

Episode Three Debriefing: Teacher Guide



ACTIVITY 4: MOOD PUZZLE

In this activity, students will use information about depression, anti-depressants, and Ecstasy in their race to solve a puzzle.

Background

Depression is a mental illness affecting about 9.5% of the population over the course of one year, including up to 6% of adolescents. Girls and women are more frequently affected than boys and men. Drug and alcohol abuse is more frequent in depressed adolescents, and their risk for suicide is greatly increased.

The causes of depression are not always easy to identify. Genetics certainly plays some role, as depression can run in families, but environment is also clearly important. Painful events or losses can cause depression. Genetics, environment, or a combination of both can lead to changes in brain chemistry, often lowering levels of serotonin in the amygdala.

Symptoms of depression include:

- persistent sad or irritable mood
- loss of interest in activities once enjoyed
- significant changes in appetite or body weight
- significant changes in sleep patterns
- difficulty concentrating
- loss of energy
- vague physical complaints such as body aches
- feelings of worthlessness or inappropriate guilt
- thoughts of suicide or death

It is often difficult for those who care about adolescents to recognize the signs of depression. Only about 30% of adolescents who have depression get treated. The most effective treatment combines “talk” therapy with antidepressant medication. The newest class of anti-depressants (brand names include Prozac, Zoloft, and Paxil) increases serotonin levels in the brain by blocking reuptake of the neurotransmitter. Recent studies have suggested that some of these drugs increase the risk for suicide in adolescents, especially early in treatment.

MDMA (Ecstasy) also increases serotonin levels by blocking neurotransmitter reuptake. However, it cannot be used as an anti-depressant long term. In addition to acting as an anti-depressant, MDMA has hallucinogen-like properties. More worrisome is the fact that MDMA use can lead to neuron damage and depression in users who have stopped using it.

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Learning Objectives:

Students will:

1. Be able to name one brain region involved in depression.
2. Be able to list three symptoms of depression.
3. Be able to explain the mode of action of one class of anti-depressants, selective serotonin reuptake inhibitors.
4. Compare the effect of anti-depressants and MDMA (Ecstasy).

Materials

- Small, 15-30- piece puzzles (one per group) of natural scenes such as landscapes or animals (Note: Each puzzle does not have to have the same number of pieces.)
- *“Puzzle Race” Worksheet* (one per group)
- prize for winning group

Procedure

1. Before class, copy the puzzle race worksheet and give one to each group of students.
2. Remove three pieces from each puzzle and put them on your desk.
3. Begin class with a discussion about depression. Ask students what they know about depression. Put their answers on the board without correcting any misconceptions at this time.
4. Ask students to get together in groups and follow the instructions on the worksheet.

Answer Key

Task 1: There is no single right answer. Look for words related to emotion, reaction, senses, and arousal, all of which are related to the amygdala in humans and other species.

Task 2: three (loss of interest, change in appetite, loss of energy)

Task 3: Depression

References/Resources

- NIMH web site materials on depression <http://health.nih.gov/result.asp/183/16>

Episode Three Debriefing: Student Activity Sheet



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Are you ready for a race? Compete against your fellow students to be the first group to solve the puzzle.

Materials

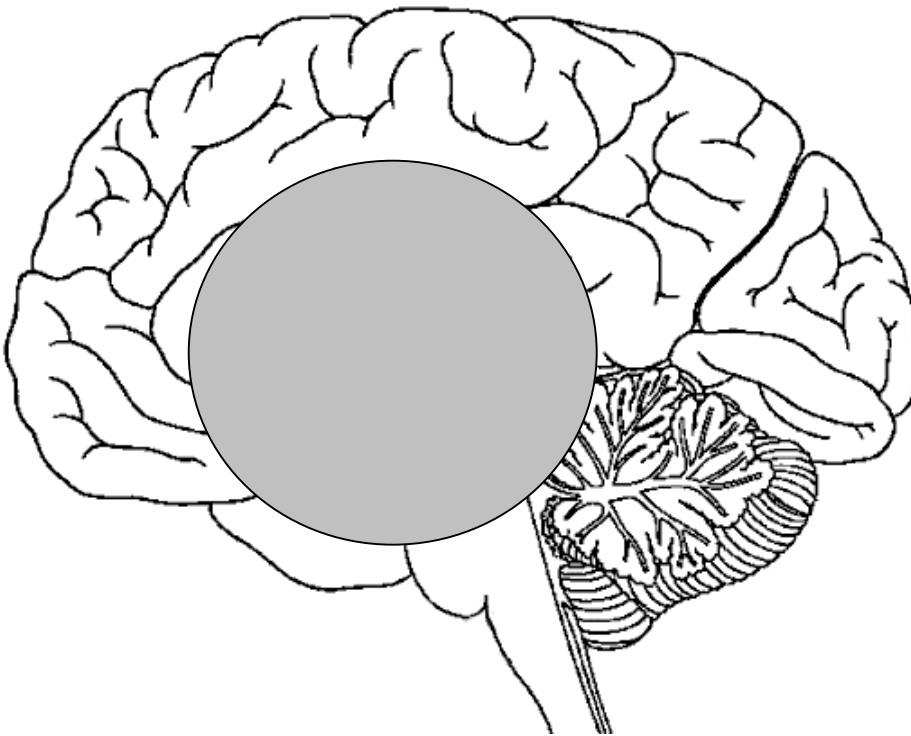
Puzzle

Procedure

1. Get together in your group and put together the puzzle.
2. Complete each of the activities below and bring the answer to your teacher to get a puzzle piece.
3. The group completing all three tasks first wins.

Task 1: What brain regions are involved in mood?

Different parts of the brain are responsible for different functions. How you feel – happy, sad, anxious- depends upon several small parts of the brain which are collectively called the limbic system. The circle indicates the general location of the limbic system. Each structure in the limbic system is fairly small and is located deep within the brain.



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One of the structures of the limbic system is called the amygdala. It is a small almond-shaped part that is involved in emotions and in reacting to what you see.

Write an acrostic poem about the amygdala below. One letter has been done for you.

A - _____

M - _____

Y - _____

G - _____

Deep inside the brain

A - _____

L - _____

A - _____

Bring the poem to your teacher for the first puzzle piece.

Task 2: Who's Depressed?

Read Brenda's story below and circle the symptoms of depression she has.

"It was really hard to get out of bed in the morning. I just wanted to hide under the covers and not talk to anyone. I didn't feel much like eating and I lost a lot of weight. Nothing seemed fun anymore."

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How many symptoms did you circle? _____

Report this answer to your teacher to get the second puzzle piece.

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Task 3: Is MDMA (Ecstasy) an anti-depressant?

Find the following words related to depression and depression treatments in the word search below. Unscramble the remaining letters to discover the long-term effect of Ecstasy on the brain.

Serotonin Brain Paxil Guilt Suicide Sad Prozac Zoloft Garden Doctor
 Death Friends Thought Listless Blame Abuse Tired Pain Hopes Eat Treat
 Play Help Mad Drug Lost Sap

S	E	P	A	I	N	S	S	S	A	D
E	D	A	R	O	T	C	O	D	O	H
R	S	X	E	Z	O	L	O	F	T	E
O	E	I	A	N	E	T	G	R	H	L
T	P	L	T	M	P	R	U	I	O	P
O	O	R	A	A	D	E	I	E	U	P
N	H	L	S	S	R	A	L	N	G	R
I	B	M	A	D	U	T	T	D	H	O
N	I	A	R	B	G	I	L	S	T	Z
P	I	A	B	U	S	E	C	O	E	A
L	I	S	T	L	E	S	S	I	S	C
D	E	A	T	H	T	I	R	E	D	T
G	A	R	D	E	N	Y	A	L	P	E

Write down all the remaining letters here. _____

Unscramble those letters to complete the sentence below:

Long-term use of Ecstasy causes brain damage and _____.