

**AN ANALYTICAL STUDY OF THE VALUE OF SOME BIOKENEMATIC  
VARIABLES FOR SINGLE FENCE HORSES JUMPING PHASES AT DIFFERENT  
HEIGHTS**

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**ABSTRACT**

*This study aims at identifying the differences that are forced by different heights of the single fence that appear as Biokenematic variables. In this study, five foreign horses from the Qatari Equestrian Federation are used. Each horse is given three tries at fences with three different heights (1.3, 1.4 and 1.5) meters. The best try has been chosen with the help of experts in this field. The photographic images provided are taken by Sony NEX-VG10E.MOUNT HD camera at a rate of 50 fps. The camera is placed 10meters from the fence at a height of 1.6 meters. The statistical methods used are arrhythmic mean, Analytic variance and Least Significant Difference (L.S.D). The researchers have concluded that for the taking off and landing angle variable there are differences in favor of (1.4) meters fence. Meanwhile for the vertical distance of taking off variable, angle of the centre of mass of the knight variable and the front legs of the force at the moment of takeoff are in favor of heights of (1.3,1.5) meters.*