

XIII Congreso Internacional de Investigación y Práctica Profesional en Psicología. XXVIII Jornadas de Investigación. XVII Encuentro de Investigadores en Psicología del MERCOSUR. III Encuentro de Investigación de Terapia Ocupacional. III Encuentro de Musicoterapia. Facultad de Psicología - Universidad de Buenos Aires, Buenos Aires, 2021.

Efecto de los movimientos oculares de la terapia EMDR en la reactivación de recuerdos visuales y verbales.

Sánchez Beisel, Jessica Mariel, Quian, Maria Del Rosario, Chianetta, Matias y Andreau, Jorge Mario.

Cita:

Sánchez Beisel, Jessica Mariel, Quian, Maria Del Rosario, Chianetta, Matias y Andreau, Jorge Mario (2021). *Efecto de los movimientos oculares de la terapia EMDR en la reactivación de recuerdos visuales y verbales. XIII Congreso Internacional de Investigación y Práctica Profesional en Psicología. XXVIII Jornadas de Investigación. XVII Encuentro de Investigadores en Psicología del MERCOSUR. III Encuentro de Investigación de Terapia Ocupacional. III Encuentro de Musicoterapia. Facultad de Psicología - Universidad de Buenos Aires, Buenos Aires.*

Dirección estable: <https://www.aacademica.org/000-012/381>

ARK: <https://n2t.net/ark:/13683/even/PNr>

Acta Académica es un proyecto académico sin fines de lucro enmarcado en la iniciativa de acceso abierto. Acta Académica fue creado para facilitar a investigadores de todo el mundo el compartir su producción académica. Para crear un perfil gratuitamente o acceder a otros trabajos visite: <https://www.aacademica.org>.

EFFECTO DE LOS MOVIMIENTOS OCULARES DE LA TERAPIA EMDR EN LA REACTIVACIÓN DE RECUERDOS VISUALES Y VERBALES

Sánchez Beisel, Jessica Mariel; Quian, Maria Del Rosario; Chianetta, Matias; Andreau, Jorge Mario
CONICET - Universidad de Buenos Aires. Buenos Aires, Argentina.

RESUMEN

Tras la exposición a un evento traumático, podría desarrollarse un Trastorno por Estrés Postraumático (TEPT), que incluye alteraciones de la memoria como recuerdos intrusivos (flashbacks) e incapacidad para recordar aspectos episódicos del evento traumático. Según la teoría de representación dual, una situación traumática genera dos tipos de recuerdos: uno verbal y accesible voluntariamente y otro automático que produce flashbacks. Éste último se compone de información sensorial, principalmente visual. La terapia de Desensibilización y Reprocesamiento por Movimientos Oculares (EMDR) utiliza movimientos oculares para modular los recuerdos traumáticos. No obstante tanto los procesos cognitivos como los mecanismos neurales que hacen posible el efecto no han sido clarificados. La teoría dual-task sostiene que reactivar los recuerdos conjuntamente con tareas que activen la memoria de trabajo, disminuye la emocionalidad y podría reducir los flashbacks, debido a una competencia de recursos. Por otro lado, la hipótesis de interacción interhemisférica afirma que realizar movimientos oculares antes de evaluar la memoria verbal mejora su rendimiento. Sin embargo, hasta el momento no se diferenció el efecto según el tipo de estímulo: visual o verbal. Puesto que las memorias traumáticas son principalmente visuales, hipotetizamos que los movimientos oculares afectarían específicamente la recuperación de estos estímulos.

Palabras clave

TEPT - EMDR - Movimientos oculares - Reactivación

ABSTRACT

EFFECT OF EYE MOVEMENTS FROM EMDR THERAPY ON THE REACTIVATION OF VISUAL AND VERBAL MEMORIES

Following exposure to a traumatic event, some people may develop Post Traumatic Stress Disorder (PTSD). In this disorder, memory alterations appear such as involuntary and intrusive memories (flashbacks) and an inability to remember episodic aspects of the event. According to the dual representation theory, a traumatic situation generates two types of memories: a verbal and accessible one and an automatic one that produces flashbacks. This last type of memory is made up of sensory information, mainly visual. Eye Movement Desensitization and

Reprocessing (EMDR) therapy uses eye movements to modulate traumatic memories. However, neither the cognitive processes nor the neural mechanisms underlying its effect have not yet been clarified. The dual-task theory posits that the reactivation of the memory with a task that activates the working memory reduces the level of emotionality and could decrease flashbacks, due to an overload in working memory. Interhemispheric interaction theory proposes that performing eye movements before a verbal memory test improves its performance. However, so far the effect has not been differentiated according to the type of stimulus: visual or verbal. Since traumatic memories are mainly visual, we hypothesized that eye movements could specifically affect the retrieval of this type of stimuli.

Keywords

Post-Traumatic Stress Disorder - EMDR - Eye movements - Reactivation

BIBLIOGRAFÍA

- American Psychiatric Association. (2014). Guía de consulta de los criterios diagnósticos del DSM-5®: Spanish Edition of the Desk Reference to the Diagnostic Criteria From DSM-5®. In *American Psychiatric Pub* (Vol. 5). American Psychiatric Pub. www.futur.com
- Andrade, J., Kavanagh, D., & Baddeley, A. (1997). Eye-movements and visual imagery?: A working memory approach to the treatment of post-traumatic stress disorder. *British Journal of Clinical Psychology*, 36, 209-223.
- Andreau, J. M., & Funahashi, S. (2011). Primate prefrontal neurons encode the association of paired visual stimuli during the pair-association task. *Brain and Cognition*, 76(1), 58-69. <https://doi.org/10.1016/j.bandc.2011.03.001>
- Baddeley, A. (1998). The central executive?: A concept and some misconceptions. *Journal of the International Neuropsychological Society*, 4, 523-526.
- Baddeley, A. (2003). Working memory: looking back and looking forward. *Nature Reviews. Neuroscience*, 4(October), 829-839. <https://doi.org/10.1038/nrn1201>
- Bear, M. F., Connors, B. W., & Paradiso, M. A. (2016). Neuroscience. Exploring the brain. In *Anesthesia and Analgesia* (Fourth ed., Vol. 122, Issue 6). Wolters Kluwe Health. <https://doi.org/10.1213/ANE.0000000000001303>

- Brewin, C. R. (2001). A cognitive neuroscience account of posttraumatic stress disorder and its treatment. *Behaviour Research and Therapy*, 39(4), 373-393. [https://doi.org/10.1016/S0005-7967\(00\)00087-5](https://doi.org/10.1016/S0005-7967(00)00087-5)
- Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of posttraumatic stress disorder. *Psychological Review*, 103(4), 670-686. <https://doi.org/10.1037/0033-295X.103.4.670>
- Brewin, C. R., Sue Kleiner, J., Vasterling, J. J., & Field, A. P. (2007). Memory for Emotionally Neutral Information in Posttraumatic Stress Disorder: A Meta-Analytic Investigation. *Journal of Abnormal Psychology*, 116(3), 448-463. <https://doi.org/10.1037/0021-843X.116.3.448>
- Christman, S. D., Garvey, K. J., Propper, R. E., & Phaneuf, K. A. (2003a). Bilateral eye movements enhance the retrieval of episodic memories. *Neuropsychology*, 17(2), 221-229. <https://doi.org/10.1037/0894-4105.17.2.221>
- Christman, S. D., Garvey, K. J., Propper, R. E., & Phaneuf, K. A. (2003b). *Bilateral Eye Movements Enhance the Retrieval of Episodic Memories*. 17(2), 221-229. <https://doi.org/10.1037/0894-4105.17.2.221>
- Christman, S. D., & Propper, R. E. (2001). Superior episodic memory is associated with interhemispheric processing. In *Neuropsychology* (Vol. 15, Issue 4, pp. 607-616). American Psychological Association. <https://doi.org/10.1037/0894-4105.15.4.607>
- Christman, S. D., Propper, R. E., & Dion, A. (2004a). Increased interhemispheric interaction is associated with decreased false memories in a verbal converging semantic associates paradigm. *Brain and Cognition*, 56, 313-319. <https://doi.org/10.1016/j.bandc.2004.08.005>
- Christman, S. D., Propper, R. E., & Dion, A. (2004b). Increased interhemispheric interaction is associated with decreased false memories in a verbal converging semantic associates paradigm. *Brain and Cognition*, 56(3), 313-319. <https://doi.org/10.1016/j.bandc.2004.08.005>
- Engelhard, I., van Uijen, S., & van den Hout, M. (2010). The impact of taxing working memory on negative and positive memories. *European Journal of Psychotraumatology*, 1(1), 5623. <https://doi.org/10.3402/ejpt.v1i0.5623>
- Funahashi, S., & Kubota, K. (1994). Working memory and prefrontal cortex. *Neuroscience Research*, 21, 1-11.
- Gunter, R. W., & Bodner, G. E. (2008). How eye movements affect unpleasant memories: Support for a working-memory account. *Behaviour Research and Therapy*, 46(8), 913-931. <https://doi.org/10.1016/j.brat.2008.04.006>
- Hagenaars, M. A., Holmes, E. A., Klaassen, F., & Elzinga, B. (2017). Tetris and Word games lead to fewer intrusive memories when applied several days after analogue trauma. *European Journal of Psychotraumatology*, 8(sup1), 1386959. <https://doi.org/10.1080/2008198.2017.1386959>
- Holmes, E. A., James, E. L., Coode-Bate, T., & Deeprose, C. (2009). Can playing the computer game "Tetris" reduce the build-up of flashbacks for trauma? A proposal from cognitive science. *PLoS ONE*, 4(1), 1-6. <https://doi.org/10.1371/journal.pone.0004153>
- Ironson, G., Freund, B., Strauss, J. L., & Williams, J. (2002). Comparison of Two Treatments for Traumatic Stress?: A Community-Based Study of EMDR and Prolonged Exposure. *Journal of Clinical Psychology*, 58(1), 113-128.
- Iyadurai, L., Blackwell, S. E., Meiser-Stedman, R., Watson, P. C., Bonsall, M. B., Geddes, J. R., Nobre, A. C., & Holmes, E. A. (2018). Preventing intrusive memories after trauma via a brief intervention involving Tetris computer game play in the emergency department: A proof-of-concept randomized controlled trial. *Molecular Psychiatry*, 23(3), 674-682. <https://doi.org/10.1038/mp.2017.23>
- James, E. L., Lau-Zhu, A., Tickle, H., Horsch, A., & Holmes, E. A. (2016). Playing the computer game Tetris prior to viewing traumatic film material and subsequent intrusive memories: Examining proactive interference. *Journal of Behavior Therapy and Experimental Psychiatry*, 53, 25-33. <https://doi.org/https://doi.org/10.1016/j.jbtep.2015.11.004>
- Jeffries, F. W., & Davis, P. (2013). What is the role of eye movements in eye movement desensitization and reprocessing (EMDR) for post-traumatic stress disorder (PTSD)? A review. *Behavioural and Cognitive Psychotherapy*, 41(3), 290-300. <https://doi.org/10.1017/S1352465812000793>
- 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.
- Kensinger, E. A., & Ford, J. H. (2020). Retrieval of emotional events from memory. *Annual Review of Psychology*, 71, 251-272. <https://doi.org/10.1146/annurev-psych-010419-051123>
- Kessler, H., Schmidt, A. C., James, E. L., Blackwell, S. E., von Rauchhaupt, M., Harren, K., Kehyayan, A., Clark, I. A., Sauvage, M., Herpertz, S., Axmacher, N., & Holmes, E. A. (2020). Visuospatial computer game play after memory reminder delivered three days after a traumatic film reduces the number of intrusive memories of the experimental trauma. *Journal of Behavior Therapy and Experimental Psychiatry*, 67(August 2018), 101454. <https://doi.org/10.1016/j.jbtep.2019.01.006>
- Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1997). International Affective Picture System (IAPS): Technical Manual and Affective Ratings. *NIMH Center for the Study of Emotion and Attention*, 1, 39-58.
- Littel, M., Kenemans, J. L., Baas, J. M. P., Logemann, H. N. A., Rijken, N., Remijn, M., Hassink, R. J., Engelhard, I. M., & van den Hout, M. A. (2017). The Effects of β -Adrenergic Blockade on the Degrading Effects of Eye Movements on Negative Autobiographical Memories. *Biological Psychiatry*, 82(8), 587-593. <https://doi.org/10.1016/j.biopsych.2017.03.012>
- Littel, M., Remijn, M., Tinga, A. M., Engelhard, I. M., & van den Hout, M. A. (2017). Stress Enhances the Memory-Degrading Effects of Eye Movements on Emotionally Neutral Memories. *Clinical Psychological Science*, 5(2), 316-324. <https://doi.org/10.1177/2167702616687292>
- Lyle, K. B., & Martin, J. M. (2010). Bilateral saccades increase intra-hemispheric processing but not interhemispheric interaction: Implications for saccade-induced retrieval enhancement. *Brain and Cognition*, 73(2), 128-134. <https://doi.org/10.1016/j.bandc.2010.04.004>

- Mcgaugh, J. L. (1966). *Time-Dependent Processes in Memory Storage*. 153, 1351-1358.
- Mertens, G., Bouwman, V., Asmervik, J. F., & Engelhard, I. M. (2020). Changing emotional visual and auditory memories: are modality-matched dual-tasks more effective? *Cognition and Emotion*, 34(4), 656-669. <https://doi.org/10.1080/02699931.2019.1666800>
- Moore, T., & Fallah, M. (2001). Control of eye movements and spatial attention. *Proceedings of the National Academy of Sciences of the United States of America*, 98(3), 1273-1276. <https://doi.org/10.1073/pnas.98.3.1273>
- Novo Navarro, P., Landin-Romero, R., Guardiola-Wanden-Berghe, R., Moreno-Alcázar, A., Valiente-Gómez, A., Lupo, W., García, F., Fernández, I., Pérez, V., & Amann, B. L. (2018). 25 years of Eye Movement Desensitization and Reprocessing (EMDR): The EMDR therapy protocol, hypotheses of its mechanism of action and a systematic review of its efficacy in the treatment of post-traumatic stress disorder. *Revista de Psiquiatría y Salud Mental*, 11(2), 101-114. <https://doi.org/10.1016/j.rpsm.2015.12.002>
- Peirce, J. W. (2007). PsychoPy—Psychophysics software in Python. *Journal of Neuroscience Methods*, 162(1), 8-13. <https://doi.org/10.1016/j.jneumeth.2006.11.017>
- Phaf, R. H. (2017). *Eye Movements Enhance Recollection of Re-Imagined Negative Words?: A Link Between EMDR And Sire??* 8(4), 364-375. <https://doi.org/10.5127/jep.059916>
- Propper, R. E., & Christman, S. D. (2008). Interhemispheric Interaction and Saccadic Horizontal Eye Movements Implications for Episodic Memory, EMDR, and PTSD. *Journal of EMDR Practice and Research*, 2(4), 269-281. <https://doi.org/10.1891/1933-3196.2.4.269>
- Propper, R. E., Pierce, J., Geisler, M. W., Christman, S. D., & Bellorado, N. (2007). *Effect of Bilateral Eye Movements on Frontal Implications for EMDR Therapy*. 195(9), 785-788. <https://doi.org/10.1097/NMD.0b013e318142cf73>
- Roberts, B. R. T., Fernandes, M. A., & MacLeod, C. M. (2020). Re-evaluating whether bilateral eye movements influence memory retrieval. *PLoS ONE*, 15(1), 1-20. <https://doi.org/10.1371/journal.pone.0227790>
- Rossion, B., & Pourtois, G. (2004). Revisiting Snodgrass and Vanderwart's object pictorial set: The role of surface detail in basic-level object recognition. *Perception*, 33(2), 217-236. <https://doi.org/10.1068/p5117>
- Samara, Z., Elzinga, B. M., Slagter, H. A., Nieuwenhuis, S., & Stanford, A. D. (2011). *Do horizontal saccadic eye movements increase interhemispheric coherence?? Investigation of a hypothesized neural mechanism underlying EMDR*. 2(March), 1-9. <https://doi.org/10.3389/fpsy.2011.00004>
- Sánchez Beisel, J. M., Fernández Larrosa, P. N., & Andreau, J. M. (2020). Estrategias de prevención y reducción de intrusiones involuntarias en el Trastorno por Estrés Postraumático. *Anuario de Investigaciones*, 27, 463-471.
- Shapiro, F. (2018). *Eye Movement Desensitization and Reprocessing (EMDR) Therapy. Third edition. Basic principles, protocols and procedures*. The Guildford Press.
- Van Den Hout, M. A., Engelhard, I. M., Smeets, M. A. M., Hornsveld, H., Hoogeveen, E., de Heer, E., Toffolo, M. B. J., & Rijkeboer, M. (2010). Counting During Recall?: Taxing of Working Memory and Reduced Vividness and Emotionality of Negative Memories. *Applied Cognitive Psychology*, 311, 303-311. <https://doi.org/10.1002/acp>
- 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*, 121-130.
- Van den Hout, Marcel A., Eidhof, M. B., Verboom, J., & Engelhard, I. M. (2014). Blurring of emotional and non-emotional memories by taxing working memory during recall Blurring of emotional and non-emotional memories by taxing working memory during recall. *Cognition and Emotion*, 28(4), 717-727. <https://doi.org/10.1080/02699931.2013.848785>
- van den Hout, Marcel A., & Engelhard, I. M. (2012). How does EMDR work?? *Journal of Experimental Psychopathology*, 3(5), 724-738. <https://doi.org/10.5127/jep.028212>
- Van den Hout, Marcel A., Engelhard, I. M., Rijkeboer, M. M., Koekebakker, J., Hornsveld, H., Leer, A., Toffolo, M. B. J., & Akse, N. (2011). EMDR: Eye movements superior to beeps in taxing working memory and reducing vividness of recollections. *Behaviour Research and Therapy*, 49(2), 92-98. <https://doi.org/10.1016/j.brat.2010.11.003>
- van den Hout, Marcel A., Rijkeboer, M. M., Engelhard, I. M., Klugkist, I., Hornsveld, H., Toffolo, M. J. B., & Cath, D. C. (2012). Tones inferior to eye movements in the EMDR treatment of PTSD. *Behaviour Research and Therapy*, 50(5), 275-279. <https://doi.org/10.1016/j.brat.2012.02.001>
- Van der Kolk, B. A., & Fislis, R. (1995). Dissociation and the fragmentary nature of traumatic memories: Overview and exploratory study. *Journal of Traumatic Stress*, 8(4), 505-525.
- Van der Kolk, B. A., & McFarlane, A. C. (1996). *Traumatic stress: The effects of overwhelming experience on mind, body, and society*. Guilford Press.
- van Schie, K., van Veen, S. C., & Hagens, M. A. (2019). The effects of dual-tasks on intrusive memories following analogue trauma. *Behaviour Research and Therapy*, 120(March), 103448. <https://doi.org/10.1016/j.brat.2019.103448>
- Watanabe, K., & Funahashi, S. (2014). Neural mechanisms of dual-task interference and cognitive capacity limitation in the prefrontal cortex. *Nature Neuroscience*, 17(4), 601-611. <https://doi.org/10.1038/nn.3667>
- Wilson, D. L., Silver, S. M., Covi, W. G., & Foster, S. (1996). Eye movement desensitization and reprocessing: Effectiveness and autonomic correlates. *Journal of Behavior Therapy and Experimental Psychiatry*, 27(3), 219-229. [https://doi.org/10.1016/S0005-7916\(96\)00026-2](https://doi.org/10.1016/S0005-7916(96)00026-2)
- Wolf, E. J., Miller, M. W., & McKinney, A. E. (2009). Emotional processing in PTSD. Heightened negative emotionality to unpleasant photographic stimuli. *The Journal of Nervous and Mental Disease*, 197(6), 419-426. <https://doi.org/10.1097/NMD.0b013e3181a61c68>