

Study: Digging in beach sand increases risk of gastrointestinal illness

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(PhysOrg.com) -- Children and adults who build castles and dig in the sand at the beach are at greater risk of developing gastrointestinal diseases and diarrhea than people who only walk on the shore or swim in the surf, according to researchers from the University of North Carolina at Chapel Hill and the Environmental Protection Agency.

People who playfully bury their bodies in the sand are at even greater risk, according to the study published online recently in the [American Journal of Epidemiology](#). It also shows children, who are more likely than adults to play with and possibly get sand in their mouths, stand the greatest chance of becoming ill after a day at the beach.

“Beach sand can contain indicators of fecal contamination, but we haven’t understood what that means for people playing in the sand,” said Chris Heaney, Ph.D., a postdoctoral epidemiology student at UNC’s Gillings School of Global Public Health and lead author of the study. “This is one of the first studies to show an association between specific sand contact activities and illnesses.”

The study is based on interviews with more than 27,000 people who visited seven freshwater and marine beaches in the agency’s National Epidemiological and Environmental Assessment of Recreational Water Study (NEEAR) between 2003 and 2005 as well as in 2007. All beaches in the study had sewage treatment plant discharges within seven miles, although the source of sand pollution was unknown and could have included urban runoff as well as wild and domestic animal

contamination. Water quality at the beaches was within acceptable limits, Heaney said.

“We have known for some time that swimming in waters polluted by fecal contamination can result in illness, but few previous studies have focused on sand,” said Tim Wade, Ph.D., an EPA epidemiologist and the study’s senior author. “People should not be discouraged from enjoying sand at the beach, but should take care to use a hand sanitizer or wash their hands after playing in the sand.”

People were asked about their contact with sand on the day they visited the beach (digging in the sand or whether they were buried in it). Then, 10 to 12 days later, participants were telephoned and asked questions about any health symptoms they had experienced since the visit.

Researchers found evidence of gastrointestinal illnesses, upper respiratory illnesses, rash, eye ailments, earache and infected cuts. Diarrhea and other gastrointestinal illnesses were more common in about 13 percent of people who reported digging in sand, and in about 23 percent of those who reported being buried in sand.

“A lot of people spend time at the beach, especially in the summer,” Heaney said. “And while we found that only a small percentage of people who played at the beach became ill later - less than 10 percent in any age group, for any amount of exposure - it’s important to look at the situation more closely. If we find evidence that shows exposure to [sand](#) really does lead to illness, then we can look for the sources of contamination and minimize it. That will make a day at the beach a little less risky.”

Provided by University of North Carolina at Chapel Hill

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