

# Iranian researcher makes human cartilage from body cells

Health Desk

An Iranian researcher was able to produce human cartilage by sampling, proliferating and culturing human cartilage cells on a collagen protein scaffold.

The plan's executor, Mahdi Hadi, told ISNA that the production of human cartilage is one of his research achievements, adding the initial product was manufactured in the laboratory and it can be produced industrially as a medicinal product in the near future.

Elaborating on his project, Hadi said for human cartilage production, first the patient's cartilage cells are sampled, then proliferated and cultured on a collagen protein scaffold, and finally a full human cartilage is made during 30 days.

After the cartilage tissue is formed, various quality control tests are carried out on the sample, added the researcher who has worked at Royan Institute, an Iranian clinical, research and educational institute dedicated to biomedical, translational and clinical researches, stem cell research and infertility treatment.

"The tissue is valid and can be transplanted to the body if only it can pass the quality control stages and get a product identification."

Hadi, who is currently working as the biological medicines director at Tofigh Daru Research and Engineering Company in Tehran, said the transplant is of the 'autologous' type, which is very important in terms of immune responses, because the patient's body does not reject it.

In 2018, a product was produced by human cartilage in the US and entered the global market. However, being manufactured for each patient separately, it is very expensive, the researcher added.



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Hadi further said his MS thesis, titled "The Effect of Pore Structure of Collagen Scaffold on Cultured Human Chondrocytes in Cartilage Tissue Engineering" paved the way for developing this research project.

The thesis was then sponsored by Tamin Pharmaceutical Investment Company of Iran's Social Security Organization and is being continued as a research project, he added.

"Recently I sent an article based on my thesis to the Second World Congress on Advanced Biomaterials and Tissue Engineering, and I was invited to

Rome as the keynote speaker and the chairman of the congress's Scientific Committee.

"My project attracted some reputable pharmaceutical companies participating in the congress due to implementing innovative methods in research and having a better quality compared to its US counterpart."

To continue the plan abroad, many requests have been made by reputable pharmaceutical companies and Italian universities, but I prefer to bring this project to the country and help patients with severe cartilage injuries."

## Skin cancer deaths soar for men in developed nations

Skin cancer deaths among men have soared in wealthy nations since 1985, with mortality rates among women rising more slowly or even declining, researchers have told a medical conference in Glasgow.

Reasons for the discrepancy between sexes are unclear but evidence suggested men are 'less likely to protect themselves from the sun' or heed public health warnings, Dorothy Yang, a doctor at the Royal Free London hospital in London said, AFP wrote.

More than 90 percent of melanoma cancers are caused by skin cell damage from exposure to the Sun or other sources of ultraviolet (UV) radiation such as tanning beds, according to the US Centers for Disease Control (CDC).

In eight of 18 countries examined, men's skin cancer death rates had increased in the past 30 years by at least 50 percent.

In two nations — Ireland and Croatia — it roughly doubled.

Also seeing a sharp jump were Spain and Britain (70 percent), The Netherlands (60 percent), as well as France and Belgium (50 percent).

In the United States, which was not



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included in the study, male melanoma mortality went up by about 25 percent, according to CDC statistics.

But the nations with the biggest rise in skin cancer deaths were often not those with the most elevated mortality rates, the research showed.

In Australia, for example, nearly six out of every 100,000 men succumbed to the disease in 2013-15. That is twice the second highest death rate (Finland), but only a 10 percent increase compared to 30

years earlier.

"Australia has been an early implementer of public health media campaigns since the 1970s to promote 'sun-smart' behavior," Yang said before presenting her data at the 2018 UK National Cancer Research Institute Conference in Glasgow.

While debate continues as to how much of Australia's record skin cancer rate stems from depletion of UV-filtering ozone in the stratosphere, 30 years of public health campaigns have no doubt

made Australians acutely aware of the dangers.

The so-called 'ozone hole' was especially big over Australia when the efforts kicked off.

Skin cancer deaths among women in 1985 in Australia occurred at half the rate as for men, and declined by 10 percent over the next 30 years, Yang and three colleagues reported.

Other countries where female mortality from the disease went down over the same period are Austria (nine percent), the Czech Republic (16 percent). In several other nations — Romania, Sweden and Britain — there were slight increases.

In some other sun-loving nations, however, women saw at least as sharp a jump from 1985 to 2015 in death rates as men: The Netherlands (58 percent), Ireland (49 percent), Belgium (67 percent) and Spain (74 percent).

Japan has by far the lowest melanoma mortality, for both men and women, at 0.24 and 0.18 per 100,000, respectively.

Scientists are investigating whether biological or genetic factors might also play a role in skin cancer, but findings so far are inconclusive, Yang said.

## 'Unusual' warning signs of brain tumors

Cancer is caused by cells in a specific part of the body reproducing uncontrollably, according to the NHS.

These cancerous cells can destroy the healthy tissue surrounding them — including organs, express.co.uk reported.

More than a third of all people will develop cancer at some point in their lifetime.

You could be at risk of a brain tumor if you have a 'severe' headache, it's been revealed.

Headaches that are severe and persistent could be one of the earliest warning signs of a brain tumor, said Consultant Neurosurgeon, Ian Sabin.

He told Express that the headaches are usually worse in the

morning, and gradually get better throughout the day.

It's not uncommon for the headaches to be accompanied by blurred vision when standing up from a seated position, he added.

"Early signs of a general brain tumor can include headaches that are severe and persistent, continue for an extended period and are unusual i.e. not related to an existing illness," said Sabin, who is also medical director at the London Gamma Knife Center, part of HCA Healthcare UK.

"Characteristically they are present on waking in the morning and often improve once the individual is up and about. "There may be visual



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disturbance when rising from a sitting position, with 'greying' out of vision [obscurations] and a feeling of faintness.

"Sudden onset headache, sometimes referred to as 'thunderclap', may be due to a

hemorrhage in and around the brain and requires urgent investigation.

"Some brain tumors grow faster than others, and it is important to know when you need to see a medical professional for

a second opinion."

You could also be at risk of a brain tumor if you're feeling constantly nauseous, added Sabin.

Vomiting and nausea is caused by a tumor interfering with the internal circulation of brain fluid, which causes 'water on the brain', he said.

While most people feel nauseous at some points, you should see a doctor if it's associated with headaches or drowsiness.

An other warning signs of a brain tumor include seizures, cognitive changes, and even hearing loss.

More than 9,000 people in the UK every year are diagnosed with brain tumors.

## NHS prevention plan aims to boost life expectancy

People in England are being told to cut back on alcohol, sugar, salt and fat in a bid to boost the nation's life expectancy by five years, reported BBC.

Health Secretary Matt Hancock is setting out his long-term vision for the NHS on Monday — and it will focus on preventing illness.

He said that 10 times more money is spent on treating disease than prevention — which 'doesn't stack up'.

The plan also recommended that bosses should do more to keep staff healthy.

Hancock told BBC Radio 4's Today program there needed to be a shift in culture and in the way resources are balanced.

"For too long the NHS has seen itself as essentially the National Hospital Service, with primary care and GPs round the side," he said.

"I want to see it as the health service of the nation, helping people to stay healthier."

In his speech later, Hancock is expected to set out his aim for people to have five more years of healthy, independent life by 2035. UK life expectancy is currently 82.9 years for women, and 79.2 for men.

To achieve this, Hancock will encourage people to take more responsibility for their own health.

Hancock is expected to say: "It's about people choosing to look after themselves better, staying active and stopping smoking."

"Making better choices by limiting alcohol, sugar, salt and fat."

But he will say the strategy is "not about penalizing people".

"It's about helping them make better choices, giving them all the support we can, because we know taking the tough decisions is never easy," he will tell the annual meeting of the International Association of National Public Health Institutes.

- The plan also includes ambitions to:
  - Halve childhood obesity by 2030
  - Reduce loneliness by making 'social prescribing' — when doctors or nurses prescribe community activities — more widespread
  - Diagnosing 75 percent of cancers at stages one and two by 2028
  - Use technology to predict patients' illnesses and target advice at sections of the population

## Some ways to address insomnia

### Sort out your bedroom

Your bedroom is for sleep, right? So stop using it as your living room. It is your sanctuary: Keep it tranquil and dark. Your body needs darkness to release melatonin, which in turn helps you sleep — so invest in blackout blinds or an eye mask. Switch off mobile phones and computer screens, as their LED screen blue light is particularly unhelpful for melatonin production. If you need a new mattress, spend time choosing one that is appropriate, and make sure your duvet is the right tog for the season.

### Stick to a regular bedtime routine

The buzz phrase is sleep hygiene, meaning don't do anything during the day that might inhibit your sleep later on, and slow down at bedtime. So avoid naps, and go to bed and get up at roughly the same time each day. Enjoy your night-time routine: Have a hot bath (it raises your body temperature, which helps you nod off), switch off your devices at least 40 minutes before you turn in, read a book, play soothing music or listen to a "podcast", according to the Guardian.

### Don't check the clock

Part of what keeps us awake at night is stress about being awake. So resist the temptation to clock-watch, which can make you anxious. Instead, luxuriate in feeling comfortable, safe and warm. Revisit happy memories and tell yourself that you will still function fine tomorrow.



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### If you really can't sleep, get up

If you often lie awake for more than half an hour, either when you first go to bed or if you wake in the night, get up and make yourself comfortable somewhere else with a book or some music. Return to bed when you feel tired — this will help you associate bed with sleep and not with wakefulness.

### Get the Sleepio App

Available on the NHS if you live in the home counties, and in other areas of the southeast from early 2019, Sleepio is a digital program based on cognitive behavioral therapy that helps you discover your ideal personal sleep pattern. Designed to help reduce dependence on sleeping pills, research has shown it can help more than 75 percent of insomnia sufferers achieve normal sleep. If you live outside these areas, it will cost you £15.40 a month.

### Keep a sleep diary

Record your sleep habits over a fortnight: when you go to bed, how long it takes you to sleep, whether you wake in the night. Look for patterns you can change — maybe you sleep best when you've exercised. A sleep diary can also help a doctor pinpoint what's wrong. If all else fails, get checked out: insomnia is linked with depression, and for some people sleep disruption is an early sign.