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For more information and a general overview of resources:

<http://www.emdrnetwork.org>

1. What is EMDR?

Eye Movement Desensitization and Reprocessing (EMDR) is a psychotherapy treatment that was originally designed to alleviate the distress associated with traumatic memories (Shapiro, 1989a, 1989b). Shapiro's (2001) Adaptive Information Processing model posits that EMDR facilitates the accessing and processing of traumatic memories to bring these to an adaptive resolution. After successful treatment with EMDR, affective distress is relieved, negative beliefs are reformulated, and physiological arousal is reduced. During EMDR the client attends to emotionally disturbing material in brief sequential doses while simultaneously focusing on an external stimulus. Therapist directed lateral eye movements are the most commonly used external stimulus but a variety of other stimuli including hand-tapping and audio stimulation are often used (Shapiro, 1991). Shapiro (1995) hypothesizes that EMDR facilitates the accessing of the traumatic memory network, so that information processing is enhanced, with new associations forged between the traumatic memory and more adaptive memories or information. These new associations are thought to result in complete information processing, new learning, elimination of emotional distress, and development of cognitive insights. EMDR uses a three pronged protocol: (1) the past events that have laid the groundwork for dysfunction are processed, forging new

associative links with adaptive information; (2) the current circumstances that elicit distress are targeted, and internal and external triggers are desensitized; (3) imaginal templates of future events are incorporated, to assist the client in acquiring the skills needed for adaptive functioning.

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2. What is the theoretical basis for EMDR?

Shapiro (1995) developed the Accelerated Information Processing model to describe and predict EMDR's effect. More recently, **Shapiro (2001)** expanded this into the Adaptive Information Processing (AIP) model to broaden its applicability. She hypothesizes that humans have an inherent information processing system that generally processes the multiple elements of experiences to an adaptive state where learning takes place. She conceptualizes memory as being stored in linked networks that are organized around the earliest related event and its associated affect. Memory networks are understood to contain related thoughts, images, emotions, and sensations. The AIP model hypothesizes that if the information related to a distressing or traumatic experience is not fully processed, the initial perceptions, emotions, and distorted thoughts will be stored as they were experienced at the time of the event. Shapiro argues that such unprocessed experiences become the basis of current dysfunctional reactions and are the cause of many mental disorders. She proposes that EMDR successfully alleviates mental disorders by processing the components of the distressing memory. These effects are thought to occur when the targeted memory is linked with other more adaptive information. When this occurs, learning takes place, and the experience is stored with appropriate emotions able to guide the person in the future.

Suggested Research. Research is needed to test predictions made by the AIP model. The hypothesis that treating etiological events will resolve core pathology could be evaluated with outcome measures evaluating personality, interpersonal qualities, affect control, and sense of identity. The hypothesis that EMDR enhances information processing can be tested by process research evaluating the in session elicitation of new material, and determining if and how this new material predicts resolution of the targeted memories.

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3. Is EMDR a one-session cure?

No. When **Shapiro (1989a)** first introduced EMDR into the professional literature, she included the following caveat: "It must be emphasized that the EMD procedure, as presented here, serves to desensitize the anxiety related to traumatic memories, not to eliminate all PTSD-symptomology and complications, nor to provide coping strategies to victims" (p 221). In this first study, the focus was on one memory, with effects measured by changes in the Subjective Units of Disturbance (SUD) scale. The literature consistently reports similar effects for EMDR with SUD measures of in-session anxiety. Since that time, EMDR has evolved into an integrative approach that addresses the full clinical picture. Two studies (**Lee, Gavriel, Drummond, Richards, & Greenwald, 2002; Rothbaum, 1997**) have indicated an elimination of diagnosis of posttraumatic stress disorder (PTSD) in 83-90% of civilian participants after four to seven sessions. Other studies using participants with PTSD (e.g. **Ironson, Freund, Strauss, & Williams, 2002; Scheck, Schaeffer, & Gillette, 1998; S. A. Wilson, Becker, & Tinker, 1995**) have found significant decreases in a wide range of symptoms after three-four sessions. The only study (**Carlson, Chemtob, Rusnak, Hedlund, & Muraoka, 1998**) of combat veterans to address the multiple traumas of this population reported that 12 sessions of treatment resulted in a 77% elimination of PTSD. Clients with multiple traumas and/or complex histories of childhood abuse, neglect, and poor attachment may require more extensive therapy, including substantial preparatory work in phase two of EMDR (**Korn & Leeds, 2002; Maxfield & Hyer, 2002; Shapiro, 2001**).

Suggested research. It is recommended that outcome studies compare EMDR to other PTSD treatments using the complete three pronged protocol (described above) and 12 or more sessions, with a session by session evaluation of recovery patterns. A wide range of psychometrics should be used to evaluate the process of change in overt symptoms, quality of life, and personal development parameters. An evaluation of client factors, such as trauma history, should be analyzed to determine their possible effect on treatment length and course.

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4. Is EMDR an efficacious treatment for PTSD?

Yes. EMDR is the most researched psychotherapeutic treatment for PTSD. Twenty

controlled outcome studies have investigated the efficacy of EMDR in PTSD treatment. Sixteen of these have been published, and the preliminary findings of four have been presented at conferences. Studies using waitlist controls found EMDR superior; six studies compared EMDR to treatments such as biofeedback relaxation (**Carlson et al., 1998**), active listening (**Scheck et al., 1998**), standard care (group therapy) in a VA hospital (**Boudewyns & Hyer, 1996**), and standard care (various forms of individual therapy) in a Kaiser HMO facility (**Marcus, Marquis, & Sakai, 1997**). These studies all found EMDR superior to the control condition on measures of posttraumatic stress.

Seven randomized clinical trials have compared EMDR to exposure therapies (**Ironson et al., 2002; McFarlane, 2000; Rothbaum, 2001; Thordarson et al., 2001; Vaughan et al., 1994**) and to cognitive therapies plus exposure (**Lee et al., 2002; Power et al., 2002**). These studies have found EMDR and the cognitive/behavioral (CBT) control to be relatively equivalent, with a superiority in two studies for EMDR on measures of PTSD intrusive symptoms, and for CBT in the study by Taylor and colleagues **Taylor, Thordarson, and Maxfield (2002)** on PTSD symptoms of intrusion and avoidance. There were two controlled studies without randomization; one (**Deville & Spence, 1999**) found the CBT condition superior to EMDR and the other (**Sprang, 2001**) found EMDR superior to the CBT control on multiple measures.

Two studies found EMDR to be more efficient than the CBT control condition, with EMDR using fewer treatment sessions to achieve effects (**Ironson et al., 2002; Power et al., 2002**). Two studies that compared treatment response on a session-by-session basis (**Thordarson et al., 2001**) and at mid-point (**Rothbaum, 2001**), reported that EMDR did not result in more rapid treatment effects than exposure. However, in both these studies the exposure treatment sessions were supplemented with one hour of daily homework, while the EMDR condition was implemented without homework. The only study to control for the ancillary effects of homework (**Ironson et al., 2002**) supplemented both exposure and EMDR treatments with the same number of hours of exposure homework (see above). Most studies noted that because EMDR has minimal homework requirements the overall treatment time was much shorter for EMDR (e.g., **Lee et al., 2002; Vaughan et al., 1994**). Treatment effects have generally been well maintained (see below).

The efficacy of EMDR in the treatment of PTSD is now well recognized. 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"; no other therapies for any form of PTSD were judged to be empirically supported by controlled research. In 2000, after the examination of additional published controlled studies, the treatment guidelines of the International Society for Traumatic Stress Studies gave EMDR an A/B rating (**Chemtob, Tolin, van der Kolk, & Pitman, 2000**) and EMDR was found efficacious for PTSD. **The United Kingdom Department of Health (2001)** has also listed EMDR as an efficacious treatment for PTSD.

Foa, Riggs, Massie, and Yarczower (1995) suggested that exposure therapy may not be very effective with clients whose prominent affect is anger, guilt, or shame. Reports by clinicians treating combat veterans (e.g., **Lipke, 1999; Silver & Rogers, 2002**) indicate that EMDR may be effective with such PTSD presentations. A preliminary study found that EMDR reduced symptoms of guilt in combat-related PTSD (**Cerone, 2000**). **Taylor et al. (2002)** reported equivalent and significant effects for exposure therapy and EMDR on reducing symptoms of anger and guilt.

Suggested research. Although EMDR and CBT treatments are relatively equivalent in the treatment of PTSD symptoms, comparisons of both clinical and client factors are recommended. This includes the comprehensive evaluation of clinical factors such as length of treatment, attrition, maintenance, and generalization of effects, and the assessment of client factors such as symptom severity, affective presentation, comorbid disorders, and the presence of complex PTSD. Additional research in actual field settings are suggested to increase external validity. Specific attention should be paid to the client compliance (**Scott & Stradling, 1997**) and the effects of various treatments on the therapists (see **Marks et al., 1998**). It is also recommended that a wide range of psychometrics evaluating more than simple symptom reduction be included.

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5. Are treatment effects maintained over time?

Twelve studies with PTSD populations assessed treatment maintenance by analyzing differences in outcome between post-treatment and follow-up. Follow-up times have varied and include periods of 3, 4, 9, 15 months, and 5 years after treatment. Treatment effects were maintained in eight of the nine studies with civilian participants; one study (**Deville & Spence, 1999**) reported a trend for deterioration. Of the three studies with combat veteran participants only one (**Carlson et al., 1998**) provided a full course of treatment (12 sessions). This study found that treatment effects were maintained at 9 months. The other

two studies provided limited treatment: **Devilly, Spence and Rapee (1998)** provided two sessions and moderate effects at post-test were not maintained at follow-up. **Pitman et al. (1996)** treated only two of multiple traumatic memories, and treatment effects were not maintained at 5 year follow-up (**Macklin et al., 2000**). It appears that the provision of limited treatment may be inadequate to fully treat the disorder, resulting in remission of the partial effects originally achieved.

Suggested research. Future research should investigate whether any client factor (e.g., symptom severity, affective presentation, comorbid disorders, complex PTSD) predicts sustained effects. An assessment of treatment factors (e.g., length of preparation, length of treatment, treatment compliance, treatment response, symptom reduction) would also assist in the evaluation of the maintenance of effects. It is further recommended that studies use longer follow-up periods to better ascertain the long-term effects of treatment.

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6. Is EMDR effective in the treatment of phobias, panic disorder, or agoraphobia?

There is much anecdotal information that EMDR is effective in the treatment of specific phobias. Unfortunately, the research that has investigated EMDR treatment of phobias, panic disorder, and agoraphobia has failed to find strong empirical support for such applications. Although these results are due in part to methodological limitations in the various studies, it is also possible that EMDR may not be consistently effective with these disorders. **De Jongh, Ten Broeke, and Renssen (1999)** suggest that since EMDR is a treatment for distressing memories and related pathologies, it may be most effective in treating anxiety disorders which follow a traumatic experience (e.g., dog phobia after a dog bite), and less effective for those of unknown onset (e.g., snake phobia).

There have been several randomized clinical trials assessing EMDR treatment of spider phobia (**Muris & Merckelbach, 1997; Muris, Merckelbach, van Haften, & Nayer, 1997; Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998**). These studies indicated that EMDR was less effective than in vivo exposure therapy in eliminating the phobia. Methodological limitations of these studies include failure to use the full EMDR treatment protocol (see **Shapiro, 1999**) and confounding of effects, by using the exposure treatment protocol as the post-treatment assessment. When the full EMDR phobia protocol was used in case studies with medical and dental phobias (**De Jongh et al., 1999; De Jongh, van den Oord, & Ten Broeke, 2002**), good results were achieved.

Clinical utility is an important consideration in treatment selection. The application of in vivo exposure may be impractical for clinicians who do not have easy access to feared objects (e.g., spiders) in their office settings; some phobias are limited to specific events (e.g., thunderstorms) or places (e.g., bridges). EMDR may be a more practical treatment than in vivo exposure, and the in vivo aspect can often be added as homework (**De Jongh et al., 1999**).

There have been three studies that investigated EMDR treatment of panic disorder with/out agoraphobia. The first two studies were preliminary (**Feske & Goldstein, 1997; Goldstein & Feske, 1994**) and provided a short course (six sessions) of treatment for panic disorder. The results were promising, but limited by the short course of treatment. Feske and Goldstein write, "Even 10 to 16 sessions of the most powerful treatments rarely result in a normalization of panic symptoms, especially when these are complicated by agoraphobia" (p. 1034). The EMDR effects were generally maintained at follow-up. A third study (**Goldstein et al., 2000**) was conducted to assess the benefits of a longer treatment course. This study however changed the target population and treated agoraphobic patients. Participants suffering from Panic Disorder with Agoraphobia did not respond well to EMDR. Goldstein (quoted in **Shapiro, 2001**) suggests that these participants needed more extensive preparation, than was provided in the study, to develop anxiety tolerance. The authors suggest that EMDR may not be as effective as CBT in the treatment of panic disorder with/out agoraphobia; however no direct comparison studies have yet been conducted.

Suggested research. Studies are needed to make direct comparisons of EMDR and CBT in the treatment of panic disorder with/out agoraphobia. It is recommended that randomized clinical trials evaluate EMDR's efficacy in the treatment of traumatic phobias. Future studies could determine if there are any phobia populations for which EMDR treatment is inappropriate. The possibility that a combination of EMDR and in vivo exposure together may be more effective than either alone, should be investigated, with regards to outcome, efficiency, and attrition. In the treatment of agoraphobia, future research could examine the utility of developing anxiety tolerance prior to EMDR treatment. Appropriate fidelity should be assessed to include procedural adherence and the incorporation of the full phobia protocol (**Shapiro, 2001**).

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7. Is EMDR applied to every clinical disorder?

No. EMDR was developed as a treatment for traumatic memories and research has demonstrated its effectiveness in the treatment of PTSD (see [Is EMDR an efficacious treatment for PTSD?](#)). **Shapiro (2001)** states that it should be helpful in reducing or eliminating other disorders that originate following a distressing experience. For example, **Brown, McGoldrick, and Buchanan (1997)** found successful remission in five of seven consecutive cases of Body Dysmorphic Disorder cases after 1-3 EMDR sessions that processed the etiological memory. Similarly there have been reports of elimination of phantom limb pain following EMDR treatment of the etiological memory and the pain sensations (**Vanderlaan, 2000; Wilensky, 2000; S. A. Wilson, Tinker, Becker, Hofmann, & Cole, 2000**). It is not anticipated that EMDR will be able to alleviate fully the symptoms arising from physiologically based disorders, such as schizophrenia or bipolar disorder. However, experiential contributors may play a major role in some symptoms, and there are anecdotal reports of persons with such disorders being treated successfully with EMDR for distress related to traumatic events.

In addition to studies assessing the effectiveness of EMDR in the treatment of PTSD, phobias, and panic disorders (see [Is EMDR an effective treatment of phobias, panic disorder, and agoraphobia?](#)), some preliminary investigations have indicated that EMDR might be helpful with other disorders. These include dissociative disorders (e.g., **Fine & Berkowitz, 2001; Lazrove & Fine, 1996; Paulsen, 1995**); performance anxiety (**Foster & Lendl, 1996; Maxfield & Melnyk, 2000**); body dysmorphic disorder (**Brown et al., 1997**); pain disorder (**Grant & Threlfo, 2002**); and personality disorders (e.g., **Korn & Leeds, 2002; Manfield, 1998**). These findings are preliminary and further research is required before any conclusions can be drawn. In **Shapiro, 2002**, applications of EMDR are described for complaints such as depression (**Shapiro, 2002**), attachment disorder (**Siegel, 2002**), social phobia (**Smyth, & Poole, 2002**), anger dyscontrol (**Young, Zangwill, & Behary, 2002**), generalized anxiety disorder (**Lazarus, & Lazarus, 2002**), distress related to infertility (**Bohart & Greenberg, 2002**), body image disturbance (**Brown, 2002**), marital discord (**Kaslow, Nurse, & Thompson, 2002**), and existential angst (**Krystal, Prendergast, Krystal, Fenner, Shapiro, Shapiro, 2002**); all such applications should be considered in need of controlled research for comprehensive examination.

Suggested research. It is recommended that research evaluate the effectiveness of the standard EMDR protocol with such clinical complaints, prior to, or in addition to, testing any modification of the protocol. This will determine whether or not adjustments in preparation, targets, or process are useful.

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8. Can EMDR's effects be attributed to placebo or non-specific effects?

No. A number of studies have found EMDR superior in outcome to placebo treatments, and to treatments not specifically validated for PTSD. EMDR has outperformed active listening (**Scheck et al., 1998**), standard outpatient care consisting of individual cognitive, psychodynamic, or behavioural therapy in a Kaiser Permanente Hospital (**Marcus et al., 1997**), relaxation training with biofeedback (**Carlson et al., 1998**). EMDR has been found to be relatively equivalent to CBT therapies in seven randomized clinical trials that compared the two approaches. Because the treatment effects are large and clinically meaningful, it can be concluded that EMDR is not a placebo treatment. For example, in a meta-analysis of PTSD treatments, **Van Etten and Taylor (1998)**, calculated the mean effect sizes on self-report measures for placebo and control conditions as 0.43, for EMDR as 1.24, and for CBT as 1.27 (p. 135). Several studies (e.g., **Thordarson et al., 2001**) have measured the credibility of the treatments being provided, as a way to determine if EMDR elicited more confidence from clients, thereby producing larger effects; no study found EMDR more or less credible. Because EMDR is not more credible than these other therapies, it appears that the effects cannot be attributed to suggestion or a heightened placebo effect.

Suggested research. Assessments of credibility should be standard practice in all treatment outcome studies.

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9. What have meta-analyses revealed about EMDR?

There have been three meta-analyses that evaluated EMDR outcomes. **Van Etten and Taylor (1998)** examined responses to psychotherapeutic and pharmacological treatments

of PTSD. They reported that EMDR and exposure therapies achieved similar outcomes, and were superior to other psychotherapeutic treatments. In their analysis they noted that the EMDR studies had used fewer sessions (4.3) to achieve the same level of results produced by more exposure sessions (10.4). They concluded that their results “suggest that EMDR is effective for PTSD, and that it is more efficient than other treatments” (p. 140). However, direct comparisons of efficiency are better made within a single study with the same population, by analysis of session-to-session response.

The **Davidson and Parker (2001)** meta-analysis evaluated outcomes in 34 different EMDR studies. This was a thorough and comprehensive meta-analysis, although some studies were overlooked. They concluded that EMDR was superior to no-treatment and non-specific treatment controls, and equivalent in outcome to exposure and cognitive behavioural therapies. As reported previously in this Appendix, such findings are consistent with those in the EMDR literature. Unfortunately in their investigation of the eye movement component, Davidson and Parker did not distinguish between clinical dismantling studies and component action studies (see below). In addition, they did not distinguish between analogue studies which used partial EMDR done for 15 minutes with normal students and dismantling studies with multiple sessions for persons with chronic PTSD. This lack of distinction created large variability in the meta-analysis, and made it difficult to find effects. However, they noted that their data indicated that the comparison effect size between EMDR-with-EMS and EMDR-without-EMs, was “marginally significant if one examines only clinical populations satisfying [DSM] diagnostic criteria” (p. 311). Even this evaluation, however, failed to evaluate whether the length of treatment offered to the various PTSD populations was clinically adequate to reveal differential main effects.

There is much variability in the outcomes of EMDR studies, with a range of outcomes reported, and with the efficacy of EMDR varying across studies. In a meta-analysis, **Maxfield and Hyer (2002)**, sought to determine if differences in outcome were related to methodological differences. All published PTSD treatment outcome studies were reviewed to identify methodological strengths and weaknesses and rated using the Gold Standard (GS) Scale (**adapted from Foa & Meadows, 1997**). Then the relationship between methodological rigor and effect sizes in these studies was examined. Results indicated a significant relationship between scores on the GS Scale and effect size, with more rigorous studies reporting larger effect sizes. It appeared that methodological rigor removes noise and thereby decreases error measurement, allowing for the more accurate detection of true treatment effects. It should be noted that the association between methodology and outcome is purely correlational, and may actually be the effect of some unknown third variable. However, it can be argued that, when considering the aggregate evidence for the efficacy of EMDR, greater weight may be given to those studies with better methodology as these appear more likely to reveal accurate outcomes.

Suggested research. Future research can use meta-analyses to assess potential predictors of treatment outcome. Factors that could be examined include number of sessions, client characteristics, chronicity and severity of symptoms, type of diagnosis, and comorbidity. A meta-analysis of the eye movement component research is needed that will address the different types of research to determine if there is a differential outcome according to study type. This might assist in developing a more complete understanding of the role of dual attention in EMDR.

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10. Is fidelity to treatment important?

Yes. Treatment fidelity is considered one of the gold standards of clinical research (**Foa & Meadows, 1997**). Clearly, if the treatment being tested does not adhere to the standard protocol, then the treatment being examined is not the standard treatment; the study will have poor internal validity and the results may not be informative about the actual treatment. Treatment fidelity has been a subject of much controversy (**Greenwald, 1996; Rosen, 1999**). There is evidence that EMDR is a robust treatment, not affected by some changes to protocol; for example, variations in the eye movement or stimulus component do not appear to interfere with outcome (**Renfrey & Spates, 1994**). On the other hand, there is evidence that truncating the procedure may result in poor outcomes; for example, an analysis (**Shapiro, 1999**) of the procedures used in the EMDR phobia studies found that those omitting more than half of the EMDR phases, achieved poor outcomes compared to those using the full protocol. In a methodological meta-analysis, **Maxfield and Hyer (2002)** found a significant positive correlation between pre-post effect size and assessments of fidelity. Specifically those studies with fidelity that was assessed as adequate, tended to have larger effects than those with fidelity that was assessed as variable or poor, or not assessed.

Suggested research. A measure of treatment fidelity needs to be developed with good inter-rater reliability. Then the relationship between ratings on this measure and ratings of treatment effect can be specifically examined. Further, scores can be developed for the

integrity of treatment received by each client, and this variable can be entered into analyses to determine the extent to which fidelity contributed to treatment outcome.

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11. What elements of EMDR contribute to its effectiveness?

EMDR is a complex therapeutic approach that integrates elements of many traditional psychological orientations and combines these in structured protocols. These include psychodynamic (**Fensterheim, 1996; Solomon & Neborsky, 2001; Wachtel, 2002**), cognitive behavioural (**Smyth & Poole, 2002; Wolpe, 1990; Young, Zangwill, & Behary, 2002**), experiential (e.g., **Bohart & Greenberg, 2002**), physiological (**Siegel, 2002; van der Kolk, 2002**), and interactional therapies (**Kaslow, Nurse, & Thompson, 2002**). Consequently EMDR contains many effective components, all of which are thought to contribute to treatment outcome.

Marks, Lovell, Noshirvani, Livanou, & Thrasher (1998) propose that emotion can be conceptualised as a “skein of responses,” viewed as “loosely linked reactions of many physiological, behavioural, and cognitive kinds” (p. 324). They suggest that different types of treatment will weaken different strands within the skein of responses and that “some treatments may act on several strands simultaneously” (p. 324). EMDR is a multi-component approach that works with strands of imagery, cognition, affect, somatic sensation, and related memories. This complexity makes it difficult to isolate and measure the contribution of any single component, especially as different clients with the same diagnosis may respond differently to different elements.

Shapiro's (2001) AIP model conceptualizes EMDR as working directly with cognitive, affective, and somatic components of memory to forge new associative links with more adaptive material. A number of treatment elements are formulated to enhance the processing and assimilation needed for adaptive resolution. These include: (1) Linking of memory components The client's simultaneous focus on the image of the event, the associated negative belief, and the attendant physical sensations, may serve to forge initial connections among various elements of the traumatic memory, thus initiating information processing. (2) Mindfulness. Mindfulness is encouraged by instructing clients to “just notice” and to “let whatever happens, happen.” This cultivation of a stabilized observer stance in EMDR appears similar to processes advocated by **Teasdale (1999)** as facilitating emotional processing. (3) Free association. During processing, clients are asked to report on any new insights, associations, emotions, sensations, images, that emerge into consciousness. This non-directive free association method may create associative links between the original targeted trauma and other related experiences and information, thus contributing to processing of the traumatic material (**see Rogers & Silver, 2002**). (4) Repeated access and dismissal of traumatic imagery. The brief exposures of EMDR provide clients with repeated practice in controlling and dismissing disturbing internal stimuli. This may provide clients with a sense of mastery, contributing to treatment effects by increasing their ability to reduce or manage negative interpretations and ruminations. (5) Eye movements and other dual attention stimuli. There are many theories about how and why eye movements may contribute to information processing, and these are discussed in detail below.

Suggested research. In order to determine the contribution of the relevant components, it is recommended that future dismantling 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 randomized clinical dismantling study has provided a full course of treatment to a large sample of clinically diagnosed subjects.

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12. Is EMDR an exposure therapy?

A standard treatment for anxiety disorders involves exposing clients to anxiety eliciting stimuli. It has sometimes been assumed that EMDR uses exposure in this traditional manner and that this accounts for EMDR's effectiveness. Some reviewers 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, Lilienfeld, Tolin, & Herbert, 1999, p. 201**). However such a perspective ignores important elements of the EMDR procedure that are antithetical to exposure theories; in other words, the theories predict that if these EMDR elements were used in exposure therapy, a diminished outcome would result (**Rogers & Silver, 2002**). These elements include frequent brief exposures, interrupted exposure, and free association. (1) Exposure theorists **Foa and McNally (1996)** write: “Because habituation is a gradual process, it is assumed that exposure must be prolonged to be effective. Prolonged exposure produces better outcome than does brief exposure, regardless of diagnosis” (p.

334). EMDR however uses extremely brief repeated exposures (i.e., 20-50 seconds). (2) Other theorists (**Marks et al., 1998**) state that exposure should be continual and uninterrupted: "Continuous stimulation in neurons and immune and endocrine cells tends to dampen responses, and intermittent stimulation tends to increase them" (p 324). EMDR, on the other hand, interrupts the internal attention repeatedly to ask "What do you get now?" (3) Exposure therapy is structured to inhibit avoidance (**Lyons & Keane, 1989**), and specifically prohibits the patient from reducing "his anxiety by changing the scene or moving it ahead quickly in time to skim over the most traumatic point" (p. 146) in order to achieve extinction of the anxiety. However, free association to whatever enters the person's consciousness is an integral part of the EMDR process. Differences such as these have prompted exposure researchers to state: "In strict exposure therapy the use of many of [a host of EMDR-essential treatment components] is considered contrary to theory. Previous information also found that therapists and patients prefer this procedure over the more direct exposure procedure" (**Boudewyn and Hyer, 1996**, p.192) A one session direct process analysis of the two therapies found significant differences in practices and subjective response (**Rogers et al., 1999**).

Clearly theories explicating exposure therapy fail to explain the treatment effects of EMDR, with its brief, interrupted exposures, and its elicitation of free association. In addition there appears to be a difference in treatment process. During exposure therapy clients generally experience long periods of high anxiety (**Foa & McNally, 1996**), while EMDR clients generally experience rapid reductions in SUD levels early in the session (**Rogers et al., 1999**). This difference suggests the possibility that EMDR's use of repeated short focused attention may invoke a different mechanism of action than that of exposure therapy with its continual long exposure.

Suggested research. Research is needed to examine the role of exposure in the treatment of PTSD. This could be done by comparing standard EMDR to a modified EMDR protocol in which the amount of exposure was pre-determined. Likewise, standard exposure therapy could be compared to a variant in which exposure was interrupted using an EMDR-type procedure; or in which free association was elicited. Such research will be helpful in identifying some of the core mechanisms that are active in PTSD treatment. Physiological measures taken during each condition (see **D. Wilson, Silver, Covi, & Foster, 1996**) can reveal potential fruitful information regarding the physiological mechanisms of action and response during the process of change.

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13. Are eye movements considered essential to EMDR?

Although eye movements are often considered its most distinctive element, EMDR is not a simple procedure dominated by the use of eye movements. It is a complex psychotherapy, containing numerous components that are considered to contribute to treatment effects. Eye movements are used to engage the client's attention to an external stimulus, while the client is simultaneously focusing on internal distressing material. Shapiro describes eye movements as "dual attention stimuli," to identify the process in which the client attends to both external and internal stimuli. Therapist directed eye movements are the most commonly used dual attention stimulus but a variety of other stimuli including hand-tapping and auditory stimulation are often used. The use of such alternate stimuli has been an integral part of the EMDR protocol for more than 10 years (**Shapiro 1991, 1993**).

Suggested research. All the outcome research in EMDR treatment has used eye movements as the dual attention stimulus. It is recommended that clinical dismantling studies investigate whether there is a difference in effect between EMs and the other dual attention stimuli, such as tapping, tactile stimulation, and tones, and to determine if certain kinds of dual attention stimuli are more helpful for some types of clients than others. Other aspects of dual attention stimuli such as speed, intensity, and bilaterality also need to be studied. It is important that component studies have sample sizes sufficient to ensure adequate statistical power.

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14. What has research determined about EMDR's eye movement component?

In 1989, **Francine Shapiro (1995)** noticed that the emotional distress accompanying disturbing thoughts disappeared as her eyes moved spontaneously and rapidly. She began experimenting with this effect and determined that when others moved their eyes, their distressing emotions also dissipated. She conducted a case study (**1989b**) and controlled study (**1989a**), and her hypothesis that eye movements (EMs) were related to desensitization of traumatic memories was supported. The role of eye movement had been previously documented in connection to cognitive processing mechanisms. A series of

systematic experiments (**Antrobus, 1973; Antrobus, Antrobus, & Singer, 1964**) revealed that spontaneous EMs were associated with unpleasant emotions and cognitive changes.

There have been 20 published studies that investigated the role of EMs in EMDR. Studies have typically compared EMDR-with-EMs to a control condition in which the EM component was modified (e.g., EMDR-with-eyes-focused-and-unmoving). There have been four different types of studies: (1) case studies, (2) dismantling studies using clinical participants (3) dismantling studies using nonclinical analogue participants, and (4) component action studies in which eye movements are examined in isolation.

Case studies. Four case studies evaluated the effects of adding EMs to the treatment process, and three demonstrated an effect for EMs. **Montgomery and Ayllon (1994)** found eye movements to be necessary for EMDR treatment effects in five of six civilian PTSD patients. They wrote that the addition of the eye movement component “resulted in the significant decreases in self-reports of distress previously addressed. These findings are reflected by decreases in psycho-physiological arousal” (**Montgomery & Ayllon, 1994, p. 228**). **Lohr, Tolin, and Kleinknecht (1995)** reported that “the addition of the eye movement component appeared to have a distinct effect in reducing the level of [SUD] ratings” (p. 149). When **Lohr, Tolin and Kleinknecht (1996)** treated two claustrophobic subjects, substantial changes in disturbance ratings were achieved only after EMs were added to an imagery exposure procedure that used the brief frequent exposures of EMDR. The fourth study (**Acierno, Tremont, Last, & Montgomery, 1994**) did not use standard EMDR protocol for phobias, nor the standard procedures for accessing the image, formulating the negative belief, or eliciting new associations. In addition, the client was instructed to relax between sets of EMs until the SUD rating was reduced to baseline, a procedure not used in EMDR. The procedures used in this study did not eliminate the phobia and no effect was found for the EM condition.

Clinical dismantling studies with diagnosed participants. There have been four controlled dismantling studies with PTSD participants, and two studies where participants were diagnosed with other anxiety disorders. These studies have tended to show that EMDR-with-EMs was slightly better than EMDR-with-modification; however such comparisons have not usually been statistically significant, and results are equivocal. For example, **Devilley et al. (1998)** reported rates of reliable change of 67% for the EM condition, compared to 42% of the non-EM condition; **Renfrey and Spates (1994)** reported a decrease in PTSD diagnosis of 85% for EM conditions and 57% for the non-EM group. These studies unfortunately are limited by severe methodological problems, including inadequate statistical power. For example, there were seven or eight persons per condition in the **Renfrey and Spates (1994)** PTSD study. The participants in the other three PTSD (**Boudeywns & Hyer, 1996; Devilly et al., 1998; Pitman et al., 1996**) studies were combat veterans, who received only two sessions or treatment of only one traumatic memories. Such an inadequate course of treatment produced only moderate effect sizes; therefore a large sample would be required to provide adequate statistical power for the detection of any possible differences between groups. There has yet to be a single rigorous dismantling study with a sample adequate to assess treatment effects.

Clinical dismantling studies with analogue participants. The controlled studies that used analogue participants with nonclinical anxiety found no effect for EMs. There are many problems with these analogue studies, which typically used normal college student participants. The EMDR protocol was often truncated (e.g., **Carrigan & Levis, 1999; Sanderson & Carpenter, 1992**), resulting in poor construct validity and making interpretation of results problematic. It is also unlikely that the responses of analogue participants can be generalized to persons with chronic PTSD, a disorder that appears resistant to placebo effects (**Solomon, Gerrity, & Muff, 1992; Van Etten & Taylor, 1998**). Analogue participants responded well to EMDR-without-EMs, a procedure which contains a number of active components. The minimal distress of the analogue participants was relieved with minimal treatment, and the assessment of differences between the EM and nonEM conditions was limited by a floor effect. Consequently it may not have been possible to detect differences between conditions.

Component action studies. Component action studies test EMs in isolation. These studies typically provide brief sets of EMs (not EMDR) to examine their effects on memory, affect, cognition, or physiology. The purpose is to investigate the effects of moving the eyes (not EMDR), and EMs are compared to control conditions such as imaging and tapping. For example, a participant might be asked to visualize a memory image, then to move their eyes for a brief period, and then to rate the vividness of the image. This permits a pure test of the specific effects of EMs and non-EMs without the added effects of the active ingredients of the other EMDR procedures. The studies have generally used nonclinical participants and a within-subject design, that compares the differences in each individual's responses to the various conditions. This reduces the variance of subjective responding, and eliminates possible floor effects.

Findings from these studies suggest that EMs may have an effect on physiology,

decreasing arousal (e.g., Barrowcliff et al., in press; D. Wilson et al., 1996) on attentional flexibility (Kuiken, Bears, Miall & Smith (2001-2001) and on memory processes, enhancing semantic recall (Christman et al., in press). Four studies (Andrade, Kavanagh, & Baddeley, 1997; Kavanagh, Freese, Andrade, & May, 2001; Sharpley et al., 1996; van den Hout, Muris, Salemink, & Kindt, 2001) have demonstrated that EMs decrease the vividness of memory images and the associated emotion. No (or minimal) effect has been found for tapping conditions. These studies suggest that EMs may make a contribution to treatment by decreasing the salience of the memory and its associated affect. (See discussion below on mechanisms of action).

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15. Do eye movements contribute to outcome in EMDR?

Much confusion tends to result when the outcomes of the three types of component studies (see [What has research determined about EMDR's eye movement component](#)) are combined. Because these studies differ substantially in design, purpose, participants, and outcome measures, they have produced a wide range of results: (1) In dismantling studies with analogue participants, EMs do not contribute to outcome, possibly because of a floor effect. (2) In clinical dismantling studies with diagnosed participants, there has been a consistent nonsignificant trend for a treatment effect. (3) In the component action studies a consistent significant effect for EMs in isolation was found in reducing the vividness of, and affect associated with, autobiographical memories; it is possible that such effects may contribute to treatment outcome. In the Davidson and Parker (2001) meta-analysis, no effects were found for EMDR-with-EMs compared to EMDR-without-EMs, when all types of studies were included. However, when the results of the clinical dismantling studies were examined, EMDR-with-EMs was significantly superior to EMDR-without-EMs.

Various reviews of the related EM research have provided a range of conclusions. Some reviewers (e.g., Lohr, Lilienfeld, Tolin, & Herbert, 1999; Lohr, Tolin, & Lilienfeld, 1998) stated that there is no compelling evidence that eye movements contribute to outcome in EMDR treatment and the lack of unequivocal findings has led some reviewers to dismiss EMs altogether (e.g., McNally, 1999). Other reviewers (e.g., Chemtob et al., 2000; Feske, 1998; Perkins & Rouanzoin, 2002) identified methodological failings (e.g., lack of statistical power, floor effects) and called for more rigorous study.

Numerous controlled studies have also indicated that eye movements cause a decrease in imagery vividness and distress, as well as increased memory access.

Andrade, J., Kavanagh, D., & Baddeley, A. (1997). Eye-movement and visual imagery: a working memory approach to the treatment of post-traumatic stress disorder. *British Journal of Clinical Psychology*, 36, 209-223.

Barrowcliff, A.L., Gray, N.S., MacCulloch, S. Freeman, T.C.A., & MacCulloch, M.J. (in press). Horizontal rhythmical eye-movements consistently diminish the arousal provoked by auditory stimuli. *British Journal of Clinical Psychology*.

Christman, S.D., Garvey, K.J., Propper, R.E. & Phaneuf, K.A. (in press). Bilateral eye movements enhance the retrieval of episodic memories. *British Journal of Clinical Psychology*, 40, 267-280.

Kavanagh, D.J., Freese, S., Andrade, J., & May, J. (2001). Effects of visuospatial tasks on desensitization to emotive memories. *British Journal of Clinical Psychology*, 40, 267-280.

Kuiken, D., Bears, M., Miall, D., & Smith, L. (2002-2002). Eye movement desensitization reprocessing facilitates attentional orienting. *Imagination, Cognition and Personality*, 21, (1), 3-30.

Sharpley, C.F., Montgomery, I.M., & Scalzo, L.A. (1996). Comparative efficacy of EMDR and alternative procedures in reducing the vividness of mental images. *Scandinavian Journal of Behaviour Therapy*, 25, 37-42.

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.

See also: [What research determined about EMDR's eye movement component](#)

Suggested research. Research is needed to answer questions about the role of EMs and other dual attention stimuli. It is recommended that clinical dismantling studies use a large sample of participants with PTSD (from a single trauma) to investigate whether EMDR-with-EMs is more effective than EMDR-without-dual attention stimuli. To date, no study like this has been conducted. (See Shapiro, 2001, for specific recommendations for research designs.)

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16. What are some hypothesized mechanisms of action for

eye movements in EMDR?

A commonly proposed hypothesis is that dual attention stimulation elicits an orienting response. The orienting response is a natural response of interest and attention that is elicited when attention is drawn to a new stimulus. There are three different models for conceptualizing the role of the orienting response in EMDR: cognitive/information processing (**Andrade et al., 1997; Lipke, 1999**), neurobiological (**Bergmann, 2000; Servan-Schreiber, 2000; Stickgold, 2002**) and behavioral (**Armstrong & Vaughan, 1996; MacCulloch & Feldman, 1996**). These models are not exclusive; to some extent, they view the same phenomenon from different perspectives. **Barrowcliff et al. (2001)** posit that the orienting in EMDR is actually an "investigatory reflex," that results in a basic relaxation response, upon determination that there is no threat; this relaxation contributes to outcome through a process of reciprocal inhibition. Others suggest that the inauguration of an orienting response may disrupt the traumatic memory network, interrupting previous associations to negative emotions, and allowing for the integration of new information. A study by **Kuiken, Bears, Miall & Smith (2001-2002)** which tested the orienting response theory indicated that the eye movement condition was correlated with increased attentional flexibility. It is further possible that the orienting response induces neurobiological mechanisms, which facilitate the activation of episodic memories and their integration into cortical semantic memory (**Stickgold, 2002**). This theory has recently received experimental support (**Christman and Garvey, in press**). Further research is needed to test these hypotheses.

There are several research studies (e.g., **Andrade et al., 1997; Kavanaugh et al., 2001; van den Hout et al., 2001**) indicating that EMs and other stimuli have an effect on perceptions of the targeted memory, decreasing image vividness and associated affect. Two possible mechanisms have been proposed to explain how this effect may contribute to EMDR treatment. **Kavanaugh et al. (2001)** hypothesize that this effect occurs when EMs disrupt working memory, decreasing vividness, and that this results in decreased emotionality. They further suggest that this effect may contribute to treatment as a "response aid for imaginal exposure" (p. 278), by titrating exposure for those clients who are distressed by memory images and/or affect. **Van den Hout et al. (2001)** hypothesize that EMs change the somatic perceptions accompanying retrieval, leading to decreased affect, and therefore decreasing vividness. They propose that that this effect "may be to temporarily assist patients in recollecting memories that may otherwise appear to be unbearable" (p. 129). This explanation has many similarities to reciprocal inhibition.

Suggested research. Research investigating mechanisms of action should be driven by hypotheses, with outcomes evaluated in relation to the hypothesis being tested. (See **Shapiro 2001**, for examples of suggested research designs.)

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17. What does the research show about the neurobiological aspects of EMDR?

Given the infancy of the field of neurobiology, the physiological foundations of all psychotherapies are currently unknown, and therefore, all neurobiological models of psychotherapy are speculative. Testing of hypotheses about EMDR's neurological mechanisms awaits the development of advanced brain imaging techniques. Hypotheses concerning EMDR's neurobiological mechanisms are, at this time, purely speculative.

Rauch, van der Kolk, and colleagues (1996) conducted positron emission studies of patients with PTSD in which they were exposed to vivid, detailed narratives which they had written about their own traumatic experiences. Patients showed heightened activity only in the right hemisphere, in the areas most involved in emotional arousal, and heightened activity on the right visual cortex, reflecting the flashbacks reported by these patients. Perhaps most significantly, Broca's area - the part of the left hemisphere responsible for translating personal experiences into communicable language - "turned off". These findings indicate that PTSD symptoms are reflected in actual changes in brain activity.

Case study research by van der Kolk and colleagues (**Levin, Lazrove, & van der Kolk, 1999; van der Kolk, Burbridge, & Suzuki, 1997; Zoler, 1998**) has provided some preliminary evidence that changes in brain activation patterns may follow effective treatment. SPECT scans were administered pre and post-EMDR for 6 PTSD subjects who each received 3 EMDR sessions. The Zoler article has photos of pre and post SPECT scans. Findings indicated metabolic changes after EMDR in two specific brain regions. First, there was an increase in bilateral activity of the anterior cingulate. This area moderates the experience of real versus perceived threat, indicating that after EMDR, PTSD sufferers may no longer be hypervigilant. Second, there appeared to be an increase in pre-frontal lobe metabolism. An increase in frontal lobe functioning may indicate improvement in the ability to make sense of incoming sensory stimulation. Levin et al.

concluded that EMDR appeared to facilitate information processing. Because there was no control group, there is no evidence that these effects were unique to EMDR; effective treatment of any kind may produce similar results.

Daniel Amen (2001) has been taking pre and post SPECT scans of his patients. He has used EMDR with PTSD patients, and reported a decrease in anterior cingulate, basal ganglia and deep limbic activity. The 12th chapter of **Shapiro's (2001)** text details some related recent neurological research and explains the possible relevance of these findings to EMDR. Also of interest is an article by **Stickgold (2002)**, a sleep researcher, who has developed a theory to explain the effects of EMDR's alternating, bilateral stimulation which forces the client to constantly shift his or her attention across the midline. He proposed that REM-like neurobiological mechanisms are facilitated by this shifting attention, resulting in the activation of episodic memories, and their integration into cortical semantic memory. Independent research by **Christman and Garvey (2000)** provides some support for this theory. They determined that alternating leftward and rightward eye movements produced a beneficial effect for episodic, but not semantic, retrieval memory tasks.

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18. What are the side effects?

As with any form of psychotherapy, there may be a temporary increase in distress.

1. distressing and unresolved memories may emerge
2. some clients may experience reactions during a treatment session that neither they nor the administering clinician may have anticipated, including a high level of emotion or physical sensations
3. subsequent to the treatment session, the processing of incidents/material may continue, and other dreams, memories feelings, etc., may emerge.

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19. What can I expect with EMDR, ie,...what should/could happen?

Each case is unique, but there is a standard eight phase approach that each clinician should follow. This includes taking a complete history, preparing the client, identifying targets and their components, actively processing the past, present and future aspects, and on-going evaluation. The processing of a target includes the use of dual stimulation (eye movements, taps, tones) while the client concentrates on various aspects. After each set of movements the client briefly describes to the clinician what s/he experienced. At the end of each session, the client should use the techniques s/he has been taught by the clinician in order to leave the session feeling in control and empowered. At the end of EMDR therapy, previously disturbing memories and present situations should no longer be problematic, and new healthy responses should be the norm. A full description of multiple cases is available in the book "[EMDR The Breakthrough Therapy for Overcoming Anxiety, Stress and Trauma](#)" by Shapiro & Forrest.

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20. How many sessions will it take?

The number of sessions depends upon the specific problem and client history. However, repeated controlled studies have shown that a single trauma can be processed within 3 sessions in 80-90% of the participants. While every disturbing event need not be processed, the amount of therapy will depend upon the complexity of the history. In a controlled study, 80% of multiple civilian trauma victims no longer had PTSD after approximately 6 hours of treatment. A study of combat veterans reported that after 12 sessions 77% no longer had post traumatic stress disorder.

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21. How many sessions with the therapist BEFORE (s)he begins EMDR?

This depends upon the client's ability to "self-soothe" and use a variety of self-control techniques to decrease potential disturbance. The clinician should teach the client these techniques during the preparation phase. The amount of preparation needed will vary from client to client. In the majority of instances the active processing of memories should begin

after one or two sessions.

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22. Is EMDR effective with Schizophrenia?

There is currently no research on EMDR's use with schizophrenia. However, individuals with schizophrenia may have experienced distressing life experiences or traumas that exacerbate their symptoms. Using EMDR to process memories of such events may be helpful in alleviating stress and reducing symptoms. In such cases, it would be assumed that treatment would be provided only after appropriate stabilization, and in the hands of an expert in this specialty area. Anecdotal reports have given preliminary support for this. However, research needs to be conducted.

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23. What questions should be asked to find out if clinicians are qualified and if they have expertise using EMDR with my problem/disorder?

Ask:

1. Have they received both levels of training;
2. Was the training approved by EMDRIA;
3. Have they kept informed of the latest protocols and developments;
4. How many cases have they treated with your particular problem/disorder;
5. What is their success rate.

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24. Is EMDR the same as hypnosis..what are the differences/similarities?

The American Journal of Hypnosis published a special issue on the use of EMDR and hypnosis. An introductory article by the editor and past president of the American Association of Clinical Hypnosis directly addressed the issue: "While it has been argued against categorizing hypnosis as a specific type of treatment method (e.g., **Fischholz, 1995; 1997a; 1997b; 2000; Fischholz & Spiegel, 1983**), this is not the case for EMDR. Like psychoanalysis, EMDR is both an evolving theory about how information is perceived, stored and retrieved in the human brain and a specific treatment method based on this theory (**Shapiro, 1995, 2001**). In fact, EMDR is a very unique treatment method, which like other types of treatment/methods/techniques (e.g. psychoanalytic/psychodynamic therapy, behavior, cognitive-behavioral therapy, ego-state therapy) can also be incorporated with hypnosis (**Hammond, 1990**).

We note there are some distinctive differences between hypnosis and EMDR, which we would like to briefly highlight. First, one of the major uses of hypnosis among clinical practitioners is to deliberately begin by inducing in the patient an altered state of mental relaxation. In contrast, when beginning EMDR mental relaxation is not typically attempted. In fact, deliberate attempts are often actually made to connect with an anxious (i.e. an emotionally disturbing as opposed to relaxed) mental state.

Second, therapists often use hypnosis to help a patient develop a single, highly focused state of aroused receptivity (**Spiegel & Spiegel, 1978**). In contrast, with EMDR attempts are made to maintain a duality of focus on both positive and negative currently held self-referencing beliefs, as well as the emotional arousal brought about by imaging the worst part of a disturbing memory. However, in this sense, EMDR does have a similarity to Spiegel's (**Spiegel & Spiegel, 1978**) split-screen cognitive restructuring technique.

Third, one of the proposed effects of hypnotizing a person is that they will have a decrease in their generalized reality orientation (**GRO: Shor, 1979**). This induced decrease in a person's GRO is often utilized in order to promote an increase in fantasy and imagination, perhaps by capitalizing on an increase in trance logic (**Orne, 1977**). In contrast, in EMDR attempts are made towards repeatedly grounding the patient by referencing current feelings and body sensations to prevent the patient from drifting away from reality. Specific encouragement/inducement is made towards rejecting previously irrational/self-blaming beliefs in favor of a newly, reframed positive belief with an increase in subjective conviction

about that belief. **Shapiro and Forrest (1997)** and **Nicosia (1995)** have also noted additional differences between hypnosis and EMDR.

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25. How do I know EMDR would work for me/work for my anxiety/problems, etc.? Am I a candidate for EMDR?

EMDR has been extensively researched as effective for problems based on earlier traumas. In addition, reports from clinicians over the past ten years have indicated that EMDR can be extremely effective when there are experiential contributors that need to be addressed. Read the book [EMDR The Breakthrough Therapy for Overcoming Anxiety, Stress and Trauma](#) by Shapiro & Forrest and see if any of your problems are covered in the cases. Interview at least 3 clinicians to ask them what experience they have using EMDR with your particular problem.

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26. Will EMDR or the eye movements increase the frequency of seizures?

There is no indication that EMDR will increase the frequency of seizures.

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27. Will EMDR/eye movements cause seizures?

There is no indication that EMDR will cause seizures. In thousands of cases there have been only three reports of seizures occurring with people already diagnosed with epilepsy. Two of these cases occurred when using a lightbar. One case seemed to be caused by the processing of an old seizure. The client later reported that her experience made later seizures more manageable.

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28. Will I live the trauma as intensely as before?

Many people are conscious of only a shadow of the experience, while others feel it to a greater degree. Unlike some other therapies, EMDR clients are not asked to relive the trauma intensely and for prolonged periods of time. In EMDR, when there is a high level of intensity it only lasts for a few moments and then decreases rapidly. If it does not decrease rapidly on its own, the clinician has been trained in techniques to assist it to dissipate. The client has also been trained in techniques to immediately relieve the distress.

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29. What are the adverse effects?

As with any form of psychotherapy, there may be a temporary increase in distress.

1. distressing and unresolved memories may emerge
2. some clients may experience reactions during a treatment session that neither they nor the administering clinician may have anticipated, including a high level of emotion or physical sensation
3. subsequent to the treatment session, the processing of incidents/material may continue, and other dreams, memories, feelings, etc., may emerge.

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30. Confusion, misinformation and charges of "pseudoscience"

Some misconceptions will be addressed below:

- 1) EMDR is only superior to no treatment and/or has not been thoroughly tested.

This is inaccurate. EMDR has been found superior in controlled studies to Veterans Administration (V.A.) standard care, biofeedback assisted relaxation, simple relaxation,

active listening, and various forms of individual psychotherapy used at an HMO (e.g. exposure, cognitive, psychodynamic). It has also been compared to and found generally equal to forms of exposure therapy with and without forms of cognitive therapy. While exposure therapy used 1-2 hours of daily homework, EMDR has achieved equivalent results with none [\[view Efficacy\]](#).

2) EMDR is only exposure therapy.

This is inaccurate. EMDR has been found to be equivalent to exposure therapy in 5 studies. However, exposure therapy uses 1-2 hours of daily homework and EMDR uses none. In addition, the EMDR practices have little in common with exposure therapy. A process analysis of the two found significant differences (**Rogers et al., 1999**) and some researchers subsequent to another study stated: "In strict exposure therapy the use of many of [a host of EMDR-essential treatment components] is considered contrary to theory. Previous information also found that therapists and patients prefer this procedure over the more direct exposure procedure" (**Boudewyns & Hyer, 1996, p.192**) For additional references and details see [Is EMDR an exposure therapy?](#)

3) There is no theory for EMDR effects or reasons for the eye movements.

This is inaccurate. The information processing model was articulated in 1991 and has been thoroughly described in three texts. A number of neuropsychologists have also given detailed theories and descriptions of reasons for EMDR's effects. Numerous researchers have also articulated theories and conducted hypothesis driven research supporting the use of eye movements and other dual attention stimulation.

For references and details see:

[Theory: The Adaptive Information Processing Model](#)

[Eye Movements and Alternate Dual Attention Stimuli](#)

[What has research determined about EMDR's eye movement component?](#)

[What are some hypothesized mechanisms of action for eye movements in EMDR?](#)

4) The following article summary and link is offered to address other common misconceptions.:

Perkins, B. R., & Rouanzoin, C. 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. A preprint of the article is available at www.perkinscenter.net

EMDR is an active psychological treatment for PTSD that has been surrounded by confusion in the research review literature. One article (**Perkins & Rouanzoin, 2002**) examined the original empirical research in light of the review literature in order to understand the contradictory conclusions that had been drawn by various authors and some significant conclusions were suggested.

The confusion appears to be due to (a) an inadequate awareness of the lack of placebo effects in treating PTSD; (b) a theoretical and methodological lack of distinction between EMDR and exposure procedures; (c) debates over the importance of the eye movement component of EMDR; (d) poorly designed outcome studies; and (e) historical misinformation which then becomes confounded with empirical research findings.

In considering these issues it is important to understand that PTSD is highly refractory to nonspecific treatment factors and that the effects of EMDR are much larger than would be expected by such placebo effects. Secondly, while the general treatment effects of EMDR and exposure procedures appear to be approximately equivalent, EMDR is much more efficient in producing the therapeutic changes. Furthermore, the EMDR method (which involves brief interrupted periods of exposure) is inconsistent with exposure theory that prescribes extended, uninterrupted periods of exposure. Third, the role of eye movements has not received adequate empirical exploration primarily due to inadequate sample sizes, inappropriate populations, and poor treatment fidelity. Until that is accomplished, the eye movements are a part of the validated procedure and their removal is without empirical justification.

Moreover, there are general methodological and fidelity problems in some empirical studies that confuse the outcome research, including poor fidelity to the EMDR method as well as inadequate treatment dosage, poor research designs, and truncated protocols (especially as it pertains to multiply traumatized populations). And finally a relatively small group of authors appear to have engaged in the inaccurate and selective reporting of past research findings as well as the misstatement of historical events in the development of EMDR.

Readers of research reviews will find it helpful to have a knowledge of research design as

well as the EMDR method to assess the generalizability of research findings and the adequacy of treatment fidelity respectively. Then when confusion arises, the reader can frequently reduce or eliminate the confusion by reading the original research.

For more information on these and related issues, see **Perkins, B. R., & Rouanzoin, C. 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 or see a preprint of the article at www.perkinscenter.net. To obtain a more detailed description of how historical misinformation and personal slurs were confounded with the findings of well designed empirical outcome studies assessing the efficacy of EMDR, see **Beutler, L. E., & Harwood, T. M. (2001)**. Antiscientific attitudes: What happens when scientists are unscientific? *Journal of Clinical Psychology*, 57, 43-51.

Resource: **Perkins, B.R., & Rouanzoin, C.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. A preprint of the article is available at www.perkinscenter.net

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For more information and a general overview of resources:
<http://www.emdrnetwork.org>

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