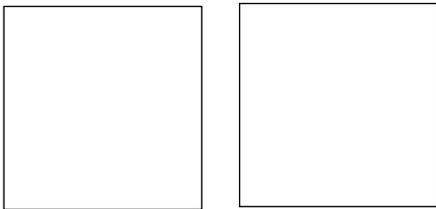


# In the blink of an eye



**FRANCINE SHAPIRO** and her eye movement desensitisation and reprocessing therapy have had their critics. But here, with **LOUISE MAXFIELD**, she argues that it is safe, rapid and effective.

**I**MAGINE a safe, rapid and effective treatment that results in the elimination of post-traumatic stress disorder (PTSD). When I originally introduced eye movement desensitisation and reprocessing (EMDR) (Shapiro, 1989), the claims that it could quickly alleviate the disabling symptoms of PTSD were received with both interest and scepticism. Since then EMDR has been the object of much scrutiny and debate, and the focus of many empirical investigations. This article reports on the clinical applications of this innovative method, on research evaluating treatment outcomes, and on EMDR's mechanisms of action.

## What is EMDR?

The adaptive information processing (AIP) model (Shapiro, 2001) guides EMDR treatment. This theory posits that many disorders are based, at least in part, on the inadequate processing of information related to distressing experiences. It is proposed that this information is stored, with the emotions and physical sensations, in a state-dependent fashion. Essentially the memory becomes isolated, without adequate integration with semantic knowledge or assimilation into other memory networks.

During effective treatment, traumatic material is linked to more adaptive material and new associations are made, resulting in complete information processing and adaptive resolution. What is useful is

learned, stored with appropriate emotion, and is able to effectively guide one in the future. What is useless (such as high arousal, disturbing emotions, irrational beliefs, sensations) is discarded.

In practice, EMDR is a structured integrated approach, synthesising elements of many other effective psychotherapies such as psychodynamic, cognitive-behavioural, person-centred, body-based, and interactional therapies (see Shapiro, in press, for chapters by leading advocates of these orientations). The integration of these orientations provides a unique set of procedures and protocols. A standardised eight-phase treatment approach (see box) is implemented within a comprehensive treatment plan.

As a personal experiment, we suggest that the reader bring to mind an experience of childhood humiliation. Take a moment, and allow yourself to concentrate on what happened. You may find yourself feeling emotions and physical sensations that are similar to those that you felt at the time of the event. If early events contain unprocessed emotions and sensations they are not only re-experienced, but colour the perceptions of the present – some form of public humiliation early in life may be related to current difficulties, perhaps involving public speaking, or evaluation by an authority figure. After such experiences are processed with EMDR, these reactions no longer occur and the individual is free to respond appropriately in the present, rather than being driven by the previously stored affects and thoughts.

For example, after she was raped, TR felt residual physical symptoms and that the assault was her fault. Even though she 'knew' that she was currently safe and the rapist was responsible, this adaptive knowledge was not connected to the stored experience of the rape. Instead TR felt not only fear, but also that she should have been able to do something to stop the

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assault. During EMDR there was a rapid integration of the knowledge of the rapist's responsibility with the emotional and somatic components of her memory, and TR spontaneously exclaimed: 'It wasn't my fault! I couldn't stop him, he was so much bigger than me.'

## The empirical status of EMDR in the treatment of PTSD

EMDR has been extensively researched in the treatment of trauma survivors. At the time of writing, 17 randomised controlled studies have been published in peer-reviewed journals (for comprehensive listings see weblinks (below) and Chemtob *et al.*, 2000). EMDR has been tested with survivors of a wide range of traumatic events, using a variety of control conditions, in multiple types of settings, by numerous researchers. Research with civilians has investigated the use of EMDR with victims of rape, physical assault, childhood abuse, natural disasters, accidents, and other traumas. Field

## WEBLINKS

[www.apa.org/divisions/div12/est/97REPORT.SS.html](http://www.apa.org/divisions/div12/est/97REPORT.SS.html)  
[www.doh.gov.uk/mentalhealth/treatmentguideline/](http://www.doh.gov.uk/mentalhealth/treatmentguideline/)  
[www.fsu.edu/~trauma/a1v5i4.htm](http://www.fsu.edu/~trauma/a1v5i4.htm)  
[www.emdria.org](http://www.emdria.org)  
[www.emdrhap.org](http://www.emdrhap.org)  
[www.EMDR.org](http://www.EMDR.org)

analyses have designated it a treatment of choice for victims of critical incidents, in a various organisations, such as the FBI (McNally & Solomon, 1999).

Controlled efficacy studies have generally reported a decrease in PTSD diagnosis of 70–90 per cent after three to six sessions (for reviews see Chemtob *et al.*, 2000; Maxfield, 1999; and weblinks). Although some reviewers have expressed the desire for additional testing (e.g. Lohr *et al.*, 1999), EMDR has been compared with cognitive behaviour therapy (CBT) in seven recent controlled clinical trials. In all but one of these EMDR appeared to be relatively equivalent in treatment outcome to CBT, or with a superiority on some measures, and was generally reported to require fewer direct treatment and homework hours. EMDR has also been compared with and found superior to a wide range of other treatments, such as relaxation therapy, biofeedback, standard mental health treatment in a managed care facility, and active listening.

Such empirical support has led to EMDR being acknowledged as effective in the treatment of PTSD. Independent reviewers for the American Psychological Association (see APA weblink and Chambless *et al.*, 1998) placed EMDR, exposure therapy, and stress inoculation

therapy on a list of ‘empirically validated treatments’; no other therapies were judged to be empirically supported by controlled research for any PTSD population. The International Society for Traumatic Stress Studies designated EMDR as effective for PTSD (Shalev *et al.*, 2000). Similarly, the empirical evidence for EMDR’s effectiveness in the treatment of PTSD was acknowledged last year in the UK by the Department of Health (see weblinks). Further, a meta-analysis of psychological and drug treatments for PTSD (Van Etten & Taylor, 1998) reported that behaviour therapy and EMDR were generally equivalent and the most effective of the psychological therapies. They noted that ‘EMDR is more efficient than other treatments’ (p.140) in that it used significantly fewer sessions than behaviour therapy (4.6 vs. 14.8) and took significantly less time (3.7 vs. 10.1 weeks).

### Other clinical applications

It should be noted that according to the guidelines established by the clinical division of the American Psychological Association, few disorders have empirically supported treatments. Consequently, treatment decisions and applications are based on the careful analysis of the experienced therapist.

The AIP model suggests that EMDR should achieve positive effects with disorders that have a precipitating event. Not suitable for EMDR would be disorders based on neurobiological or organic deficits, such as psychosis and some mood disorders. Ongoing development of clinical applications is guided by the AIP model and includes or expands upon the standardised procedures. Preliminary reports and case studies have indicated positive results in a variety of areas (see [www.emdr.org](http://www.emdr.org) and Shapiro, 2001, for a comprehensive listing). For example, such studies show that EMDR may be effective in the treatment of chronic pain, including the successful application by various researchers to eliminate phantom limb pain, by processing the original trauma and the residual sensory experience. EMDR has also been found effective in the treatment of body dysmorphic disorder in one to three sessions with the processing of apparently aetiological disturbing events (Brown *et al.*, 1997). Within comprehensive treatment plans EMDR also appears to be helpful in the treatment of personality disorders, dissociative disorders, and a variety of anxiety disorders (Manfield, 1998). Although preliminary reports in these areas are very encouraging, future controlled research is needed to evaluate the comparative efficacy of EMDR and other treatment approaches, such as psychodynamic therapy and CBT, with these various disorders.

### Getting the full benefit

The EMDR procedures have been standardised since 1991. This standardisation has allowed for the independent evaluation of clinical applications, in contrast to most studies evaluating other approaches, such as the cognitive-behavioural treatment of civilian PTSD, where researchers assessed only the specific protocol designed by the principal investigator of each individual study. The various CBT protocols differ from each other with regard to the amounts and types of exposure and cognitive therapy.

We have consistently recommended that researchers evaluating the application of EMDR use the standardised protocols. When the procedure is modified or truncated, it cannot be assumed that the effects are those that would have been achieved if the full procedure had been employed. An excellent illustration of this issue is provided by an analysis of all published phobia research purporting to use EMDR. This study (Shapiro, 1999) was

## THE EIGHT PHASES OF EMDR

- 1. History-taking** In addition to qualifying information, targets are identified for EMDR processing including (a) past events that have set the foundation for the symptoms, (b) present triggers that exacerbate disturbance, and (c) desired behaviours for appropriate future action.
- 2. Preparation** Clients are taught self-control techniques, given appropriate psychoeducation regarding symptoms and treatment expectations.
- 3. Assessment** The target chosen for processing is delineated by (a) specific image, (b) present negative belief, (c) desired positive belief, (d) emotion, (e) physical sensation, and (f) current level of disturbance.
- 4. Desensitisation** The client gives periodic attention to emotionally disturbing material while simultaneously focusing on an external stimulus. Therapist-directed eye movements are the most commonly used dual-attention stimulus, but various other stimuli, including hand-tapping and auditory stimulation, are often used. The client is instructed to ‘just notice’ any thoughts, feelings, or images that arise during this process. Usually this new material becomes the focus of the next sequence. As this process continues, the client begins to make associations to more adaptive material, and this becomes integrated with the traumatic memories.
- 5. Installation** The most empowering positive cognition is identified and strengthened with additional processing.
- 6. Body scan** Any residual physiological responses are targeted with additional processing.
- 7. Closure** Client is returned to a state of equilibrium using imagery techniques, and is instructed in the use of a journal, self-control techniques, and expectations during the subsequent week.
- 8. Re-evaluation** During every subsequent session the maintenance of treatment effects for previously processed targets is examined along with journal reports. New targets are ascertained for subsequent processing according to specialised protocols designed to treat various disorders.

conducted with blind assessors and determined that truncation of the prescribed procedure was often associated with poor treatment effects. When the complete protocol was used, elimination of the phobia was reported (e.g. De Jongh *et al.*, 1999). When less than half the procedure was used, only partial remission was reported (e.g. Lohr *et al.*, 1995). In some instances, none of the actual prescribed procedure was used and no positive effects were reported (e.g. Bates *et al.*, 1996). It is further recommended that there be adequate evaluation of how well the treatment is employed (e.g. assessment of adherence to standardised protocols). Such checks of procedural fidelity are a recognised 'gold standard' in research and a meta-analysis of EMDR studies (Maxfield & Hyer, 2002) found a significant correlation between fidelity and treatment outcomes.

Now that EMDR is recognised as efficacious, the area of debate has shifted to its mechanism of action and the unusual component of eye movement. Some critics propose that EMDR's effectiveness may reside solely in its cognitive-behavioural components, and that eye movements do not contribute to outcome (e.g. Lohr *et al.*, 1999). As we shall see, EMDR is an integrated approach to psychotherapy that uses aspects of many major orientations, and the question of its active ingredients is far from settled. (For a full explication of areas of confusion, readers are referred to Perkins & Rouanzoin, 2002.)

### Active components

Marks *et al.* (1998) propose that emotion can be conceptualised as a 'skein of responses', viewed as 'loosely linked reactions of many physiological, behavioural, and cognitive kinds'. They suggest that different types of treatment will weaken different strands and that 'some treatments may act on several strands simultaneously' (p.324). This metaphor appears appropriate in relation to EMDR. Because EMDR is a complex procedure containing elements of psychodynamic, person-centred, cognitive-behavioural, body-based, and interactional therapies, it deals simultaneously with many threads of the skein. EMDR works with imagery, cognition, somatic sensation, and related memories – all elements of this multifaceted approach contribute to its effectiveness.

The complexity of EMDR makes it difficult to isolate and measure the contribution of any single component

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without a rigorous application of standard clinical and scientific principles. Further, in considering this issue it is important to distinguish between the identification of an active component and the specification of that component's mechanism of action. For example, although it is acknowledged that certain cognitive elements contribute to outcome in CBT treatment, there is no clear consensus on the mechanism of action – many theories have been proposed, challenged and modified over the years.

EMDR works directly with cognitive, affective, and somatic components of memory to forge new associative links with more adaptive material. A number of treatment elements are specifically formulated to enhance the processing and assimilation needed for adaptive resolution. We now turn to discussion of these.

### Synchronisation of memory components

After suitable preparation, the client is asked to attend to various aspects of the traumatic incident. The simultaneous focus on the representative image of the event, the associated negative belief, and the attendant physical sensations align the pertinent aspects of the memory. For example, TR, the rape victim mentioned above, identified a vivid image of the offender's face, a negative belief 'I'm a bad person', and feelings of fear in

her throat and chest. This synchronisation appears to assist in accessing the dysfunctional information, a potentially important factor in information processing, and may serve to forge initial connections among various elements of the traumatic memory.

### Gaining 'cognitive perspective'

Among the aspects of memory that are identified at the onset of processing are the attendant physical sensations, the client's present negative self-assessment and a desired positive belief. This cognitive task may expedite treatment. Identifying the negative self-assessment may help the client perceive its irrationality, and formulating the positive cognition may involve reframing and restructuring. Another important aspect of cognitive perspective occurs when the client identifies the physical sensations. This focus may allow the separation of pure sensory effects (e.g. trembling) from cognitively laden affective interpretations (e.g. 'I am helpless').

**Free association** After initially attending to multiple components of the memory, clients are asked to be simultaneously aware of their internal experience and the dual stimulation (discussed below) for a short time. New

insights, associations, emotions, sensations, and images rapidly emerge into consciousness. They are then asked to report on anything that comes to mind. Depending on the clinician's assessment, the new material generally becomes the target for the next round of attention. This non-directive free association method allows the therapeutic focus to shift from the original targeted trauma to other related experiences and information, and contributes to adequate processing of the traumatic material (see Rogers & Silver, 2002).

**Repeated access and dismissal of traumatic imagery** During EMDR, clients access and discard their traumatic imagery repeatedly and at will. This new ability to control disturbing internal stimuli may provide clients with a sense of mastery. Because making negative interpretations and ruminating about intrusive symptoms appears to exacerbate the symptoms of PTSD, this perceived mastery may contribute to treatment effects.

**Mindfulness** EMDR encourages clients to maintain a state of 'mindfulness' by instructing them to 'just notice' and to 'let whatever happens, happen'. This may inhibit the client's tendency to be afraid of the fear, an inclination that contributes to symptom severity and that can interfere with the treatment process. This cultivation of a stabilised observer stance in EMDR appears similar to processes advocated by Teasdale (1999) as facilitating emotional processing.

**Eye movements and other dual-attention stimuli** The most contentious issue currently surrounding EMDR relates to the role and nature of eye movements and other dual-attention stimuli (e.g. hand-taps or audiotones). However, the role of eye movement has been well documented in connection with higher cognitive processes and cortical function and has indeed been identified as correlated with a shift in cognitive content, as the initial disturbing focus of attention is replaced with other thoughts (Antrobus *et al.*, 1964). The utilisation of bilateral attention, including gaze manipulation and other forms of stimulation, is also shown in a series of experiments in relation to biases in hemispheric processing (e.g. Drake & Seligman, 1989). Further, in a series of experiments designed to test EMDR's eye movement component in isolation, Andrade

*et al.* (1997) determined that eye movements were significantly effective in reducing image vividness and in decreasing the emotional intensity of autobiographical memories. They concluded that eye movements achieved these effects by disrupting the visual-spatial sketchpad of working memory. Similar findings were recently reported by van den Hout *et al.* (2001).

Other research has sought to evaluate the specific contribution of the dual-attention stimulus in EMDR by removing or modifying eye movements during treatment. Some limited positive results have been reported with controlled and single-subject clinical studies that identified positive and 'distinct' effects for the eye movement component (e.g. Lohr *et al.*, 1995; Renfrey & Spates, 1994). Lohr *et al.* (1996) state 'the addition of eye movements was necessary to reduce the aversiveness of some phobic imagery' (p.73).

However, the aggregate results on the specific contribution of eye movements in EMDR have been inconclusive because of poor research methodology (see Perkins & Rouanzoin, 2002). Some researchers assumed, inaccurately, that eye movements were the only active component in EMDR and that their removal or modification would create a placebo control. They overlooked the presence of multiple active components in the EMDR protocol, and the strong possibility that the treatment control would achieve positive effects. Consequently the researchers did not use the large samples required to provide sufficient power for the detection of small to moderate effect sizes (e.g. 35–50 participants); instead, the typical sample was eight persons per condition, and many large descriptive differences between conditions failed to reach statistical significance (e.g. Renfrey & Spates, 1994).

Other researchers overlooked the possibility that the control condition might replicate the exact mechanism of action of the eye movements, with a resultant compromise of internal validity. For example, the orienting response has been proposed by many theorists (e.g. MacCulloch & Feldman, 1996) as the underlying basis for the positive effect of eye movements. It can be elicited in both eyes-moving, eyes-fixed, and other dual-attention procedures. Recent neurobiological research (Corbetta *et al.*, 1998) found an 80 per cent overlap of functional brain activity when bilateral eye movements (eyes moving from side to

side) were compared with a condition in which the eyes were fixated straight ahead while lights moved from side to side across the line of vision. In both cases there would be an elicited orienting response whether or not the eyes were moving.

In addition to problems with research design, other methodological problems in the component studies include the common use of truncated procedures (e.g. 3–10 minutes of treatment time), inappropriate selection of participants, and poor assessment procedures (see Shapiro, 2001, for a complete review).

**Multiple brief exposures** Exposure to anxiety-eliciting stimuli is a standard treatment for anxiety disorders. It has sometimes been assumed that EMDR uses exposure in this traditional manner, and that this accounts for its effectiveness. Some critics have stated: 'Had EMDR been put forth simply as another variant of extant treatments, we suspect that much of the controversy over its efficacy and mechanisms of action could have been avoided' (Lohr *et al.*, 1999, p.201).

However, EMDR's use of interrupted brief exposures is antithetical to standard exposure therapy (Rogers & Silver, 2002), and the mechanism of action of this component cannot be explained by standard theories. For example, exposure therapies use 25–90 minutes of continuous exposure (Foa & McNally, 1996), while EMDR uses extremely brief repeated exposures (20–50 seconds). Exposure therapies provide uninterrupted exposure (Marks *et al.*, 1998), while EMDR interrupts the internal attention repeatedly to ask 'What do you get now?' Exposure therapy is structured to inhibit avoidance (Lyons & Keane, 1989), while free association to whatever enters the person's consciousness is an integral part of the EMDR process. During exposure therapy clients generally experience long periods of high anxiety (Foa & McNally, 1996), while EMDR clients generally experience rapid reductions in 'subjective units of disturbance' early in the session (Rogers *et al.*, 1999).

These differences raise interesting questions about the mechanism(s) invoked by EMDR's use of repeated short exposures. Perhaps they increase the ability of clients to manage negative affect, and counter the avoidance reaction that accompanies and maintains the pathology. Perhaps they enhance the client's sense of mastery (as described above). Perhaps they contribute to the orienting response.

In order to answer questions regarding the weighting of the many components of EMDR, it is recommended that future studies employ more rigorous methodology (Maxfield & Hyer, 2002), a sample large enough to provide adequate power, and control conditions that are distinct from eye movements and theoretically meaningful. To date, no randomised clinical dismantling study has provided a full course of treatment to a large sample of clinically diagnosed subjects.

### Summary and conclusions

Empirical investigations of EMDR have been conducted around the world by independent researchers, and it is the most widely researched treatment for PTSD. There appears to be an agreement among independent evaluators that EMDR is effective in the treatment of trauma. The

remaining area of contention is the identification of EMDR's active ingredients. While some view it as a cognitive-behavioural treatment, EMDR's use of exposure is quite different from basic CBT theories and applications. EMDR also contains elements from a wide variety of therapeutic orientations, and it is assumed that these elements actively contribute to the clinical effects of its integrated approach. Research investigating the eye movement component is inconclusive and compromised by poor methodology, including low power, and inappropriate subject and control condition selection. Since the actual mechanism of action has not been conclusively determined for any psychotherapeutic technique, this area of uncertainty has no bearing on EMDR's utility in clinical practice. Nevertheless, it is hoped that

future research will be able to determine how EMDR's various components influence outcome.

While EMDR has been found to be an effective and rapid treatment of PTSD, preliminary reports have indicated its effectiveness with a wide range of experientially based disorders. Research is now under way to evaluate these treatment applications. The goal of EMDR treatment is to act as a catalyst for a rapid learning state that results not only in problem resolution but also in increased insight, efficacy, and personal growth.

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