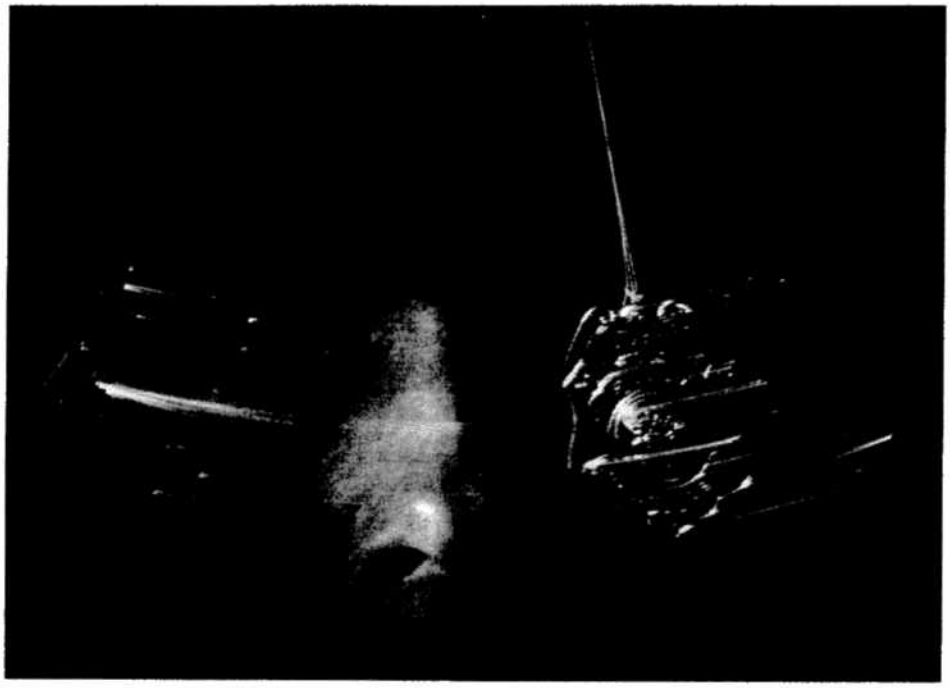
"Quick fixes" for emotional maladies have struck a responsive chord in the general public, as biopsychologist B. L. Beyerstein (1990) has noted. Because these interventions often hold out the hope of alleviating long-standing and previously intractable problems with a minimum of time and effort, they are understandably appealing to both victims of psychological disorders and their would-be healers.

More often than not, however, the initial enthusiasm generated by such treatments has fizzled as soon as their proponents claims have been subjected to intensive scrutiny. In the case of certain highly touted techniques such as neurolinguistic programming (Druckman and Swets 1988), subliminal self-help tapes (Moore 1992; Pratkanis 1992), and facilitated communication for autism (Mulick, Jacobson, and Kobe 1993), controlled studies overwhelmingly indicate that



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The well-known technique of using alternating eye movements to induce hypnosis finds its modern incarnation in the eye movements of EMDR.

early reports of their effectiveness were illusory. In other cases, such as biofeedback for psychosomatic disorders, there is some limited evidence for efficacy, but scant evidence that this efficacy exceeds that of less expensive and less technologically sophisticated treatments (Druckman and Swets 1988). The benefits of biofeedback, for example, are not demonstrably greater than those of relaxation training (Silver and Blanchard 1978).

In the past few years, a novel and highly controversial treatment known as "eye movement desensitization and reprocessing" (EMDR) has burst onto the psychotherapy scene. EMDR has been proclaimed by its advocates as an extremely effective and efficient treatment for Post-Traumatic Stress Disorder (PTSD) and related anxiety disorders. These assertions warrant close examination because PTSD is a chronic and debilitating condition that tends to respond poorly to most interventions.

Although PTSD was not formally recognized as a mental disorder until 1980, descriptions of "shell shock," "battle fatigue," and similar reactions to wartime trauma date back at least to the late nineteenth century (Barlow 1988). PTSD is defined by the American Psychiatric Association (1994, p. 427) as an anxiety disorder resulting from exposure to "an event...that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others." Among the most frequent precipitants of PTSD are military combat, rape, physical assault, motor vehicle accidents, natural disasters, and the witnessing of a murder or accidental death. The primary symptoms of PTSD fall into three categories: (1) psychological reexperiencing of the traumatic event (e.g., recurrent and disturbing flashbacks and dreams of the event); (2) avoidance of stimuli (e.g., television programs, conversations) that remind the individual of the event; and (3) heightened arousal (e.g., sleep disturbances, increased startle responses).

Although PTSD is difficult to treat, there is accumulating evidence that "exposure treatments," which involve confronting clients with memories and images of the traumatic event, are effective for many cases of PTSD (Frueh, Turner, and Beidel 1995). One of the best known of such interventions is "flooding," in which clients are exposed to trauma-related stimuli for prolonged time periods (often two hours or more) until their anxiety subsides. Flooding can be performed using either real-life stimuli or visual imagery, although the inability to recreate the actual details of the traumatic scene typically means that the treatment must be conducted imaginally. The mechanisms underlying the success of exposure techniques are still a subject of debate, but many psychologists believe that the effective ingredient in such treatments is "extinction"—the process by which a response dissipates when the stimulus triggering this response is presented without the original emotional concomitants.

Despite their advantages, exposure treatments for PTSD tend to provoke extreme anxiety and consume much time. Often 20 sessions are required for maximal efficacy (Frueh et al. 1995). As a result, many clients with PTSD are reluctant to undergo such treatments, leading some practitioners to search for less stressful and more time-efficient interventions. Enter EMDR.

EMDR: Method, Rationale, and Claims

Francine Shapiro, the psychologist who originated EMDR, recalls having fortuitously "discovered" this technique when she found that rapid back-and-forth eye movements reduced her own anxiety (Shapiro 1989b). Shapiro thereafter applied this procedure to her own clients with anxiety disorders and claims to have met with remarkable success. Since the initial published report of its use in 1989, EMDR has skyrocketed in popularity among practitioners. As of mid-1995, approximately 14,000 therapists were licensed to perform EMDR in the United States and other countries (Bower 1995), and this number is growing. EMDR is also attracting international

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attention. For example, a team of American psychologists recently trained 40 European therapists to administer EMDR to victims of war trauma in Bosnia (Cavaliere 1995).

Although EMDR is alleged to be a complicated technique that requires extensive training (Shapiro 1992), the treatment's key elements can be summarized briefly. Clients are first asked to visualize the traumatic event as vividly as possible. While retaining this image in mind, they are told to supply a statement that epitomizes their reaction to it (e.g., "I am about to die"). Clients are then asked to rate their anxiety on a Subjective Units of Distress (SUDs) scale, which ranges from 0 to 10, with 0 being no anxiety and 10 being extreme terror. In addition, they are told to provide a competing positive statement that epitomizes their *desired* reaction to the image (e.g., "I can make it"), and to rate their degree of belief in this statement on a 0 to 8 Validity of Cognition scale.

Following these initial steps, clients are asked to visually track the therapist's finger as it sweeps rhythmically from right to left in sets of 12 to 24 strokes, alternated at a speed of two strokes per second. The finger motion is carried out 12 to 14 inches in front of the client's eyes. Following each set of 12 to 24 strokes, clients are asked to "blank out" the visual image and inhale deeply, and are then asked for a revised SUDs rating. This process is repeated until clients' SUDs ratings fall to 2 or lower and their Validity of Cognition ratings rise to 6 or higher.

Although EMDR technically requires the use of eye movements, Shapiro (1994a) claimed that she has successfully used the technique with blind clients by substituting auditory tones for movements of the therapist's finger. Recently I attended a presentation on EMDR given by a clinician who reported that, when working with children, he uses alternating hand-taps on the knees in lieu of back-and-forth finger movements.

Since its development, EMDR has been extended to many problems other than PTSD, including phobias, generalized anxiety, paranoid schizophrenia, learning disabilities, eating disorders, substance abuse, and even pathological jealousy (Beere 1992; Marquis 1991; Shapiro 1989b). Moreover, Shapiro (1991, p. 135) asserted that "EMDR treatment is equally effective with a variety of 'dysfunctional' emotions such as excessive grief, rage, guilt, etc." The theoretical rationale for EMDR has not been clearly explicated by either Shapiro or others. Indeed, a recent attempt by Shapiro (1994b, p. 153) to elaborate on EMDR's mechanism of action may mystify even those familiar with the technique: "The system may become unbalanced due to a trauma or through stress engendered during a developmental window, but once appropriately catalyzed and maintained in a dynamic state by EMDR, it transmutes information to a state of therapeutically appropriate resolution." Shapiro has further conjectured that the eye movements of EMDR are similar to those of rapid eye movement (REM) sleep. Because there is evidence from animal studies that REM sleep is associated with the processing of memories (Winson 1990), Shapiro has suggested that the eye movements of EMDR may similarly facilitate the processing of partially "blocked" memories. Because there is no evidence that EMDR produces brain changes resembling those occurring during REM sleep, however, the analogy between the eye movements of EMDR and those of REM sleep may be more superficial than real.

EMDR has been hailed by its advocates as a novel treatment that produces much faster and more dramatic improvements than alternative treatments. Shapiro (1989b), for example, asserted that EMDR can successfully treat many or most cases of PTSD in a single 50-minute session, although especially severe cases may require several sessions. Moreover, claims for EMDR's efficacy have not been limited to Shapiro. Psychologist Roger Solomon (1991, cited in Herbert and Mueser 1992) described EMDR as "a powerful tool that rapidly and effectively reduces the emotional impact of traumatic or anxiety evoking situations." Beere (1992, p. 180) reported "spectacular" results after using EMDR on a client with multiple personality disorder.

"Does not the spirit of open scientific inquiry demand that the proponents of a novel technique remain agnostic regarding its efficacy pending appropriate data?"

Similar reports of EMDR's sensational effectiveness have appeared in the media. On July 29, 1994, ABC's "20/20" newsmagazine show aired a segment on EMDR. Host Hugh Downs introduced EMDR as "an exciting breakthrough . . . a way for people to free themselves from destructive memories, and it seems to work even in cases where years of conventional therapy have failed." Downs stated, "No one understands exactly why this method succeeds, only that it does." The program featured an excerpt from an interview with Stephen Silver, a psychologist who averred, "It (EMDR) leads immediately to a decrease in nightmares, intrusive memories, and flashback phenomena. It is one of most powerful tools I've encountered for treating post-traumatic stress" (ABC News 1994).

Although based largely on unsystematic and anecdotal observations, such glowing testimonials merit careful consideration. Are the widespread claims for EMDR's efficacy substantiated by research?

Uncontrolled Case Reports

Many uncontrolled case reports appear to attest to the efficacy of EMDR (e.g., Forbes, Creamer, and Rycroft 1994; Lipke and Botkin 1992; Marquis 1991; Oswalt, Anderson, Hagstrom, and Berkowitz 1993; Pellicer 1993; Puk 1991; Spates and Burnette, 1995; Wolpe and Abrams, 1991). All of these case reports utilize a "pre-post design" in which clients are treated with EMDR and subsequently reassessed for indications of improvement. These case reports, although seem-

Similarities of EMDR to Other Treatments

Although EMDR is of recent origin, the seeds of many of its therapeutic components can be found in much earlier treatment methods. At least some of EMDR's intuitive appeal might derive from its superficial similarity to another technique that has long captured the fascination of the general public: hypnosis (Gastright 1995). James Braid, the nineteenth-century eye doctor and surgeon who is generally credited with coining the term *hypnosis*, also introduced the technique of optical fixation (sometimes referred to as the "Braid effect") to induce the hypnotic state. In one familiar variation, the hypnotist rhythmically swings a watch on a chain or other pendulous object in front of the patient, who is asked to visually track its movement.

Interestingly, Braid discovered that moving this object was not needed to induce hypnosis; a stationary fixation point worked equally well. EMDR, like Braid's induction technique, involves the use of alternating eye movements. The eye movements associated with EMDR, like those in hypnotic induction, may well be superfluous (Renfrey and Spates 1994). Braid, like many advocates of EMDR, perceived deep-seated commonalities between the processes occurring during therapy and the phenomenon of sleep. Indeed, Braid believed that the eye movements associated with hypnotic induction produce a sleeplike state, which he termed hypnosis ("hypno" is Greek for "sleep") (Rowley 1986).

EMDR also bears certain similarities to neurolinguistic pro-

ingly supportive of EMDR, are for several reasons seriously flawed as persuasive evidence for its effectiveness.

First, case reports, probably even more than large controlled investigations, are susceptible to the "file drawer problem" (Rosenthal 1979)—the selective tendency for negative findings to remain unpublished. It is impossible to determine the extent to which the published cases of EMDR treatment, which are almost all successful, are representative of all cases treated with this procedure.

Second, in virtually all of the published case reports, EMDR was combined with other interventions, such as relaxation training and real life exposure (Acierno, Hersen, Van Hasselt, Tremont, and Meuser 1994). As a result, one cannot determine whether the apparent improvement reported in such cases is attributable to EMDR, the ancillary treatments, or both.

Third, and most important, these case reports cannot provide information regarding cause-and-effect relations because they lack a control group of individuals who did not receive EMDR. The ostensible improvement resulting from EMDR in these reports may be due to numerous variables other than EMDR itself (Gastright 1995), such as placebo effects (improvement resulting from the expectation of improvement), spontaneous remission (natural improvement occurring in the absence of treatment), and regression to the mean (the statistical tendency of extreme scores at an initial testing to become less extreme upon retesting). Consumers of uncontrolled case reports thus must be chary of falling prey to the logical fallacy of *post hoc, ergo propter hoc* (after this, therefore because of this): Only in adequately controlled studies can improvement following EMDR treatment be unequivocably attributed to the treatment itself.

Controlled Studies

Despite abundant claims for EMDR's efficacy, few controlled outcome studies on EMDR have been conducted. They are of two major types: (1) between-subject designs, in which subjects are randomly assigned to either a treatment or a control group; and (2) within-subject designs, in which subjects serve as their own control.

Between-Subject Designs

In the first controlled investigation o EMDR, Shapiro (1989a) randoml assigned 22 individuals who had experi enced a traumatic event to either an EMDI treatment group or an exposure contro group. In the latter condition, subjects wer provided with imaginal exposure to th trauma, but without the eye movement involved in EMDR. Shapiro reported tha after only one session, EMDR subject exhibited significantly lower SUDs level and significantly higher Validity o Cognition ratings than subjects in the con trol group. The control group subject showed essentially no improvement o either measure.

Superficially, these findings seem to pro vide impressive support for the effectivenes of EMDR. Even a casual inspection of th study's methodology, however, reveals seriou deficiencies in experimental design (Acierno et al. 1994; Herbert and Mueser 1992). First Shapiro herself conducted both treatment and elicited the SUDs and Validity o Cognition ratings from subjects in both groups. Because Shapiro knew the subjects treatment condition, her findings are poten tially attributable to the well-documented experimenter expectancy effect (Rosentha 1967)—the tendency for researchers t unintentionally bias the results of thei investigations in accord with their hypothe ses. Specifically, Shapiro might have unwit tingly delivered treatment more effectivel or convincingly to the EMDR group, o subtly influenced subjects in this group t report greater improvement. Second, th cessation of traumatic imagery was contin gent on low SUDs ratings in the EMDI group, but not in the imaginal exposur group (Lohr, Kleinknecht, Conly, Cerro Schmidt, and Sonntag 1992). It is therefor possible that subjects in the EMDR grou reported low SUDs ratings in order to ter minate this aversive imagery. Moreover, th total amount of exposure in the two group may have differed (Lohr et al. 1992). Thes methodological shortcomings render th results of Shapiro's study (Shapiro 1989a virtually uninterpretable.

Since this initial report, a number o investigators have attempted to replicat Shapiro's methodology of comparin EMDR with an imaginal exposure contro

condition for clients with PTSD or other anxiety disorders. Several of these researchers used a "dismantling" design in which EMDR was compared with an otherwise identical procedure minus the eye movements; in this design certain components of the treatment that are purported to be effective (in this case, eye movements) are removed from the full treatment package to determine if their omission decreases therapeutic effectiveness. Renfrey and Spates (1994), for example, compared EMDR with an imaginal exposure condition in which subjects stared at a stationary object.

In virtually all of these investigations, EMDR was not consistently more effective than the exposure control condition, although both conditions appeared to produce improvements on some measures. In one study (Boudewyns et al. 1993), EMDR was found to be more effective than the control condition, but only when within-session SUDs ratings were used. In this investigation, however, as in Shapiro's study (1989a), cessation of the traumatic scene was contingent on low SUDs ratings in the EMDR condition only, so this finding may again reflect the subjects' desire to terminate exposure to unpleasant imagery. Interestingly, SUDs ratings obtained outside of sessions in response to audiotaped depictions of clients' traumatic experiences indicated no differences between conditions. Moreover, physiological reactions (e.g., heart rate increases) to these depictions showed no improvement in either condition.

Sanderson and Carpenter (1992), who administered EMDR and imaginal exposure in counterbalanced order, found that EMDR and imaginal exposure yielded equivalent improvements (using SUDs ratings taken outside of treatment sessions) but that EMDR was effective only when preceded by imaginal exposure. Renfrey and Spates (1994, p. 238) reported that EMDR was no more effective than a control procedure involving fixed visual attention, leading them to conclude that "eye movements are not an essential component of the intervention."

Only one published study has directly compared EMDR with a no-treatment control group. Jensen (1994) randomly assigned Vietnam veterans with PTSD to either an EMDR group or a control group that was promised delayed treatment. EMDR produced lower within-session SUDs ratings compared with the control condition, but did not differ from the control condition in its effect on PTSD symptoms. In fact, the level of interviewer-rated PTSD symptoms *increased* in the EMDR group following treatment.

Within-Subject Designs

Three teams of investigators have used within-subject designs to examine the efficacy of EMDR. Acierno, Tremont, Last, and Montgomery (1994) treated a client with phobias of dead bodies and the dark using both EMDR and "Eye-Focus Desensitization," the latter identical to EMDR except that the therapist's finger remained stationary. In the case of the client's fear of dead bodies, EMDR was administered first; in the case of the client's fear of the dark, Eye-Focus Desensitization was administered first. EMDR showed little or no advantage over the control procedure on self-report, physiological, or behavioral measures, the last of which involved assessments of the client's willingness to approach feared stimuli.

In contrast, Montgomery and Ayllon (1994a) reported that EMDR yielded significant decreases in SUDs levels and client reports of PTSD symptoms, whereas a control procedure consisting of EMDR minus eye movements did not. These two procedures were not, however, administered in counterbalanced order; the control procedure was always presented first. Consequently, the improvements following EMDR may have been due to a delayed effect of the control procedure. Alternatively, they might have resulted from the cumulative effect of the exposure provided by both procedures, regression to the mean effects, or to other factors unrelated to EMDR. EMDR did not produce improvements on physiological indices (heart rate and systolic blood pressure).

Finally, Montgomery and Ayllon (1994b) treated a client with PTSD who had experienced two distinct traumatic events (a car accident and an assault at knifepoint). EMDR was applied separately to the memories of each event. EMDR appeared to show beneficial effects on subgramming (Bandler and Grinder 1975), in which the client's eye movements and visual imagery both play a pivotal role. The developers of neurolinguistic programming claimed that their procedure could cure anxiety disorders (e.g., phobias) in as little time as 20 minutes. Like the claim that EMDR can alleviate most PTSD symptoms in a single session, credible evidence for this neurolinguistic programming assertion has yet to be presented (Druckman and Swets 1988).

In his classic book *Persuasion and Healing: A Comparative Analysis of Psychotherapy,* Jerome Frank (1973) posited that all psychotherapies share certain nonspecific ingredients that account for their effectiveness in combatting distress. These common ingredients, although often denigrated as "placebo" factors, are posited by Frank to be essential to therapeutic efficacy. Among these factors are what Frank termed therapeutic procedures or rituals: highly specialized techniques that, although not in and of themselves necessarily effective, help to inspire the confidence of both client and therapist and provide a rationale for treatment. Frank contended that these procedures, of which the free association method of the psychoanalyst and the induction procedure of the hypnotist are exemplars, are akin to the ceremonial rites of faith healers in that they cultivate the impression that deeply mysterious and significant changes are occurring. In many respects, the eye movements and other accoutrements of EMDR can similarly be viewed as therapeutic rituals that, although perhaps not directly relevant to therapeutic success, may foster clients' and therapists' faith in their chosen method of healing. □

jective distress, although the degree of improvement was much less than that reported by Shapiro (1989a). Because EMDR was not compared with a control procedure involving imaginal exposure, its unique effects cannot be ascertained.

The Verdict

Because of the paucity of adequately controlled studies on EMDR, it would be premature to proffer any definitive conclusions regarding its effectiveness. Nevertheless, the following assertions are warranted on the basis of the evidence.

1. Although a multitude of uncontrolled case reports seemingly demonstrate that EMDR produces high success rates, these reports are open to numerous alternative explanations and thus do not provide compelling evidence for EMDR's effectiveness.

2. Controlled studies provide mixed support for the efficacy of EMDR. Most of the evidence for EMDR's effectiveness derives from clients' within-session ratings (which in some cases may be influenced by the desire to terminate exposure), but not from more objective measures of improvement. There is no evidence that EMDR eliminates many or most of the symptoms of PTSD in one session.

3. There is no convincing evidence that EMDR is more effective for post-traumatic anxiety than standard exposure treatments. If EMDR works at all, it may be because it contains an exposure component (Steketee and Goldstein 1994). The proponents of EMDR have yet to demonstrate that EMDR represents a new advance in the treatment of anxiety disorders, or that the eye movements purportedly critical to this technique constitute anything more than pseudoscientific window dressing.

"Assertions about the utility and validity of psychological techniques . . . must answer to a commonsense demand: 'Show me.' EMDR has thus far failed to convincingly pass the 'Show me' test."

Thus, the most justified conclusion concerning EMDR's effectiveness is: Not proven. Nonetheless, many proponents of EMDR remain convinced that the treatment utility of EMDR will ultimately be demonstrated. Shapiro (1992, p. 114), for example, opined, "When the efficacy of EMDR is fully established, I would like to see it taught in the universities. When that happens, three-hour workshops on specialized applications of EMDR will undoubtedly be offered. . . ." These statements, which were made after approximately 1,200 licensed therapists had already received formal training in EMDR (Shapiro 1992), raise troubling questions. Should not the efficacy of a therapeutic technique be established *before* it is taught to clinicians for the express purpose of administering it to their clients? Moreover, does not the spirit of open scientific inquiry demand that the proponents of a novel technique remain agnostic regarding its efficacy pending appropriate data, and that the two sentences quoted above should therefore begin with "if" rather than "when?"

Concluding Comments

Dawes (1994) has argued that assertions about the utility and validity of psychological techniques, like assertions in all areas of science, must answer to a commonsense demand: "Show me." EMDR has thus far failed to convincingly pass the "Show me" test. Claims for its efficacy have greatly outstripped its empirical support. Although Shapiro has suggested that "there is more to EMDR than meets the eye" (1994b, p. 155), a skeptical consumer of the literature might well be tempted to draw the opposite conclusion.

Moreover, because EMDR has not been clearly shown to be beneficial for the condition for which it was originally developed, namely PTSD, its extension as a treatment for schizophrenia, eating disorders, and other conditions is even more premature and ethically problematic. Furthermore, both scientific and logical considerations dictate that the developers of a treatment should specify the boundary conditions under which this technique is and is not effective. Because EMDR purportedly facilitates the processing of traumatic memories, one would not expect it to be useful for conditions (e.g., schizophrenia) in which severe emotional trauma has not been found to play a major causal role. Indeed, claims that EMDR is helpful for such conditions (Marquis 1991) actually call into question the presumed mechanisms underlying EMDR's mode of action. So far, however, the proponents of EMDR have made little or no effort to delineate the boundary conditions of their method's effectiveness. Moreover, the assertion that EMDR works equally well with auditory tones and hand-taps as with eye movements (Shapiro 1994a) runs counter to Shapiro's theoretical conjectures regarding EMDR's commonalities with REM sleep.

Although further research on EMDR is warranted, such research will likely be impeded by the prohibitions placed on the open distribution of EMDR training materials (Acierno et al. 1994). For example, participants in EMDR workshops must agree not to audiotape any portion of the workshop, train others in the technique without formal approval, or disseminate EMDR training information to colleagues (Rosen 1993). It seems difficult to quarrel with Herbert and Meuser's (1992, p. 173) contention that although "this procedure is justified to maintain 'quality control,' such a restriction of information runs counter to the principle of open and free exchange of ideas among scientists and professionals."

Because of the limited number of controlled studies on EMDR, both practitioners and scientists should remain open to the possibility of its effectiveness. Nevertheless, the standard of proof required to use a new procedure clinically should be considerably higher than the standard of proof required to conduct research on its efficacy. This is particularly true in the case of such conditions as PTSD, for which existing treatments have already been shown to be effective. The continued

case of such conditions as PTSD, for which existing treatments have already been shown to be effective. The continued widespread use of EMDR for therapeutic purposes in the absence of adequate evidence can be seen as only another example of the human mind's willingness to sacrifice critical thinking for wishful thinking.

Note

1. I thank Lori Marino and Irwin Waldman for their helpful comments on an earlier draft of this manuscript and Cherilyn Rowland for assistance in library research.

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