

When is the Best Time for Sampling Faeces for Calprotectin Analysis?

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Faecal calprotectin concentration (fCAL) is now regularly used for monitoring inflammatory bowel diseases (IBD) such as Crohn's disease (CD) and ulcerative colitis (UC). However, since the symptoms of these diseases include frequent bowel movements, the question remains, when is the best time to collect a faecal sample for calprotectin analysis?

Recent studies have investigated the within-patient variation in fCAL across multiple samples collected at various times.

Lasson et al.¹ studied 287 faecal samples from 18 patients with active UC who collected two faecal samples at each bowel movement over two days. Patients recorded the time of defecation, the faecal consistency and the presence of visible blood in the faeces.

The variability in the concentrations of fCAL during each day and between two consecutive days was assessed, using the BÜHLMANN fCAL[®] ELISA.

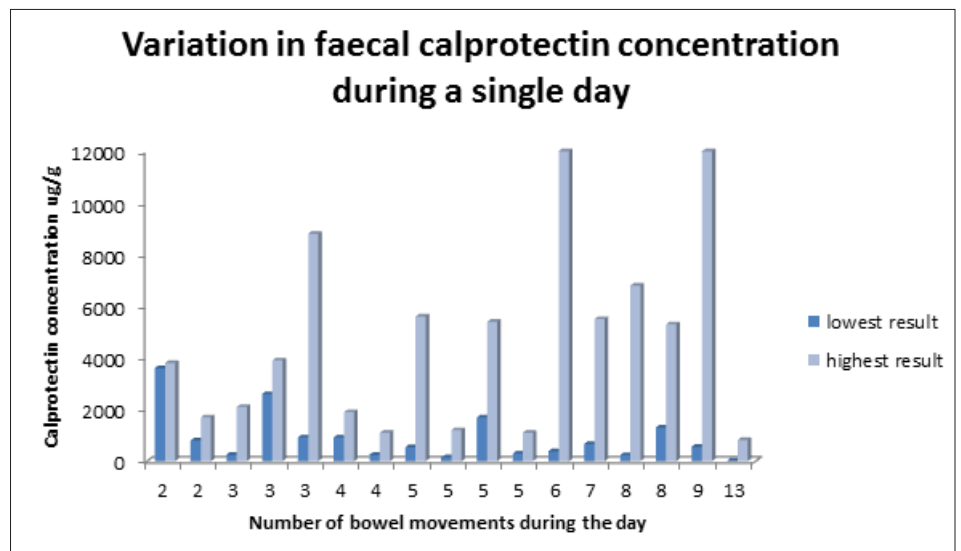
The fCAL correlated statistically significantly with both the time between bowel movements (median $r = 0.5$, $p = 0.013$) and the faecal consistency (median $r = 0.68$; $p = 0.01$). Thus, the longer the time between bowel movements, and the looser the faecal consistency, the higher the fCAL. However, the correlation between the presence of blood and the fCAL did not reach statistical significance ($p = 0.057$).

The median individual coefficient of variation in samples collected during the same day was 52%. Thus, the study found that the variability of fCAL in samples collected during a single day was considerable and in some cases even of clinical importance [Figure 1].

The data indicate that patients should preferably collect faecal samples at the first defecation of the day and to enable comparison over time, should take them at approximately the same time of day.

Regarding sample stability, after three days at room temperature, fCAL were unchanged but, after seven days, a significant ($p < 0.01$) decrease was found (mean 28%; 95% CI 0.10-0.47). Storage of faecal samples at room temperature for more than three days is not advisable.

Interestingly this study also commented on how patients felt about the sampling procedure itself and that the use of currently available, modern simple to use, hygienic specimen collection devices should be recommended.



1. Lasson A. et al. The intra-individual variability of faecal calprotectin: A prospective study in patients with active ulcerative colitis. *J Crohns Colitis* 2015;9 (1):26-32.

Figure 1. Adapted from Lasson et al.¹ In contrast, the correlation between the fCAL in two randomly collected samples from the same bowel movement was very good. Since this is consistent with results reported in previous studies, the use of small, random, patient-collected faecal samples is supported for clinical practice.

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