

Effect of tactile stimulation on positive imagery in Resource Development and Installation(RDI) procedure

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Introduction

- RDI is a procedure, used in second phase of EMDR standard protocol (preparation phase).
- Effect of bilateral eye movement in RDI is controversy.
- Korn & Leeds(2002) recommend short set of fast eye movement(6-12 back and forth).

Fast eye movement on positive imagery

- Fast eye movement for pleasant imagery decrease of vividness and emotional intensity (Andrade, Kananagh & Baddeley, 1997; Kemps & Tiggeman, 2007; Engelhard, van Uijen, & van den Hout, 2010).
 - in an experimental context compared with negative one
 - no reinforcing procedure

Hornsveld et al.(2011)

WM models: yes, IH models: no

- Hornsveld et al.(2011)
 - horizontal and vertical fast eye movement on positive imageries with relatively similar procedure to RDI.
 - In result, eye movement decreased both vividness and emotional intensity
 - Stop using eye movement for positive imagery.
 - The Netherlands' guideline in national EMDR association
 - Intensity of quality was not strengthened by horizontal eye movement
 - Inter-hemispheric interaction (IH) model not supported
 - Working memory (WM) model supported.

Leeds & Korn (2012)

- Leeds & Korn (2012) refutation
 - procedural shortage : Hornsveld et al.(2011)
 - To reinforce imagery by repeating subject's sensory descriptors when the imagery decreased vividness during RDI.
 - This part is essential for reinforcing not only vividness of imagery but also association process and necessary.

Scientific prove is necessary

- Hornsveld et al.,(2012) rejoined to Leeds & Korn(2012)
 - Effects of RDI is only investigated by single subject design
 - Using eye movement is not proven in RDI.

Speed? Modality?

- Neither speed of eye movement nor other mode of BLS have been discussed yet

Engelhard, et al.(2011)

Inverted-U

- Effect of various taxing of WM.
- Reaction time of discrimination task, and vividness of aversive imageries
- No task or subtracting one, two, or seven from a thousand.
- Respectively, reaction time were 410ms, 520ms, 560ms, 700ms. The bigger complexity of task is, the larger taxing WM.
- Emotional intensity of aversive imagery decreased only in two conditions which subtracting one or two (inverted-U). Too difficult task, that is too heavy taxing does not have effect of decreasing intensity of negative emotion of memory.
- van den Hout & Engelhard(2012) interpreted this ineffectiveness is caused since too much taxing does not leave WM for memory.

van Veen et al. (2015)

- Eye movement, different speed may have different effect.
- van Veen et al. (2015) measured reaction time of discrimination task and vividness of negative imagery
- no eye movement, and with 0.4, 0.6, 0.8, 1.0, 1.2Hz eye movement.
- The result showed that reaction time became the longest [most heavy taxing] and imagery became the least vivid in 1.2Hz eye movement condition.
- Since we cannot follow with faster eye movement than this, we cannot find inverted-U effect here.
- Maxfield et al. (2008) predicted that bilateral tactile or auditory stimulation may have lower taxing on WM than eye movement and may have lower effect.

Slow eye movement Other modality (Auditory, Tactile)

- Hornsveld et al., (2012) mentioned “we noticed that Philip Manfield, in one of his videos on didactic resourcing, changed to gentle tapping on the knees of his patient after his patient noticed that the image was fading with EMs(p.176) ” And “we suggest that clinicians conduct their own experiments and investigate the effects of the safe place exercise and RDI, without EMs or to use very, very slow EMs among their own patients, so that the (potentially fading) effects of simultaneously executing working memory tasks are minimized.(p.177)” Like this they suggest to investigate these possibility.

Ichii & Nakajima(2014)

- Slow eye movement is effective to increase vividness of imagery and positive feeling
- As long as the participants focus more to internal imagery compared than external eye movement.

Ichii, Nakajima & Itoh(2016)

- Slow tactile stimulation with eyes closed
- More effective on increasing calmness than slow eye movement with eyes open.

Slow movement? Reinforcing?

- Any stimulation, like bilateral eye movement or bilateral tactile stimulation, decrease neither vividness nor emotional intensity.
- This is different from the result of Hornsveld et al.(2012).
- The difference may be attributed to the procedure both using slow movement, and reinforcing imagery, which mentioned by Leeds & Korn (2012)

Amano & Toichi (2016) Accessible & Relaxing by Tactile

- Amano & Toichi (2016)
 - Effectiveness of bilateral tactile stimulation for resource memories though there are some difference in procedure from RDI.
 - Difference between using with/without bilateral tactile stimulation alternatingly in four sets.
 - Questionnaire
 - more accessible & more relaxed feeling.
 - NIRS(Near Infrared Spectroscopy)
 - Right superior temporal sulcus [associated with memory representation] ↑
 - Prefrontal cortex [associated with emotional regulation] ↓

Appropriate speed and modality

- Amano & Toichi, 2016; Ichii & Nakajima, 2014; Ichii, Itoh, & Nakajima, 2015
- It is more important to look for the appropriate bilateral stimulation which is facilitate the effect of positive imagery by changing speed or modality than to think any stimulation can interfere with positivity.

Eyes Closed-Dissociation?

- Dual attention
 - not only to past aversive memory
 - but also “here and now,”
 - Eye movement prevent from accessing to past too much.
 - If we use auditory or tactile stimulation, clients can close their eyes. Therefore, it is noted to be careful in dissociation (Shapiro, 2001).
 - Possibility of dissociation seems to be low even with eyes closed in RDI or safe place, since positive imagery is basically activated.

Eyes Closed-Easy imaging

- Therefore, positive imagery is easy to imagine with eyes closed, which is more desirable manner.

Purpose

- Consequently, in this study, when we compare slow tactile and slow butterfly hug stimulation [self stimulation by crossed arm on chest] with control condition, eyes closed procedure is used in every condition.

Method; Participants

- Eleven undergraduate and graduate students who neither take medicine, nor visit consistently hospital.

Materials

- Eye Scan Deluxe (NeuroTek Co. ltd, presenting tactile stimulation in palm), Physiological instrument (Vital monitor, T7500M), video camera
- Social motivation scale - brief version (Hayashi, 2013), STAI (Spielburger, 2000), BDI-II (Beck, 2003), GAS[General Affect Scale: Positive, negative, and calm feeling].

Procedure 1

- Experiments were conducted individually. After obtaining informed consent,
- Social motivation scale - brief version, STAI, BDI-II.
- Physiological data began to be measured.
- Three different positive memories of achievement [endeavoring, appraised, acknowledged]
- vividness and intensity of pleasantness.

Procedure 2

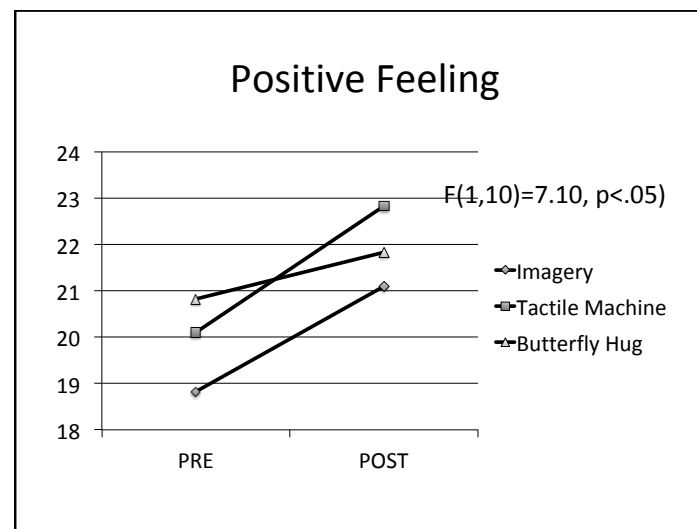
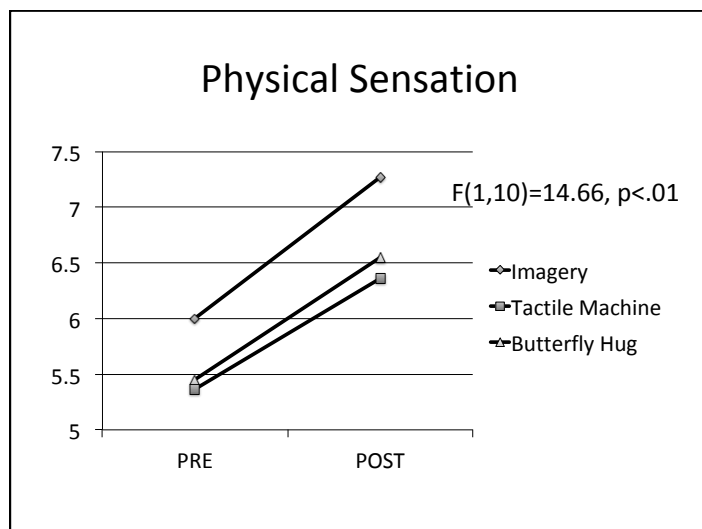
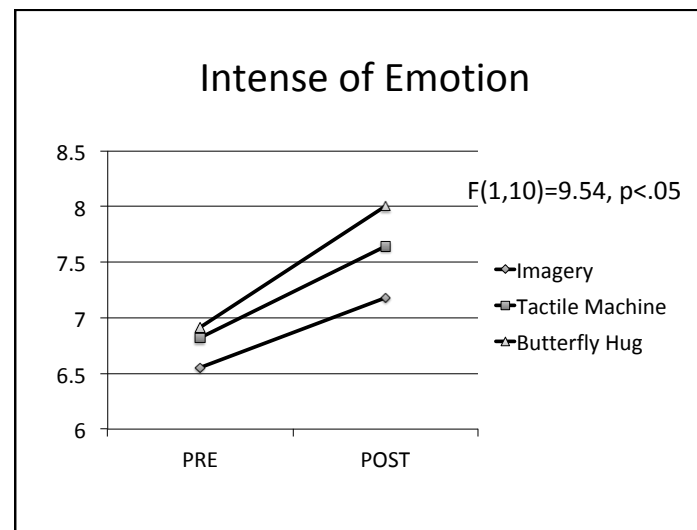
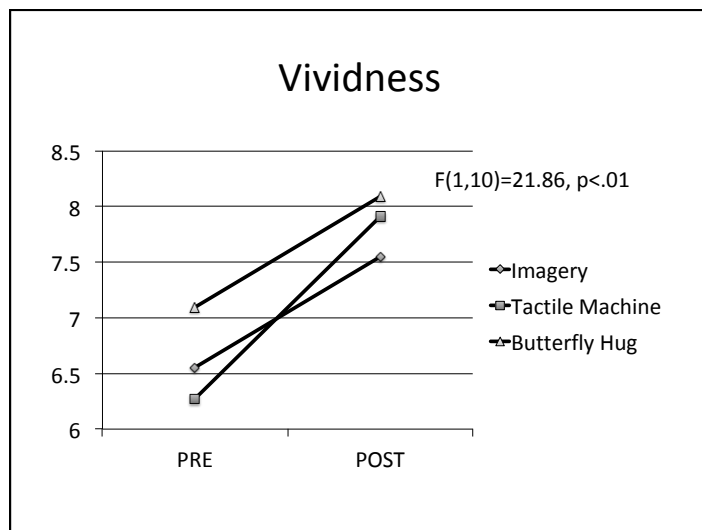
- Three different conditions
 - Imagery only, Imagery + slow tactile stimulation, Imagery + slow butterfly hug.
 - The orders of the three conditions were counter balanced.
 - Pick one memory and asked for details: visual, auditory, olfactory, tactile, emotional, body location aspects.
 - How the imagery is useful [validity of resource (VOR)]
 - Pre-assessment phase
 - GAS, vividness of imagery, and intensity of emotion, physical sensation.

Procedure 3

- EM and tactile stimulation received six sets of six back and forth(0.1 Hz).
- In tactile conditions, participants were instructed to keep their eyes closed while receiving stimulation.
- Name imagery and add positive word between the fourth and fifth set
- GAS, vividness, emotional intensity, and physical sensation. Post-test phase
- Ranking of preference of three conditions.

Analysis

- Dependent variables
 - vividness, emotional intensity, physical sensation, negative feeling, positive feeling, calm feeling are used.
 - Two factors [time (2) x conditions (3)] ANOVA (analysis of variance).



Result

- From pre- to post-test, each variable increased.
- We could not find any obstructive effects. This finding is inconsistent with WM models.

WM vs IH model in negative imagery

- Bilateral stimulation for negative imagery decreased vividness and negative emotion intensity based on either WM or IH model, whose directions of changes are the same. IH could be thought to activate association with positive aspects.

WM vs IH model in positive imagery

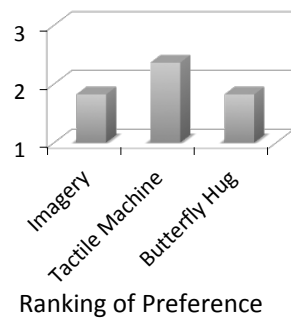
- WM model and IH model work in the different direction.
- In order to extract effect of IH model, and not tax on WM, short sets have been suggested. Fast eye movements is proved to decrease vividness or emotional intensity in several studies.
- In order to tax less on WM, slow eye movement or auditory or tactile stimulation with eyes closed could be effective. The current study indicates the effectiveness of tactile stimulation.

Imagery only vs Imagery + BLS

- Only from pre- to post-test
- Compared with imagery only (control) condition, I could not find any superiority.
- I could not prove that adding stimulation is necessary.

Tactile stimulation

- Two different tactile stimulations:
 - Bilateral tactile stimulation with machine
 - Self-administered butterfly hug.
- Less participants preferred to machine stimulation
 - Some participants reported distractive effect



Limitation

- Furthermore, the number of eleven participants is too small to draw conclusion. More participants need to reach conclusion.