(P7)

Does coincidence anticipation timing improve in police officers after a 4-week video intervention?

E. Mundy[a], A. Shim[a], R. Lockie[b], D. Newman[c], M. Smith[a], W. Davis[d]

[a]College of Saint Mary, United States of America
[b]Cal State University, United States of America
[c]Florida Atlantic University, United States of America
[d]Athens State University, United States of America

Introduction: Decision making is a critical part of a police officer's daily routines. Improving the ability to make proper decisions with accuracy improves the response and effectiveness of proper outcomes. The purpose of this study was to determine if a 4 week/twice per week 15-minute video simulation intervention program would improve coincidence anticipation timing in police officers.

Methods: Relatively healthy police officers (age 39±17 years; height 175.28 ± 12.72 cm; mass 88 ± 25.4 kg) from a Midwest law enforcement agency were selected for the 4-week study. A one group pre/post design (n=15) was selected for this investigation. Coincidence Anticipation timing scores were measured pre/post using a Bassin anticipation timer (Model 35575 Lafayette Instruments, Lafayette, IN) The object stimulus speed was set at 3 mph in accordance with prior studies. The pre and post time scores were measured in .001 seconds. A Virtra (V-100 model, Tempe, AZ), a 300-degree active video shooting simulator was selected as the intervention. Each participant performed a different video moving target simulation for 15 minutes, two times per week, for 4 consecutive weeks.

Results: A dependent t-test (SPSS ver. 26) determined a significant relationship ($p = 0.035$) between pre and post coincidence anticipation scores after 4 weeks.

Discussion: Moving video shooting simulations provided the ability for subjects to actively track targets compared to older video methods. This investigation was a novel approach towards proving dynamic video shooting simulations can improve object interception scores within several weeks of active practice. In conclusion, a 4-week video simulation training program can significantly improve coincidence anticipation timing in police officers.

Impact and application to the field: Concurrent and additional training for police officers using video simulators can help with decision-making process while out in the field. Constant training interventions are necessary to maintain readiness of law enforcement personnel to reduce injuries and fatalities.

Conflict of interest statement: My co-authors and I acknowledge that we have no conflict of relevance to the submission of this abstract.

http://dx.doi.org/10.1016/j.jsams.2022.09.114

(P9)

Does phalanx range of motion correlate to buttoning speed in adults?

J. Clark[a], H. Vredenburgh[a], A. Shim[a], J. McDonald[a], T. Ruppert[a], G. Cesar[b]

[a]College of Saint Mary, United States of America
[b]Madonna Rehabilitation Hospital, United States of America

INTRODUCTION: Hand usage is substantial in physical sports and daily activities. However, the use of fingers with physical activities requires a certain range of motion when discussing improving or maintaining fine motor skill development, especially with older adults. The purpose of this study was to determine if a relationship existed between phalanx flexibility and the speed of buttoning down a shirt.

METHODS: Subjects (n = 15)) from a Midwestern facility volunteered to participate in this study (age: 50.63 ± 2.6 years). All participants were healthy with no upper extremity injuries. A valid and reliable digit instrument (Baseline 12-1015 model finger goniometer, White Plains, NY, USA) was selected to measure distal, middle phalanx flexion and phalanx extension of the forefinger of the subject's dominant hand. All subjects sat on a chair resting their elbows and forearms in a pronated position on a table while the researcher recorded the degrees of range of motion (ROM) using the finger goniometer for distal, middle phalanx flexion and phalanx extension of the dominant hand. Participants were then provided a 5-button (1.27 cm button width) shirt made by the same manufacturer. All sized shirts were fitted for each participant according to their shirt size before the time trials. The researcher digitally timed the participants in .001 seconds on how fast the participant could button down the shirt taking the best time trial of 3 attempts. Pearson correlations were analyzed using SPSS version 27.

RESULTS: The relationship between the variables displayed a strong negative correlation between the dominant distal phalanx flexion ROM and buttoning speed (r = -0.73). Other results displayed a weak positive correlation between the middle phalanx digit ROM to best buttoning speed time (r = .06), and finger extension ROM compared to best buttoning speed (r = 0.03) trial.

DISCUSSION: Major significance was found between the dominant forefinger distal phalanx flexion ROM and the fastest trial of buttoning down a shirt (r = -0.73). This indicates total grip strength may not be the primary or sole intervention when attempting to improve efficiency of fine motor function in physical or daily activities.

APPLICATION TO THE FIELD: This discovery could change therapy methodologies or physical training techniques with care givers or therapists on improving or restoring this fine motor skill. Replication of a sport skill or daily task might not be the only practical use towards skill restoration.

All co-authors have no conflict of interest towards the relevance of this submission.

http://dx.doi.org/10.1016/j.jsams.2022.09.115

(P10)

Do police academy fitness scores correlate to final academic scores in cadets; a pilot study

M. Tangeman[a], A. Shim[a], R. Lockie[b], J. Dawes[c], I. Bonder[a]

[a]College of Saint Mary, United States of America
[b]Cal State University, United States of America
[c]Oklahoma State University, United States of America

Introduction: To successfully complete academy training, law enforcement recruits must exhibit proficiency in both, levels of physical fitness and academic testing/cognitive abilities. Insight into the relationship between levels of physical fitness and academic testing could provide valuable information into the improvement of academy preparation and training. The purpose of this study was to determine if a relationship exists between physical fitness tests and academic scores for cadets currently in academy.

Methods: All cadets (N=15; 13 males, 2 females) volunteered to participate in this study as part of a cohort completing 16-weeks of academy testing and training. All subjects were deemed to be in