

**TITLE: National Health and Nutrition Examination Survey (NHANES):
Association of Usual Stool Consistency and Frequency with Fecal Incontinence**

AUTHORS (LAST NAME, FIRST NAME): Whitehead, William E.¹

INSTITUTIONS (ALL): 1. for the Pelvic Floor Disorders Network, University of North Carolina at Chapel Hill, Chapel Hill , NC, USA.

ABSTRACT BODY: Background: Epidemiological studies of fecal incontinence (FI) show a consistent association with self-reported diarrhea and an inconsistent association with self-reported constipation. However, subjects differ in what they mean by diarrhea and constipation. **Aim:** Determine whether usual stool consistency and stool frequency are associated with FI in a national population based sample. **Methods:** Subjects in the NHANES survey for 2005-2006 were asked to rate their usual or most common stool type using the 7 descriptions from the Bristol Stool Scale (Gut 1994; 35:1455). We pooled ratings 1 and 2 (hard and lumpy), ratings 3-5 (normal consistencies), and ratings 6 and 7 (mushy and watery). Subjects were also asked how often they usually have bowel movements, and responses were merged into 3 ranges: <3/week, 3-21/week, and >21/week. FI was defined as any involuntary loss of mucus, liquid, or solid stool during the last 30 days. NHANES over-samples minorities and the elderly for increased precision; it provides weights for each subject's data to obtain estimates for the national population. Subjects were 2079 males and 2229 females aged 20 or older. Prevalences (in percent) for the national population are estimated and their 95% confidence intervals (CI) are given. **Results:** See table. For both females and males, having stools that are typically loose or watery or stools that are more frequent than 21/week was associated with a 3-4 fold increase in the rate of FI. Neither typically hard/lumpy stools nor infrequent stools were associated with significant increases in FI for males or females. **Conclusions:** Having typically loose/watery stools and/or stools more than 3 times per day is significantly associated with the presence of FI and may be a target for preventing or treating FI. [Supported by grants from the National Institute of Child Health and Human Development and the NIH Office of Research on Women's Health (U01 HD41249, U10 HD41250, U10 HD41261, U10 HD41267, U10 HD54136, U10 HD54214, U10 HD54215, and U10 HD54241)]

Prevalence of FI as a function of stool consistency					
Female (p=0.0006)			Male (p=0.021)		
Hard	Normal	Watery	Hard	Normal	Watery
8.2%	7.7%	22.6%	15.3%	6.4%	28.9%
[3.5-13.0]	[5.8-9.6]	[17.7-27.5]	[3.7-26.9]	[5.2-7.6]	[12.2-45.7]

Prevalence of FI as a function of stool frequency					
Female (p=0.082)			Male (p=0.075)		
< 3/wk	3-21/wk	>21/wk	< 3/wk	3-21/wk	> 21/wk
11.2%	8.1%	35.4%	13.0%	7.1%	30.7%
[2.7 – 19.8]	[6.4 – 9.9]	[16.1 – 54.7]	[4.9-21.0]	[5.7-8.7]	[11.6-49.8]