

## *Vibrio vulnificus* and Liver Disease

If you have liver disease and happen to love raw oysters, you need to know about a life-threatening bacterium for those with liver disease. Thoroughly cooked oysters will not harm you, but if you eat them raw, you could become a statistic.

The same conditions that make for plump, tasty oysters also create an ideal environment for *Vibrio vulnificus*, the bacterium that often lives inside oysters harvested from warm coastal waters, such as the Gulf of Mexico.

Surveillance Epidemiologist Colleen Crowe, with the Centers for Disease Control and Prevention, explains that oysters feed by filtering surrounding water where vibrios may thrive. When those with liver disease feast on raw oysters, they may unknowingly consume *Vibrio vulnificus* as well, unwittingly setting up a situation for the bacteria to multiply inside the body.

For most individuals, the worst that can happen are mild symptoms such as diarrhea, stomachache or vomiting. Liver disease, however, leaves the body vulnerable to rapidly progressing infection that can end in death.

Dr. Paul Gulig, a microbiologist with the University of Florida, is using animal models to study why liver disease is so compatible with vibrios. The latest thinking

is that the high levels of iron in the blood may impair the white blood cells' ability to fight infection. Visualize your white blood cells as your immune system's first line of defense in combating infection. When your immune system is operating efficiently, you are healthy, but when your liver is damaged, the white blood cells may be weakened and *Vibrio vulnificus* has a heyday.

When vibrios move from the sea, which provides a fairly limited environment, to the human body, Dr. Gulig says, "It's like coming upon a banquet." The bacteria multiply so rapidly that they cause massive infection. In fact, he adds, "I tell my students that vibrios grow faster than any bacteria I've ever seen."

In addition, he explains that by definition, those with liver disease filter blood more poorly than the general population. It's like living with dirtier blood; much like a used oil filter in a car wouldn't do nearly as good a job as a clean one. Once in the body, the vibrios migrate to the bloodstream where they multiply so quickly that they overwhelm the white blood cells. The victim can experience extensive soft tissue damage and septicemia (blood poisoning).

According to the Food and Drug Administration's "Bad Bug Book", only about 50% of those who experience septicemia survive.

You might have heard of some tricks to avoid *Vibrio vulnificus* infection, but here are the facts:

**Myth:** Smother the oysters in hot sauce such as Tabasco.

**Fact:** Dr. Gulig says this “technique” is useless.

**Myth:** If you know your oysters, you can tell a good one from a bad one.

**Fact:** Vibrios cannot be tasted, seen or smelled. Even a restaurant with high turnover cannot guarantee that these harmful vibrios are not present.

**Myth:** A few oysters can’t do much damage.

**Fact:** Roberta Hammond, Ph.D., Florida’s Food and Waterborne Disease Coordinator, says she has documented fatalities when only three oysters were consumed.

**Myth:** You don’t have to worry if the oysters are from clean waters.

**Fact:** *Vibrio vulnificus* is a naturally occurring bacterium with no connection to pollution.

**Myth:** Avoid raw oysters during the months without the letter “r” and you don’t have to worry.

**Fact:** The CDC cautions that 40% of cases occur during the cooler months, from September through April, even though the bacteria are most abundant during the warmer months.

**Myth:** Alcoholic drinks kill harmful bacteria.

**Fact:** Alcohol won’t do any better job than plain water will.

You don’t have to give up eating oysters entirely, however because thorough cooking destroys *Vibrio vulnificus*. The Food and Drug Administration recommends that you boil oysters until the shells open and then continue cooking five more minutes. If you steam them, wait until the shells open and time additional steaming for nine more minutes. If you are cooking shucked oysters, boil them at least three full minutes or fry them in oil at least ten minutes at 375 degrees. Never mix cooked oysters with the juice from raw ones and eat the cooked oysters soon after preparing them. Be sure to refrigerate any leftovers.

Oyster lovers may shudder at the very idea of heating oysters at all, saying that cooking spoils the experience. The thrill, they claim, is in the cold, sea-infused oyster sliding down the throat. But the risk is too high. If you have liver disease, cooking oysters thoroughly is your only defense for an already hard-working liver.