

EFFECT OF LIVE-FIRE TRAINING DRILLS ON FIREFIGHTERS' PLATELET NUMBER AND FUNCTION

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ABSTRACT

Background. The leading cause of line-of-duty death among firefighters is sudden cardiac events. Platelets play a critical role in the formation of an occlusive thrombus. The purpose of this study was to examine the acute effect of firefighting on platelet number and aggregability. **Methods.** Apparently healthy male firefighters (age 29.4 ± 7.8 years) participated in 180 minutes of simulated firefighting activity. Blood samples were obtained before and after simulated firefighting activity and analyzed for complete blood count (CBC) and platelet number and function. Platelet function was assessed using a PFA-100 analyzer to assess platelet aggregability. **Results.** As expected, heart rate (72 to 171 bpm) increased significantly during the simulated firefighting activity. Significant changes in biological markers were observed. The most important findings from this study were a 24% increase in platelet number and a significant increase in platelet aggregability. **Conclusions.** Firefighting resulted in a significant increase in platelet number and aggregability, indicating that even short bouts of metabolic activity can increase cardiovascular risk in apparently healthy firefighters. **Key words:** atherosclerosis, platelet count, platelet function, platelet aggregation, firefighters