

Fitness Correlates to Firefighter Job Tasks

CHAEHYUN BYUN, FRANCESCA AQUILINO, ERNESTO BALDERRAMA, RAQUEL CAVAZOS, SHELBY GERNER, CHEYENNE MARTINEZ, AUSTIN RIFFE, VIPA BERNHART, MICHAEL OLDHAM, HUSSIEN JABAI

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Advisor / Mentor: Bernhardt, Vipa (Vipa.Bernhardt@tamuc.edu)

ABSTRACT

Firefighters have their focus on rescuing and responding in any emergency and fire situations (Antolini, 2015). The demand for firefighting includes a need for both aerobic and anaerobic fitness, along with muscular strength, endurance, explosive power, and reaction time (Xu, 2020). **PURPOSE:** The purpose of the study was to determine the relationship between fitness assessments and job task simulations in firefighter cadets. **METHODS:** 21 firefighter academy students performed fitness assessments and job task simulations on different days. Fitness assessments included vertical jump, lateral medicine ball throw, push up, horizontal row, and 300-yard shuttle run. Job task simulations were conducted in a sequential format, i.e., physical agility course and consisted of equipment carry, stair climb, ladder carry and raise, bear crawl, kneeling hose drag, over shoulder hose drag, tire strike, hose deploy, victim drag, and charged line. Pearson r correlation analyses were conducted to determine relationships between all variables in fitness assessments versus time to complete job task simulations. **RESULTS:** Positive correlations were found between the 300-yard shuttle run time and stair climb ($r = .495, p = .023$), ladder carry and raise ($r = .433, p = .050$), bear crawl ($r = .516, p = .017$), over shoulder hose drag ($r = .486, p = .030$), tire strike ($r = .656, p = .002$), hose deploy ($r = .486, p = .030$), and victim drag ($r = .686, p < .001$). Negative correlations existed between the vertical jump and stair climb ($r = .511, p = .018$), ladder carry and raise ($r = .439, p = .047$), kneeling hose drag ($r = .560, p = .008$), hose deploy ($r = .458, p = .042$), and charged line ($r = .645, p = .002$). Negative correlations were found between the lateral medicine ball throw right and equipment carry ($r = .529, p = .014$), stair climb ($r = .481, p = .027$), ladder carry and raise ($r = .489, p = .025$), kneeling hose drag ($r = .498, p = .021$), and charged line ($r = .486, p = .030$). With the left side of the lateral medicine ball throw, negative correlations existed with stair climb ($r = .465, p = .034$), ladder carry and raise ($r = .445, p = .043$), kneeling hose drag ($r = .508, p = .019$), and charged line ($r = .471, p = .036$). Negative correlations were found between push up and stair climb ($r = .616, p = .003$), ladder carry and raise ($r = .608, p = .003$), bear crawl ($r = .571, p = .007$), kneeling hose drag ($r = .594, p = .005$), over shoulder hose drag ($r = .629, p = .003$), hose deploy ($r = .539, p = .014$), victim drag ($r = .587, p = .006$), and charged line ($r = .511, p = .021$). Finally, a negative correlation was evident between the horizontal row and over shoulder hose drag ($r = .487, p = .029$). **CONCLUSION:** Job task simulation scores are highly associated with a number of fitness assessments. Firefighters and academy instructors should focus on improving fitness, especially power, agility, and muscular endurance to improve specific job tasks.