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Psychology Overview

Today's Info Session

- ▶ Welcome to this Info Session!
- ▶ Introduction
- ▶ Psychology
 - ▶ How it fits into the MCAT
 - ▶ Perception and sensation
 - ▶ Memory
- ▶ How Can Next Step Help?
 - ▶ **(\$300 off** coupon to a course)
- ▶ Questions?

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MCAT
Medical College
Admission Test

WHAT IS YOUR NEXT STEP?

Introduction

Next
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Hi, I'm Phil!

- ▶ **MCAT Content writer**
 - ▶ **Tutored and taught for 9+ years**
 - ▶ **Attended University of Nebraska Medical Center as an MD/PhD student.**
- ✓ **Next Step is a team of test prep and educational experts committed to excellence.**



Who Is Next Step?

Next
Step
TEST PREP

- Began in 2009 as a tutoring company
- Focus on graduate admissions tests only
- Team of educational experts
- First company to have materials built from ground up for 2015 MCAT format
- Now the first company to have new 2018 MCAT Interface

✓ **We never stop improving our materials!**



Subjects Tested

Chemical and Physical Foundations

30% general chemistry

25% physics

25% biochemistry

15% organic chemistry

5% biology

Bio and Biochemical Foundations

65% biology

25% biochemistry

5% organic chemistry

5% general chemistry

Psychological and Sociological Foundations

65% psychology

30% sociology

5% biology

“High-Yield”

Warning: anything on the AAMC MCAT outline is fair game!

However, some topics are more likely to appear than others...

Topic	Number of questions
Biology	45
Biochem	30
Physics	15
Gen Chem	20
Organic Chem	11
Psychology	38
Sociology	18
CARS	53
Total	230

Takeaways:

Biology and biochemistry are about 1/3 of the test!

You have more psychology questions than physics and chemistry combined.

Organic chemistry is about 5% of your questions.

Perception

- **Perception: interpretation/organization of sensory info**
 - *Perception ≠ sensation*

- **Types of thresholds**

- *Absolute*
- *Threshold of conscious perception*
- *Difference (just-noticeable difference)*

- **Signal detection theory**

- *Detecting a stimulus depends on both sensory and non-sensory factors*
- *Can you come up with some examples?*

- **Weber's Law**

$$\frac{\Delta I}{I} = \text{constant}$$

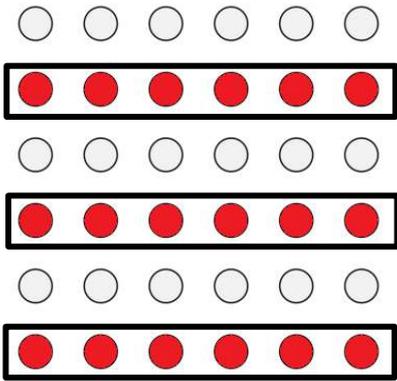
Can you come up with examples of Weber's Law in action?

	subject presses button	subject does not press button
tone played	HIT	MISS
no tone played	FALSE ALARM	CORRECT REJECTION

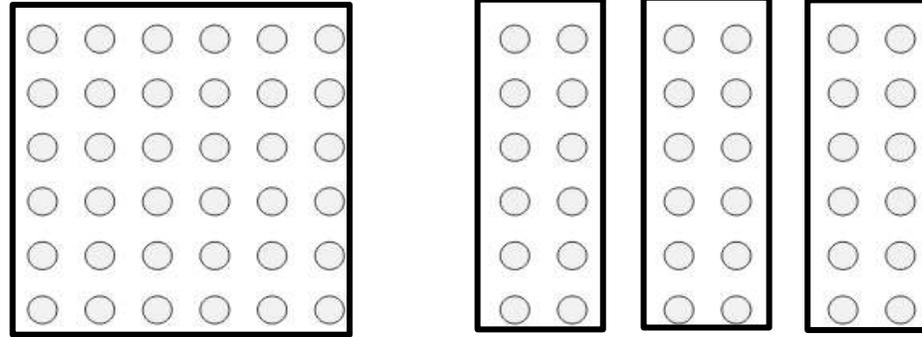
Perception

- **Gestalt laws: the whole is different from the parts**

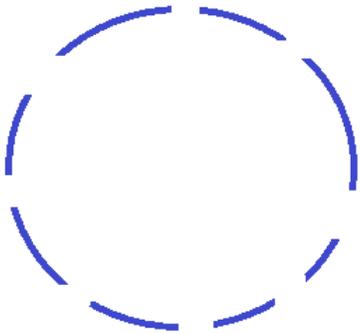
Law of Similarity



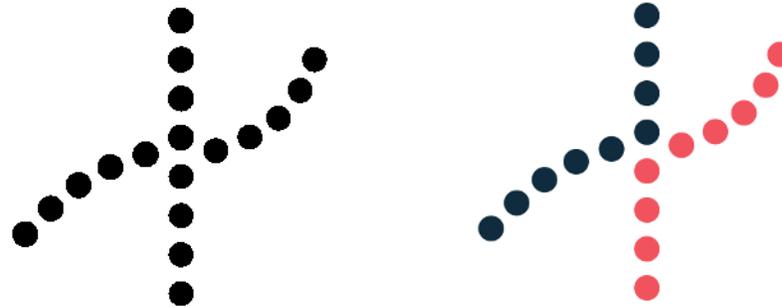
Law of Proximity



Law of Closure



Law of Continuity



Perception

1. All Gestalt principles are governed by the “law of prägnanz.” To what does this refer?

A) The underlying principle that, in organizing perceived objects, we will always seek to make things as precise, simple, symmetrical, and meaningful as we can

B) The law that we tend to recognize bright and colorful objects before drab or gray ones

C) The idea that bottom-up processing is preferential to top-down processing

D) The understanding that perception is a phenomenon unique to every individual and that different people will always perceive objects differently

2. Which of these examples best demonstrates the Gestalt principle of closure?

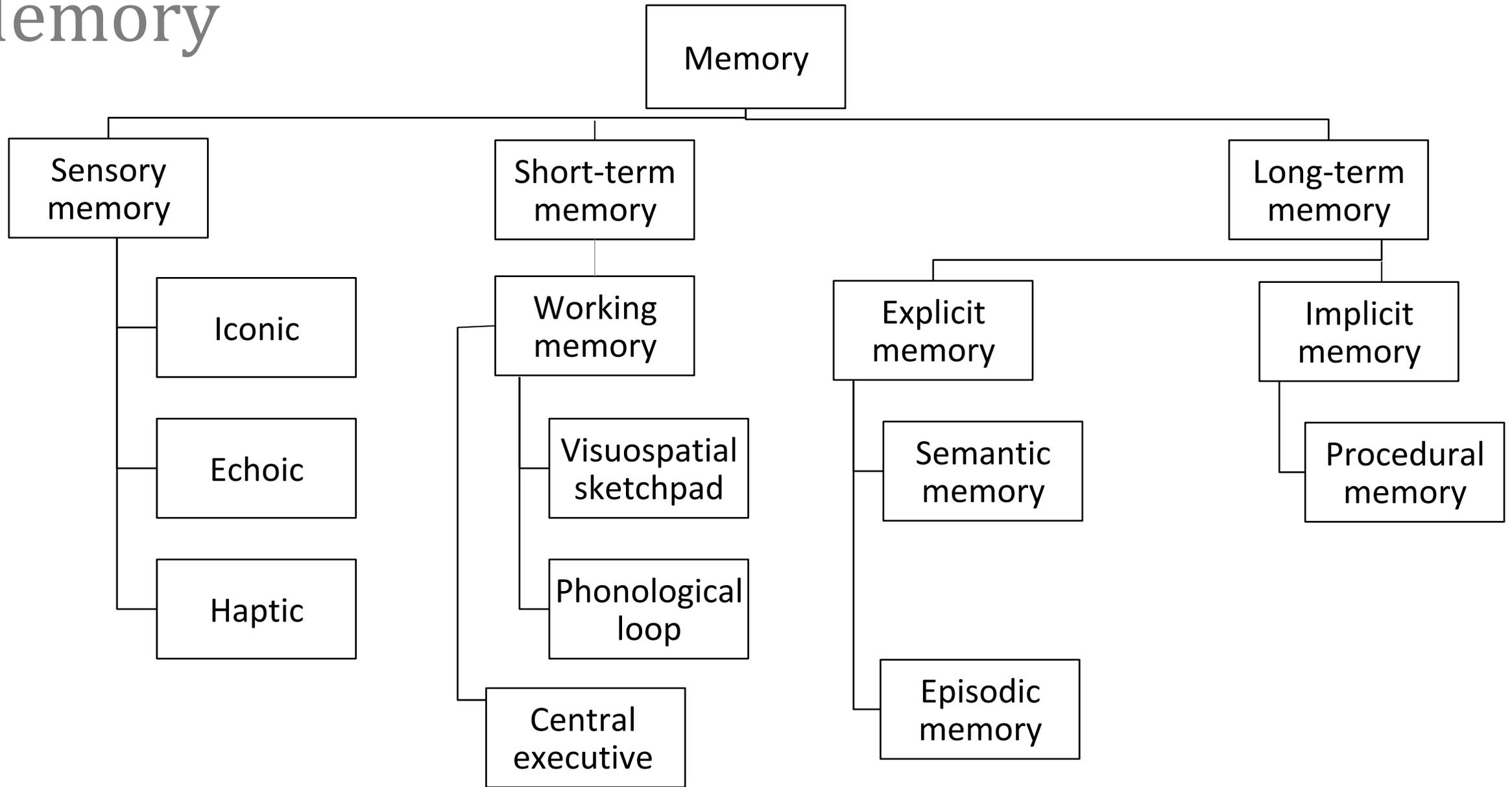
A) While in his bedroom, James hears the sound of the garage door closing and assumes that his mother has returned from work.

B) Thomas closes one of his eyes and notices that part of his visual field disappears.

C) The NBA symbol does not actually show a person, but rather an outline made by two separate shapes. Our brains then perceive this as a basketball player.

D) Jessica visits France and, although she cannot read the signs on the door, she notices the symbol of a woman in a skirt and enters the woman’s bathroom.

Memory



Memory

Proactive vs. retroactive interference

- *Proactive: old info interferes with new*
- *Retroactive: new info interferes with recall of old info*
- *Examples?*

Anterograde vs. retrograde amnesia

- *Anterograde: inability to form new memories*
- *Retrograde: inability to recall old memories*

Aging and memory:

What declines?

- Free recall
- Ability to form new episodic memories
- Processing speed
- Divided attention

What remains stable?

- Procedural memory
- Implicit memory
- Recognition

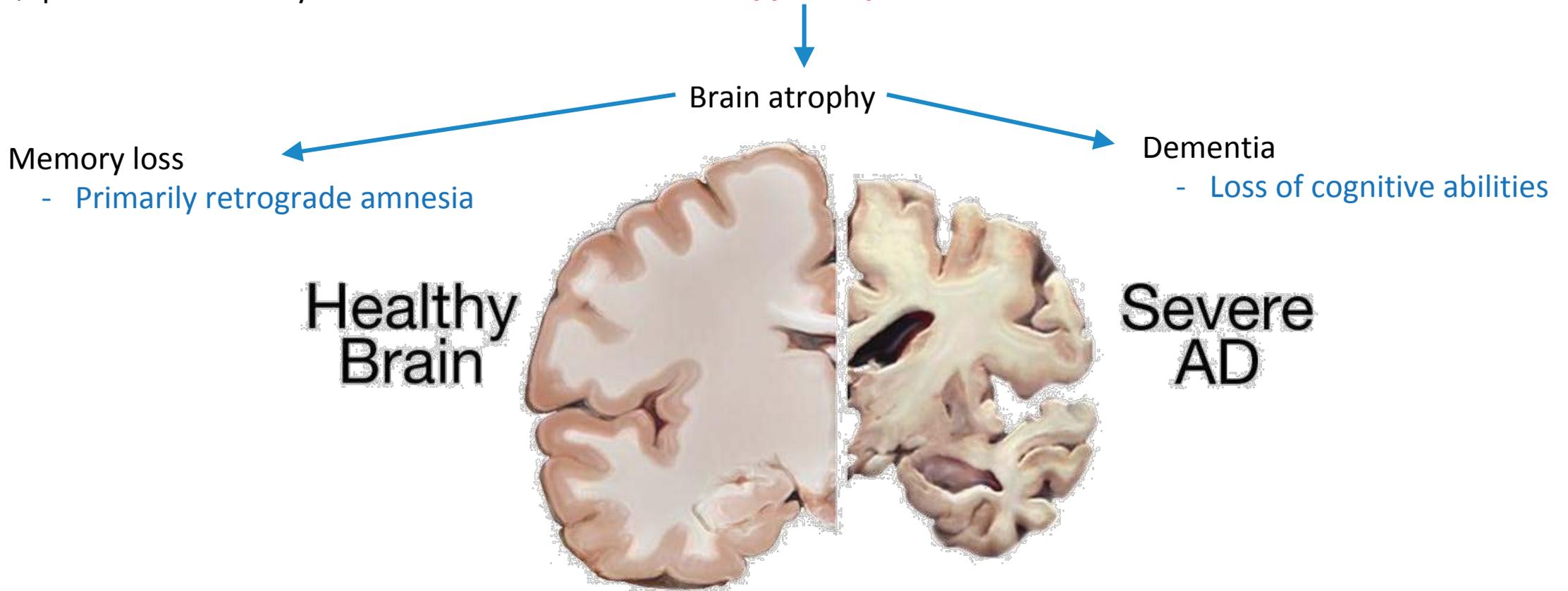
What can improve?

- Semantic memory
- Ability to use knowledge and experience
- Emotional reasoning

Memory

Alzheimer's disease

- Chronic degeneration
- ↓ production of acetylcholine → ↓ function of **hippocampus**



Memory

3. Which of the following accurately depict(s) the order in which a fragment of information might progress through various types of memory during storage?

I. Echoic memory → short-term memory → long-term memory

II. Iconic memory → short-term memory

III. Sensory memory → iconic memory → short-term memory → long-term memory

IV. Working memory → sensory memory → short-term memory

A) I only

B) I and II only

C) I and III only

D) II, III, and IV only

4. To choose the correct answer on a multiple-choice exam like the MCAT, students use:

A) recognition.

B) maintenance rehearsal.

C) recall.

D) procedural memory

5. Recalling that lysine is a basic amino acid involves which division(s) of long-term memory?

I. Semantic memory

II. Declarative memory

III. Episodic memory

IV. Explicit memory

A) I only

B) I and IV only

C) I, II, and IV only

D) II, III, and IV only

Memory

6. After damage to his prefrontal cortex, Philip's working memory started to show serious deficits. Which of these tasks would Philip have the LEAST trouble completing?

- A) Playing a "concentration" game in which he must remember the identities of multiple playing cards at once
- B) Multiplying seven and twelve in his head, then dividing the product by three
- C) Closing his eyes and navigating through a room that he had only been present in for ten minutes
- D) Reciting the alphabet backwards by singing them in tune with a previously-learned song

7. Jade, a law student, successfully remembers all of the civil tax codes required for her morning exam. She then jumps on her motorcycle and rides home, where she relaxes by playing a video game in which she wins small tokens. Which choice correctly pairs each action with the type of memory or process involved?

- A) Remembering tax codes – semantic; riding her motorcycle – explicit; playing the video game – procedural
- B) Remembering tax codes – declarative; riding her motorcycle – procedural; playing the video game – operant conditioning
- C) Remembering tax codes – episodic; riding her motorcycle – procedural; playing the video game – explicit
- D) Remembering tax codes – semantic; riding her motorcycle – working; playing the video game – classical conditioning

Memory

8. A young child meets nearly every academic standard for her age, but cannot seem to learn how to hold a pencil. Though she practices every morning, her writing does not improve at all. This girl may be suffering from:

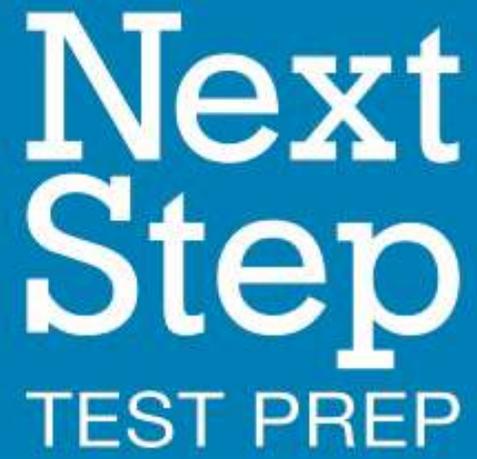
- A) genetic damage to part of her hippocampus.
- B) a viral infection that is impairing her declarative memory.
- C) a moderately underdeveloped cerebellum.
- D) a lesion on her auditory cortex.

9. With regard to memory, the two main types of interference are:

- A) proactive and retrograde.
- B) retroactive and proactive.
- C) reactive and proactive.
- D) retrograde and anterograde.

10. An elderly man has no trouble remembering how to play bridge and drive his car, but cannot remember his new nurse's name, no matter how many times she tells him. This man likely suffers from:

- A) anterograde amnesia.
- B) dissociative fugue.
- C) a defect in his procedural memory.
- D) retrograde amnesia.

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Q&A

Next Step: Core Values

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Educate Daily



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Authenticity



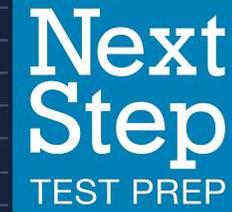
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“Next Step helped me take my score from a 496 to a 523!! That's 35th percentile to 99th! Every service they offer is top notch and definitely helps you prepare for the MCAT” - Gus

“This course has significantly improved the way I approach the exam, how I study, and has given me great support with any questions I have had along the way.” - Tyler

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✓ Your practice experience matters! Prep with the most realistic testing environment with Next Step.

Medical College Admission Test - Clara Gillan Time Remaining: 01:21:34 18 of 59

Highlight Strikethrough

Remove Highlight

Pause

Question 18

Which of the statements below is supported by the experimental results, as shown in Figures 1 and 2?

- A. The duration of Eos co-culture with NK cells directly and linearly correlates to the amount of ECP found in the supernatant after centrifugation.
- B. Cells cultured with a 1:1 NK-to-Eos ratio displayed statistically similar levels of activation to cells cultured with a 5:1 NK-to-Eos ratio, as measured by CD69 expression.
- C. NK co-culture stimulates Eos activation while inhibiting degranulation.
- D. Co-culture with NK cells significantly increased Eos degranulation in all groups, as compared to Eos cells cultured alone.

Figure 1 Eosinophil activation as measured by percent of CD69-positive cells after 3 and 12 hours of co-culture (*p < 0.05, **p < 0.01, ***p < 0.001)

Next, researchers aimed to assess the effect of NK co-culture on eosinophil degranulation. After 3 and 12 hours of co-culture, samples were centrifuged at 1500 rpm, and ECP levels were measured in the supernatants (Figure 2). No ECP was detected in supernatant culture of NK cells alone.

3 H 12 H

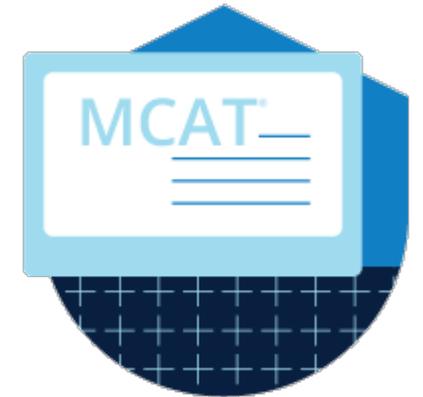
Periodic Table Review Screen

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