

# Use of Dietary Supplements in Elite U.S. Army Populations

Harris Lieberman,  
LTC Gaston Bathalon, LTC Joseph Creedon,  
MAJ Maria Bovill, Susan McGraw

U.S. Army Research Institute of  
Environmental Medicine  
Natick, MA 01760

# Populations Assessed

## U.S. Army Rangers (April 1999)

- Males,  $n=768$
- Elite Volunteer Unit
- Young, *aged*  $23.6 \pm 4.3$  yrs
- New to Army, Low Pay
- Extremely High Physical Job Demands





U.S. Army Rangers boarding aircraft prior to Afghanistan jump

# Populations Assessed (continued)

## Special Forces (July 2000)

- Males,  $n=152$
- Elite Volunteers
- Mature, *aged*  $31.3 \pm 6.1$  yrs
- Substantial Army Experience
- High Physical and Mental Job Demands

U.S. Special Forces –  
Khwaja Bahuaddin, Afghanistan



U.S. Special Forces – Northern Afghanistan

# Populations Assessed (continued)

## Army War College (ongoing since 1999)

- Middle-to-upper management
- Mature\*
  - *males: n=284, aged 44.0 ± 3.7 yrs*
  - *females: n=31, aged 44.7 ± 5.1 yrs*
- Moderate Physical Demands
- High Mental Demands

*\* Results presented separately for males and females.*

# Occupational Requirements

- Maintenance of fitness and weight standards are critical for professional advancement of soldiers.
- Failure to meet standards eventually leads to separation from the service.
  - in some units, advancement depends on maintaining a very high fitness level
- Individual annual performance ratings reflect physical fitness as measured by a standardized test.



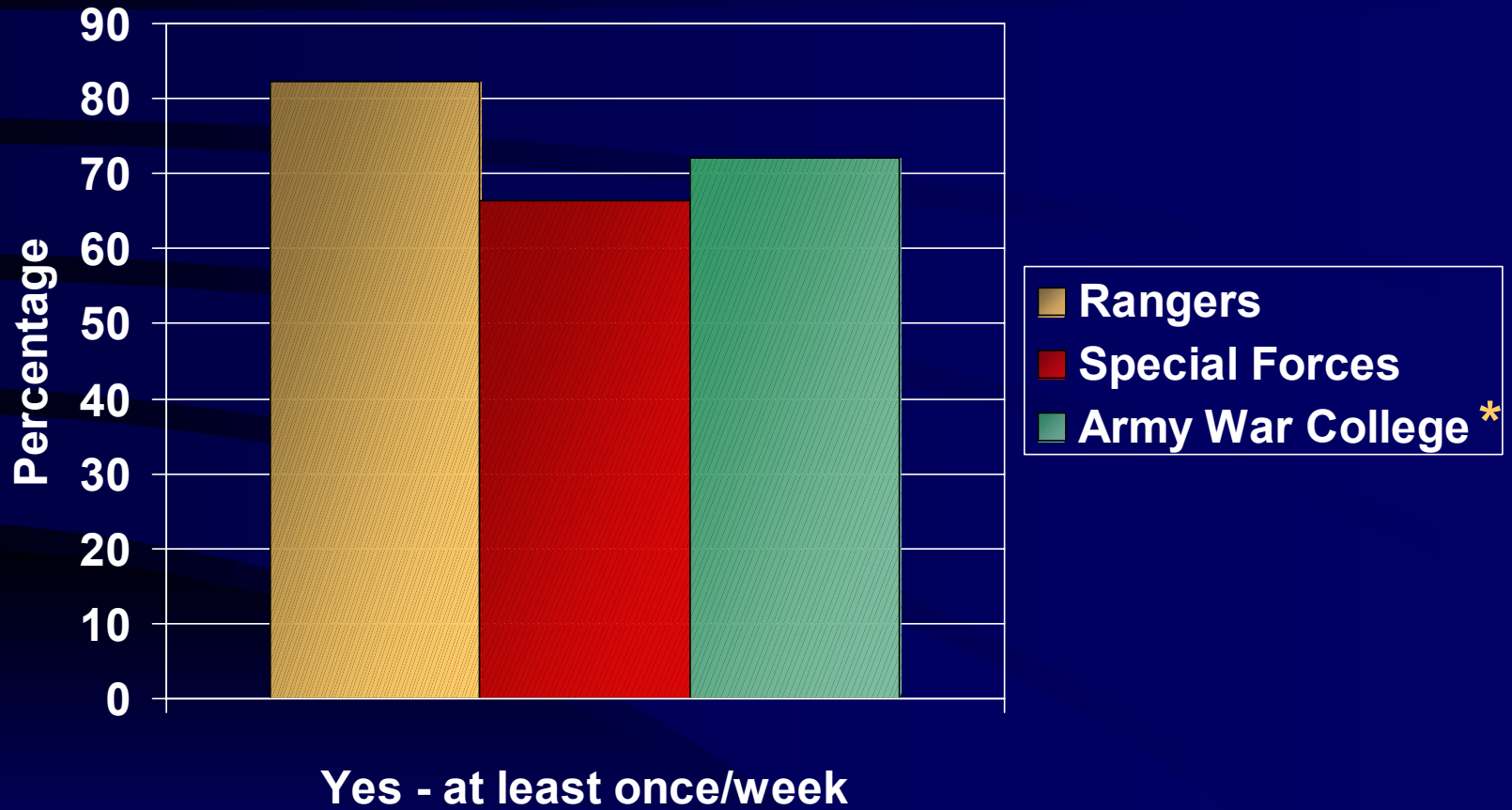


*U.S. Marines – Northern Afghanistan*

# Proportion Engaging in Physical Exercise 3 or more Times/week

	Rangers	Special Forces	Army War College (Males)
Aerobic Exercise	98.4 %	96.0 %	74.5 %
Strength Training	45.3 %	35.8 %	33.6 %

# Regular Use of Supplements



\* Males Only

# Rangers

## Top 10 Supplements Used\*

*(n=768, aged 23.6 ± 4.3 yrs, Males)*

1.	Carbo-Electrolyte Drinks	70 %
2.	Multivitamins	28 %
3.	Creatine	23 %
4.	Protein/Amino Acids	23 %
5.	Sports Bars	22 %

*\* Asked for use of supplements in the past three months.*

# Rangers

## Top 10 Supplements Used (*n=768, aged 23.6 ± 4.3 yrs, Males*)

6.	Antioxidants	20 %
7.	Herbs (Ginseng & Garlic,etc)	13 %
8.	Androstenedione	8 %
9.	Vitamin C	7 %*
10.	Vitamin A	4 %*

*\* From Ranger I Survey*

# Special Forces

## Top 10 Supplements Used

*(n=152, aged 31.3 ± 6.1 yrs, Males)*

1.	Sports Drink	36 %
2.	Multivitamin	32 %
3.	Protein Powder	16 %
4.	Creatine	16 %
5.	Sports Bar	15 %

# Special Forces

## Top 10 Supplements Used

*(n=152, aged 31.3 ± 6.1 yrs, Males)*

6.	Vitamin C	11 %
7.	Meal replacement drinks	9 %
8.	Vitamin E	7 %
9.	Antioxidants	6 %
10.	Androstenedione	6 %

# Special Forces

## 2<sup>nd</sup> Tier Supplements Used

*(n=152, aged 31.3 ± 6.1 yrs, Males)*

11. Ginseng	5 %
12. Vitamin A	5 %
13. B-Complex	5 %
14. Ephedra/Ma Huang	5 %
15. Garlic	3 %
16. Potassium	3 %
17. Caffeine	3 %
18. Sports Gel	2 %



# Army War College - MALE

## Top 10 Supplements Used

*(n=284, aged 44.0 ± 3.7 yrs)*

1.	Multivitamin	42 %
2.	Vitamin E	25 %
3.	Vitamin C	19 %
4.	Sports Drinks	11 %
5.	Antioxidants	9 %

# Army War College - MALE

## Top 10 Supplements Used

*(n=284, aged 44.0 ± 3.7 yrs)*

6.	B-Complex	7 %
7.	Garlic	7 %
8.	Beta-carotene	6 %
9.	Ginkgo biloba	6 %
10.	Calcium	6 %

# Army War College - FEMALE

## Top 10 Supplements Used

*(n=31, aged 44.7 ± 5.1 yrs)*

1.	Multivitamin	53 %
2.	Calcium	39 %
3.	Vitamin E	36 %
4.	Vitamin C	33 %
5.	Antioxidants	23 %

*Female Regular use of supplements = 82%*

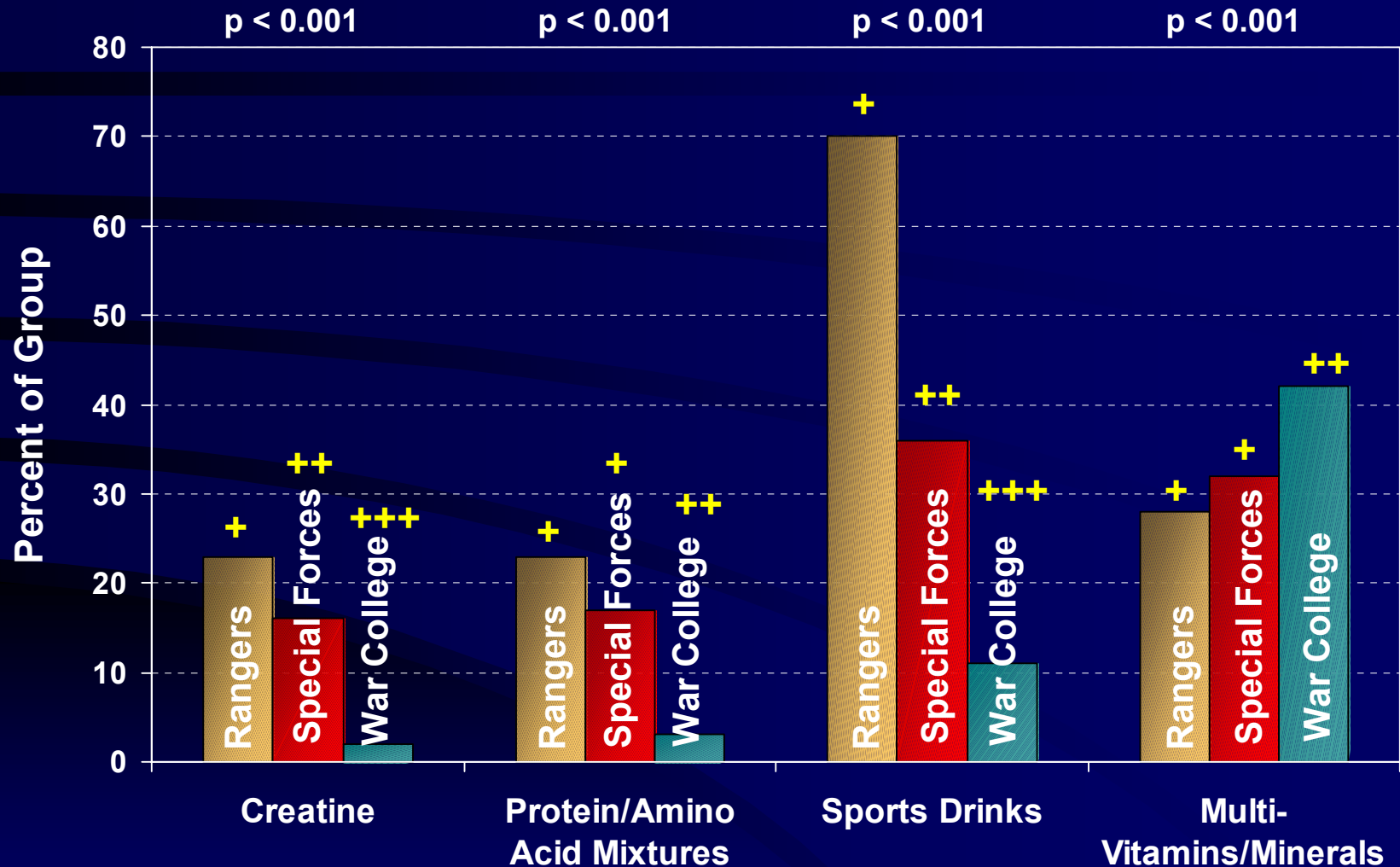
# Army War College - FEMALE

## Top 10 Supplements Used

*(n=31, aged 44.7 ± 5.1 yrs)*

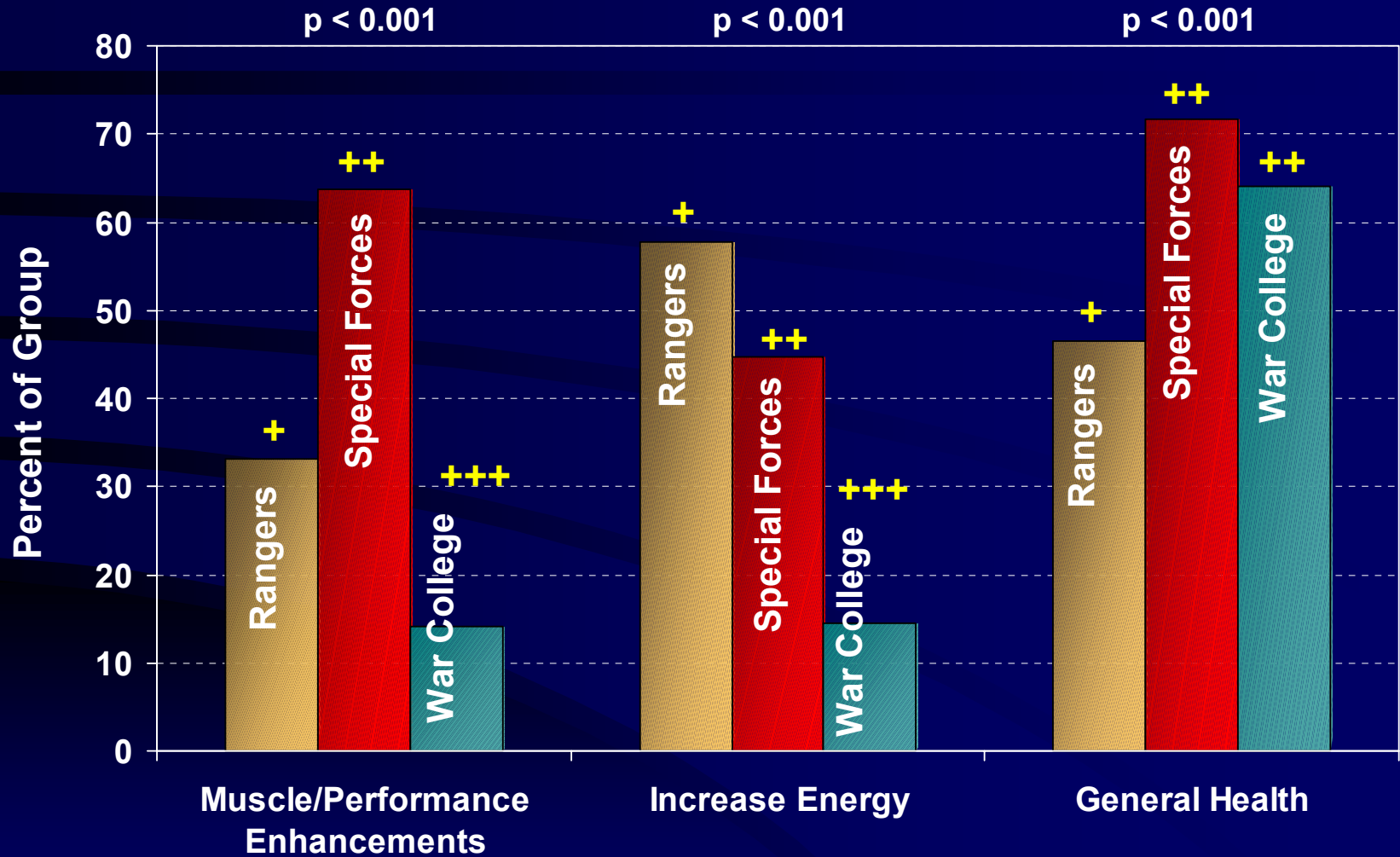
6.	Beta-carotene	19 %
7.	Magnesium	15 %
8.	Folate	15 %
9.	B-Complex	14 %
10.	B6 (pyridoxine)	12 %

# Supplement Use Across Groups (Males)



*Bars with different symbols are statistically different*

# Reasons for Supplement Use



*Bars with different symbols are statistically different*

# CONCLUSIONS

1. Elite Army populations consume high levels of nutritional supplements
2. Different Elite Army populations have different patterns of supplement use depending on perceived need
3. Editorial comment: Research to justify this level of supplement use is lacking

# Publications and Published Abstracts

Bathalon, G.P., McGraw, S.M., Hennessy, L.D., Barko, W.F., Creedon, J.F. and Lieberman, H.R. (2000) Comparison of Reported Nutritional Supplement Intake in Two Army Populations. Supplement to the Journal American Dietary Association, 100(1): A102.

Bovill, M.E., McGraw, S.M., Tharion, W.J. and Lieberman, H.R. (2001) Supplement Use and Nutrition Knowledge in a Special Forces Unit. FASEB Journal 15(5): A999.

Lieberman, H.R. (2001) The Effects of Ginseng, Ephedrine and Caffeine on Cognitive Performance, Mood and Energy. Nutrition Reviews, 59(4): 91-102.

McGraw, S.M., Tharion, W.J. and Lieberman, H.R. (2000) Use of Nutritional Supplements by U.S. Army Rangers. FASEB Journal 14(4): A742.



THE END