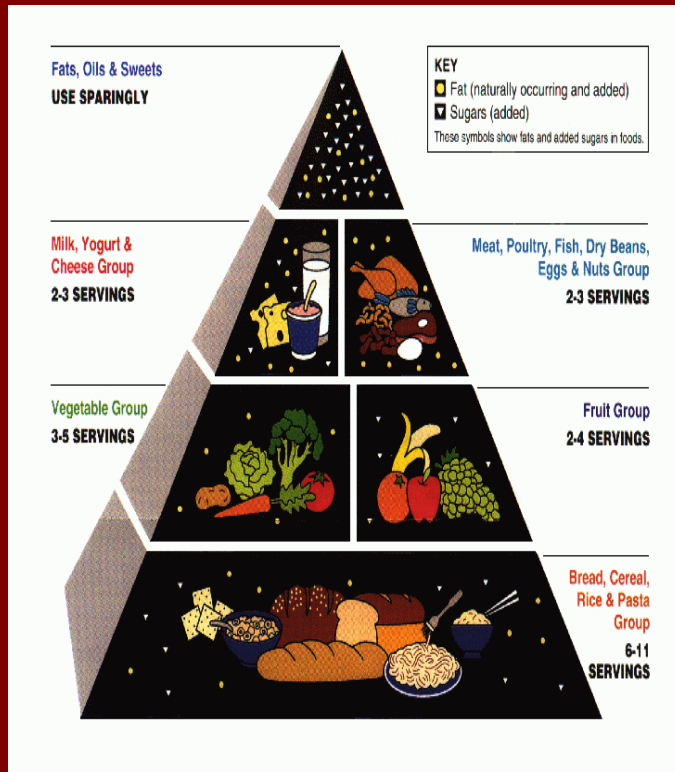


“Zone”ing in on Healthy Eating



COL Gaston P. Bathalon, Ph.D., RD
USARIEM Deputy Commander

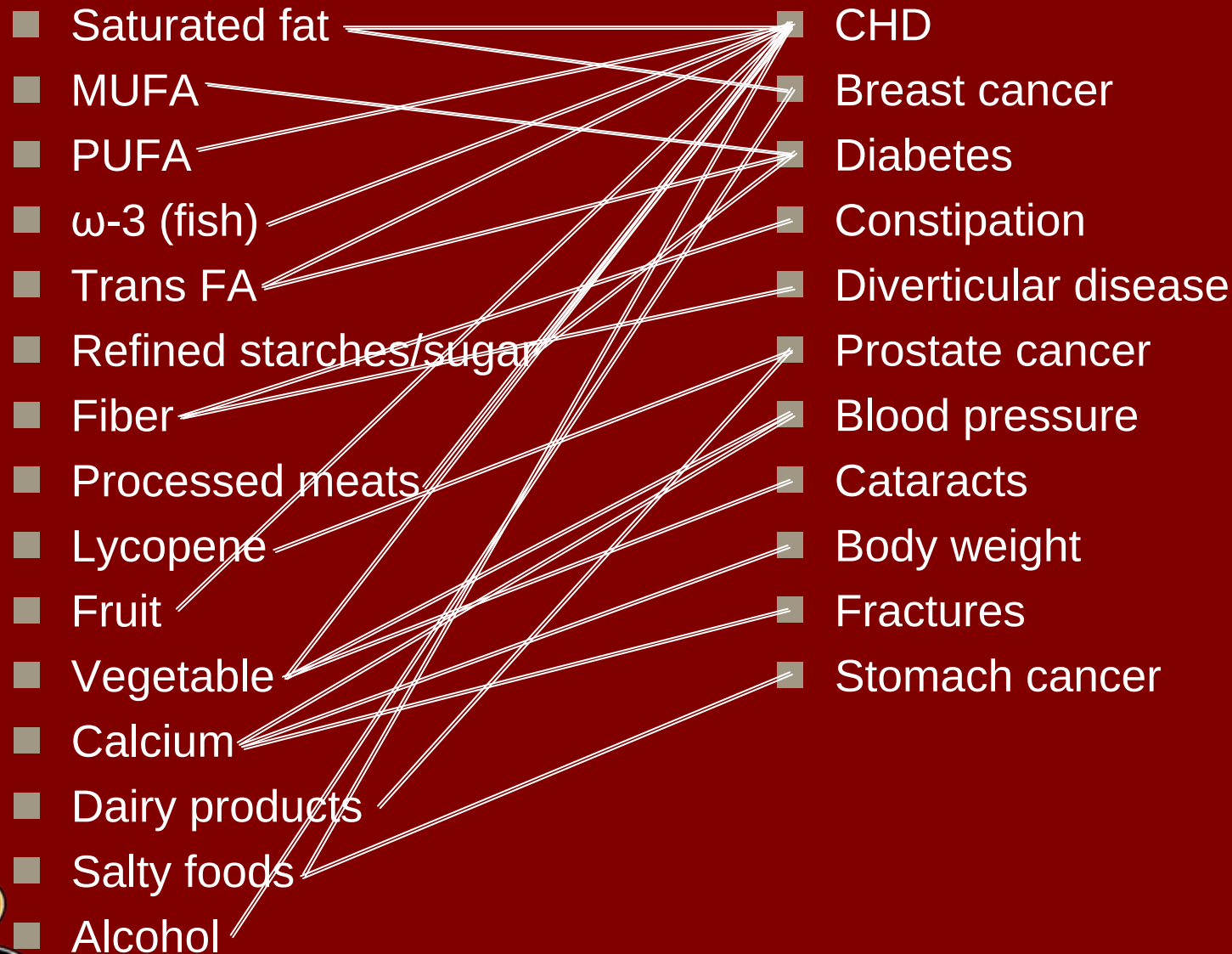
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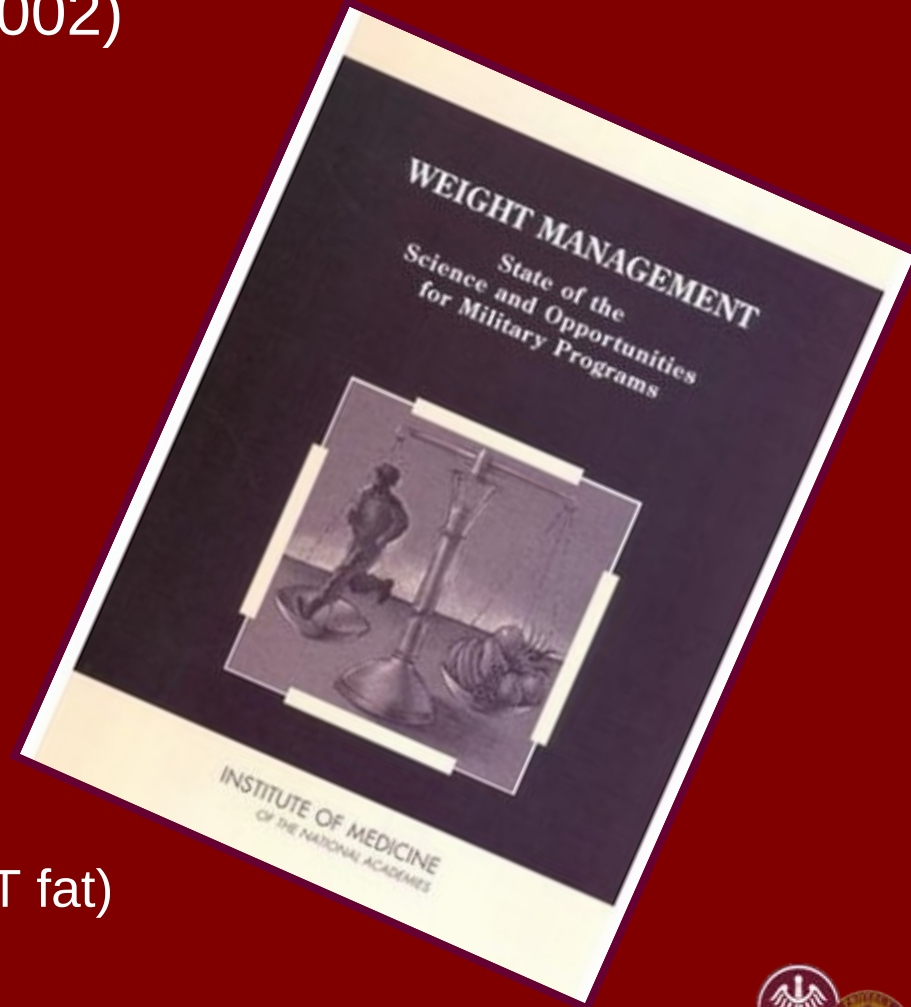
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Diet and health outcome relationships

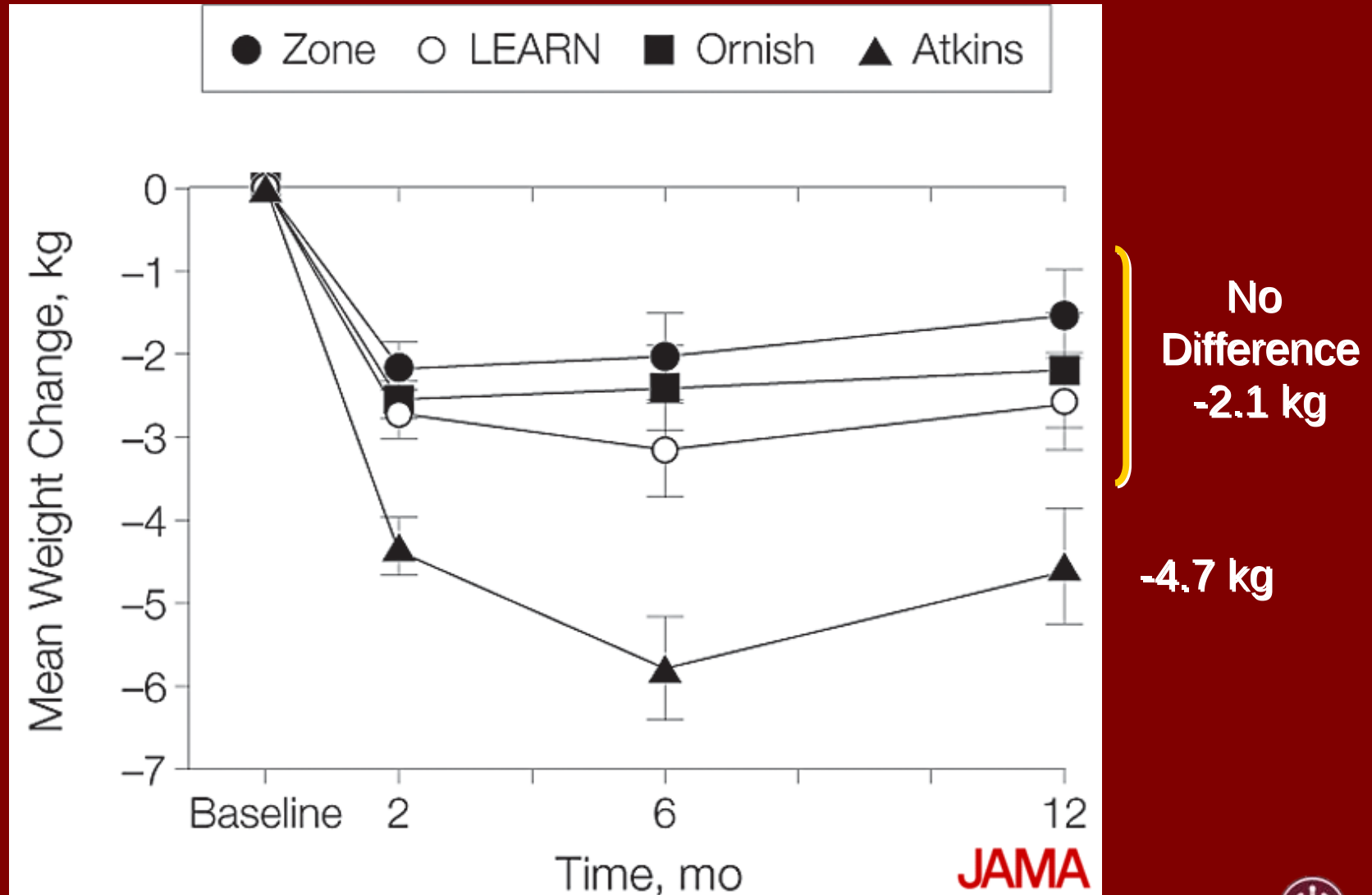


Nutrition and health guidelines

- AR 40-25, BUMEDINST 10110.6, AFI 44-141, Nutrition Standards and Education (2002)
- Scientific expert panels:
 - US Dietary Guidelines
 - World Health Organization
 - American Heart Association
 - American Cancer Society
 - Country guidelines
- Experts:
 - Atkins (50 g/d CHO)
 - Ornish (10% fat)
 - Zone (40%-30%-30%, C,P,F)
 - LEARN (~60% CHO, 10% SAT fat)



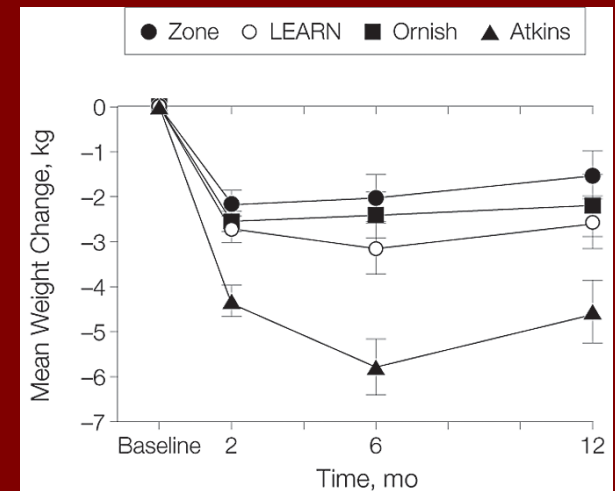
Weight change relative to baseline (women)



Gardner, C. D. et al. JAMA 2007;297:969-977.

Weight change relative to baseline (women)

- Secondary outcomes (change at 12 month):
 - % body fat (NS – 3% in Atkins)
 - LDL-cholesterol (NS)
 - HDL-cholesterol [least in Ornish]
 - Triglycerides [least in Zone]
 - Insulin (NS)
 - Glucose (NS)
 - Systolic BP [greatest in Atkins]
 - Diastolic BP [least in Ornish]



Gardner, C. D. et al. JAMA 2007;297:969-977.

JAMA



Healthy diet

- Focus:
 - Prevent nutrient deficiency
 - Optimization of long-term health
- DoD short term:
 - Training
 - Deployment (field feeding)
 - Mission
 - Precise food combinations NOT adequate under ALL conditions
- Long term:
 - Career military personnel (entry to retirement)
 - Major diseases develop over decades

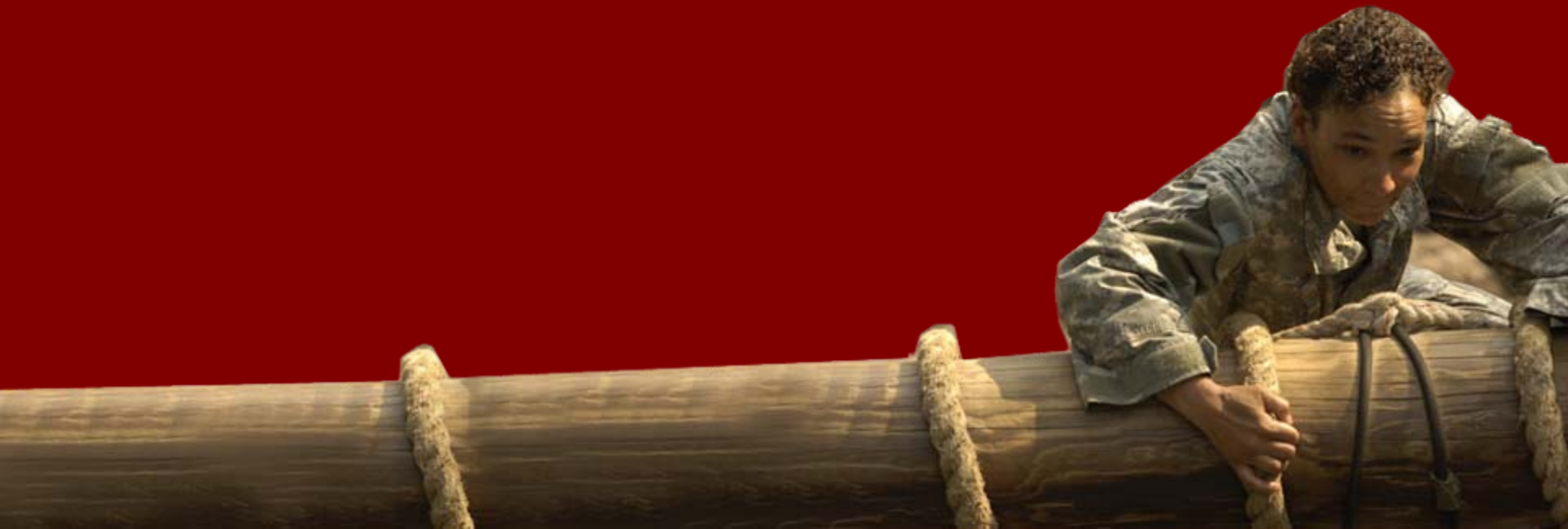


Healthy diet (cont)

- Promote health with sound advice:
 - Authoritative
 - Evidence (science) based
 - Comprehensible
- Optimal nutrient intake (improved functionality):
 - Muscle strength, immune function, intellectual ability
 - Difficult to substantiate with population-based controlled studies
- Define goal of public health interest (nutrient or food[s]):
 - Overweight / obesity (excess energy and exercise)
 - Fractures (calcium, vitamin D)
 - Anemia (iron)
- Alternative nutritional therapies (supplements):
 - ① Work
 - ② Do not work
 - ③ Efficacy is uncertain

Information needed to form guidelines

- Current consumption of foods
- Current incidence, prevalence, and trends of diet-related public health problems (TMA)
- Links between diet and nutrients and disease/conditions (leverage with national expert panels – military specific)
- Are dietary interventions feasible?



Information to form guidelines (cont)

- Consider:
 - Cost (economics)
 - Current consumption patterns
 - Food availability
 - Consumer preferences (taste, sustainability of the diet)
 - Purpose (reset, treatment)

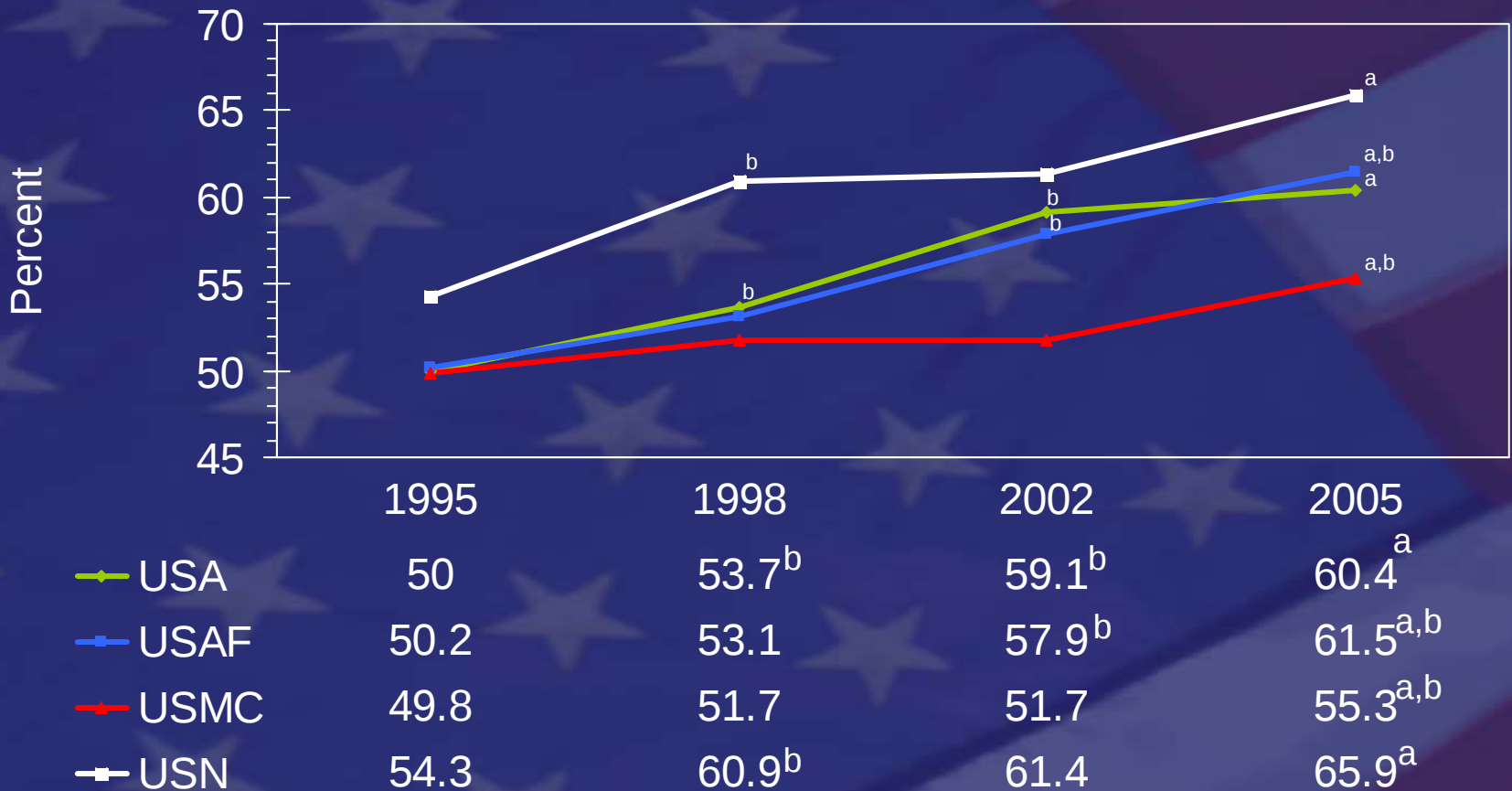


Nutrition monitoring

- National Nutrition Monitoring and Related Research Act of 1990, Public Law 101-445:
 - What We Eat In America – NHANES
 - Health and nutritional status of Americans (all ages)
 - Complex, multistaged, stratified probability sampling (oversampling of some groups required)
 - ~ 5000 persons per year
 - Monitor health trends – obesity (risk factors / comorbidities)
 - Military excluded
- ➡ Establish a DoD-NHANES program



Trends in overweight (BMI $\geq$ 25.0) by Service in military personnel ($\geq$ 20 yo)

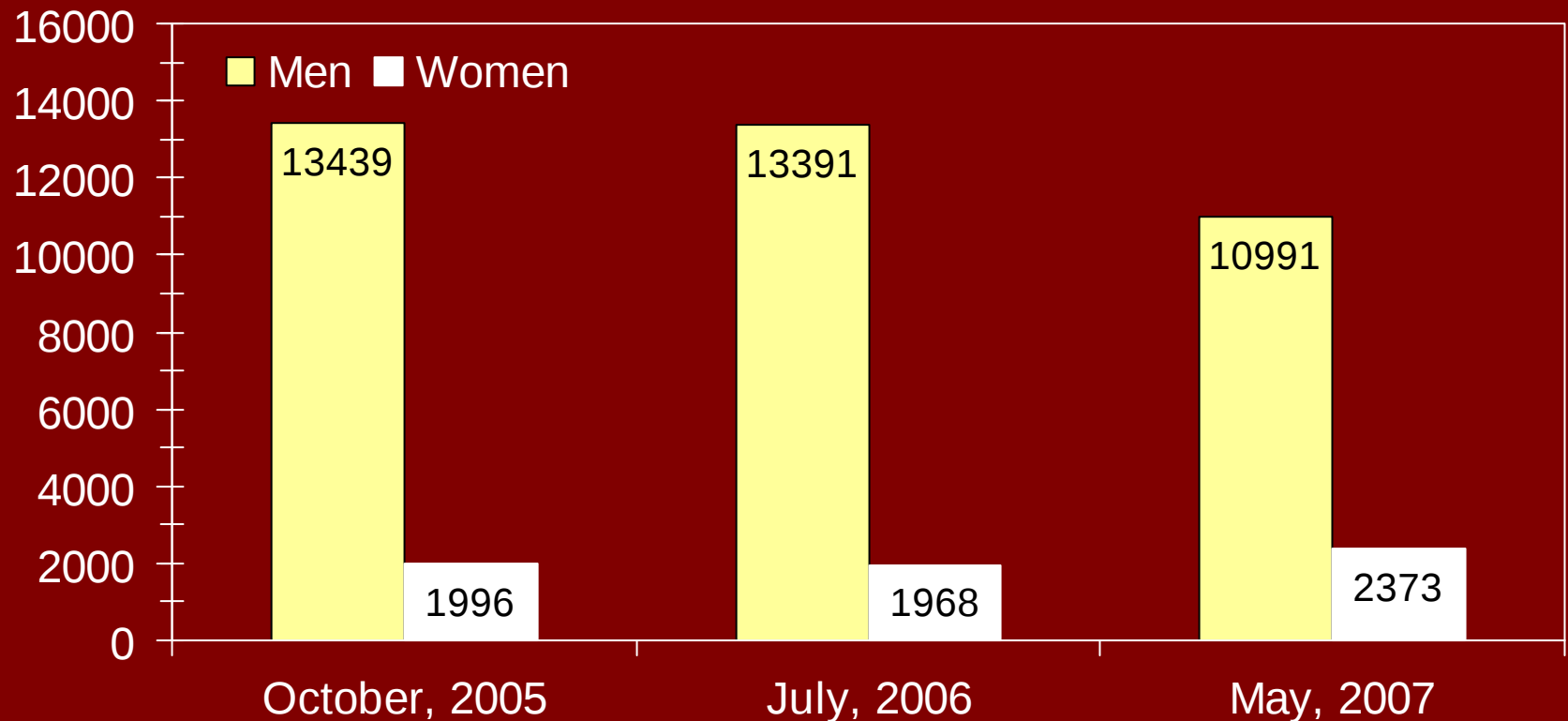


^aGreater than 1995 prevalence.

^bGreater than previous year prevalence.

NHANES 2003-2004: 66.2%

Soldiers* on the Army Weight Control Program (AWCP)

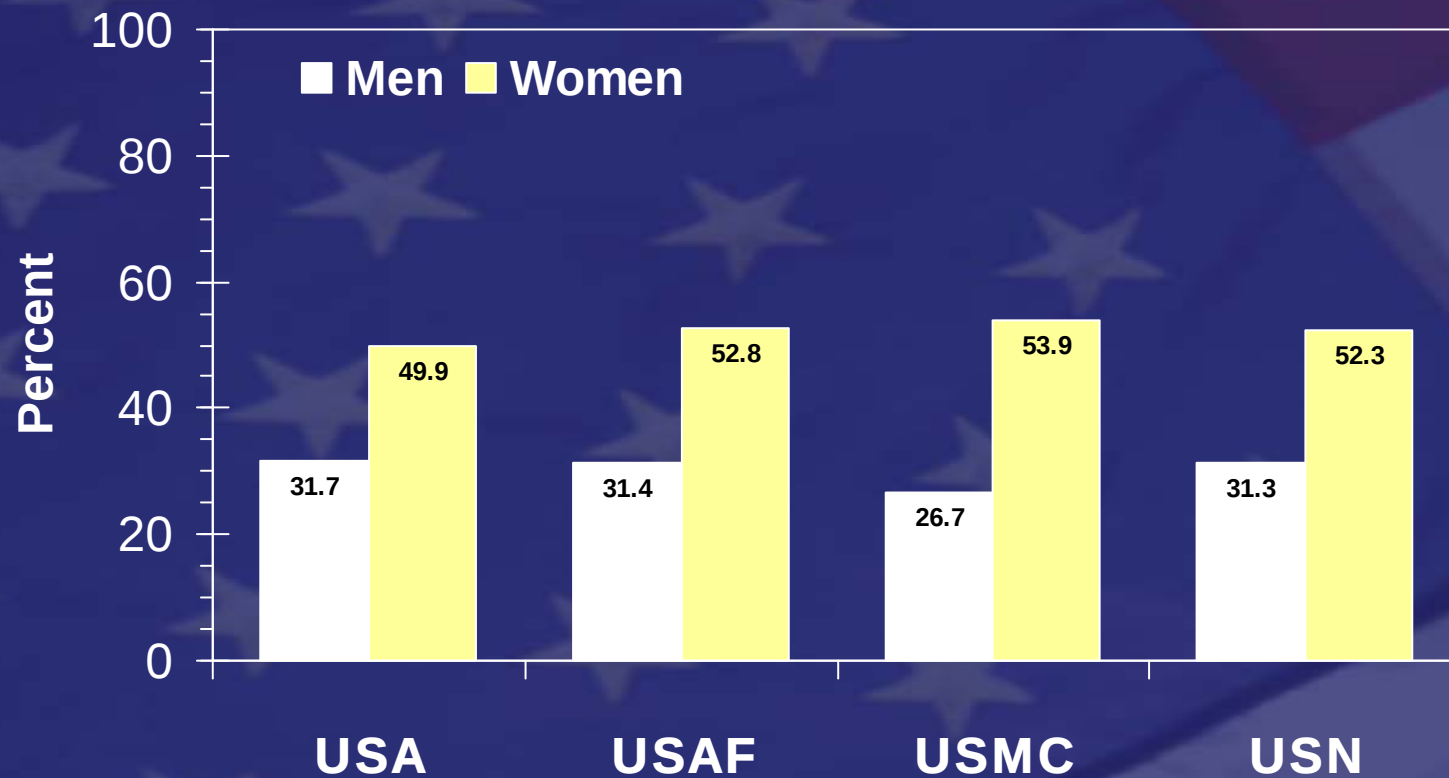


Total	486,262	495,014	502,302
% of Force	3.2%	3.1%	2.7%
% of AWCP	87.1 / 12.9%	87.2 / 12.8%	82.2 / 17.8%

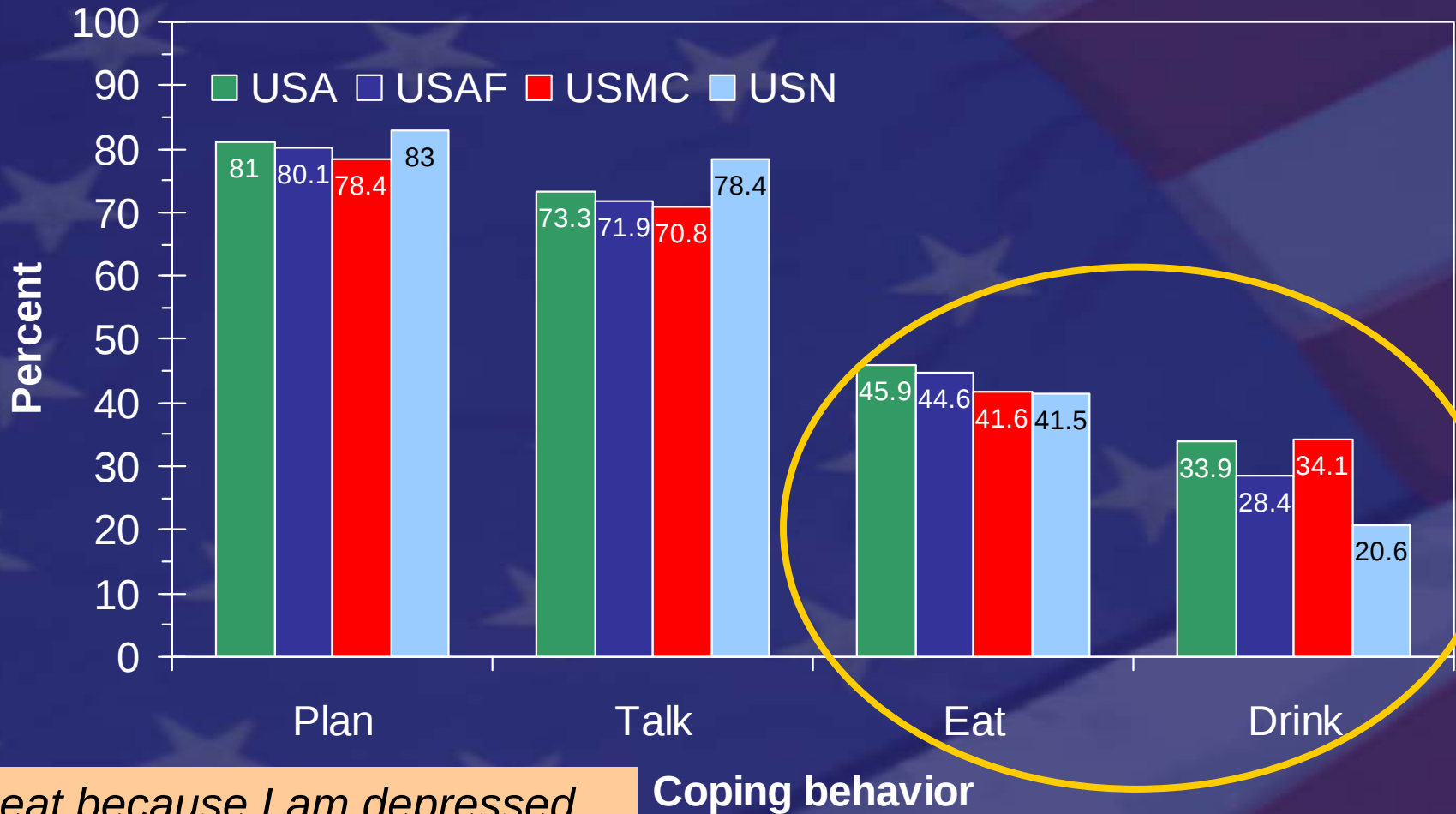
*Includes USAR/ARNG soldiers on active duty in support of the war.



Stress as reason for weight gain



Behaviors for coping with stress (2005)



*"I eat because I am depressed...
I'm depressed because I eat."*
Anonymous

Current, Relevant & Scientifically Valid



- ✓ Leverage DoD program with U.S. expert panels
- ✓ Institute a DoD-focused food guide pyramid
- ✓ Establish DoD NHANES program
- ✓ Near term success (overweight)



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