

THE EFFECT OF COMBAT RATIONS ON BOWEL HABITS IN A COMBAT ENVIRONMENT

Scott R Steele, M.D.*, Philip S. Mullenix, M.D.*, Matthew J. Martin, M.D.*, Ronald J. Place, M.D.†

General Surgery Service*, Department of Surgery, Madigan Army Medical Center, Fort Lewis, WA, and Landstuhl Regional Medical Center†, Landstuhl, Germany.

Background: Combat rations have long been rumored to affect soldier's bowel habits by causing increased constipation. This can create morbidity with resultant decreased or even loss of combat performance. In a uniform patient population exposed to combat conditions, we sought to determine the effect of combat rations on bowel habits.

Methods: Over a 4-month period from Dec 2001 through March 2002, 118 patients were followed prospectively using a bowel habit diary. Patients were evaluated by age, race, gender, past medical history, ration type/amount, and medications including fiber use. Patients were then screened for changes in diarrhea and constipation. Multivariate analysis was performed to determine independent predictors for changing habits.

Results: There were 108 males and 10 females. Mean follow-up was 42.6 ± 23.1 days. All groups were comparable in demographics, time in the combat zone, and fluid/fiber intake ($p=NS$). No change in habits were found in 58%, 19% had an increase in constipation, 13% had an increase in diarrhea, and 10% had increase in both diarrhea and constipation, while 8% had improvements.

	Group 1 No Change	Group 2 Increased C	Group 3 Increased D	Group 4 Increased D&C	Group 5 Improved
n (%)	59 (50)	22 (19)	15 (13)	12 (10)	10 (8)
Mean Pre-Combat BM (#/day)	1.04	1.05	1.40	0.96	1.60
Fluid Intake (L/day)	2.86	3.05	2.60	2.83	2.90
Fiber Intake (g/day)	10.3	9.1	13.2	13.2	11.8
Workdays Lost	0	0	0	0	0

D-diarrhea; C-constipation; BM-bowel movement

Conclusion: The combat ration and environment have variable effects on bowel habits, with no loss in workdays. Combat rations trended toward constipation but uncontrollable environmental changes make cause and effect relationships difficult to determine.