

What makes us take risks? Can viruses affect our thinking ability?

After a spate of cases of enterovirus (HEV-68) swept from the midwest states to cover most of the rest of the states, there were several deaths reported, and [cases of neurologic problems](#) associated with the virus cropped-up. How common is it for viruses to impact neurologic function in people, and is it something to be worried about?

Viruses do affect the brain

While it's indeed true that the Enterovirus viral genus (which includes Poliovirus, and Rhinovirus), Herpesvirus, and other viral infections can affect the nervous system (inflammation and damage of [Walgreens 4-23-2012 1-20-29-am](#) the lining tissue of the brain and spine or nerves can result, or damage to the brain tissue itself), it's generally a very limited number of the total viral serotypes which are associated with this effect (*i.e.*, most of these viruses just instigate transient illness which resolves completely). After primary infection, several of these viruses can also remain dormant in ganglia or lymphoid tissue, and can cause repeated illnesses later (think of cold sores, warts, or shingles and how they can reignite).

New [research](#) has identified a virus which infects algae (a chlorovirus) as being found in the throats of humans. The researchers observed "The presence of [the algae-infecting chlorovirus] was associated with a modest but measurable decrease in cognitive functioning." The study was

[Chlorovirus](#) for type unknown
Chlorovirus

conducted in 92 participants, and 40 of them tested positive for the chlorovirus DNA by oropharyngeal (throat) swabs.

Now, we have known for a long time that certain parasites are capable of influencing human behavior, most notably the risk-seeking [behavior](#) demonstrated by rats [infected by the parasite](#) *Toxoplasma gondii* (termed a 'manipulatory parasite'), as well as the crabs [infected](#) by the parasitic barnacle *Sacculina*. So the premise is not new, though cognitive function deficits stemming

[Toxoplasma gondii parasite](#)
Toxoplasma gondii
parasite

from viral infections aren't well-studied or well-understood.

The presence of this algae-virus DNA doesn't mean that there is an active infection, or that viral replication is actually occurring – it is a very sensitive test, and so can measure very miniscule quantities of the genetic material. Also, the sample size in the study (92 people) is very small indeed to be able to conclude anything, let alone developing strong correlations between the viral DNA that was identified and human cognitive performance. The 'Symptoms' section of my article [here](#) discusses some of the pitfalls

with small sample sizes. It's likely that an overwhelming proportion of the differences found in cognitive functioning (measured through visual processing and visual motor speed) in the study was due to inter-participant differences more so than the single factor of algal virus exposure.

What's entirely clear though is that the study authors' opening two sentences is true: "Human mucosal surfaces contain a wide range of microorganisms. The biological effects of these organisms are largely unknown." There's not enough data to take this singular result very seriously, but it surely does add to our library of [knowledge on the microbiome](#) and how we are *not* an isolated species separate and distinct from our environment – the boundary where the environment ends and we begin is a fuzzy one indeed.

Ben Locwin, Ph.D., MSc, MBA is a contributor to the Genetic Literacy Project and is an author of a wide variety of scientific articles for books and magazines. He is also a researcher and consultant for a variety of industries including behavioral and psychological, aerospace, food and nutrition, pharmaceutical, petrochemical, and academic. Follow him at [@BenLocwin](#).