
Eye Movement Desensitization and Reprocessing (EMDR): Information Processing in the Treatment of Trauma



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Eye Movement Desensitization and Reprocessing (EMDR) is an efficacious and efficient treatment for posttraumatic stress disorder (PTSD). This article provides a brief overview of the findings of 20 controlled-outcome studies and describes Shapiro's Adaptive Information Processing model. This model posits that pathology results when distressing experiences are processed inadequately and hypothesizes that EMDR accelerates information processing, resulting in the adaptive resolution of traumatic memories. A detailed description of the eight phases of treatment highlights the procedures, assumptions, and clinical observations that currently guide EMDR clinical practice. A case study, with an in-session transcript, illustrates the application of EMDR to address the past events that have laid the groundwork for dysfunction, the present circumstances that elicit distress, and skills acquisition needed for adaptive functioning. © 2002 Wiley Periodicals, Inc. *J Clin Psychol/In Session* 58: 933–946, 2002.

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Eye Movement Desensitization and Reprocessing (EMDR) is a structured treatment approach guided by an information-processing model (Shapiro, 2001). It integrates elements of other psychotherapies such as psychodynamic, cognitive-behavioral, person-centered, body-based, and interactional therapies (see Shapiro, 2002) into a standardized set of procedures and clinical protocols. While originally designed to alleviate the dis-

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tress associated with traumatic memories, EMDR now is used to address a range of complaints that follow distressing life experiences.

Since the introduction of EMDR in 1989 (Shapiro, 1989), independent researchers at multiple sites have conducted another 19 controlled-outcome trials investigating EMDR treatment of PTSD. EMDR's efficacy in the treatment of PTSD now is recognized widely. In 1998, independent reviewers (Chambless et al., 1998) for the APA Division of Clinical Psychology placed EMDR, exposure therapy, and stress-inoculation therapy on a list of empirically supported treatments, as "probably efficacious" for civilian PTSD; no other therapies were judged to be supported empirically by controlled research for PTSD populations. A meta-analysis of all published studies on psychological and drug treatments for PTSD reported, "The results of the present study suggest that EMDR is effective for PTSD, and that it is more efficient than other treatments" (Van Etten & Taylor, 1998, p. 140). After the examination of additional published controlled studies, the International Society for Traumatic Stress Studies designated EMDR as efficacious for PTSD (Chemtob, Tolin, van der Kolk, & Pitman, 2000) and recommended further research to be afforded the highest level of confidence. These additional studies comparing EMDR to cognitive-behavior therapies now have been carried out (e.g., Lee, Gavriel, Drummond, Richards, & Greenwald, *in press*; Power et al., *in press*).

Trials with Civilian Participants

Since Shapiro's first study, there have been 14 additional controlled clinical trials that investigated the efficacy of EMDR with civilian PTSD (see Chemtob et al., 2000; Maxfield & Hyer, 2002; Perkins & Rouanzoin, 2002; Shapiro, 2001, 2002). The participants were victims of rape, physical violence, childhood abuse, natural disasters, accidents, and other traumas. The studies generally have reported a decrease in PTSD diagnosis of 60–90% after three to eight sessions (e.g., Rothbaum, 1997). In several randomized studies, EMDR was found superior on multiple measures when compared to various active-control conditions such as undifferentiated forms of individual psychotherapy and active listening. Seven randomized and two nonrandomized controlled studies compared EMDR to exposure therapies or combinations of exposure and cognitive (CBT) therapies. In all randomized trials, EMDR appeared to be relatively equivalent in treatment outcome to CBT. Two of the studies reported a significant superiority of EMDR to CBT on intrusion subscales of the PTSD measures, and one study reported a significant superiority of CBT to EMDR on intrusion and avoidance symptoms. One of the nonrandomized studies reported superiority for the CBT condition, while the other reported superiority for EMDR on multiple measures. Most studies also noted that EMDR involved less treatment time due to reduced homework requirements. EMDR treatment effects generally have been well maintained at follow up.

Several controlled field studies have tested EMDR in community settings such as an HMO facility and a university-based clinic serving the outside community. Such studies, which reported good results, have excellent external validity. In the only controlled study that has treated disaster-related PTSD (Chemtob, Nakashima, Hamada, & Carlson, 2002), school children's PTSD symptoms were reduced markedly after EMDR treatment, with an improvement in overall health measured by fewer health visits to the school nurse.

Trials with Combat Veteran Participants

There have been five controlled clinical trials that investigated the efficacy of EMDR with combat-related PTSD (see Feske, 1998). Five of these studies addressed only one or

two memories or provided only one or two sessions to these multiply traumatized veterans, and their findings were equivocal. The one study (Carlson, Chemtob, Rusnak, Hedlund, & Muraoka, 1998) that administered a longer course of treatment reported a decrease in PTSD diagnosis of 78% after 12 sessions, with results maintained at 9-month follow up.

In this article, we provide an overview of Shapiro's (2001) Adaptive Information Processing model, which describes the development of pathology and its resolution with enhanced processing during EMDR treatment. This is followed by a description of the eight phases of treatment, highlighting the procedures, assumptions, and clinical observations that currently guide EMDR clinical practice. A case study, with an in-session transcript, illustrates the application of EMDR to address the past events that have laid the groundwork for dysfunction, the present circumstances that elicit distress, and skills acquisition needed for adaptive functioning.

The Adaptive Information Processing Model

The Adaptive Information Processing (AIP; Shapiro, 2001) model, which guides EMDR clinical practice, proposes that there is within each of us a physiological information-processing system in which new information is processed generally to an adaptive state. Adaptive processing occurs when associations are forged with previously stored material, resulting in learning, relief of emotional distress, and the availability of the material for future use. Information is understood to be stored in memory networks that contain related thoughts, images, emotions, and sensations, with links between associated memory networks. It is assumed that networks are organized around the earliest related event and that memories about a recent incident can contain elements connected to prior experiences.

The AIP model suggests that if the information related to a distressing or traumatic experience is not processed fully, the initial perceptions will be stored essentially as they were input, along with any distorted thoughts or perceptions experienced at the time of the event. A central tenet is that if distressing memories remain unprocessed, they become the basis of current dysfunctional reactions. The intrusive symptoms of PTSD are assumed to result from the unprocessed sensory, affective, and cognitive elements of the traumatic memory. For example, after being mugged, a client experienced intrusive images of the attacker's face, along with feelings of being physically constrained and injured. When his beloved and trusted partner touched him unexpectedly, he was startled and flooded with feelings of terror. The EMDR therapist conceptualizes his experience as occurring when the unprocessed perceptions (the stored experience) of the attack overwhelm him, emotionally and physically, and trap him into being reactive rather than appropriately responsive to his partner's touch.

It is hypothesized that the eye movements and other dual-attention stimuli enhance information processing. Four recent studies (e.g., van den Hout, Muris, Salemink, & Kindt, 2001) have demonstrated consistently that EMDR-like eye movements decrease the vividness of memory images and related affect. This effect may enhance processing through desensitization by decreasing distress and related avoidance. It is hypothesized that as the image becomes less salient, clients are better able to access and attend to more adaptive information, forging new connections within the memory network (see Shapiro, 2001).

The Eight Phases of EMDR

EMDR is applied in eight phases, with phases three through eight repeated in most sessions. In the following description, the procedures, assumptions, and clinical observa-

tions that currently guide EMDR clinical practice are highlighted (Shapiro, 2001). Before addressing the traumatic memories, the therapist uses EMDR to assist the client in developing skills to tolerate any negative affect that may be elicited by activation of the memory network. To ensure complete processing of all related memory networks, treatment usually begins with the earliest related incidents. In addition to targeting and resolving traumatic memories, EMDR is used to address the current situations that evoke emotional disturbance by processing triggers so that they no longer activate symptomatic reactions. It also is used to assist the client in developing the specific skills and behaviors required for a healthy functional life.

During the first phase, the therapist takes a full history, assesses the client's readiness for EMDR, and develops a treatment plan. In addition to standard procedures of client assessment, the therapist identifies suitable targets for EMDR treatment. Targets can include development of affect-management resources, disturbing memories, related historical incidents, current situations that elicit distress, and imaginal templates for positive future action.

Phase two is a preparation or stabilization phase aimed at establishing the therapeutic relationship, setting reasonable expectations, and educating the client regarding his/her symptoms. The focus is on enhancement and development of personal resources, such as safety, affect management, and self-control, before work on the traumatic memories. For clients with no marked deficits in these areas, this phase of treatment is brief and EMDR is used typically to enhance "safe place" visualizations. Such self-calming techniques are an important element of treatment and are used to "close" incomplete sessions, as well as to maintain client stability between and during sessions. Clients with histories of childhood trauma/neglect often have deficits in affect regulation and impulse control, and they may require substantial preparation. For such clients, phase-two interventions can be quite extensive and likely will require resource-enhancement work combining relaxation, imagery, and EMDR (Korn & Leeds, in press; Shapiro, 2001). Similarly, the avoidant behavior exhibited by some clients with anxiety disorders must be addressed before serious attempts at processing traumatic memories can begin.

Processing of the traumatic incident begins during the third phase, with a structured clinician-directed assessment of the sensory, cognitive, and affective components of the targeted memory. The client describes the associated visual image that is most vivid and compelling. After identification of the current irrational negative belief about self that is elicited by this image (e.g., "I'm a failure" or "I'm not lovable"), he expresses a desired positive belief (e.g., "I can succeed" or "I am lovable"). He rates how true this positive cognition feels when paired with the image of the memory, using the validity of the cognition (VOC) scale, where 1 is "feels completely false," and 7 is "feels completely true." Besides establishing a response baseline, the articulation of the positive cognition constructs a realistic treatment goal. Additionally, it may expedite information processing by forging preliminary associative links between the targeted memory and emotionally corrective information.

The client then combines the visual image with the negative belief; this activates the memory network and often evokes strong affect. He identifies these emotions and rates his level of distress on the Subjective Unit of Disturbance (SUD) scale, where 0 is "neutral" and 10 is "the highest disturbance imaginable." Explicitly labeling the emotion allows the client to articulate feelings that may never have been expressed previously, thus facilitating preliminary information processing. In addition, this response baseline permits both client and therapist to recognize changes in the type of emotion experienced during the session. Next, the client identifies and locates the body sensations that are evoked by the traumatic image. This focus may allow him to identify and label the pure

sensory symptoms (e.g., tightness in the throat) and to separate these from cognitive interpretations (e.g., I am helpless).

The fourth phase starts with instructions to focus on the visual image, negative belief, and body sensations, and then to, "Let whatever happens happen." The client maintains this internal focus while simultaneously moving the eyes from side to side for 15 or more seconds (depending upon nonverbal cues), following the therapist's fingers as they move across the visual field. Other dual-attention stimuli (e.g., hand tapping, auditory stimulation) can be used instead of eye movements. After the set of eye movements, the client is told, "Blank out (or "Let go of") the material, and take a deep breath," and then is asked, "What do you get now?" Generally, the new material (image, thought, sensation, or emotion) becomes the focus for the next set of eye movements. Standardized procedures guide the clinician–client interaction and the focus of the sequence. This cycle of alternating focused attention and client feedback is repeated many times during the session and typically is accompanied by reported shifts in affect, physiological states, and cognitive insights. Such shifts are conceptualized in the AIP model as resulting when connections are made between the dysfunctionally stored memory and more adaptive information. If these associations do not occur spontaneously, the therapist intervenes to introduce the requisite information. As negative imagery, beliefs, and emotions become diffuse and less valid, positive ones tend to become stronger and more salient. This phase concludes when the client reports a SUD rating of 0 for the original incident.

The fifth phase begins after the targeted memory can be accessed without distress and promotes the expression and consolidation of the client's cognitive insights. Often self-acceptance and new positive and realistic self-perceptions characterize these insights. During this phase, the client simultaneously thinks about the original memory and the most enhancing positive cognition while experiencing dual-attention stimulation. The focus is on incorporating and increasing the strength of the positive cognition until the client reports strong confidence in the belief (e.g., VOC of 6 or 7).

In phase six, the client is asked to notice, while focusing on the image and positive cognition, if there is any tension or unusual sensation in the body. The AIP model posits that dysfunctionally stored information is experienced physiologically; therefore, EMDR processing is not considered complete until the client can think of the disturbing memory without feeling any significant body tension. If the client reports any negative sensations, these are targeted for processing until the tension is relieved.

In the seventh phase, the therapist determines whether the memory has been processed adequately and, if not, assists clients with the self-calming interventions developed in phase two. All clients are informed that processing may continue after the session and are instructed to maintain a journal to record any related material that arises, such as dreams, intrusions, insights, memories, and emotions. This assignment enhances stabilization by extending treatment effects to real-life stressors and promoting a sense of self-mastery and observation.

Reevaluation, phase eight, takes place at the beginning of every EMDR session following the initial session. The therapist asks the client to think of the previously processed memory to determine if the treatment gains from the previous session have been maintained. The client's journal is reviewed to evaluate the degree to which treatment effects have generalized or need further attention and to identify new issues that need to be addressed. The clinician assesses whether any situational triggers are eliciting distress or whether new skills are required for adaptive functioning. In addition to behavioral reports, therapists are encouraged to administer standardized self-report measures to monitor changes in specific symptoms. The goal of EMDR therapy is to produce the most substantial treatment effects possible in the shortest period of time while simultaneously

maintaining client function and preventing emotional overload; therefore, thorough ongoing evaluation of reprocessing, stability, behavioral change, and integration within the larger social system is essential. The eight phases of treatment may be completed in a few sessions or over a period of months, depending upon the needs of the client and/or the seriousness of the pathology.

Case Illustration

Presenting Problem/Client Description

Lynne presented for treatment (Popky & Levin, 1994) seeking relief from intrusive images about past experiences with earthquakes and from fears about potential earthquakes. These symptoms have been present since an earthquake two years previous. Lynne is in her mid-thirties and lives with her second husband, George, and her son, Tim. She has been married to George for six years and describes the marriage as happy and stable, although she states she is now becoming very irritated with George's "mood swings." She says that he swings from being generous to stingy and from being authoritarian to romantic and kind. She describes her current sex life as satisfactory. Her first marriage lasted for four years. The divorce was amicable and she has custody of Tim, their only child. Her ex-husband suffers from Bipolar I Disorder. Lynne describes her mother as anxious and her father as narcissistic. She says that he was a sex addict and that he had several extra-marital affairs. Lynne reports being molested by her brother, four years her senior. She reports no residual effects from the abuse.

Lynne has a college education and works as a real-estate agent. She reports difficulty functioning at work because of problems with concentration and irritability. The biggest problem is intrusive thoughts of earthquakes while she is showing a house to potential purchasers; rather than attending to her customers, she is thinking of how to escape. Lynne also reports a fear of driving in traffic that stems from a car accident, and this also interferes with her work as a real-estate agent.

Lynne's primary concern is to deal with her fears of earthquakes. She states, "Even though my mind says I'm safe, my body doesn't believe my mind. There's an outside force I have not accounted for." She worries that she "won't be able to react quickly enough." Lynne reports that although she once had the ability to calm and soothe herself, she is no longer able to do so. There were three earthquakes in which she felt very threatened. The first was seven years previous, and the earthquake struck while she was in the shower. She grabbed her son and waited it out. The second was five years ago. She had just been put under hypnosis in a psychology class when the earthquake began. The third was two years ago. She sheltered in a doorway alone, expecting to die. It was after this earthquake that she began to experience intrusive symptoms and extreme fears.

At intake, Lynne was diagnosed with PTSD. Her scores on the Impact of Event Scale were 22 on the Intrusion subscale (with a score range of 0–35), and 19 on the Avoidance subscale (range of 0–40), indicating moderate symptom levels. Her score on the Beck Depression Inventory (range of 0–63) was 6, indicating minimal or no depression. On the State Trait Anxiety Inventory, she scored 51 on the State subscale (range of 0–80) and 50 on the Trait subscale (range of 0–80), placing her at the 34th percentile for females in her age category. Her total score on the Symptom Check List—90 was 38, placing her at the 15th percentile. These scores indicate that, while Lynne met diagnostic criteria for PTSD, there were no comorbid disorders. Her scores on the STAI, BDI, and SCL—90 indicated minimal levels of anxiety and depression.

Case Formulation

Although Lynne had a history of childhood abuse, she was very clear that she wanted only to address the earthquake fears in treatment. The assessment indicated that her level of function was quite high, with symptom distress related only to the earthquakes. She had satisfactory marital and social relationships that were impaired only minimally by her PTSD. The impairment in her work setting was related directly to the earthquakes and the traffic accident. Given the experiential basis of the dysfunction, it was decided to use EMDR to address the critical incidents, beginning with the first earthquake.

Course of Treatment

In the first session, the therapist takes a full history, acquiring the information reported above. He assists Lynne in the development of a safe place. In the second session, it is decided to target the memory of the first earthquake, although the third earthquake was the one to precipitate the symptoms. With the therapist's help, Lynne identifies a disturbing image (hiding with her son in a doorway) and a negative belief: "I'm helpless—out of control." The positive belief she would prefer is, "I can handle what comes up." She finds that statement currently believable at a "2" level on the VOC scale, where 1 is completely false and 7 is completely true. As Lynne focuses on this image and the related negative belief, she reports feeling a high level of anxiety (8 on the 0–10 SUD scale, where 0 is no disturbance and 10 is the worst she can imagine) and identifies this feeling as being located in her solar plexus.

The therapist asks Lynne to concentrate on the image, negative belief, and the physical sensations, and then to follow his fingers with her eyes. After each set, the therapist asks her to talk about what comes to mind. The following transcript shows the first reprocessing session. The sets of eye movements are designated by xxxxxxxxxxxx. Statements in [brackets] indicate additional clinical aspects we will point out that may have particular interest for the reader.

THERAPIST: I'd like you to bring up the image of hiding in the doorway with Tim, those negative words, "I'm helpless—out of control," notice where you are feeling it in your body—and follow my fingers.

LYNNE: Okay.

XXXXXXXXXXXXXXXXXXXX

THERAPIST: What are you noticing now?

LYNNE: Ah. Sort of a softness in my body. I'm . . . more aware . . . my legs feel really heavy. Sort of a sinking kind of feeling in my legs—they just feel kind of woozy.

[During EMDR therapy, clients often report physical sensations that are similar to what they may have experienced at the time of the event. The therapist conceptualizes these sensations as part of the memory network, but does not comment or make interpretations.]

THERAPIST: Concentrate on that.

LYNNE: Okay.

XXXXXXXXXXXXXXXXXXXX

THERAPIST: Okay. Take a deep breath and blank out again. What are you getting now?

LYNNE: Umm. The first thing that occurred to me was just the tape that I listened to about the people who work on trains and have to watch people get smashed by trains.

That's the first thing that occurred to me. Ah, ah . . . then I just started being more aware of my body again. Not having another thought.

[These free associations may be related to Lynne's theme of "lack of control"]

THERAPIST: Okay. Concentrate on that.

LYNNE: Okay. Mmm

XXXXXXXXXXXXXXXXXXXXXXXXXX

THERAPIST: What are you noticing now?

LYNNE: Um. More tiredness in my upper body. Um . . . ; softness. Sadness . . . kind of sad, melancholy feeling.

[Lynne originally identified anxiety as the affect related to the memory. It may be that anxiety was a catchall phrase for a variety of emotions that were under the surface and that she now is identifying, or that the processing is eliciting other types of affect]

THERAPIST: Concentrate on that.

LYNNE: Okay.

XXXXXXXXXXXXXXXXXXXXXXXXXX

THERAPIST: What. . . Now?

LYNNE: Um. I just flashed on the earthquake happening. The one that happened where I was in the class and I was under [hypnosis] and the earthquake happened. I thought about it.

[This is an association to the second earthquake, not the first earthquake, which is the one being directly targeted.]

THERAPIST: Think about that.

XXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: Just feeling really tired. My body feeling, noticing my body, really tired.

THERAPIST: Okay. Concentrate on that.

XXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: (*laughing*) I was thinking about running around my house when I was six. My brother and I running around the house, and I wanted to be a boy, and he told me if I ran around the house enough times, I would be a boy. And I was disappointed because it didn't happen.

THERAPIST: Okay. Think about that.

LYNNE: Okay. (*laughing*).

XXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: Yeah, I was thinking about my sense of betrayal with my brother, that he molested me and how I really admired him (*crying*).

[It is not unusual for additional memories to surface that initially may appear to be tangents. However, in most instances, they actually are related in the memory network with physiological, affective, and/or cognitive associations. In this case, the first memory that emerged with her brother appears to be a humorous event. However, with the second set, the deeper issue of betrayal becomes revealed. And indeed, even in the first instance, she had trusted him and he lied to her. The therapist maintains a supportive and empathic stance as the memory emerges communicated through nonverbals during the subsequent

sets. However, since processing is occurring, the therapist does not comment directly or interpret.]

THERAPIST: Concentrate on that. Just let whatever happens happen. Just notice.

LYNNE: Okay. (*deep breath*)

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: Yeah. (*crying*) I was just thinking about. . . . Something occurred to me like “Duh” How much—that it shook my sense of reality.

[Processing is apparent here, with connections between an earthquake, where the ground is literally shaken, and an internal sense of instability experienced in childhood when the brother she trusted betrayed her. In both instances, what should have been a firm foundation became shaken.]

THERAPIST: Notice that.

LYNNE: Okay.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: I was thinking about playing cards with my dad across the table from one another.

THERAPIST: Okay. Concentrate on that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: I was thinking about my dad taking me to buy a coat and buttoning the button of my coat . . . and pinching my nipple when I was like eleven and how absolutely stunned I was with that.

[Once again, while the first memory to emerge about her father appears innocuous, continued processing reveals additional associations. Every client is briefed regarding the fallibility of memory and the need for corroboration to establish accuracy. However, it is assumed that whatever emerges, whether an actual event or not, is meaningful and useful. Therefore, without any judgment upon the part of the clinician, the reprocessing simply is continued.]

THERAPIST: Okay. Let’s go with that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: Ah. I was having more of a thought. Not an image or anything. Just a thought of . . . oh. Now, something came up just now . . . which one do I go with?

THERAPIST: Whatever one you want.

[EMDR is client-centered and nonleading.]

LYNNE: Yeah. What comes really clear—is getting sick when I was around the same age. Getting really sick with a pain in my side and nobody being able to figure out what it was and being rushed to the hospital. I really couldn’t lower my leg and no one could decide what was wrong with me. I had a really bad pain in my side, and then they just decided that I had some kind of mental problem. I guess that was the only way that I could express it. (*crying*)

[This memory appears to be related to the themes of “lack of control” and “shaken reality,” of betrayal and no firm ground to stand upon. Although Lynne is in pain, no one believes her; they conclude that her perceptions are unreliable. Also note that the childhood problem with her leg may be associated with the sensations in her leg that emerged

during the first sets of eye movement. The therapist makes no comment on these possible connections.]

THERAPIST: Concentrate on that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: Ah. Gosh, I was just thinking what a chaotic place it was to live in and what an unsafe place it was to be.

[Again, the themes of lack of control and lack of safety.]

THERAPIST: Think about that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: I was thinking of my mom and dad fighting and throwing things at one another while we were supposed to be in bed asleep. Hiding under the bed and trying to go to sleep and being afraid.

[There may be a parallel between the image of a frightened child hiding under the bed and the original image of hiding in the doorway, being afraid. However, once again, the therapist does not comment or interpret in order to allow the spontaneous processing to continue.]

THERAPIST: Focus on more of that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: I was thinking about how I wanted to protect my dad from my mother. 'Cause it just seemed really crazy.

THERAPIST: Think about that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: It kind of came back up to the first earthquake and jumping out of the shower and running in and grabbing my son Tim out of the crib and running with him downstairs and trying to protect him.

[A possible parallel with the need to protect both son and father.]

THERAPIST: Good. Think about that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: I was thinking about needing to protect Tim when he's with his dad. His dad is bipolar. He's diagnosed now and on lithium. How I used to really worry about letting him be with his dad and protecting him from his dad at the same time.

[Although this opens a number of intriguing questions regarding the similarities between family of origin and subsequent relationships, the therapist makes no comments at this time.]

THERAPIST: Okay. Concentrate on that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

LYNNE: I was thinking about a birthday party that I had for Tim when he was two and just watching him walk around kind of really blank. . . .

[After approximately 4 additional associations, the therapist brings Lynn back to the initial target.]

THERAPIST: Okay. Let's get back to that original incident. How disturbing is it to you now from zero to ten, with ten as the most disturbing?

LYNNE: Right now, right now, I can't really feel it in my body. Let me try to go back into and think of it. Right now, you know, it sounds weird, but it really feels pretty flat right now.

[Once the earlier events are processed, the client reports little distress.]

THERAPIST: Does it?

LYNNE: It's like, you know, I can see it. Truly, I can see it, but it doesn't really have a feeling component right this second.

THERAPIST: Okay. That's like a zero?

LYNNE: Yeah, it's like there's just nothing there right now.

[The therapist now moves into phase five to install the positive belief.]

THERAPIST: Okay. When you think about the original incident and think the positive thought, "I can handle what comes up," how believable does that feel to you on a scale where 1 is completely false and 7 is completely true?

LYNNE: It feels pretty true, about a 6.

THERAPIST: Go with that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

[After two more sets to strengthen the positive belief, the clinician then moves into Phase Six.]

THERAPIST: Close your eyes, concentrate on the incident and the positive thought, "I can handle what comes up" and mentally scan your entire body. Tell me where you feel anything.

LYNNE: I feel really relaxed.

THERAPIST: Just notice that.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

[The clinician again asks Lynne to think of the earthquake. The goal is to see what spontaneously comes to mind and to evaluate the current state of the processing.]

THERAPIST: Okay, so when you think of that original incident . . .

LYNNE: Uh-hum.

THERAPIST: Standing in the doorway with Tim . . .

LYNNE: Yeah.

THERAPIST: How's that for you?

LYNNE: Well, what occurs to me is yeah, that was an earthquake. (*laughing*) Yeah, that was an earthquake all right.

[The re-accessed memory emerges without distress so the session is closed with standard phase-seven protocols.]

The third session starts with phase eight, a reevaluation of the previous session's work. Lynne reports no disturbance for any of the earthquakes, so the car accident that precipitated phobic anxiety about driving is targeted. At the beginning of the session, the SUD rating is 7 or 8. By session end, this has decreased to 0, and the positive cognition,

"I can feel comfortable driving and do a good job" is installed with a VOC of 7. This installation includes Lynne imagining driving clients in her capacity as a real-estate agent and feeling comfortable and competent. The fourth and final session starts with phase eight, a reevaluation of the previous session's work. Lynne advises that she feels "more focused in general" and states that "driving is fun." There is no disturbance reported for the first and third earthquakes. When memories of the second earthquake are elicited, Lynne at first declares, "It is boring to talk about." However, an image of huddling on the floor arises, with a SUD of 3. This is targeted and quickly resolves into feelings of empowerment. All three earthquakes and the car accident are evaluated and assessed as resolved. The session finishes with future imagery related to her pretreatment fears that an earthquake could occur while she is showing houses to real-estate clients. Lynne imagines herself coping calmly with an earthquake in a strange house where she feels responsible for her clients and reports, "I can handle it!"

Outcome and Prognosis

After four sessions of EMDR, Lynne's PTSD and driving phobia were eliminated. At one-month follow up, she reports enjoyment in her work as a real-estate agent; she is no longer impaired by her fears of earthquakes or her phobic anxiety. She advises that she has not had a single intrusive thought about earthquakes. Her irritability has diminished considerably and is no longer affecting her relationships with her husband or fellow employees. The SUD rating remains at 0 and the Impact of Event score has decreased to 0. Follow-up assessments at five months and one year show a maintenance of these treatment effects.

While Lynne's goals were achieved at the end of the four sessions, a variety of issues were revealed during processing that we believe could have benefited from additional attention. It is suggested that her chaotic childhood environment, difficulties with both parents, hospital experiences, and sexual molestation by her brother be targeted individually. The Adaptive Information Processing model posits that reprocessing the earlier memories that set the groundwork for dysfunction can treat dysfunctional personality characteristics and interpersonal responses. For instance, Lynne's father was described to be absent periodically and withdrawn and the cause of much of the childhood chaos. The lack of firm foundation and changing reality of these early relationships paralleled with her first husband who was diagnosed as bipolar and in her present husband who exhibited pronounced mood swings. It has been observed that processing the childhood memories assists in altering the interpersonal styles that potentially support relationships of these kinds (see also Greenwald, 1999; Manfield, 1998; Tinker & Wilson, 1999). Given the childhood somatization experiences, it also would be useful to explore whether any such tendencies were displayed as an adult. Preliminary reports indicate positive results in the EMDR treatment of chronic pain, including phantom limb conditions (see Shapiro 2001, 2002).

Clinical Issues and Summary

The transcript of Lynne's second session illustrates how information processing activated during EMDR results in the resolution of distressing symptoms. Of note is the relatively brief time that Lynne concentrated on the earthquake in order to achieve resolution. Unlike direct-exposure therapies that have the client concentrate for prolonged periods on the target memory, EMDR uses a free-association principle that allows the client to notice whatever comes to mind (Shapiro, 2001; Rogers & Silver, 2002). This appears to allow the emergence of information most relevant to an internal healing process. The

client does not have to tell the clinician what is emerging in consciousness as a precursor to positive treatment effects. Subsequent to treatment, however, clients generally display an increased level of insight, an adjustment of personal schema, and an ability to give a detailed narrative of the event.

As in many cases, Lynne's vulnerability to stressors probably was based upon earlier experiences. In this instance, the fear of earthquakes may be related to distress from her childhood instability and chaos, to the "ground shifting under her feet" when she was young. Before treatment, Lynne reported no current distress or obvious impairment related to these childhood events. Although she cried when remembering them during EMDR processing, these memories integrated rapidly, and Lynne was able to extract useful and relevant information from them. For example, she stated about her brother's abuse, that it "shook my sense of reality." As information from these early chaotic events was linked with the current experiences with earthquakes, there was a resolution of the fear and an elimination of the earthquake-related PTSD. Given these tendencies to move spontaneously to earlier experiences, the standard EMDR protocols direct clinicians to work first with the earliest remembered events containing the same affects and/or conditions. This expedites treatment for a greater number of clients (see Shapiro, 2001).

Lynne is typical of single-event trauma cases that have been well documented in numerous EMDR controlled studies to be treated successfully within three sessions. However, for clients who have substantial impairments related to child abuse or neglect, treatment will not proceed as quickly or as smoothly. As mentioned previously, such clients often require lengthy phase-two preparation before doing any therapeutic work on the traumatic material.

Select References/Recommended Readings

- Carlson, J.G., Chemtob, C.M., Rusnak, K., Hedlund, N.L., & Muraoka, M.Y. (1998). Eye movement desensitization and reprocessing for combat-related posttraumatic stress disorder. *Journal of Traumatic Stress, 11*, 3–24.
- Chambless, D.L., Baker, M.J., Baucom, D.H., Beutler, L.E., Calhoun, K.S., Crits-Christoph, P., Daiuto, A., DeRubeis, R., Detweiler, J., Haaga, D.A.F., Bennett Johnson, S., McCurry, S., Mueser, K.T., Pope, K.S., Sanderson, W.C., Shoham, V., Stickle, T., Williams, D.A., & Woody, S.R. (1998). Update on empirically validated therapies. *The Clinical Psychologist, 51*, 3–16.
- Chemtob, C.M., Nakashima, J., Hamada, R., & Carlson, J.G. (2002). Brief-treatment for elementary school children with disaster-related PTSD: A field study. *Journal of Clinical Psychology, 58*, 99–122.
- Chemtob, C.M., Tolin, D.F., van der Kolk, B.A., & Pitman, R.K. (2000). Eye movement desensitization and reprocessing. In E.B. Foa, T.M. Keane, & M.J. Friedman (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (pp. 139–155, 333–335). New York: Guilford.
- Feske, U. (1998). Eye movement desensitization and reprocessing treatment for posttraumatic stress disorder. *Clinical Psychology: Science and Practice, 5*, 171–181.
- Greenwald, R. (1999). Eye movement desensitization reprocessing (EMDR) in child and adolescent psychotherapy. New York: Jason Aronson.
- Korn, D.L., & Leeds, A. (in press). Preliminary evidence of efficacy for EMDR resource development and installation in the stabilization phase of treatment of complex posttraumatic stress disorder. *Journal of Clinical Psychology*.
- Lee, C., Gavriel, H., Drummond, P., Richards, J. & Greenwald, R. (in press). Treatment of posttraumatic stress disorder: A comparison of stress inoculation training with prolonged exposure and eye movement desensitization and reprocessing. *Journal of Clinical Psychology*.
- Manfield, P. (Ed.). (1998). *Extending EMDR*. New York: Norton.

- Maxfield, L., & Hyer, L.A. (2002). The relationship between efficacy and methodology in studies investigating EMDR treatment of PTSD. *Journal of Clinical Psychology, 58*, 23–41.
- Perkins, B., & Rouanzoin, C. (2002). A critical examination of current views regarding eye movement desensitization and reprocessing (EMDR): Clarifying points of confusion. *Journal of Clinical Psychology, 58*, 77–97.
- Popky, A.J., & Levin, C. (1994). Transcript of EMDR treatment session. Palo Alto, CA: Mental Research Institute EMDR Research Center.
- Power, K., McGoldrick, T., Brown, K., Buchaan, R., Sharp, D., Swanson, V., & Karatzias, A. (in press). A controlled comparison of eye movement desensitization and reprocessing versus exposure plus cognitive restructuring versus wait list in the treatment of post-traumatic stress disorder. *Journal of Clinical Psychology and Psychotherapy*.
- Rogers, S., & Silver, S.M. (2002). Is EMDR an exposure therapy? A review of trauma protocols. *Journal of Clinical Psychology, 58*, 43–59.
- Rothbaum, B.O. (1997). A controlled study of eye movement desensitization and reprocessing for posttraumatic stress disorder sexual assault victims. *Bulletin of the Menninger Clinic, 61*, 317–334.
- Shapiro, F. (1989). Efficacy of the eye movement desensitization procedure in the treatment of traumatic memories. *Journal of Traumatic Stress Studies, 2*, 199–223.
- Shapiro, F. (2001). *Eye movement desensitization and reprocessing: Basic principles, protocols and procedures* (2nd ed.). New York: Guilford.
- Shapiro, F. (in press). EMDR as an integrative psychotherapy approach: Experts of diverse orientations explore the paradigm prism. Washington DC: American Psychological Association Press.
- Tinker, R.H., & Wilson, S.A. (1999). *Through the eyes of a child: EMDR with children*. New York: Norton.
- van den Hout, M., Muris, P., Salemink, E., & Kindt, M. (2001). Autobiographical memories become less vivid and emotional after eye movements. *British Journal of Clinical Psychology, 40*, 121–130.
- Van Etten, M.L., & Taylor, S. (1998). Comparative efficacy of treatments for posttraumatic stress disorder: A meta-analysis. *Clinical Psychology and Psychotherapy, 5*, 126–144.