

# Probiotics and *Helicobacter pylori*

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*Helicobacter pylori* is one of the most common pathogens in the world. It has infected humans for at least 3000 years, and traces of it have been found in the feces of mummified human remains from the South American Andes.<sup>1</sup> It was first recognized in the late nineteenth century by Italian pathologists who found spiral bacteria in the stomach of dogs.<sup>2</sup> In the early twentieth century, spiral bacteria were found in the stomach of humans.<sup>3</sup> These bacteria did not grow in culture, were thought to be an oral contaminant, and were mostly forgotten until the 1980s. Barry Marshall and J. Robin Warren studied these spiral or curved bacteria and later received the 2005 Nobel Prize in Medicine for their early descriptions of *H. pylori* and its association with human diseases. They first published their discoveries on curved bacilli in the stomach in *The Lancet* in 1984.<sup>4</sup> In this early case series, they reported on 100 consecutive patients undergoing gastroscopy in Perth, Australia. Spiral or curved bacilli were found in 58% of patients and in 87% of patients with an ulcer. They were only able to culture bacilli in 11 subjects, and they described a Gram-negative microaerophilic species related to *Campylobacter*. They also found that the bacilli was related to the histologic finding of gastritis, and bacilli were found in 30 out of 40 (75%) patients with gastritis, but only 1 out of 29 (3%) patients without gastritis. At the time, colonization with *C. pyloridis* was not associated with any clinical symptoms, and it was not clear if the bacteria were the cause of peptic ulcer or gastritis.

In a much publicized incident, Dr Marshall deliberately inoculated himself with *H. pylori* and then developed new gastritis and severe symptoms that resolved after eradication therapy. This experiment helped to solidify the causative role that *H. pylori* plays in gastritis and peptic ulcer disease. It has since been confirmed that *H. pylori* is a causative agent in chronic gastritis and peptic ulcer disease<sup>5,6</sup> and is present in 60% to 80% of gastric and 90% to 95% of duodenal ulcers.<sup>7</sup> Eradication of *H. pylori* has been proven effective at decreasing recurrence of peptic ulcers in many instances.<sup>8,9</sup> *H. pylori* is also known to be a causative agent in the development of gastric cancer, as shown in epidemiologic studies,<sup>10-12</sup> and was first named as a carcinogen by a panel of international cancer experts in 1994.<sup>13</sup> Primary prevention trials aimed at decreasing rates of gastric cancer in *H. pylori*-infected individuals at high risk have been mixed.<sup>14,15</sup>