Numerous memory researchers have evaluated the eye movements used in EMDR therapy. It is hypothesized that a number of mechanisms interact synergistically. The following studies have tested specific hypotheses relevant to standard EMDR clinical practice regarding mechanism of action and found a direct effect on emotional arousal, imagery vividness, attentional flexibility, retrieval, distancing and memory association.


*Tested the working memory theory. Eye movements were superior to control conditions in reducing image vividness and emotionality.*


*Tested the reassurance reflex model. Eye movements were superior to eyes-fixed in reducing image vividness, emotionality and electrodermal arousal.*


*Tested the reassurance reflex model. Eye movements were superior to control conditions in reducing arousal provoked by auditory stimuli.*


*Tested cortical activation theories. Results provide indirect support for the orienting response/REM theories suggested by Stickgold (2002, 2008). Saccadic eye movements, but not tracking eye movements were superior to control conditions in episodic retrieval.*


*“The results of the current Experiment 2 suggest that the eye movements employed in EMDR may induce a neurobiological change in interhemispheric interaction and an attendant psychological change in episodic retrieval.”*


For updates and other research lists, visit [http://emdrresearchfoundation.org/research-lists](http://emdrresearchfoundation.org/research-lists)
“The findings provide further evidence for the value of employing eye movements in EMDR treatments. The results also support the notion that EMDR is a suitable option for resolving disturbing memories underlying a broader range of mental health problems than PTSD alone.”


Distressing images were randomly assigned to two conditions. “This study examined whether eye movements reduce vividness and emotionality of visual distressing images about feared future events. . . Relative to the no-dual task condition, eye movements while thinking of future-oriented images resulted in decreased ratings of image vividness and emotional intensity.”


“The effects of EM and Tetris on negative and positive memories did not differ, even though Tetris taxed WM to a greater extent than EM.”


“Results showed that vividness of intrusive images was lower after recall with eye movement, relative to recall only, and there was a similar trend for emotionality.”


Three studies were done that cumulatively support a working-memory account of the eye movement benefits in which the central executive is taxed when a person performs a task while attempting to hold a memory in mind.


As hypothesised, representative imagery was established and reduced in vividness more effectively by the eye movement task than the auditory task. The public speaking scenario was then visualised less vividly and generated less anxiety when imagined after performing the eye movement task than after the auditory task.


Tested the working memory theory. Eye movements were superior to control conditions in reducing within-session image vividness and emotionality. There was no difference one-week post.

For updates and other research lists, visit http://emdrresearchfoundation.org/research-lists

“Relative to the control condition (imagery only), those who made eye movements whilst holding a mental image of this scenario in-mind demonstrated a significant decrease in heart rate, which acted as a measure of emotionality.”


Tested the orienting response theory related to REM-type mechanisms. Indicated that the eye movement condition was correlated with increased attentional flexibility. Eye movements were superior to control conditions.


This study adds additional support to the orienting response theory related to REM-type mechanisms. Evaluations of participants experiencing significant loss or trauma demonstrate differential effects in a comparison of eye movement and non-eye movement conditions.


“There was no significant effect of therapist’s instruction on the outcome measures. There was a significant reduction in distress for eye movement at post-treatment and at follow-up. . . . The results were consistent with other evidence that the mechanism of change in EMDR is not the same as traditional exposure.”


In two experiments participants focused on negative memories while engaging in three dual-attention eye movement tasks of increasing complexity. Results support a working memory explanation for the effects of eye movement dual-attention tasks on autobiographical memory.


Increased memory retrieval in two experiments support “the possibility that alternating bilateral activation of the left and right hemispheres exerts its effects on memory by increasing the functional connectivity between the two hemispheres.”


For updates and other research lists, visit [http://emdrresearchfoundation.org/research-lists](http://emdrresearchfoundation.org/research-lists)
Bilateral saccadic eye movements were compared to vertical and eye fixation. “It was found that bilateral eye movements increased true memory for the event, increased recollection, and decreased the magnitude of the misinformation effect.” This study supports hypotheses regarding effects of interhemispheric activation and episodic memory.


Bilateral saccadic eye movements were compared to vertical and eye fixation. Those in the bilateral eye movement condition “were more likely to recognise previously presented words and less likely to falsely recognize critical non-studies associates.”


The effects of saccadic bilateral eye movement were compared to vertical eye movements and eye fixation on the retrieval of item, associative and contextual information. Saccadic eye movements were superior on all parameters in all conditions.


Bilateral eye movements were compared to eye fixation and an exposure control. Both eye conditions were equally effective and superior to exposure alone at posttest.


The study demonstrated that 30 seconds of bilateral saccadic EMs enhanced the episodic retrieval of non-traumatic emotional stimuli in healthy adults. There was no evidence for an increase in interhemispheric coherence. However, a number of caveats regarding interpretation are noted.


“EMDR-with eye movements led to greater reduction in distress than EMDR-without eye movements. Heart rate decreased significantly when eye movements began; skin conductance decreased during eye movement sets; heart rate variability and respiration rate increased significantly as eye movements continued; and orienting responses were more frequent in the eye movement than no-eye movement condition at the start of exposure.”


Eye movements were superior to control conditions in reducing image vividness.

For updates and other research lists, visit [http://emdrresearchfoundation.org/research-lists](http://emdrresearchfoundation.org/research-lists)

“Results revealed a significant drop [in eyes moving condition] compared to the [eyes stationary] group in emotionality after 74 seconds compared to a significant drop in vividness at only 2 seconds into the intervention. These results support that emotionality becomes reduced only after vividness has dropped.”


“Compared to a pre-test, a post-test (without concentrating on the dot) replicated earlier findings: negative memories are rated as less vivid after “recall + EM” but not after “recall only”. This was not found for neutral memories”


“Vividness of negative memories was reduced after both beeps and eye movements, but effects were larger for eye movements. Findings support a working memory account of EMDR and suggest that effects of beeps on negative memories are inferior to those of eye movements.”


Tested their theory that eye movements change the somatic perceptions accompanying retrieval, leading to decreased affect, and therefore decreasing vividness. Eye movements were superior to control conditions in reducing image vividness. Unlike control conditions, eye movements also decreased emotionality.


“Ems outperformed tones while it remained unclear if tones add to recall only.”


Although predicted that highly vivid images are more affected by fast EM and less vivid images are more affected by slower EM. “Crucially, image vividness did not interact with condition on the decrease of emotionality over time, which was inconsistent with the prediction.”