To understand how the proportion of these two bacteria may influence weight, the researchers performed biochemical and genomic analyses of the gut microbes in obese and lean mice. They found that the microbial genomes of the bacteria found in obese mice were rich in genes encoding enzymes that break down otherwise indigestible food. “Our results indicate that the obese microbiome has an increased capacity to harvest energy from the diet,” the authors wrote.

They also found that this trait could be transferred, as germ-free mice receiving microbes from the guts of obese mice experienced a significantly greater increase in total body fat (without any increase in food consumption) than those receiving microbes from lean mice. “These results identify the gut microbiota as an additional contributing factor to the pathophysiology of obesity,” the authors concluded. Therefore, gut microbial genomes might be considered as a set of genetic factors that, together with the host genotype and lifestyle, contribute to the development of obesity.

While the findings could influence how researchers and clinicians view the causes of obesity and suggest that manipulation of the gut microbial environment may offer an approach to treating obesity, many questions remain. For example, it is unclear whether microbial influences have a meaningful impact on body weight in the human population and are contributing to the current rise in the incidence of obesity. In obese mice, the effect of increased caloric intake and reduced caloric expenditure is many times larger than the small difference in extraction that could be produced by differences in the microbiota, wrote Matej Bajzer and Randy Seeley, PhD, of the University of Cincinnati, in Ohio, in an accompanying New and Views article (Bajzer M and Seeley R. Nature. 2006;444:1009-1010). 

### Milk Shows Potential as CT Contrast Agent

**Mike Mitka**

CHICAGO—Radiologists looking to replace chalky-tasting barium-based contrast agents used for some computed tomography (CT) imaging may need to look no further than their dairy case. It appears whole milk may be an adequate substitute.

Researchers from St Luke’s-Roosevelt Hospital in New York City said their preliminary findings from an ongoing study found milk achieved similar bowel distension and enhancement as a commonly used barium-based contrast agent, VoLumen. Their findings were presented at the Scientific Assembly of the Radiological Society of North America meeting, held here in November.

CT imaging of the gastrointestinal tract is a diagnostic tool for evaluating patients complaining of abdominal pain. When CT is used for visualization of the small intestinal wall, it requires a negative oral contrast agent, such as VoLumen. But the group’s early findings suggest milk may be a practical substitute for VoLumen, according to Lisa R. Shah-Patel, MD, a radiological resident at St Luke’s-Roosevelt Hospital.

A negative oral contrast agent allows better visualization of the bowel wall and clearer delineation between the bowel cavity and soft tissue. Using whole milk (not skim or reduced fat milk because the fat content makes a difference), the milk-filled intestinal cavity appears dark while the intestinal wall appears brighter.

This contrast effect helps radiologists see evidence of disease associated with the bowel wall.

The investigators studied 62 consecutive adult patients receiving VoLumen (who drank 900 mL 30 minutes before the CT test plus 300 mL immediately prior to the test) and 117 consecutive patients receiving milk (who drank 400 mL to 600 mL 1 hour before the test plus 200 mL to 400 mL 20 minutes prior to imaging). About 42% of the 57 VoLumen patients who subsequently completed a questionnaire experienced abdominal discomfort such as cramps, diarrhea, and nausea compared with only 23% of the 117 patients given milk. Of those taking the VoLumen, 40% said they would have preferred milk and 85% of the milk drinkers said they would select it again. The researchers hope to ultimately enroll 130 patients in each arm of the trial.

The researchers said that milk may be a good contrast agent for children, who tend to balk at drinking barium-based drinks. They also said using milk (which costs less than $1.50 per patient) rather than VoLumen (costing about $18 per patient) as a contrast agent could have an impact on health care costs. Of the 30 to 40 million CT scans performed annually in the United States, about 30% are for abdominal conditions where milk could be used.

As for effectiveness, the researchers said both contrast agents worked similarly, although they did note a trend suggesting better distension and visualization of the bowel wall with VoLumen compared with milk. Still, they argued, milk may have a place in CT imaging because of patient acceptance, fewer abdominal symptoms, and lower cost.