



## **It's not you, it's him: Israeli clinic targets infertility with sperm study**

By Dina Kraft

KIRYAT ONO, Israel, Sept. 29 (JTA) — Sperm darting across a petri dish are magnified to 6,300 times their normal size and visible on a computer screen as a lab technician measures their size and shape with a plastic ruler, hoping to spot the sperm most likely to lead to conception for a couple that has struggled with infertility for years.

Dr. Benjamin Bartoov, director of the clinic, has helped bring 225 babies to the world by determining which individual sperm cells have the most fertility potential by studying their surface and internal structure.

For many couples, the Bar-Ilan Clinic for Male Infertility, possibly the only lab in Israel that focuses on male infertility, is the end of a long, frustrating road of failed fertility treatments. Most couples who come to the clinic already have been trying to get pregnant for an average of six years.

Studies have found that in about 35 percent of infertility cases the problem rests with the man, and in 35 percent with the woman. The rest fall into the murky category of “unexplained infertility.”

Bartoov, 64, claims that using his treatment, about half of presumed male infertility cases can be detected and solved.

The semen quality of the European male 60 years ago was twice as good as it is today, he adds.

Environmental and other factors are blamed for a significant rise in male infertility in recent decades. A rise in the heat of metals in the environment has a negative effect on sperm, as do increasing levels of estrogen in the water system from agricultural pesticides.

Bartoov, a biochemist and andrologist, started his research into male infertility in the early 1970s, first experimenting with ram sperm. The lab was established in 1982.

“I decided to do something that would help the community,” he says. “I’m very lucky that I was successful.”

While most female infertility can be overcome by stimulation of the eggs, for men there was not much that could be done to improve the quality of existing sperm, Bartoov explains.

So he decided to try to figure out what made specific sperm successful. Most important, he discovered, is the shape, or morphology, of the sperm. Bartoov has identified 100 characteristics that define ideal sperm shape — most importantly an oval head, smoothness and symmetry.



“We look at sperm morphology like a fingerprint,” he says.

Also important are the concentration of the sperm and its motility. The most viable sperm move quickly and linearly.

In many cases, Bartoov says, sperm may be checked in the lab and deemed viable, but in reality may have flaws that can be seen only using his method. The lab also has found a small number of potentially successful sperm in men that previously had been told they had no sperm at all.

Once the promising sperm are selected, they’re extracted from the larger sample with a glass needle, put on a dish and placed in a cooler until they’re transferred to a hospital’s IVF clinic. These hand-picked sperm are then injected into the cytoplasm of the egg.

“We can observe the sperm cells, and when we see a good sperm cell, we pluck it out,” he says.

This technique, the fruit of more than 20 years of research, is called BIQUM, or Bar-Ilan Quantitative Ultra-Morphology.

Bartoov, whose research has been published in several journals, including the New England Journal of Medicine, reports a relatively high success rate. The so-called “take-home baby” rate is as high as 40 percent, twice as high as that from IVF treatments done without the BIQUM method, he says.

He also has made progress in sidestepping a major problem in IVF and other pregnancies, which is the chance of miscarriage: Bartoov’s research has found that sperm that have a hole in their nucleus, for example, can increase the chance of miscarriage.

Several labs around the world have adopted Bartoov’s methods, including some in France and Italy.

“We’re doing a simple trick,” he said. “The real question is how to produce normal sperm cell for someone who has none. We have some good ideas for that too, and are starting to work on it.”