

Abstract

Project Title: Testing the Most Effective Recoil Pad Materials

Project ID: 95

All guns have recoil energy they exert after they have been fired. Recoil pads are used to absorb this recoil so pressure is relieved from the shoulder. There are different materials that can be used to make these pads that absorb different amounts of recoil. This experiment tested which of the following materials absorb the most recoil: Sorbothane, air (AirTech), hydraulics, gel. The amount of recoil absorbed was tested by first setting up a gun stand to hold the gun and a self-constructed wood stand to hold a Force Meter behind the butt of the gun. The Force Meter was connected to a LabQuest Mini which was connected to a laptop that recorded the results. Three trials were done of the gun's recoil without a pad (the control) and then three trials were taken of the recoil when each different pad was attached. The averages were found for the control and each pad. The average recoil for each pad was compared to the control to find what percentage of recoil was absorbed. This testing resulted with the Gel Pad absorbing the most recoil, 57.84%. The AirTech Pad absorbed the second most recoil, 32.99%. The Hydraulic Pad absorbed the third most recoil, 27.66%. The Sorbothane Pad absorbed the least amount of recoil, 11.09%. The results did not support the hypothesis that the Sorbothane Pad would absorb the most recoil; however, it was actually the Gel Pad that absorbed the most recoil in comparison to other materials.