

THE GREAT DISCOVERY

PRESSURE CHAMBER CLAIMS PUBLISHED IN PEER-REVIEWED ARTICLE

Israeli scientist claims to ‘reverse’ aging in blood cells

‘This means we can start to look at aging as a reversible disease,’ says Prof Shai Efrati; top geriatrician says he is skeptical, and raises concerns

• By **NATHAN JEFFAY** 22 November 2020, 11:35 pm

An Israeli doctor says he has brought about physical changes in human blood cells that “reverse” aging, using an oxygen therapy.

Shai Efrati reported in a peer-reviewed [journal article](#) published on November 18 that his research team’s 60-day therapy lengthened telomeres, the structures found at the ends of chromosomes, on average by more than a fifth.

He claims this represents a “holy grail” in the battle against aging. However, some other physicians have reservations, and are concerned that he may be opening a Pandora’s box that could end up causing health problems.

“We try to address aging with physical exercise and changes to diet, but this only slows decline,” Efrati told The Times of Israel. “We’re showing that we can actually take the biological clock backwards and improve the quality of blood cells. This means we can start to look at aging as a reversible disease.”

The Tel Aviv University associate professor said that in the near future, large numbers of people could sign up for the therapy he gave to subjects in his trial: a course of sessions in a pressurized — or hyperbaric — chamber, breathing pure oxygen for some of the time.



A hyperbaric chamber using Shai Efrati's anti-aging protocol. (courtesy of Sagol Center for Hyperbaric Medicine)

The non-profit Sagol Center for Hyperbaric Medicine and Research at the Shamir Medical Center near Rishon Lezion, which he directs, offers its oxygen protocol to businesses outside Israel. It is being sold at the Aviv Clinic at a retirement village in Florida, which offers it as an answer to aging. Efrati is medical adviser to the clinic.

Some other doctors say the claims should be treated with caution.

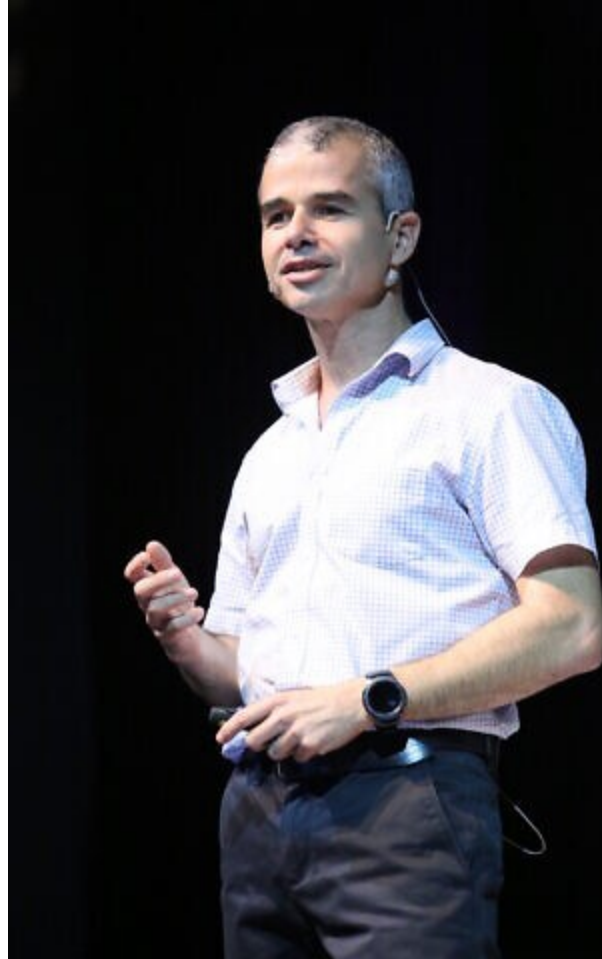
“I’m skeptical that one manipulation can reverse aging, a complicated process with many factors,” the leading geriatrician Yoram Maaravi, who is unconnected to the research, told The Times of Israel.

He said that telomeres are widely believed to be one of several factors that impact on aging, not a single factor, the changing of which can simply turn back time. And he argued that it is too early in telomere study to make bold declarations that lengthening them will address aging, as much of the knowledge today consists of inferences for humans drawn from [studies](#) of mice.

Maaravi, chief physician at Hadassah Medical Center’s geriatric rehabilitation department, and head of home rehabilitation in Jerusalem for the Clalit health fund, also said that if oxygen therapy is actually lengthening telomeres, it could be a development that backfires as so little is still known about them. “One time we see lengthened telomeres is with cancer,” he said. “Cancer cells have an enzyme that can lengthen them, and we have to be very careful about manipulating nature.”

Efrati reported that as well as elongating telomeres, his therapy led to a decrease in senescent cells, the population of which is thought to correlate to the onset of various diseases.

Maaravi said the impact of reducing such cells is not understood enough to be the basis for a claim to address aging. “Is removing senescent cells going to reduce aging?” he asked. “We don’t know yet.”



Center) Professor Shai Efrati of the Sagol Center for Hyperbaric Medicine and Research at Shamir Medical Center (courtesy of the Sagol

Efrati's new study was written after he recruited 35 people aged 64-plus, and took blood samples. He then gave some of them a 60-day course of treatment, during which they spent stints in a hyperbaric chamber, breathing pure oxygen for some of the time.

In a previous study [published in July](#), he claimed that the therapy improves cognitive function. In the latest research, he

looked at telomeres, which are like protective caps at the ends of chromosomes. They get shorter with age and some studies indicate that their length can affect the pace of physical aging and onset of age-associated diseases.

He excluded results for nine of his participants from his telomere analysis, five because they did not meet baseline assessments and four because their blood samples were low quality. For the analysis of senescent cells he excluded 15 participants, five because they did not meet baseline assessments and 10 because their blood samples were low quality.

Among other study participants, there was an increase in telomere length, averaging more than 20 percent, and a reduction in senescent cells on a similar scale, Efrati reported.

“Researchers around the world are trying to develop pharmacological and environmental interventions that enable telomere elongation,” said Efrati. “Our hyperbaric oxygen therapy protocol was able to achieve this, proving that the aging process can in fact be reversed at the basic cellular-molecular level.”