

Filthy habits: Medieval monks were more likely to have worms than ordinary people

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Credit: AI-generated image ([disclaimer](#))

In the middle ages, monks, nuns, and friars had it relatively easy. They lived quiet lives within friaries and monastic complexes, reading manuscripts, praying, and tending to gardens in which they grew their own food. They even enjoyed access to toilet facilities, while many of the peasantry at the time lacked even the most basic sanitation.

You'd therefore expect medieval friars to be less exposed to parasites spread by fecal contamination than the townsfolk who lived around them. But [our study](#), conducted on the remains of 44 medieval citizens of Cambridge, has found the exact opposite. It turns out that the local Augustinian friars were nearly twice as likely as the city's general population to be infected by one group of parasites: intestinal [worms](#).

Our findings suggest that something about the lifestyle of friars in medieval England brought them into regular contact with feces, despite their superior facilities. Unfortunately, it's likely that the holy men's horticultural pursuits undermined the sanitary benefits bestowed upon them by life in the friary.

In [medieval times](#), [medical practitioners](#) believed intestinal worms developed from [an excess of phlegm](#). To treat an infection, books preserved from the period prescribed the consumption of wormwood, or the drinking of a solution containing powdered moles. This lack of medical understanding demonstrates why many people lived with parasites and other conditions in the [middle ages](#).

[Previous studies](#) have looked at the types of intestinal parasites present in medieval Europe by analyzing the sediment from cesspits and latrines, which would have been used by many different people over time.

More recently, researchers have started to assess what proportion of a population may have been infected by intestinal worms. They measured this by sampling the sediment from the pelvis of burials, where the intestines and worms would have been located during life. [Their results](#) suggest that at least a quarter to a third of medieval people had intestinal worms at the time of their death.

Identifying remains

Until now, no one has attempted to compare how common parasites might have been in different groups of people living different lifestyles. You'd expect that those with different diets, jobs and housing might experience different levels of exposure to parasites such as worms.

But it has proven difficult to discern medieval people's lifestyles from their uncovered remains. Most medieval people were buried in a communal parish cemetery, naked and in a shroud. They had no tomb stone or any other evidence to tell us what lifestyle they led, or what type of house they had lived in.

One group of medieval people who were buried in their own, distinct cemeteries were the monks and nuns living within monastic orders. Since there are often good records for the lifestyle led by these groups, we can compare studies on their remains against studies of the general population at the time.

Nevertheless, not all those buried in the cemetery of a monastery or nunnery had actually lived there. Wealthy people from the same town could pay to be buried alongside the religious, as they believed it would increase their chance of their souls passing swiftly to heaven. Until recently, the challenge has been how to tell these two groups apart.



Medieval people were largely buried without identifying evidence. Cambridge Archaeological Unit, Author provided

Finding the friars

When archaeologists excavated the cemetery of the Augustinian friars in Cambridge, many of the burials were noted to have belt buckles positioned over the front of their pelvis. It became clear that the friars had been buried in their habits and belts, not naked in a shroud as were the general populations. These belt buckles [enabled archaeologists](#) to

determine which burials were friars, and which were wealthy lay people from the town.

Our study used microscopy to detect the eggs of [intestinal worms](#) in the pelvic sediment of 19 Augustinian friars with belt buckles. We compared them with 25 individuals buried in the nearby parish cemetery of [All Saints by the Castle](#), where ordinary citizens would have been laid to rest.

We found that both roundworm and whipworm infected the medieval population of Cambridge, but roundworm was more common. Adult roundworms are about 30cm long, and whipworms are about 5cm long. Surprisingly, we found that 58% of Augustinian friars were infected, but only 32% from the parish cemetery were. This difference is statistically significant.

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We had expected the friars to have a lower prevalence of infection than the general population. Both roundworm and whipworm are spread by the fecal contamination of food and drink. In other words, their presence indicates a failure of sanitation.

[Augustinian friaries](#) often had purpose-built latrines and hand-washing facilities, and they enjoyed more wealth and luxury than the poor peasants living in the town. So why should the friars be more likely to suffer from worms?

One plausible explanation is how they may have fertilized the crops they grew in their vegetable garden. It was [standard practice](#) in the medieval period for monasteries to [grow plants](#) for their own consumption, and it was also standard to fertilize crops [with feces](#).

At that time, people were just as happy to fertilize crops with human feces dug out from cesspits as they were to use animal dung. It's possible that the friars were reinfected by parasites when the feces from their own latrines was emptied out and used to fertilize their gardens.

So while medieval monks, nuns, and friars were onto something by separating feces from food, those early sanitary habits may have been somewhat negated by what they would do next with their collected excrement.

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