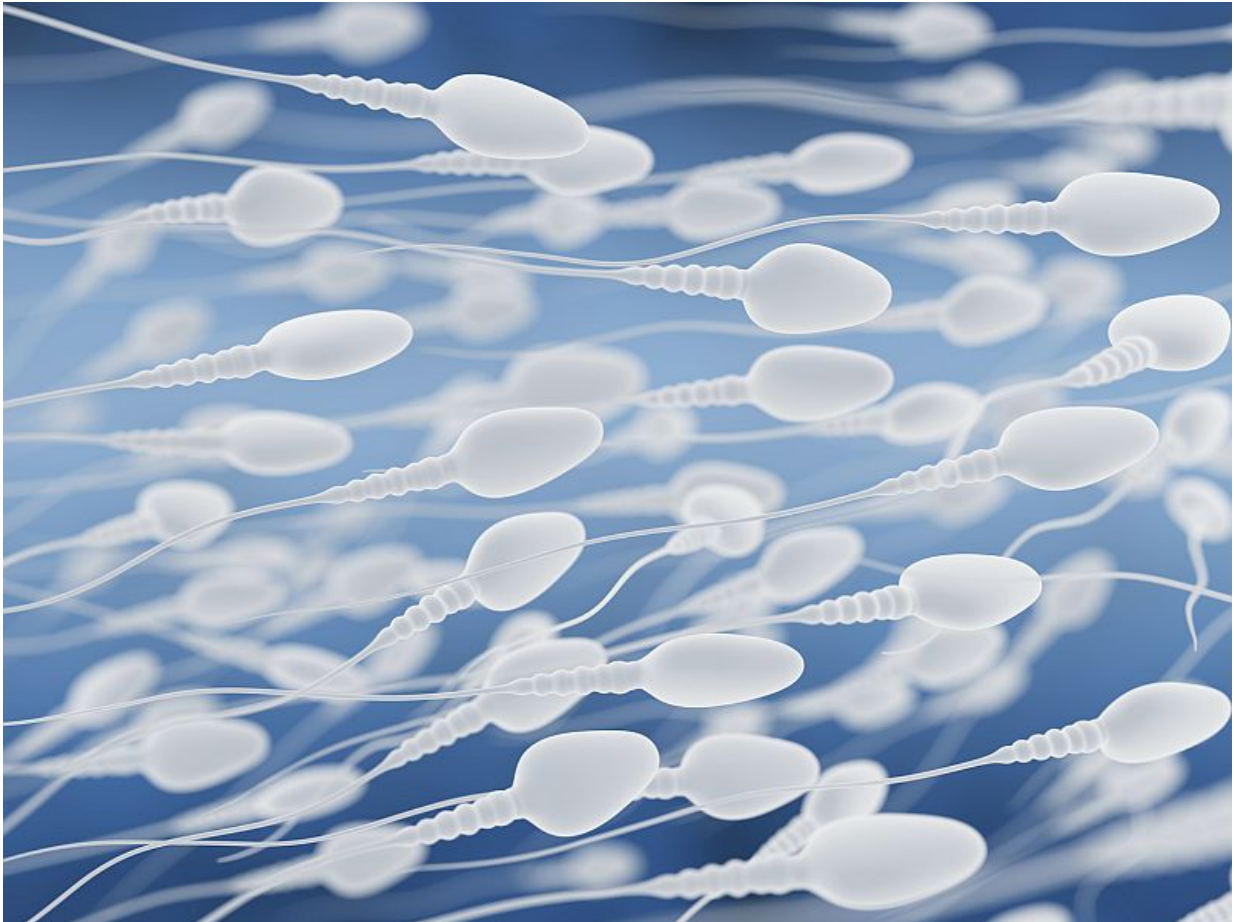


Semen harbors wide range of viruses

September 13 2017, by Dennis Thompson, Healthday Reporter



(HealthDay)—Human semen provides a potential hiding place and breeding ground for a host of dangerous viruses, a new evidence review reports.

The analysis of current medical literature revealed genetic evidence of 27 [infectious viruses](#) found in [semen](#), including dread-inducing agents like Zika, Ebola, Marburg, Lassa fever and chikungunya, along with mumps, Epstein-Barr and chicken pox.

"Clinicians and researchers need to consider the possibility that traditionally non-sexually transmitted viruses can persist in semen, and this therefore raises the possibility of [sexual transmission](#)," said lead researcher Alex Salam. He is a clinical researcher with the University of Oxford's epidemic diseases research group in the United Kingdom.

However, the presence of viruses in semen does not mean that every [virus](#) can be sexually transmitted, the researchers noted.

"Detection means that evidence of viral genetic material or viral protein was found in semen," Salam said. "It's important to note that this does not mean that the virus is viable, i.e., capable of replicating. To prove this, the virus needs to be isolated and grown in cells or animals. For many of the viruses, this test has not been done, so we don't know whether virus is viable or not."

Sex also might not be the most efficient means of transmission for these viruses. Infectious disease expert Dr. Prithvi Tosh noted that scores more cases of Zika have been passed along via mosquito bites than have been transmitted through sexual contact.

People also are much more likely to catch Epstein-Barr virus, which causes mononucleosis, from another person's unprotected sneeze or cough than through sex, said Tosh, an associate professor with the Mayo Clinic in Rochester, Minn.

"In some ways it doesn't matter if it can be spread by semen if it also can be spread by saliva," Tosh added.

For this report, Salam and his colleagues reviewed more than 3,800 scientific articles published on viruses and semen. Their review resulted in a list of the 27 infectious viruses that have been found in human semen.

The list includes obvious culprits such as hepatitis viruses, herpes viruses and HIV. But it also includes a range of other viruses normally known to pass person-to-person via blood, saliva or other means.

For most of the viruses on the list, data regarding the possibility of sexual transmission is lacking, the researchers reported.

"It is unclear to what extent the viruses detected in semen can also be sexually transmitted," Salam said. "The virus needs to be viable, but this alone may not be enough for sexual transmission. For some, we found evidence of sexual transmission, but others we found no evidence one way or the other."

Tosh said that it makes sense that viruses would be able to set up shop in semen. "It's relatively easy for viruses to get in there, but relatively harder for the immune system to clear these viruses," he explained.

The immune system tends to see sperm as foreign to the body, and therefore a potential target of attack, Tosh said.

"To ensure survival of sperm, the testes are immunologic sanctuaries where really the immune system doesn't gain much access to," he explained.

Unfortunately, this sanctuary also can shield dangerous viruses from the immune system. Zika is cleared from the bloodstream in a week, but can persist in semen for months, Tosh noted. And there have been cases of Ebola survivors later reigniting an outbreak because the virus remained

latent and active in their testicles.

Salam pointed out that no studies have found influenza in semen, although the flu virus has been found in the testicles.

"There is no evidence currently that influenza can be sexually transmitted," Salam said.

But the list compiled by Salam and his colleagues did contain other viruses that cause cold and flu-like symptoms, including adenoviruses and cytomegalovirus.

Further research is needed to figure out the potential for sexual transmission of these viruses, said Dr. Amesh Adalja, a senior associate with the Johns Hopkins Center for Health Security in Baltimore.

"It will be essential to understand which of these [viruses](#) have significant, and possibly unrecognized, sexual [transmission](#) components to their epidemiology," Adalja added.

The new review appears in the October issue of the journal *Emerging Infectious Diseases*.

More information: Alex Salam, MSc, clinical researcher, epidemic diseases research group, University of Oxford, U.K.; Pritish Tosh, M.D., associate professor, Mayo Clinic, Rochester, Minn.; Amesh Adalja, M.D., senior associate, Johns Hopkins Center for Health Security, Baltimore, Md.; October 2017, *Emerging Infectious Diseases*

For more on known sexually transmitted infections, visit the [World Health Organization](#).

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Citation: Semen harbors wide range of viruses (2017, September 13) retrieved 5 May 2024 from <https://medicalxpress.com/news/2017-09-semen-harbors-wide-range-viruses.html>

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