RUSH UNIVERSITY MEDICAL CENTER

Fibromyalgia: Rehearsal Counteracts the Detrimental Effects of Distraction on Memory Formation in Fibromyalgia

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ABSTRACT

PURPOSE: A source of distraction disproportionately hinders later recall of unrehearsed information in FMS. A natural question is whether a source of distraction impacts differently when the to-be-remembered information has been rehearsed.

METHODS: The effects of distraction on the amount of rehearsed information retained were investigated in 128 rheumatic disease patients with FMS and without FMS (non-FMS). All presented with memory loss. The 86 FMS patients had a mean age of 45.6±9.3 years; mean level of education was 14.7±2.2 years. The 42 Non- FMS patients had a mean age of 44.5±11.1 years; mean level of education was 14.7±2.3 years.

The Rey Auditory Verbal Learning Test (RAVLT) was administered. It involves five verbal presentations of a 15-word list with immediate recall following each presentation. Next, subjects are read a 15 word distraction list and tested for immediate recall. On the post-distraction trial, memory for the rehearsed word list is retested.

RESULTS: Recall of the 15-word list of the RAVLT was significantly decreased in the first trial in both groups relative to normative expectations (Table 1). Learning trials 2-5 are low because of the low starting point on Trial 1. Specific trials did not distinguish between groups. Both groups recalled fewer words after the presentation of a distracter list, but the mean post distraction loss was equivalent between the two groups The post-distraction information loss was about two words (FMS 1.9±1.9 vs. 2.3±1.9), on par with normative expectations (1.7±2.0).

CONCLUSIONS: A source of distraction short-circuits rehearsal of new information, thereby hindering the formation of new memories for later recall. For reasons unclear, people with FMS are less efficient in coping with a source of distraction. The interference from distraction disproportionately affects the retention of information in FMS. However, rehearsal of information counteracts the detrimental effects of distraction on FMS memory. The conscious repetition of information boosts memory to normative levels even with a source of distraction.

INTRODUCTION

Cognitive distraction plays a critical role in the short term memory loss of fibromyalgia. In recent research, exposure to a source of distraction stood out as the central cause of rapid forgetting in fibromyalgia. Adding a source of distraction to a standard memory task eradicated memory for unrehearsed verbal information at a disproportionate rate in fibromyalgia. In fact, people with fibromyalgia lost new verbal information at a rate that was 44% greater than an age-matched group presenting with memory problems and almost three times greater than the normative sample. In the absence of distraction, short term memory is normal in fibromyalgia. Very little is known about why the costs of distraction are so high in fibromyalgia.

PURPOSE

A source of distraction disproportionately hinders later recall of unrehearsed information in FMS. A natural question is whether a source of distraction impacts differently when the to-be-remembered information has been rehearsed.

METHODS

The effect of distraction on the amount of rehearsed information retained was investigated in 128 rheumatic disease patients with and without FMS (non-FMS). All presented with memory loss. The 86 FMS patients fulfilled ACR criteria for fibromyalgia. The diagnosis was established by a rheumatologist and based on widespread pain in combination with tenderness of 11 or more of 18 specific TP sites. They had a mean age was 45.6±9.3 years; mean level of education was 14.7±2.2 years. The 42 Non- FMS patients had a mean age of 44.5±11.1 years; mean level of education was 14.7±2.3 years.

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RESULTS

Recall of the 15-word list of the RAVLT was significantly decreased in the first trial in both groups relative to normative expectations (Table 1). Learning trials 2-5 are low because of the low starting point on Trial 1. Specific trials did not distinguish between groups. Both groups recalled fewer words after the presentation of a distracter list, but the mean post distraction loss was equivalent between the two groups.

The post-distraction information loss was about two words (FMS 1.9±1.9 vs. 2.3±1.9). No significant differences from reference norms (1.7±2.0) were noted for the post distraction trial indicating that a source of distraction did not greatly interfere with the recall of information rehearsed over 5 trials.

TABLE 1. GROUP DIFFERENCES ON THE FIVE RECALL TRIALS OF THE REY AUDITORY VERBAL LEARNING TEST

	TRIALS				
	I	II	III	IV	V
Fibromyalgia (n=86)	**5.0**	**7.5**	**9.2**	**10.3**	**10.9**
(sd)	1.4	2.2	2.2	2.2	2.4
Controls (n=42)	**4.5**	**6.7**	**8.0**	**8.8**	**10.1**
(sd)	1.6	2.5	2.4	3.0	2.9
Norms	**6.7**	**9.2**	**10.9**	**11.2**	**12.3**
	1.5	1.9	2.1	2.4	2.1

CONCLUSIONS

A source of distraction short-circuits rehearsal of new information, thereby hindering the formation of new memories for later recall.

For reasons unclear, people with FMS are less efficient in coping with a source of distraction. The interference from distraction disproportionately affects the retention of unrehearsed information in FMS.

However, there is no evidence of severe disruption in cognitive function with distraction for well- rehearsed information in fibromyalgia. When rehearsed information is followed by a source of distraction, people with fibromyalgia forget information at a rate that is very similar to the healthy normal population. Data of this nature imply that rehearsal of information counteracts interference from a source of distraction.

The conscious repetition of information boosts memory to normative levels even with a source of distraction. One way to support memory in fibromyalgia may be added verbal rehearsal.