Pure Essential Oil vs. Blend: Word Recall Memory Strategies

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Introduction
- Doterra has marketed their Motivate essential oil blend as having the ability to "elicit profound emotional responses" (dōTERRA Holdings, 2016).
- The Motivate essential oil blend contains peppermint, which may help improve memory and attention (Moss et al., 2003).
- Elaborative rehearsal has proved a much more effective memory strategy than word-for-word repetition (Noice, 1992).

Hypotheses
- Participants using the elaboration memory strategy will recall more words on a paired-association memory task than participants using the repetition memory strategy.
- Participants in a room with the Motivate essential oil blend will recall more words on a paired-association memory task than participants in a room with the pure peppermint essential oil.
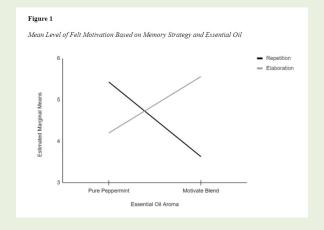
Methods
- 29 participants, 10 males, 18 females, 1 preferred not to answer, from undergraduate courses
- Tested words recalled on a paired-word associative memory task
- Also given manipulation check questions regarding oil perception (intensity and pleasantness) and level of felt motivation

Results
- Participants using elaboration recalled significantly more words than participants using repetition.
- Motivate essential oil blend does not appear to improve cognitive performance more than pure peppermint oil.
- Peppermint was perceived more intense and pleasant than Motivate in both memory strategy conditions.
- There was a significant interaction of level of felt motivation between the aromas and memory strategy.

Discussion
- The results support previous research that elaborative rehearsal is a more effective memorization strategy than repetition.
- Participants felt more motivated when they were either in the complex aroma blend with the complex elaborative rehearsal or in the simple pure aroma with the simple repetitive rehearsal, suggesting a connection between the environment and task complexity.
- This research may be helpful to consumers or students seeking to understand if any particular essential oil or oil blend facilitates cognitive functioning.

> Students using elaborative rehearsal recall more words than those using repetition.

> Pure oil is more pleasant and intense than the blend, but the perception of felt motivation with oils depends on the complexity of the processing strategy.

Table 1

Mean Words Recalled on a Paired-Association Memory Task

	Memory Strategy			
Essential Oil	Repetition		Elaboration	
	M	SD	M	SD
Pure Peppermint	6.00	1.12	12.00	1.33
Motivate Blend	5.88	1.05	11.67	0.99

Table 2

Mean Intensity and Pleasantness Perceptions of Essential Oil Aroma

	Manipulation Checks	
Condition	Intensity	Pleasantness
	M (SD)	M (SD)
Peppermint, Repetition	3.43 (1.51)	6.00 (0.82)
Peppermint, Elaboration	4.60 (0.89)	6.20 (0.84)
Motivate, Repetition	3.25 (1.67)	4.25 (1.91)
Motivate, Elaboration	3.44 (1.33)	5.78 (1.20)

Figure 1

Mean Level of Felt Motivation Based on Memory Strategy and Essential Oil

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