



A Division of CF Morale & Welfare Services
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Incentivising performance on PES standards Considerations for bias

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Canadian Armed Forces Approach

- PES is designed to predict performance on Common Military Task Fitness Evaluation (CMTFE)
 - Vehicle extrication, stretcher carry, picking/digging etc....
 - Introduced as new annual physical fitness evaluation for CAF personnel in April 2013.
- Age and Gender free minimal standards on 4 “functional” test items:
 - Sand Bag Lift / Intermittent Loaded Shuttles / 20m Rushes / Sand Bag Drag
- CDS asked for an incentive program
 - The incentive research process included 3 working groups
 - (1) Surgeon General (2) JAG (3) Privacy





BFOR PES standards are minimum standards

–These are linked closely with the task (job) performance and do not often translate into physical fitness for legal defensibility

Higher results on the PES = INCENTIVISATION?

- Often this is how a PES is incentivized, however **occupational relevance is sometimes lost** and elite performance unattainable or AI is observed with age and gender
- An employer can incentivize health related physical fitness
 - Shown to decrease work related injuries and prolong wellness and functional longevity



What should you incentivise?

CVD / Metabolic diseases /MSKI/Environmental resilience

- MSKI and CVD = significant organisational cost and burden
- Inverse relationship between “physical” fitness and overuse injury [2]
- Low cardiorespiratory endurance correlated with higher injury rates in male industrial workers [1]
- CVD and MSKI risk is related to age and gender

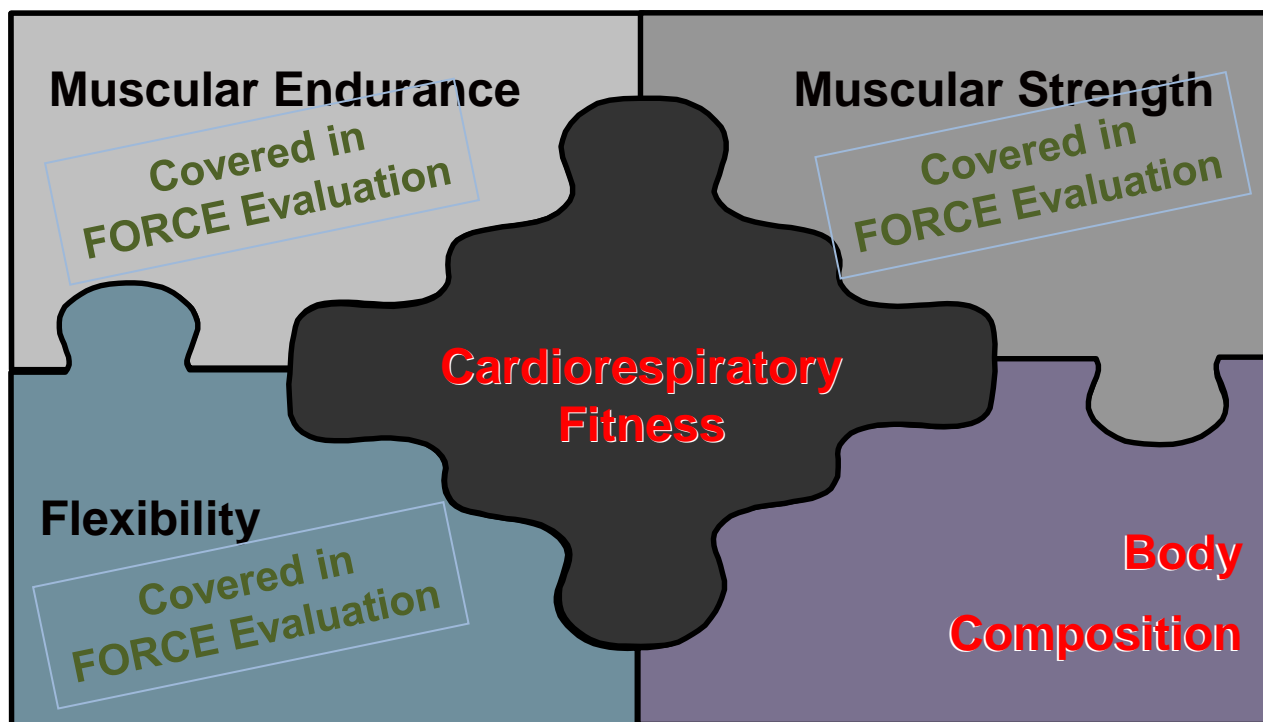
Cardiovascular symptoms, frequently seen among deployed U.S. soldiers, range from palpitations to acute coronary syndrome. Over a 12-month period, 469 cardiac referrals (mean age = 38.8 years) Iraq.

2-mile run = maximal oxygen consumption (VO_{2max}) as a measure of cardiorespiratory fitness. Physical fitness needs to be a factor for determining the medical deployability. Aerobic fitness more accurately reflects CHD risk than do current levels of self-reported physical activity

Army Physical Fitness Test Scores Predict Coronary Heart Disease Risk in Army National Guard Soldiers. Laura A. Talbot, RN , EdD, PhD ; Ali A. Weinstein , PhD† ; Jerome L. Fleg, MD ‡*

FORCE Fitness Profile : The Science

The 5 Components of Physical Fitness



FORCE Fitness Profile : The Science

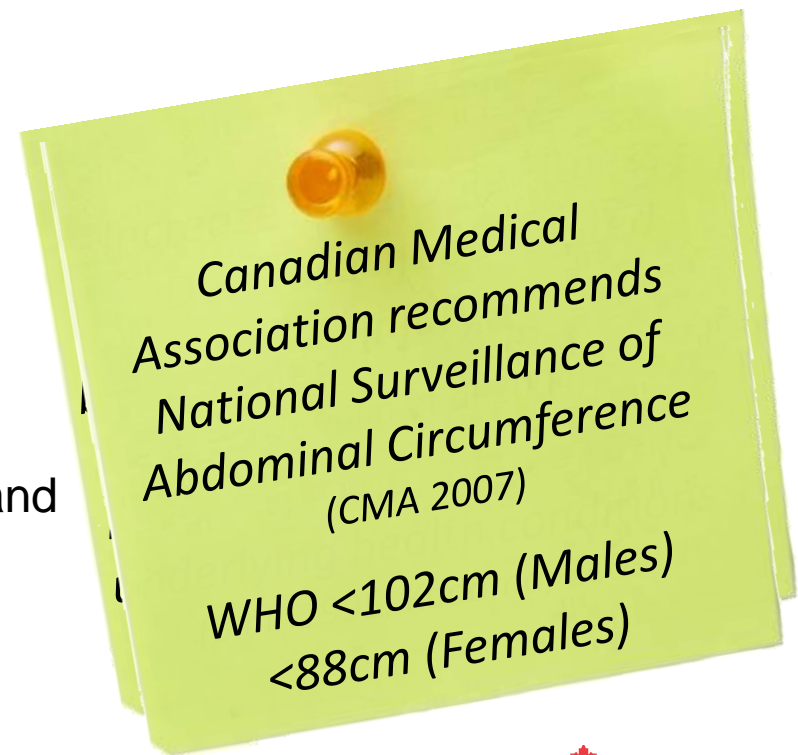
The FORCE Fitness Profile: A case for assessing aerobic fitness and body composition within the FORCE Evaluation.

DFIT Technical Report.

Reilly T, Spivock M, Prayal-Brown AL. (2014).

Reviewed 51 research papers representing:

- Over 200 000 participants,
- 9 Countries,
- Male and female data from a range of ages, and
- Healthy and symptomatic participants (for cardiovascular disease, metabolic syndrome, diabetes, etc.)



CRF required of Men vs Women

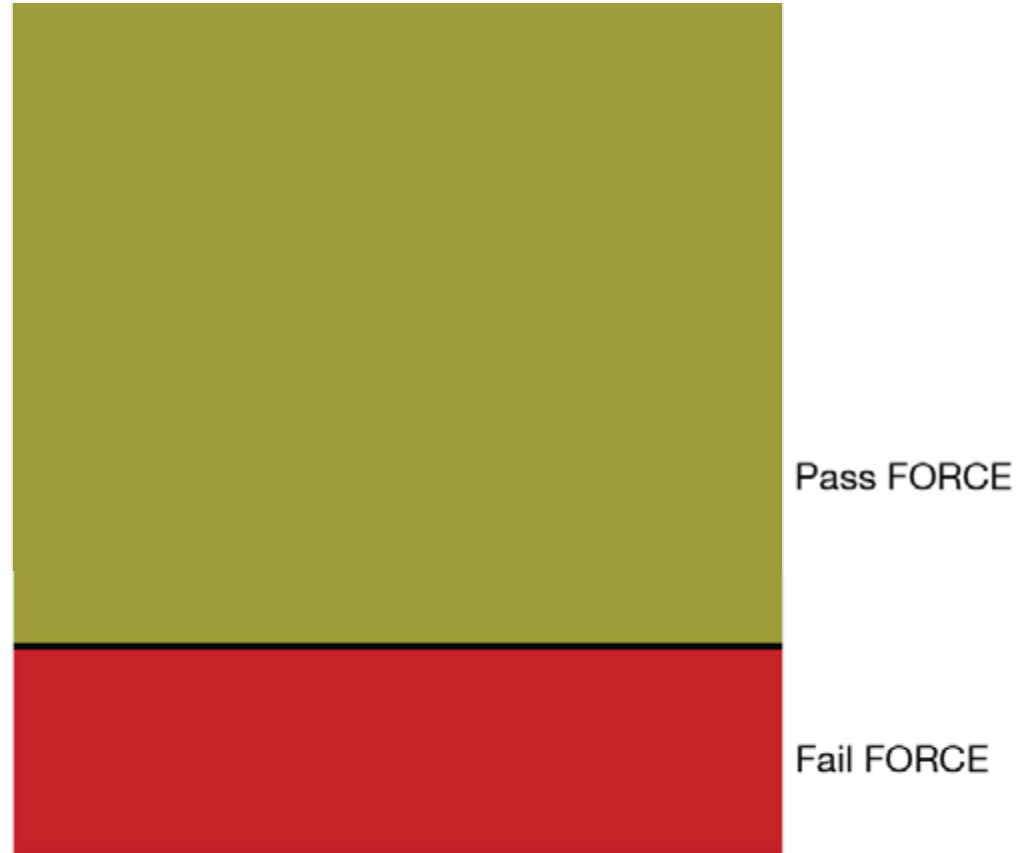
Kodama et al. (2009) the protection CRF for ACM, cardiovascular disease, or other metabolic syndromes, people would have to complete the minimum METs of a VO_{2max} test below:

- MEN (40yrs) <9 METs
- MEN (50yrs) <8 METs
- MEN (60yrs) <7 METs
- WOMEN (40yrs) <7 METs
- WOMEN (50yrs) <6 METs
- WOMEN (60yrs) <5 METs

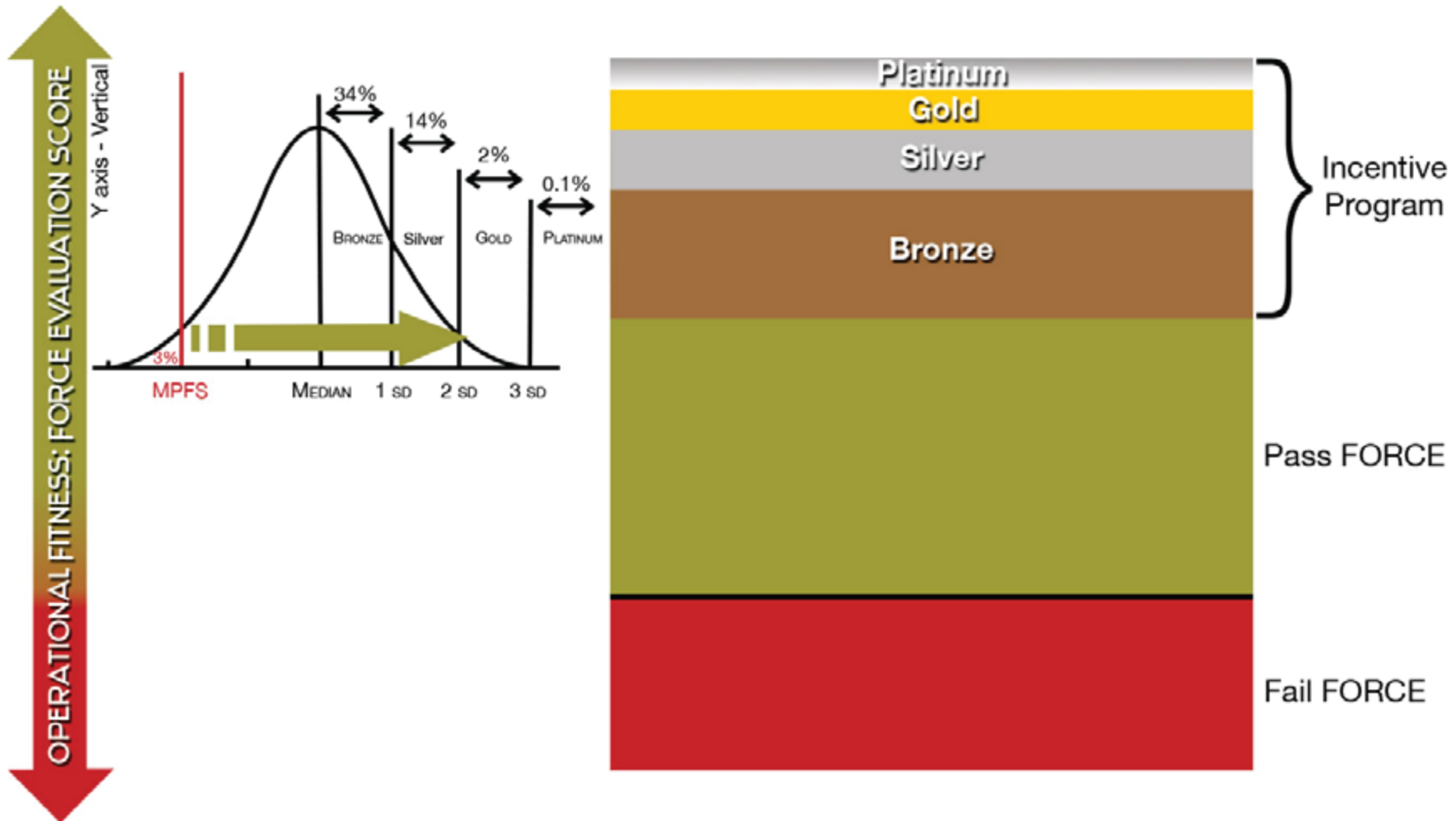
Kodama et al.'s Review (2009) included 33 studies. There was a total of 6910 cases of all cause mortality in 102 908 participants and 4484 CVD deaths in 84 323 participants



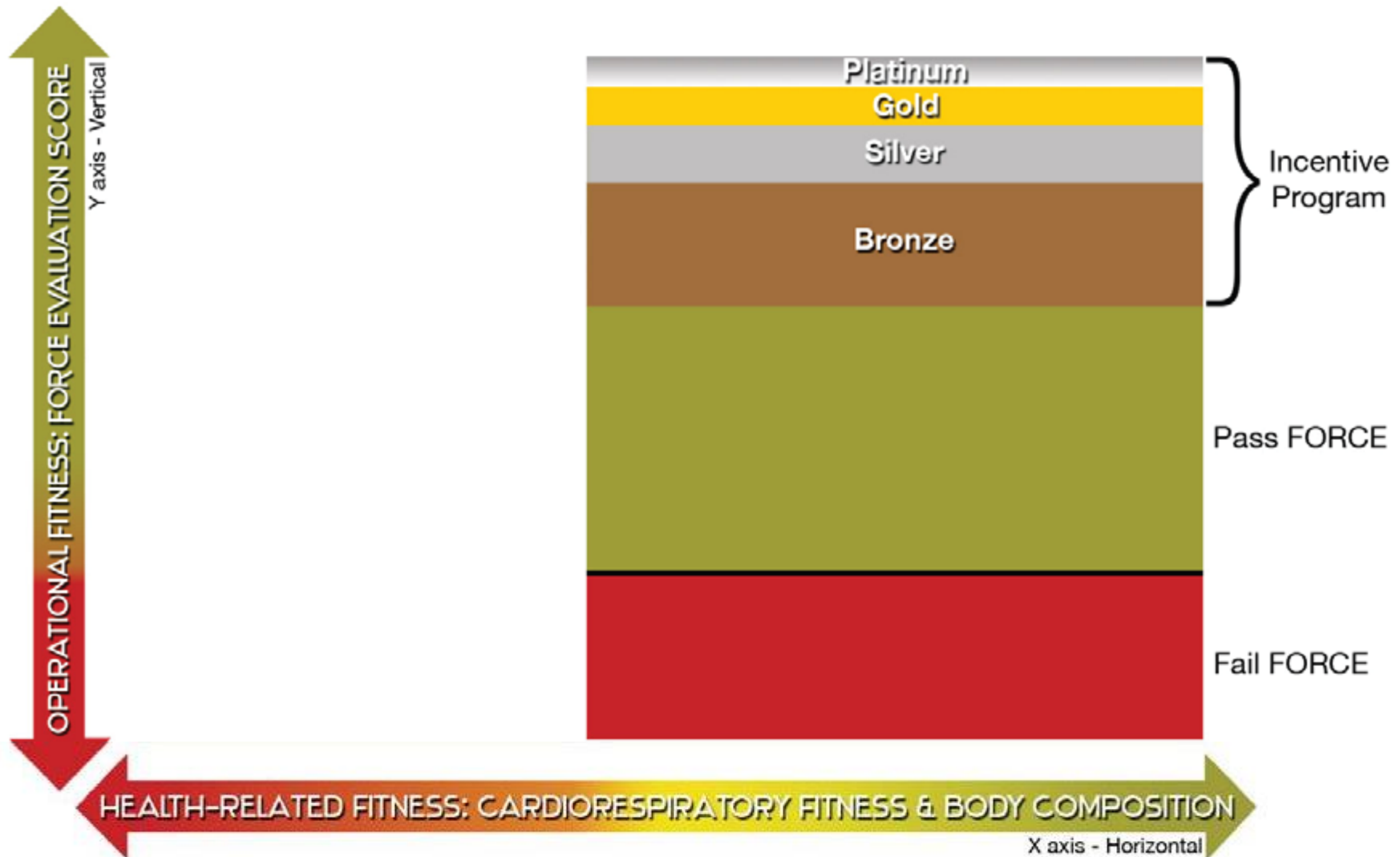
FITNESS PROFILE: MEASURING OPERATIONAL AND HEALTH-RELATED FITNESS



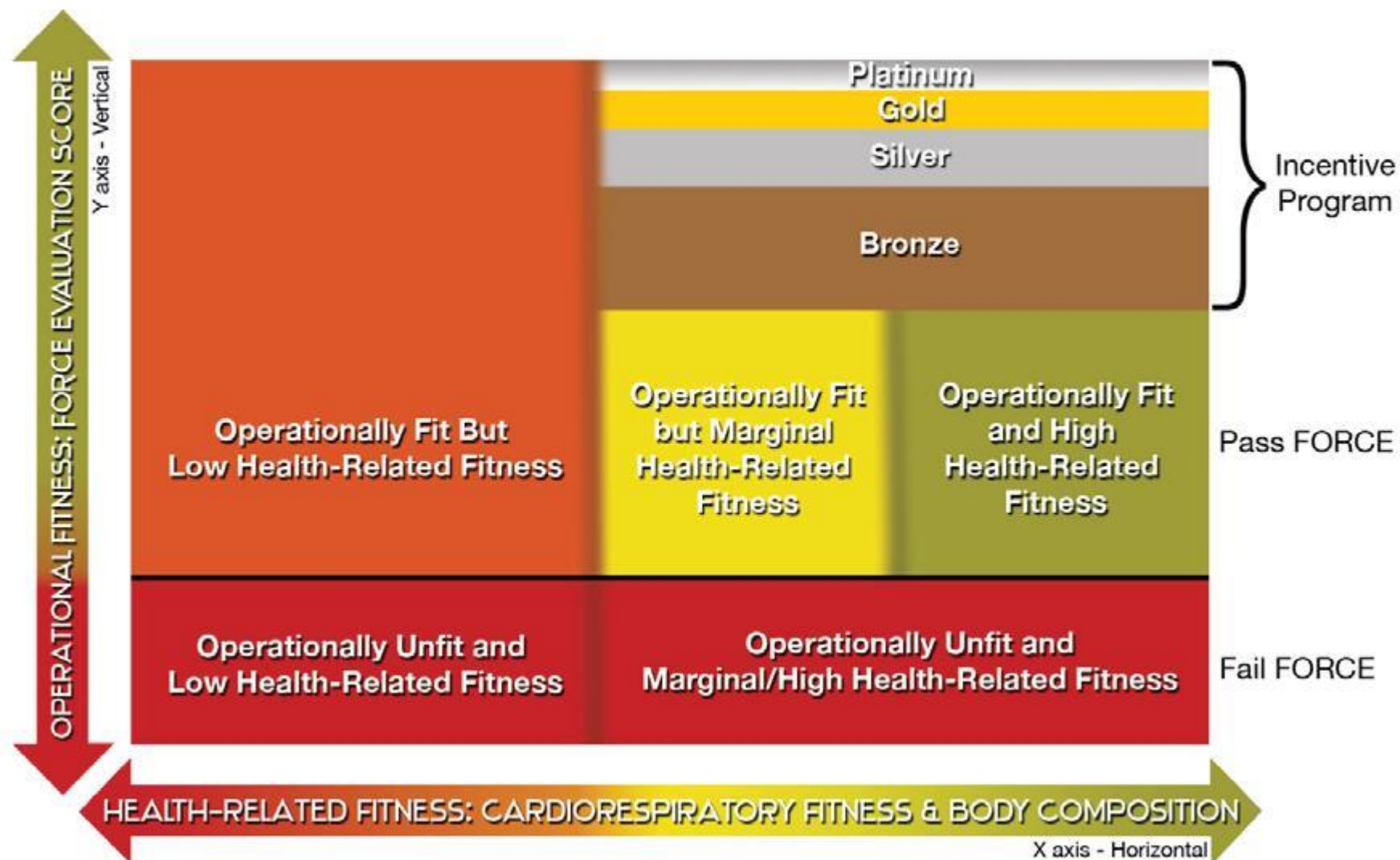
FITNESS PROFILE: MEASURING OPERATIONAL AND HEALTH-RELATED FITNESS



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CAF 2016/2017

Performance Breakdown: CAF

	FORCE Incentive Program								
	Not Met	Orange	Yellow	Green	Bronze	Silver	Gold	Platinum	Declined Waist Circ.
CAF	2.6%	4.0%	14.3%	8.5%	34.2%	26.4%	7.9%	0.8%	1.3%
CA	1.3%	3.2%	11.8%	7.0%	35.6%	30.4%	9.2%	0.9%	0.5%
CJOC	1.6%	4.9%	14.4%	6.2%	33.4%	28.4%	8.8%	0.8%	1.6%
MILPERSCOM	2.3%	2.5%	10.9%	10.0%	34.4%	28.3%	9.3%	1.1%	1.3%
Other	3.0%	3.6%	12.8%	8.7%	33.0%	26.4%	8.9%	1.5%	2.3%
RCAF	3.7%	5.2%	17.2%	9.4%	33.9%	22.3%	6.0%	0.6%	1.8%
RCN	5.3%	5.9%	21.2%	11.4%	30.8%	17.9%	4.6%	0.5%	2.4%
VCDS Branch	2.4%	4.0%	15.3%	7.3%	34.8%	25.8%	8.2%	0.7%	1.6%



Does this incentive strategy prevent bias?

		M	F	ALL
		94,601	14,527	109,128
		54,482	8,957	63,439
Platinum	396.28	88	59	147
Gold	378.64	1,868	467	2,335
Silver	318.95	12,935	1,897	14,832
Bronze	221.32	32,783	4,467	37,250
Green	137.49	42,239	6,105	48,344
Red	77.22	4,688	1,532	6,220
Incentive		47,674	6,890	54,564
No Incentive		46,927	7,637	54,564
% Achieving Incentive		50.4%	47.4%	50.0%

M	F	ALL
0.1%	0.4%	0.1%
2.0%	3.2%	2.1%
13.7%	13.1%	13.6%
34.7%	30.7%	34.1%
44.6%	42.0%	44.3%
5.0%	10.5%	5.7%

4/5th rule to assess AI = 94.11%

No adverse impact



Limitations with Data: Response Rate

Age	Female	Male
	Reg	Reg
0 - 19.9	59%	73%
20.0 - 24.9	73%	81%
25.0 - 29.9	70%	79%
30.0 - 34.9	65%	76%
35.0 - 39.9	64%	74%
40.0 - 44.9	58%	70%
45.0 - 49.9	51%	65%
50.0 - 54.9	36%	57%
55.0 - 74.9	21%	43%
Total	61%	73%





Key Points

- Incentivising is not as simple as just performing better on the PES.
 - This will lead to Gender Bias where bias may not have originally been identified
 - Solution: normalise incentives, but ONE STANDARD for pass/employment
- Why not incentivise the things not captured in the PES?
 - Maybe the job requires a lot of strength, so incentivise in aerobic fitness, achieve balance, holistic wellness...
 - These will demonstrate needs are different base on Gender
 - Males need more CFR to decrease CVD
 - Females need more strength to decrease MSKI



Questions?

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