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Hepatotoxic Effects of Repeat Therapeutic Doses of Acetaminophen

The purpose of my project was to determine if taking multiple therapeutic doses of acetaminophen would cause liver cell death. Being a vital organ in the body, the liver has a wide range of functions which includes detoxification, or removing toxic materials from the body. Although it has been found that acetaminophen is not necessarily good for the liver, it has never been tested to the extent of finding if even therapeutic doses can be potentially fatal. Since mouse livers cells were to be used in the experiment, the first test was to make sure that these cells would be an appropriate tool. After collecting the data, it was found that the mouse liver cells were in fact a useful tool because the larger dose of acetaminophen, the larger the cell death. Then four plates were used, each containing hepatocyte cells, to test the hypothesis. Using a pipette to transfer the acetaminophen, the first plate was given no acetaminophen so it could serve as a constant while the other plates were given different amounts 0.2 mg/mL of doses every four hours. Then using a trypan blue stain in order to see the dead cells, it was found that the more therapeutic doses given, the more cells that died. This shows that the liver cannot safely metabolize that much acetaminophen in the suggested amount of time. This supports my hypothesis that multiple therapeutic doses of acetaminophen can in fact be extremely harmful to the liver.