

Headquarters U.S. Air Force

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Physiological Gender Differences: Tests, Standards, and Physical Training



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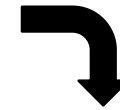
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Tier 2 PF Tests and Standards Process

1. Identify Physical Job Demands



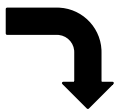
2. Develop Physical Fitness (PF) Tests and Physical Task Simulations



3. Validate and Set Physical Test Standards



4. Implement, Train, Verify, Refine Prototype PF Tests and Standards



5. Document Tier 2 Products During Adaptation Period



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Operationally Relevant-Gender Neutral Tests and Standards at RATO / Stages of Development

- **Air Liaison Officer (ALO) Tactical Air Control Party (TACP) - Tier 2 Tests and Standards - Recruit, Assess, Training, Operational (RATO)**
 - **Completed Study Steps 1 through 4**
 - **Completed Tiger Team 11-13 July 17; Air Staff Career Field Managers, MAJCOM Functional Area Managers and Exercise Science Unit (ESU) worked policy, procedures, resources, personnel training**
 - **Official announcement at ALO-TACP Worldwide conference 9 Jan 2018**
 - **AF Guidance Memorandum - until AF Instruction complete, coord**
 - **AF/A3 Dep Chief Staff for Operations taking test 11 Jan 18 at WW conference, inviting commanders / SNCOs to join**
 - **AF Instruction 13-113 vol 1 and Step 5 scheduled completion Jan 2019**
 - **Operational tests and standards - complete**
 - **Recruit, Assess, Training level tests and standards - final calculations**

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ALO-TACP Physical Fitness Test Battery

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Physical Fitness Component (PFC)	Recruit		Assess		Training		Operations
Power	Standing Long Jump		Med Ball Toss, back/side		Med Ball Toss, back/side		Med Ball Toss, back/side
Agility	Two Cone Drill		Two Cone Drill		Two Cone Drill		Two Cone Drill
Strength	Grip Strength		Grip Strength		Grip Strength		Grip Strength
Endurance	Lunges-wtd, 50 lbs		Lunges-wtd, 50 lbs		Lunges-wtd, 50 lbs		Lunges-wtd, 50 lbs
	Pull-Up (4)		Pull-Up (4 / 6)		Pull-Up (9 / 11)		Pull-Up (11)
	Extended Cross Knee Crunch		Extended Cross Knee Crunch		Extended Cross Knee Crunch		Extended Cross Knee Crunch
Anaerobic	Shuttle Run, 300 yd		Farmer's Carry, 100 yd		Farmer's Carry, 100 yd		Farmer's Carry, 100 yd
Aerobic	Run, 1.5 mile		Row Ergometer, 1000 m		Row Ergometer, 1000 m		Row Ergometer, 1000 m
	Run, 1.5 mile		Run, 1.5 mile		Run, 1.5 mile (Tier 1)		Run, 1.5 Mile (Tier 1)
SAT at MEPs	R1 Initial	R2 Pre-ship	A1 BMT WOT 0	A2 BMT - TT	T1 Intermediate	T2 Graduation	Operation Periodic with Random

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Operator Tests and Standards **ALO-TACP Final**

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	Op1	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10
TACP	Grip Strength	Med Ball Toss	Two Cone Drill	Trap Bar DL	Pull up	Lunges Wtd	Ext Cross Knee Crunch	Farmer's Carry 4 x 25 yd	Row 1000m	Run 1.5 mi
		PSI	ft	secs			lbs			
10	198	50.5	8.6	469	32	199	107	21.2	3:15	7:51
9	166	47.5	8.9	435	28	161	94	22.5	3:22	8:03
8	153	44.5	9.3	399	24	148	79	23.5	3:30	8:50
7	144	42.0	9.5	376	22	123	69	24.8	3:36	9:21
6	137	40.5	9.8	356	20	104	62	25.9	3:40	9:47
5	130	39.0	10.0	338	18	88	57	26.8	3:44	10:10
4	124	37.5	10.2	320	16	73	52	27.8	3:48	10:33
3	117	35.5	10.4	300	13	58	46	28.8	3:52	10:59
2	108	33.5	10.7	276	11	43	39	30.1	3:57	11:31
1	95	30.0	11.1	240	7	24	31	32.0	4:05	12:17
TACP- Component Minimums indicated in blue						Composite score requirement ≥ 46 of 100				



Operationally Relevant-Gender Neutral Tests and Standards at NATO / Stages of Development

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- **Other Battlefield Airmen (BA) (STO/CCT, CRO/PJ, SOWT) Tests and Standards**
 - Completed Steps 1 through 3; have Tier 2 prototypes for each Air Force Specialty Code (AFSC)
 - Step 4 pending AF leadership
- **Explosive Ordnance Disposal (EOD) Tests and Standards**
 - Completed Step 1; working Steps 2 - 4, scheduled completion Dec 2018
 - Official policy and Step 5 completion slated for early 2019
- **Other AFSCs, intramural and extramural ranking efforts**
 - *Physically Demanding* - require full Tier 2 tests and standards, 5 Steps
 - *Not Physically Demanding* - retain Tier 1 test only
 - *Physically Demanding, TBD* - require limited Step 1 analyses; grouping
 - Strength Aptitude Test - major review, fundamental Tier 2 all AFSCs
 - Conceptual Model: Tier 1 / Tier 1D / Tier 2 / Tier 2D - working w/ NATO

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Policy and Communication

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- **ALO-TACP: Air Staff to units, policy directives, worldwide conference, public affairs**
- **Other Battlefield Airmen (BA): Tier 2 Prototype accepted by operators; continue communication regarding test and physical training to include BA General Officer Steering Group, worldwide conferences**
- **EOD: leadership and operators - significant engagement in each study step; ESU communicating purpose, plan, progress updates**
- **Other AFSCs: will follow same communication plan and pattern**
- **Recruit level: communicating Tier 2 tests and standards**
 - **Policy, once tests and standards official, AFSC and PA messaging**
 - **Air Force Recruiting Service, BA Scout-Recruit-Developers (SRDs), and PA message new Physical Ability and Stamina Test (Tier 2 - R level)**
 - **Targeted recruiting - by activity**
 - **Apply multifactor selection models**



Physical Training at RATO

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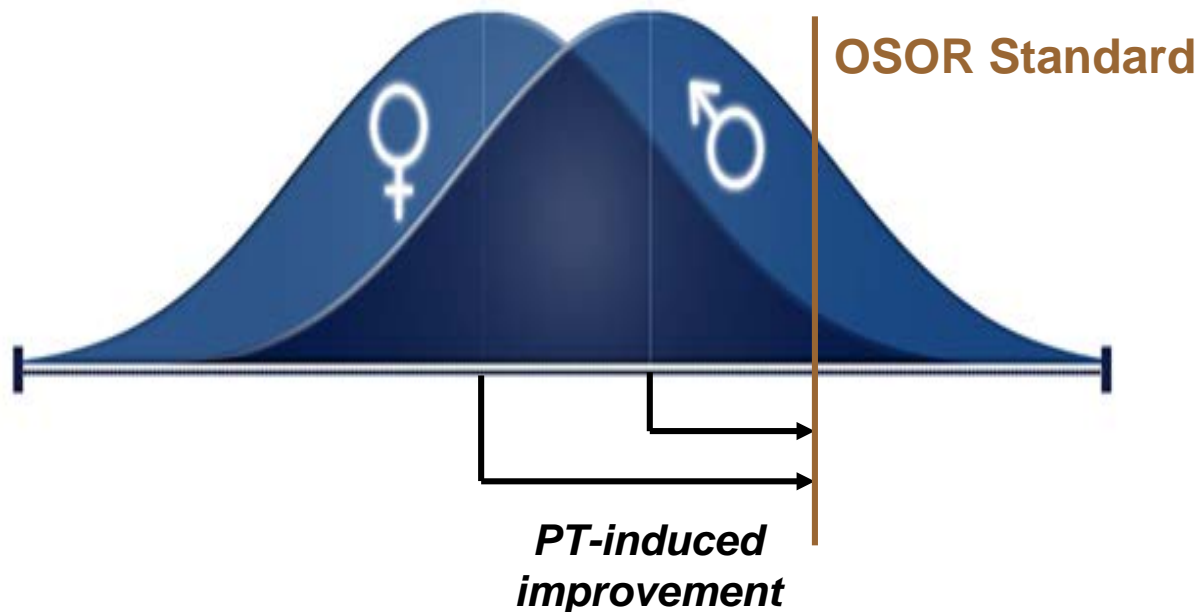
- **Employ *AF Exercise Principles and Methods Course (EPM)***
 - **Science-based exercise training principles and methods (since 2007)**
 - **Includes sex-specific training methods/techniques**
 - **50/50 mix of academic and practical**
 - **Graduation requirement: develop real time physical training plan**
- **Tier 1: EPM for BMT/OTS, ROTC, USAFA, TT, PME, SLCs**
- **Tier 2: EPM across RATO (SRDs, BMT, TT, S&C Coaches)**
 - **EPM is a Study Deliverable: ALO-TACP now, EOD next, Other AFSCs**
 - **Step 4A EPM short version (4 hr); delivered to all ALO-TACP at units**
 - **Step 4C EPM full version (5 day ESU Lab); to 3 per AD unit, 2 per ARC units**
 - **Systematic process - certification, recert, efficacy checks (SAVs)**
 - **ESU act as central SME hub; EPM train the trainer**
 - **ESU act as independent review agency across R-A-T-O (content check of HP staff training methods) - centralized guardrails with decentralized execution**
 - **Educ-Mkt-Comm: communicate fundamental training principles/methods**

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Sex Specific Differences PT Methods / Techniques



- Females may require a more focused, consistent, periodized training program than males to reach the same occupationally specific and operationally relevant (OSOR) physical standard, for CRE, BC, MF
 - Example, females generally need to achieve greater improvements in CRE, MF to reach the same absolute load carriage capability



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Sex Specific Differences PT Methods / Techniques

- **Females < VO₂ max, < fat-free mass, < muscular strength, < peak bone mass, < heat tolerance, > relative fat mass, > use fat stores, > protein catabolism, > Q angle and posterior chain weakness**
- **Sex-specific technique differences**
 - **Stability exercises core/pelvic girdle, e.g., plank, single leg squat**
 - **Strengthen posterior chain, e.g, deadlift variations, hamstring curls, single leg hip thrusts, squats with glute involvement, lunges**
 - **Landing techniques, e.g., depth jump, box jumps**
 - **Plyometric and agility drills - after achieving MF gains**
 - **Mobility assessments - address potential weaknesses / injury risk**
 - **Nutritional education / consults**
 - **Heat acclimation / fluid replacement**



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Summary

- **OSOR PF Test addressing range of PF components drives, guides, specifies PT to achieve the absolute OSOR standard**
- **EPM course provides science-based instruction / guidance**
 - **Exercise principles and program design for males and females reach occupational standard**
 - **Employs sex-specific PT methods / techniques**
 - **Overcomes “one-size-fits-all” PT methods**
 - **Provides means to overcome inconsistent PT programs**
- **We may never close the sex-specific physical performance gap *per se*; however, we aim to provide a pathway for both genders to reach operational level occupational standards**