



# Optimizing Exercise Wellness Tools to Aid Service Members in Meeting Army Fitness Requirements



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## Purpose

The purpose of this study is to create and modify exercise plans that target specific components of the Army Combat Fitness Test (ACFT). Service members will utilize these exercise plans to improve specific muscle groups or areas of the body that they are generally weaker in to earn a higher score on the exam. Through the company Vistendo, a virtual wellness tool will be utilized to study how much service members can improve their overall fitness and ACFT scores through the workout plans. Visual supports will be made for each exercise, along with cues and auditory scripts to aid those with impairments. Specific exercise plans will be modified for diverse needs, such as lack of equipment.

## Background

The Army Combat Fitness Test (ACFT) acts as an assessment for the physical domain of the Army's Holistic Health and Fitness system. The objective of the exam is to improve soldier and unit readiness, transform the fitness culture of the Army, reduce the occurrences of preventable injuries, and enhance mental toughness and stamina. There are 6 components to the assessment: 3 Repetition Maximum Deadlift (3-RMDL), Standing Power Throw (SPT), Hand Release Push-Up (HRP), Sprint-Drag-Carry (SDC), Leg Tuck, and Two-Mile Run (2MR). These components test a variety of fitness categories, including balance, coordination, reaction time, agility, power, cardiorespiration, muscular endurance, muscle strength, and flexibility.

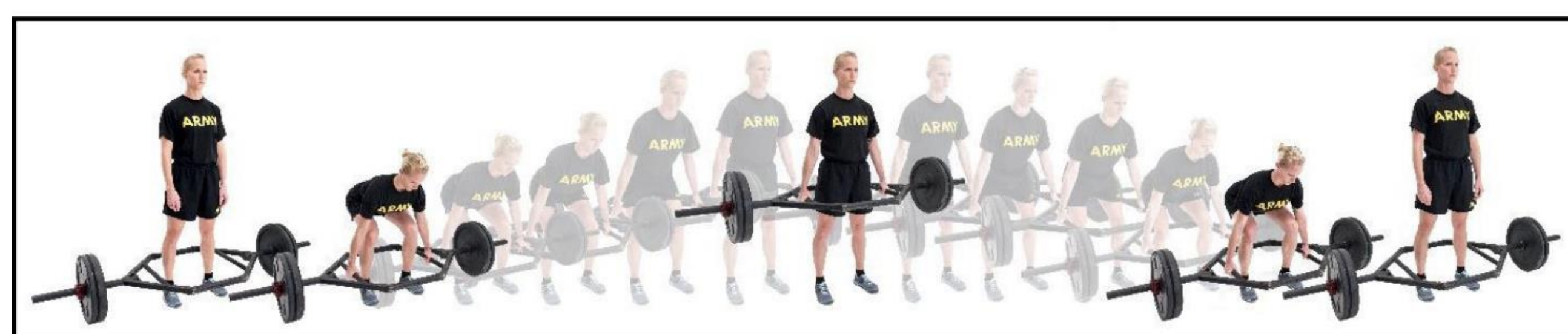


Figure 3. 3-Repetition Maximum Deadlift Execution

3RMD: Level 1			
Day 1		Day 4	
Exercise	Duration	Exercise	Duration
<b>Warm-up</b>			
High knee pull	10 reps	Jog with backpedal	3x 20yds
Quad walk	10reps	High knee pull	10 reps
Rower	5min	Quad walk	10reps
		Squat to stand	10reps
		Single-leg romanian deadlift	10reps
<b>Work out</b>			
Rear Deltoid Raise	4x 8rep	Squats	4x 8rep
Dumbbell Prone Row	3x 8rep	Dumbbell lunge	4x 4rep, each side
Shoulder Press	3x 10rep	Dumbbell forward lunge	4x 4rep, each side
EMOM	5 minutes	Dumbbell reverse lunge	4x 4rep, each side
	Dumbbell Single-leg RDL x2, each side	Glute-ham raise	3x 10rep
	Quarter Squat jump x2, each side	Dumbbell Bulgarian split squats	4x 8rep
<b>Conditioning</b>			
Arm circles (forward and backward)	10reps, each direction	Standing cross-leg toe touch	15s, each side
Arm cross body stretch	15s, each side	Toe-touches, feet apart	30s
Triceps stretch	15s, each side	Standing quadriceps stretch	30s
Toe-touches, feet together	30s	Standing hip flexors stretch	15s, each side
Toe-touches, feet apart	30s	Calf stretch	15s, each side
Standing quadriceps stretch	15s, each side	Standing figure 4 stretch	15s, each side
Standing hip flexors stretch	15s, each side		
Notes: Each exercise in the workout should be performed before going to the next set Weight should be VERY LIGHT			

Figure 4: Sample Workout Plan for 3-Rep-Max Deadlift (Level 1)

## Methodology

All exercises in the existing ACFT workout plan will be initially sorted to determine which component of the test they are best geared towards. These determinations are based on which muscle group(s) that exercise targets, as well as what areas of the body are primarily being used to perform the exercise. Along with the related ACFT component, these exercises will be sorted according to the primary fitness category they fall into. The sorted exercises will be combined in sets of 4-10 exercises per set, the number of repetitions ranging depending on the level of difficulty. Each workout plan will be created as a 3-day plan with the intention of executing the desired plan(s) within 1 week. Once all 6 component workout plans are created, the plans will be altered to provide varying levels of difficulty. Difficulties will range across 5 levels, increasing in how physically strenuous each plan is. The plans will be altered in the number of repetitions per exercise, as well as types of exercises being performed. To aid service members in executing the exercises with proper form, all exercises will be accompanied by technological written description and verbal cues. Within the app, there will be both written and visual set-up instructions, as well as descriptions for how to complete each phase of each exercise. Once all plans are solidified within the wellness tool, modifications will be made to each plan to accommodate those with a lack of equipment. The workout plan structures will be kept intact, while all individual exercises will be modified or swapped to avoid any equipment necessities.

## Conclusion

Having a working understanding of the ACFT and the principles of training allow us to target specific components of exercise plans and modify them based on individual needs. Being able to adapt these workout plans and modify them for different needs ensures that they are more inclusive for multiple groups, increasing the amount of people that can positively benefit from their use. Using this study, we can specifically analyze how much a certain individual's ACFT scores have changed as a result of using the virtual wellness tool and plans.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AGR - RUN DAY	MDL & SPT - MF DAY	HRP & PLK - MF DAY	SDC & COMBAT CONDO DAY	LIGHT LONG - RUN DAY	YOUR GYM DAY	REST, REPAIR & STRETCH

Figure 5. Sample Full Week Workout Routine Split

## References

ACFT Field Testing Manual, [www.army.mil/e2/downloads/rv7/acft/acft\\_field\\_testing\\_manual\\_final.pdf](http://www.army.mil/e2/downloads/rv7/acft/acft_field_testing_manual_final.pdf).

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U.S. ARMY	POINTS	ACFT GRADING SCALES											
		17-21	22-26	27-31	32-36	37-41	42-46	47-51	52-56	57-61	62+		
MDL (lbs)	Female	100	210	230	230	230	210	210	190	190	170	170	
	Male	100	340	340	340	340	340	340	330	290	250	230	
SPT (meters)	Female	100	8.4	8.5	8.7	8.6	8.2	8.1	7.8	7.4	6.6	6.6	
	Male	100	12.6	13.0	13.1	12.9	12.8	12.3	11.6	10.6	9.9	9.0	
HRP (reps)	Female	100	53	50	48	47	41	36	35	30	24	24	
	Male	100	57	61	62	60	59	56	55	51	46	43	
SDC (m:ss)	Female	100	1:55	1:55	1:55	1:59	2:02	2:09	2:11	2:18	2:26	2:26	
	Male	100	1:29	1:30	1:30	1:33	1:36	1:40	1:45	1:52	1:58	2:09	
PLK (m:ss)	Female	100	3:40	3:35	3:30	3:25	3:20	3:20	3:20	3:20	3:20	3:20	
	Male	100	3:40	3:35	3:30	3:25	3:20	3:20	3:20	3:20	3:20	3:20	
2MR (mm:ss)	Female	100	15:29	15:00	15:00	15:18	15:30	15:49	15:58	16:29	17:18	17:18	
	Male	100	13:22	13:27	13:31	13:42	13:58	14:05	14:30	15:09	15:28	15:28	

Figure 1. Official ACFT component grading scales

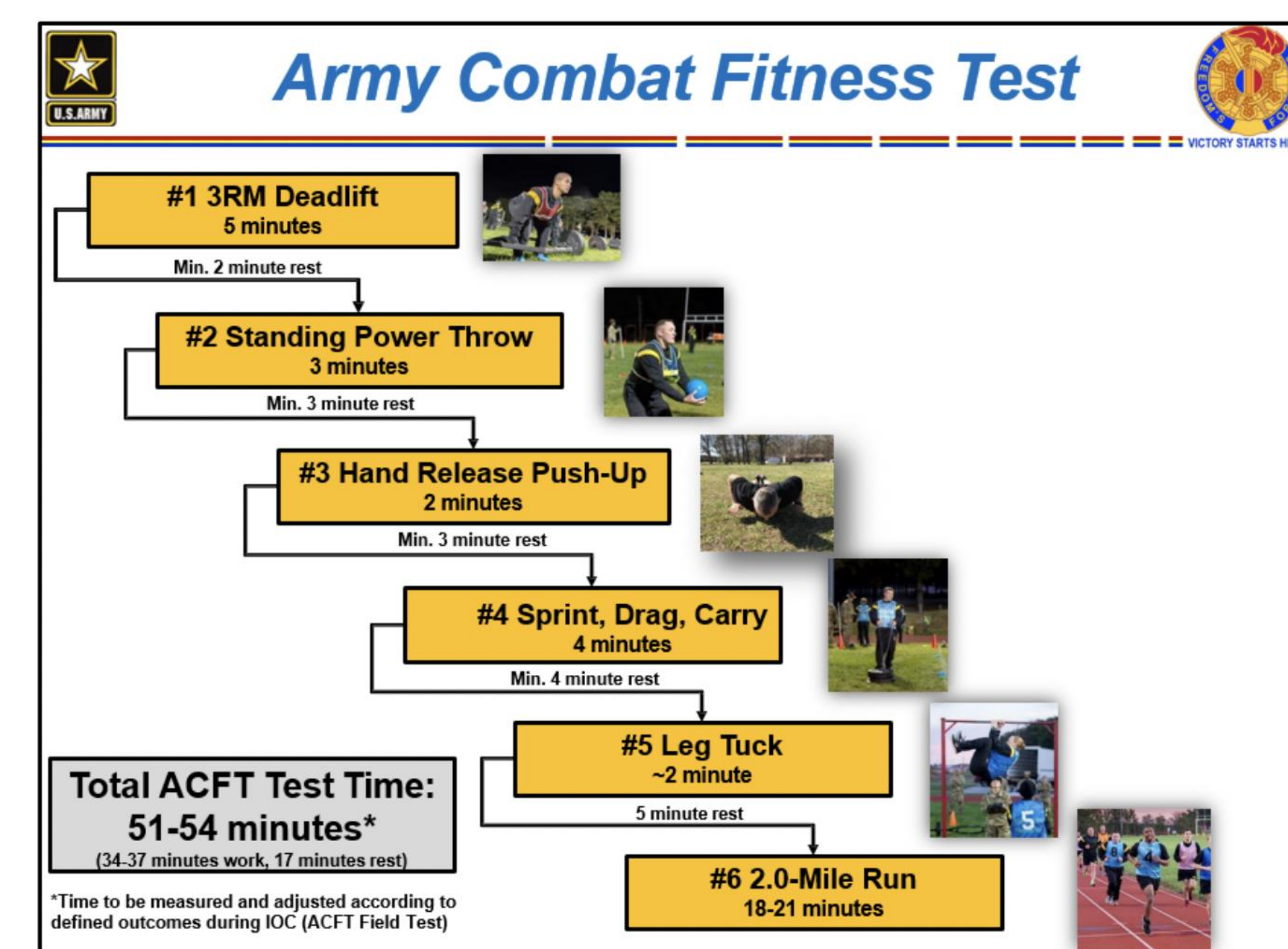


Figure 2: ACFT event sequence and rest intervals for an individual Soldier test