

RELATIONSHIP BETWEEN SELECTED JOINTS AND ISOKINETIC PARAMETERS WITH MAXIMUM VERTICAL JUMP HEIGHT

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INTRODUCTION

Since anatomical, mechanical and physiological parameters affect the height of vertical jump, identifying of these parameters can have determining roll on the height of vertical jump as a feet explosive power test [1,2,3]. The main purpose of this study was to consider the relationship between selected ankle and knee Isokinetic Parameters and maximum height reaches during double and single legs vertical jump.

METHODS

28 male students from department of physical education and sport sciences volunteered. Isokinetic parameters (peak torque, time to peak torque, angle to peak torque, acceleration time, average power and rate of peak torque development) including of the knee and the ankle were measured by the use of Isokinetic Biodex dynamometer at the angular velocities of 60 and 180 (°/s). Double and single leg vertical jump heights were assessed by the use of Sargent test. Pearson coefficient and multiple regressions were performed to test hypotheses ($p < 0.05$).

RESULTS AND DISCUSSION

Significant relationships were found on most parameters at the knee and ankle at 60 and 180 degree per second except for angle to peak torque with double and single legs vertical jump ($p < 0.05$). For double leg vertical jump, at 60 degree per second, the variance extracted in relation to predictor variables at the knee (predictor variables accounted for 65%,

$P = 0/0001$) and for the whole ankle (51% of the variance, $P = 0/015$). For single leg vertical jump, the whole knee predictor variables accounted for 45% and for all ankle parameters $R^2 = 53\%$, $P = 0/036$ at 60 degree per second. The result of this study highlighted the importance of knee joint in double leg vertical jump and ankle joint in single leg vertical jump. In both angular velocities for double leg vertical jump, the amount of variances in relation to predictor variables at knee are more than ankle joint and for single leg vertical jump is vice versa.

CONCLUSIONS

The result of this study highlighted the importance and greater roll of knee joint in double leg vertical jump and ankle joint in single leg vertical jump.

REFERENCES

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Table 1: The variance extracted in relation to predictor variables.

The variance in relation to predictor variables for double leg vertical jump (R^2)	Knee joint at the angular velocities of		Ankle joint at the angular velocities of	
	60(°/s)	180(°/s)	60(°/s)	180(°/s)
	0/65	0/49	0/51	0/23
The variance in relation to predictor variables for single leg vertical jump (R^2)	0/45	0/36	0/53	0/27