

## Case Study #4

### Learning Objectives:

1. Know the behavioral and hormonal components to an emotional response.
2. Know what role the amygdala plays in an emotional response.
3. Know how the neural mechanisms of recognizing emotions in facial expressions.
4. Know the emotional response of normal versus subjects with brain damage.
5. Learn the physiological responses to stress, and the effects of stress on health.
6. Learn the reinforcing effects of drug abuse.

### Scenarios:

1. Mr. Phelps initially came into your care in the emergency room. Apparently, a mere two weeks after purchasing his sweet ride (a 1987 Honda Magna), Mr. Phelps decided to take it on its "break in" run. He decided on a twisty section of 2222. At some point, Mr. Phelps wrecked going over the handle bars. Upon returning to earth, he was impaled by a surveyor's stake through the front section of his head. Still alive, he was rushed to the hospital. X-Rays showed the stake imbedded in his frontal lobe, approximately one inch above his eye. You successfully remove the stake. But Mrs. Phelps insists that you botched the surgery because her husband "just isn't himself. He can't handle any responsibility, nor work effectively at his job. His childish behavior is your fault."
2. Mr. Davids, a decorated officer of the law, comes to you seeking help with his nightmares. His historic background shows you that after 10 years on the force, his first real altercation occurred three weeks ago. Apparently, while pulling over a young man for speeding, the man pulled out a gun, and held Mr. Davids hostage for two hours. Since that incident, Mr. Davids has showed an increase in irritability, decrease in concentration, lack of social involvement, and the recurrent nightmares. Interestingly, Mr. Davids is also showing signs of early memory loss, in that he appears to be suffering from a mild case of anterograde amnesia.

### Question:

1. Is Mrs. Phelps correct in stating that you botched her husband's surgery?
2. To what can you attribute Mr. Phelps' change in behavior? Why is the structure you name so important in Mr. Phelps' new behavior?
3. Into what portion of Mr. Phelps's brain was the surveyor's stake arguably embedded? (Be specific)
4. What, now no longer used, surgical technique used a similar procedure to cure patients with anxiety disorders.
5. To what would you attribute Mr. Davids' nightmares? (What disorder is he showing signs of?)
6. What type of physiological changes have occurred because of the altercation? (increases or decreases in hormonal levels?)
7. These changes have arguably caused a reduction in which neural structure?
8. Why is Mr. Davids showing signs of mild anterograde amnesia?