# ABSTRACT

THESIS:  Establishment of a Normalcy Index for Gait Patterns in Healthy Adults

STUDENT:  Jerry Lewis Clark II

DEGREE:  Master of Science

COLLEGE:  Physical Education, Sport, & Exercise Science

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Currently normalcy indices have not been used to evaluate the gait of normal healthy adults. The purpose of this study was to assess the appropriateness of using a normalcy index in assessing gait patterns by investigating normalcy indices of different compositions created from an adult population.  Thirty-seven normal and healthy subjects between the ages of nineteen and sixty-six underwent a clinical gait analysis.  Ten trials from the left and right sides of the body were averaged.  From the averaged data, sixteen kinematic variables were chosen for further analysis.  Principal component analysis was applied to the variables and four separate normalcy indices were formed.  They consisted of a right side, left side, left and right combined, and average of both sides indices. For the left side index, 23.41% of the variance was accounted for in the principle component. In the right side index, 25.35% of the variance was accounted for.  25.45% and 23.95%

of the variance was accounted by the PC in the average of both sides and the left and right combined indices. The mean index scores of the left and right indices are 6.48 and 8.38. Index score for the average of both sides and left-right combined indices is 6.80. A paired samples t-test showed that the left and right indices were significantly different at the .01 level. The mean of the index from both sides and the left-right combined were not significantly different with an alpha of 0.969. The significant difference between the left and right side indices suggests that with further refinement, normalcy indices may possibly be used to assess the symmetry of gait