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Uses and Effects of Selective Serotonin Reuptake Inhibitors (Antidepressants) on Felines

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Comparing Uses of SSRIs

Humans

- Anxiety (chronic feelings of fear)
- Depression (chronic feelings of sadness)
- Obsessive compulsive disorder (OCD)

(Pugh, 565).

Felines

- Excessive anger (excessive hissing or growling)
- Spraying (marking territory in unwanted places)

(Pugh 565).
Structure of Fluoxetine (Prozac)

This is a structure of a common drug known to treat mental disorders, especially anger in Felines (Pubchem 3386).

C_{17}H_{18}F_{3}NO

("Pubchem 3386")
Serotonin can affect the body in a variety of ways such as:

- Constriction of blood vessels
- Blood clotting
- Muscle contractions

It is also important for:

- Attention span
- How the brain responds to pain
- Coordination

([Pugh 565-566].)

\(\text{C}_{10}\text{H}_{12}\text{N}_{2}\text{O}\) ("Pubchem 5202")
5-HT$_{1A}$ receptors

- These receptors are important in combination with SSRIs.
- These work by binding to another serotonin receptor in order to halt the neuron from firing which is what promotes a response in the brain.
- SSRIs used in treating mental disorders in both animals and humans help to regulate the amount of serotonin to improve behavior (Aznavour 834-835).
Feline brain imaging

To the right is a MRI and PET imaging scan of feline brain activity that was given fluoxetine treatment (Aznavour 838).

(KEY: cg-cingulate cortex, HIP-hippocampus, LS-Lateral Septum, IL-Infralimbic cortex)
Feline Brain Activity

To the right is a graph depicting feline brain activity with no fluoxetine treatment (control), a minor fluoxetine treatment (Acute fluoxetine), and a major fluoxetine treatment (Chronic fluoxetine).

Each of the four sections depicts the part of the brain that is labeled.

(Aznavour 839).
There has been a study done to determine the toxicity of accidental ingestion of antidepressants that was prescribed for their owners. It was found that the domestic short hair felines were affected more than the other breeds. Overall, Veterinary care was needed in 20/33 of the patients (felines were given iv fluids for treatment). The most common symptom was sleepiness but some experienced upset stomach and rapid heart rate (Pugh 567).

