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Biomechanical study *in vitro* on the use of self-designed external fixator in diaphyseal III metacarpal fractures in horses

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Diaphyseal fractures of the III metacarpal bone represent 22% of all fractures of the long bones in horses (McClure). Treatment of such cases is difficult. The most popular solution used in these types of fractures is two plates applied directly to the bone surface, but they are not applicable on contaminated and infected fractures. External fixators are quite commonly used in human medicine, although in veterinary practice there is no typical stabilizer designed for the treatment of diaphyseal fractures of the III metacarpal bone so far. In this study, an external semicircular fixator of our own design was used, and *in vitro* strength tests were conducted to determine the maximum force which would lead to the destruction of non-fractured bone and fractured bone treated with the stabilizer. Based on the strength tests, we can conclude that the stabilizer can be strong enough to allow the horse to stand up after surgery. It also has many favorable features which make it easy to assemble and to take care of a wound, while being safe enough for the animal at the same time.

Biography

Bernard Turek has completed his PhD from Warsaw University of Life Sciences, Poland. He is the Head of Surgery Division in Large Animals Diseases Department, Warsaw University of Life Sciences. He is mainly focused on the treatment of fractures in horses and fixations technics.

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