

Evaluation of USMC Fitness Tests as Predictors of Success on Combat Proxy Tasks

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ABSTRACT

Objective: To determine whether benchmark physical fitness tests, including the Physical Fitness Test (PFT) and Combat Fitness Test (CFT) utilized by the United States Marine Corps, are valid predictors of successful completion of combat-related tasks. An additional purpose of this study was to determine which benchmark physical fitness tests are most predictive of performance on these tasks. **Methods:** Data were collected from 3 different sites within the USMC Training and Education Command. All participants (409 males, 379 females) were active-duty Marines who were recently tested on the PFT and CFT. Participants were asked to execute a total of 6 combat proxy events: pull-ups, deadlifts, clean and presses, 120-mm tank loading drill, a 155-mm artillery round carry, and negotiating an obstacle course wall while wearing a fighting load (~30 lb). The validity of the existing physical fitness tests (PFT and CFT) for predicting performance on a battery of combat-related tasks was assessed. To determine predictive validity, correlations were computed between components of the PFT and CFT and the individual combat tasks, as well as an overall composite combat proxy test score. **Results:** The clean and press was strongly associated with pull-ups ($r=0.70$), ammo can lift ($r=0.69$), 3-mile run ($r=-0.53$), movement to contact (800-yd sprint; $r=-0.64$), and maneuver under fire ($r=-0.68$). Taken together, upper body strength as tested by the pull-up or ammo can lift was the strongest predictor of success on combat proxy tests ($r=0.67$ and $r=0.74$, respectively). **Conclusions:** The CFT does a better overall job than the PFT for predicting performance on the combat-related tasks. For the component CFT tasks, the ammo can lift is the best individual predictor of performance on the proxy tasks. Overall, these results suggest that the Marine Corps' PFT and CFT serve as a sound basis for making valid inferences about a Marine's physical capability to perform well in combat.

PURPOSE

- 1.To determine whether the USMC PFT and CFT are valid predictors of successful combat-related tasks.
- 2.To determine which physical fitness tests are most predictive of performance in combat-related tasks.

SUBJECT CHARACTERISTICS

Characteristic	Gender	N	Mean	±SEM
Age (yrs)	Male	409	22.50	0.22
	Female	379	22.27	0.23
Height (in)	Male	409	69.42	0.13
	Female	379	64.29	0.14
Weight (lbs)	Male	409	167.57	1.26
	Female	379	132.95	0.80



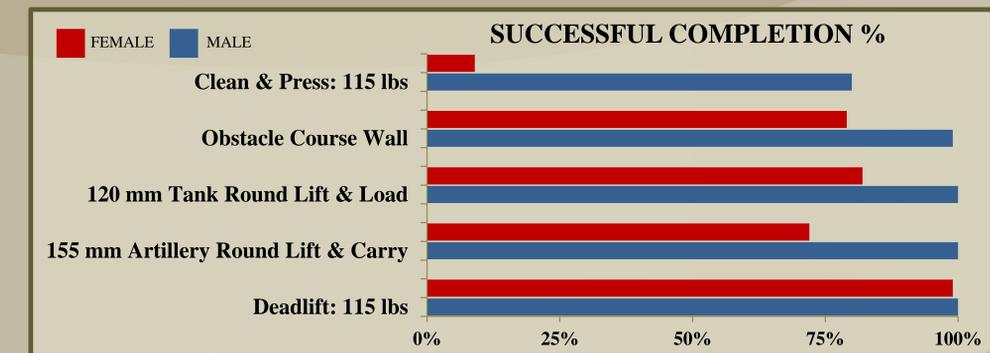
PHYSICAL FITNESS TEST

PFT Component	Gender	N	Mean	±SEM
PFT Crunches (#)	Male	409	98.89	0.24
	Female	379	93.50	0.57
PFT 3-Mile Run (sec)	Male	409	1281.54 (21:22; min:sec)	5.69
	Female	379	1470.04 (24:30; min:sec)	6.71
PFT Overall Score	Male	409	259.63	1.37
	Female	379	263.58	1.45

COMBAT FITNESS TEST

CFT Component	Gender	N	Mean	±SEM
CFT MTC (sec)	Male	409	173.39	15.24
	Female	378	211.34	21.56
CFT AL (sec)	Male	409	96.52	9.59
	Female	378	56.76	14.78
CFT MANUF (sec)	Male	409	145.19	18.39
	Female	378	200.34	26.36
CFT Overall Score	Male	409	289.05	12.10
	Female	378	283.37	15.72

MISSION READINESS TASKS



GENDER COMPARISONS for the CLEAN & PRESS



CORRELATIONS BETWEEN PFT & CFT COMPONENT TASKS AND OVERALL MISSION READINESS

Pearson's r	Crunches	3-Mile Run	MTC	AL	MANUF	Overall Mission Readiness
Pull-ups	0.37	-0.64	-0.73	0.74	-0.73	0.67
Crunches		-0.34	-0.37	0.39	-0.38	0.37
3-mile run			0.79	-0.63	0.73	-0.58
MTC				-0.75	0.82	-0.69
AL					-0.8	0.74
MANUF						-0.74

