ABSTRACT: - Effect of restraint and forced swimming exercise applied alone or one after other, on serum glucose levels was studied to find out whether or not repeated stress exposure augment the glycemic response or the system gets habituated after the initial stress response in adult male rats. Stress due to restraint for 1 h significantly increased serum glucose levels which remained elevated for 5 h compared to controls. Further, a significant increase in serum glucose levels was found after forced swimming exercise which remained elevated for 2 hours and then declined, showed increase at 4th hour, remained elevated for 1 h and then declined to control levels. However, exposure of rats to restraint followed by forced swimming exercise after a gap of 4 h not only caused hyperglycemia but also a significant elevation in glucose levels for a period of 8 h. The results indicate that system does not get habituated after initial stress exposure and second exposure results in augmented response leading to pronounced hyperglycemia.

Key words: Hyperglycemia, stress, restraint, forced swimming, rat.