

SOYBEAN OIL LINKED To Genetic Changes In Brain, Claims Study

PRESS TRUST OF INDIA

Consuming soybean oil may not only lead to obesity and diabetes, but also "affect neurological conditions like autism, and Alzheimer's disease," claims a study in mice by researchers, including one of Indian origin.

Researchers from the University of California - Riverside (UCR) in the US noted that soybean oil is used for fast food frying, added to packaged foods, and fed to livestock in many parts of the world.

The study, published in the journal *Endocrinology*, compared mice which were fed three different diets high in fat: soybean oil, soybean oil modified to be low in linoleic acid, and coconut oil.

In 2015, the same research team found that soybean oil induces obesity, diabetes, insulin resistance, and fatty liver in mice.

A 2017 study by the group showed that if soybean oil is engineered to be low in linoleic acid, it induces less obesity and insulin resistance.

However, in the latest study, the researchers, including study first author Poonamjot Deol from UCR, did not find any difference between the modified and unmodified soybean oil's effects on the brain.

They found pronounced effects of the oil on the hypothalamus, a region of the brain where a number of critical processes take place.

"The hypothalamus regulates body weight via your metabolism, maintains body temperature, is critical for reproduction and physical growth as well as your response to stress," said Margarita Curras-Collazo, an associate professor at UCR, and lead author of the study.

The team determined a number of genes in

mice fed soybean oil were not functioning correctly.

One such gene produces the "love" hormone, oxytocin. In soybean oil-fed mice, levels of oxytocin in the hypothalamus went down.

The researchers discovered roughly 100 other genes also affected by the soybean oil diet.

They believe this discovery could have ramifications not just for energy metabolism, but also for proper brain function and diseases such as autism or Parkinson's, the researchers said.

However, it is important to note there is no proof that the oil causes these diseases, they said.

The team noted the findings only apply to soybean oil -- not to other soy products, or to other vegetable oils.

"Do not throw out your tofu, soymilk, edamame, or soy sauce," said Frances Sladek, a UCR toxicologist, and professor of cell biology.

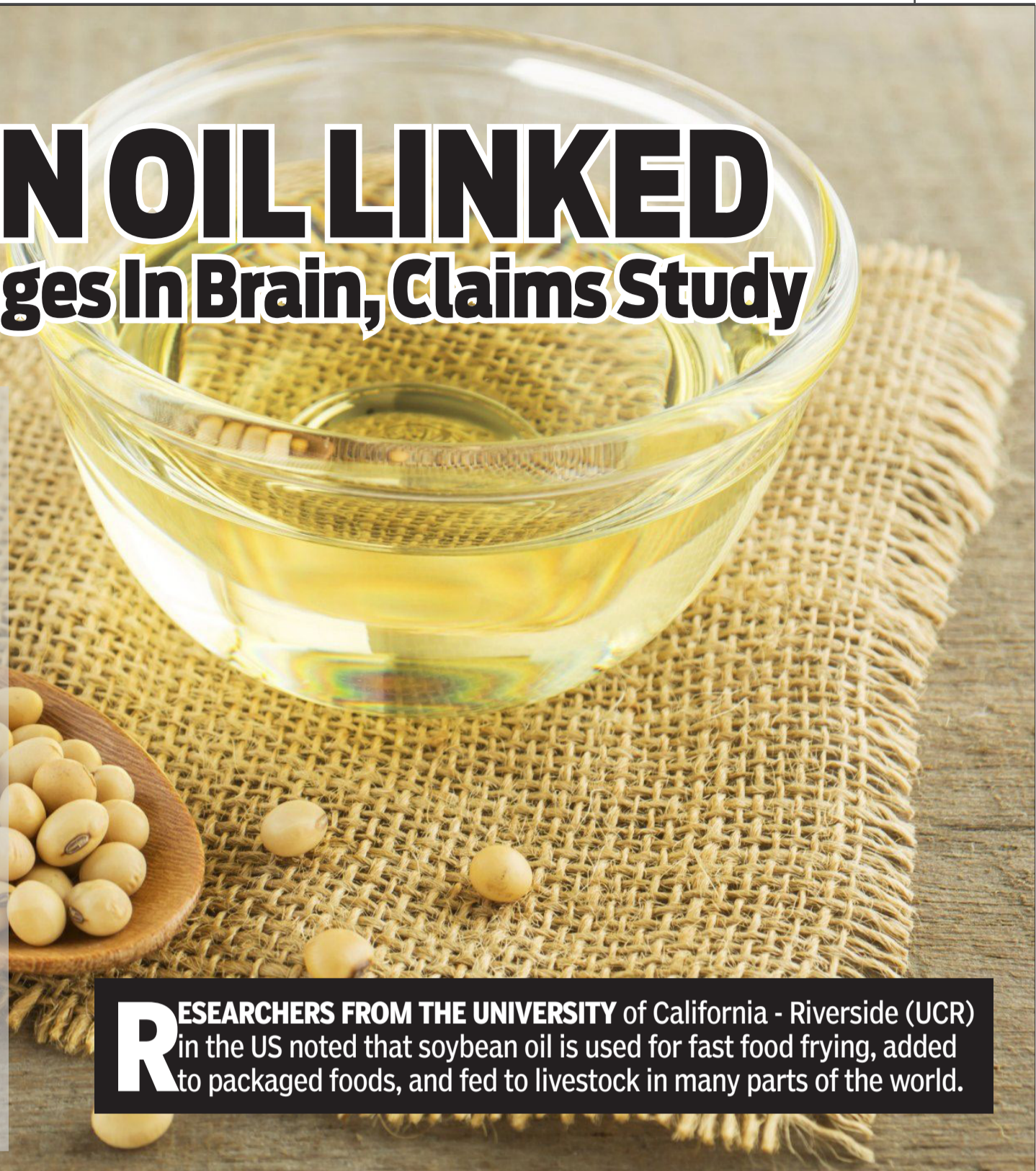
"Many soy products only contain small amounts of the oil, and large amounts of healthful compounds such as essential fatty acids and proteins," Sladek said.

Since the research was conducted in mice, the researchers caution that the study might not translate to the same results in humans.

As oxytocin is so important for maternal health and promotes mother-child bonding, the researchers said similar studies need to be performed using female mice.

The researchers have not yet isolated which chemicals in the oil are responsible for the changes they found in the hypothalamus.

However, they have ruled out two candidates: linoleic acid, since the modified oil also produced genetic disruptions, and stigmastanol -- a cholesterol-like chemical found naturally in soybean oil.



RESearchers from the University of California - Riverside (UCR) in the US noted that soybean oil is used for fast food frying, added to packaged foods, and fed to livestock in many parts of the world.

Epigenetic Biomarkers Can Now Detect Male Infertility

AGENCIES

WASHINGTON: Detecting infertility in men won't take a year or longer of trial, as a study found a reliable method of screening and figuring out which treatment options will work best for patients. Michael Skinner, a Washington State University reproductive biologist and an international team of collaborators discovered infertile men have identifiable patterns of epigenetic molecules or biomarkers attached to their sperm DNA that isn't present in the fertile men.

The scientists also identified epigenetic biomarkers among infertile patients who responded to hormone therapy to treat their condition versus those who did not. Their research could eventually provide doctors with a reliable method of screening men for infertility and figuring out which treatment options will work best for their patients.

This could, in turn, save couples, where the man is incapable of having children naturally, the extended period it usually takes before a doctor will recommend they see a specialist for medically-assisted reproduction. Currently, the primary method for diagnosing male infertility is to assess sperm quantity and motility, which has been historically of limited success



separating fertile from infertile males.

Skinner and his collaborators published a study on their new diagnostic approach in - *Nature: Scientific Reports*. "Male infertility is increasing worldwide and is recognised as playing a key role in reproductive health and disease," Skinner said.

"Having a diagnostic that tells you right away your male patient is infertile and here are the treatment options that will work for him would be immensely useful," added Skinner. Around 20 per cent of men who require in-vitro fertilisation to have children will have infertility problems where the cause is unknown.

These men are typically put on a regimen to try to have a child with their partner for a year or more before being recommended for IVF. Skinner and his collaborators wanted to see if they could come up with a diagnostic

to get rid of this period of uncertainty.

The scientists knew from previous research there was a possible link between male infertility and alterations to groups of methyl molecules stuck to sperm DNA that regulate how certain genes function.

They used advanced molecular analysis techniques to see if they could reliably identify these alterations, or biomarkers, in the methyl groups attached to the sperm DNA of both fertile and infertile men who agreed to participate in a research study. They found that all of the infertile men in the study possessed a specific biomarker that the fertile men did not.

The scientists also identified another biomarker among the infertile patients that could be used to determine who would be responsive to hormone therapy treatment.

Habitual Tea Drinking May Improve Brain Structure: Study

PRESS TRUST OF INDIA

A regular tea drinking habit contributes to improved brain structure, making the organization of nerve cell networks more efficient, according to a study.

The researchers, including those from the National University of Singapore (NUS), recruited healthy older participants and divided them into two groups according to their history of tea drinking frequency. They investigated both functional and structural networks to reveal the role of tea drinking on brain organisation.

The study, published in the journal *Aging-US*, revealed that tea drinking suppressed asymmetry of the two brain hemispheres in their structural connectivity network.

However, the researchers did not observe any significant effects of tea drinking on the networking of nerve cells across functionally related centres in the two brain hemispheres.

The researchers said that individual constituents of tea have been related in earlier studies to the functions maintaining cognitive abilities, and to the prevention



of cognitive decline.

However, they said that when a constituent of tea was administered alone, there was a degraded effect, or no effect, and a significant effect was observed only when the constituents were combined.

A review of tea effects on the prevention of Alzheimer's disease, found that the neuroprotective role of herbal tea was appar-

ent in eight out of nine studies,

the researchers said. They added that while tea effects were well studied from the perspective of neurocognitive and neuropsychological measures, its direct effect on brain structure or function was less-well represented in scientific literature.

"In summary, our study comprehensively investigated the

effects of tea drinking on brain connectivity at both global and regional scales using multi-modal imaging data and provided the first compelling evidence that tea drinking positively contributes to brain structure making network organization more efficient," said Lei Feng, co-author of the study from NUS. =

Violent Video Games Do Not Induce Violence Amongst Adolescence

AGENCIES

Washington: A recent study has questioned the perception of violent video games leading to acts of violence. The study published in *The Contemporary Economic Policy* journal has examined data from the National Longitudinal Study of Adolescent to Adult Health, a nationally representative sample of adolescents in grades 7-12 in the United States between April and December 1995.

Over 15,000 participants were followed into young adulthood with four waves of in-home interviews, with the last interview conducted in 2008, when participants were 24-32 years old. "While the

data show that fighting later in life is related to playing video games as an adolescent, most of this is because, relative to females, males both play games more often and fight more often. Estimates that better establish causality find no effect or a small negative effect," said author Michael Ward, PhD, of The University of Texas at Arlington.

"This is my fourth analysis using a fourth methodology and the fourth dataset on actual outcomes that finds no violent effects from video games," added Dr Ward. He noted that it is important that studies examine real-world outcomes and that they account for competing reasons why negative outcomes might be related to video game playing.

Individuals With Anorexia Nervosa May Have Normal Body Weight

AGENCIES

WASHINGTON: A person who looks fit and fine can be dangerously ill, says a recent study on atypical anorexia. Traditionally, individuals had to be below 85 per cent of their ideal body weight to receive a diagnosis of anorexia nervosa, a disorder characterised by restrictive eating, over-exercising, distorted body image and intense fear of weight gain.

But in 2013, a new category of an eating disorder was formally recognised: atypical anorexia nervosa. Individuals with this condition meet all other diagnostic criteria for anorexia nervosa but have normal body weight. "This group of patients is under-recognised and undertreated," said the study's senior author, Neville Golden, MD, professor of paediatrics at the Stanford School



of Medicine.

"Our study showed that they can be just as sick medically and psychologically as anorexia nervosa patients who are underweight," added Golden. The study published in - *Paediatrics* -- shows that large, rapid weight loss is the best predictor of medical and psychological problems in patients with atypical anorexia,

not their body weight at diagnosis.

Dangerously low heart rate and blood pressure, as well as serious electrolyte imbalances and psychological problems, are common in patients with atypical anorexia whose weight is within a normal range, the study found. The study's lead author is registered dietician Andrea Garber, PhD, adjunct professor of paediatrics at UCSF.

Prenatal Exposure To Flame Retardants May Be Associated With Reading Problems In Children

AGENCIES

A recent study by researchers of Columbia University suggests that prenatal exposure to flame retardants can increase the risk of developing reading problems.

The study was published in the journal - *Environmental International*.

According to the study around two million children generally have some or the other type of learning disorder and of these, about 80 per cent have a reading disorder.

Researchers in the current study hypothesised that during the utero exposure to polybrominated diphenyl ethers (PBDEs) which is a type of flame retardant might alter the brain processes of children and affect their reading.

The team of researchers analysed the data from neuro-imaging

of 33 five-year-old children which were all novice readers and were given a reading assessment for identifying problems related to reading. They further used the blood samples of their mothers which were taken during pregnancy for estimating the prenatal exposure to such PBDEs.

After the study, researchers concluded that children that had a better-functioning reading network had lesser reading problems and also found that children that had higher exposure to PBDEs were lesser efficient in reading.

However, it wasn't found that greater exposure affects the function of any other brain network involved in social processing which has been associated with disorders like autism spectrum disorder.