

## Scientists discovered new protective variants against gout

Gout is a type of arthritis that causes intense joint pain, redness, swelling, and tenderness, usually in the big toe. It occurs due to the buildup of uric acid, which forms sharp crystals in the joints. Recurrent gout attacks can be debilitating, so it is important to seek medical help.

Researchers have been studying the genetic factors that contribute to gout susceptibility. They have identified several genes involved in uric acid levels and metabolism. One gene called URAT1 has been found to play a significant role in gout risk.

The researchers discovered both common and rare variants in the URAT1 gene that provided protection against gout. They found that some of these variants affected the function of the URAT1 protein, which is responsible for uric acid reabsorption.

Interestingly, individuals with these rare variants had lower levels of uric acid in their blood, reducing their risk of developing gout. Even when they had another gene associated with gout, called ABCG2, having the URAT1 variants offered protection.

This study is significant because it reveals new rare genetic variants associated with lower gout risk. Understanding these genetic factors could lead to better treatments and personalised approaches for managing gout in the future.

Overall, this research provides valuable insights into the genetic basis of gout and offers hope for improved prevention and treatment strategies in the future.



# The future of major depressive disorder treatment

STAR HEALTH DESK

Over the past two decades, significant progress has been made in the treatment options for major depressive disorder (MDD). It is now recognised that depression varies from person to person, and efforts are being made to identify and diagnose the specific neurochemical imbalances in individuals in order to tailor treatment accordingly.

Advances have been made in evidence-based treatments, particularly in drug therapy. More selective and specialised antidepressants, such as citalopram, escitalopram, fluoxetine, and sertraline, have been developed, offering improved efficacy and fewer side effects. Combining drug therapy with psychotherapy, specifically cognitive-behavioural and psychodynamic therapy, has been shown to be the most effective approach.

In cases where depression is resistant to standard treatments, electroconvulsive therapy (ECT) can be used. ECT has become more precise and safer, with fewer side effects. It is typically reserved for individuals with severe, drug-resistant depression who exhibit bipolar characteristics.

Two newer treatment options that show promise for treating major depression are ketamine therapy and psychedelic drugs. Ketamine therapy, which involves resetting brain nodes and network connectivity, has provided long-lasting relief for some patients. While it is not the first choice due to its profound effects on the brain, it is being considered as an option for severe treatment-resistant depression, with ongoing discussions about its use earlier in treatment.

There is building evidence for the use of psychedelics like psilocybin

(from mushrooms) and LSD (lysergic acid diethylamide) in treating major depression. Microdoses or millidoses of these drugs, either alone or in combination with antidepressants, have been shown to be effective in improving symptoms and function. However, the use of psychedelics is still stigmatised and regulated, and finding the right microdose and schedule requires skilled clinical expertise.

Transcranial Magnetic Stimulation (TMS) is another promising treatment option. By passing a weak

specific brain areas to regulate symptoms of depression. Advances in the field, supported by the BRAIN Initiative, an NIH programme aimed at revolutionising our understanding of the human brain have led to a better understanding of how to precisely target the brain, potentially yielding better results. DBS has shown promise in resetting network activities in the brain, leading to long-lasting effects and significant improvements in patients' outlook and quality of life. However, DBS carries risks, including infection, haemorrhage, and misplacement of electrodes, and insurance coverage can be inconsistent.

Looking ahead, minimal or non-invasive DBS is seen as the future of treatment.

Exciting advancements are being explored, such as the nonsurgical implantation of electrodes via small transmitters and stimulators that can be delivered through the bloodstream, inhaled, or swallowed. Minimally invasive approaches, involving fluid electrodes inserted through a small hole in the scalp and guided electromagnetically to the brain, are also being investigated. These developments hold the potential to revolutionise depression treatment in the next 5-10 years.

In summary, over the last two decades, significant strides have been made in the treatment of major depressive disorder. Advances in drug therapy, combined with psychotherapy, have improved outcomes. Newer treatments like ketamine therapy, psychedelics, TMS, and DBS offer hope for individuals with treatment-resistant depression. Further research and development are needed to optimise these treatments and pave the way for future innovations in depression care.



magnetic current through the skull, TMS can alter the brain's electrical activity and reduce depression symptoms. Repetitive TMS has shown significant effectiveness in certain forms of treatment-resistant depression, often with rapid and durable responses. It can be used alone or in combination with psychotherapy or drug treatment, although its effects may diminish over time.

Deep Brain Stimulation (DBS), a newer and emerging treatment, involves implanting electrodes in



## “Cascade of widening inequity” accelerating the global diabetes crisis

A new series of articles published in The Lancet and The Lancet Diabetes and Endocrinology sheds light on the alarming rise of diabetes worldwide and the disparities in its impact. According to the research, diabetes is becoming increasingly prevalent and is expected to affect over 1.3 billion people by 2050.

The series emphasises how geographic disparities and structural racism faced by minority ethnic groups in low- and middle-income countries (LMICs) contribute to the rising rates of diabetes. By 2045, more than three-quarters of adults with diabetes will reside in LMICs, but fewer than 1 in 10 will receive proper guideline-based care. In high-income countries like the USA, diabetes rates are disproportionately higher among minority ethnic groups due to structural racism.

The research reveals that marginalised communities have limited access to essential diabetes medications, resulting in worse blood sugar control, lower quality of life, and reduced life expectancy. The COVID-19 pandemic has further exacerbated these disparities, with people with diabetes, especially those from ethnic minority groups, being more susceptible to severe infection and death.

To address these inequalities, the authors emphasise the importance of real-world interventions and high-quality research. They call for interventions that involve the affected communities and tackle the structural and social determinants of health. Examples of successful interventions include improving insulin access in sub-Saharan Africa and implementing community healthcare worker programmes in the USA.

The series underscores the urgent need for action to transform diabetes care and outcomes for marginalised populations worldwide. Without concerted efforts to address disparities in diabetes, the health of future generations will be at risk. The authors urge increased research funding and the development of effective measures to achieve equitable diabetes care and outcomes.

## Understanding and addressing excessive hair fall among teens

DR ABDULLAHEL AMAAN & DR KHAINOOR ZAHAN

Now a days, one of the common issues teenagers go through is excessive hair fall. Hair fall can be a bit of a concern for teens, especially teenage girls. Normally, a person can lose as many as 100 hairs a day. These hairs grow back from the same origin later on. If the hair fall is greater than that, then it needs to be evaluated.

However, excessive hair loss can happen for various reasons. A specific nutritional deficiency is one of the commonest causes. Teens are sometimes cautious regarding their weight gain and eat a smaller amount of food, sometimes missing a balanced diet. Regular intake of enough protein, vitamins (A, B, especially biotin, C, D, and E), and several minerals (Iron, Zinc) are essential to supporting hair growth. Foods rich in these components are egg yolk, liver, nuts, seeds, bananas, sweet potatoes, mushrooms, broccoli, etc.

Thyroid hormone disorders are also associated with excessive hair loss. This can interfere with hair production and cause hair loss.

Excessive hair fall can be a feature of underlying polycystic ovary syndrome (PCOS). The ovaries produce the hormones oestrogen and progesterone, as well as a minimal amount of the male hormone, androgen. When suffering from PCOS, the ovaries produce an excessive amount of androgens, which results in excessive hair fall.

Certain fungal infections on the scalp may cause hair loss. This may occur from covering damp hair for a longer period of time. The symptoms include hair loss in patches with an itchy or red scalp.

Hair beautification can sometimes be responsible for excessive hair fall if used excessively. Repeated use of chemicals (hair colour, bleach), straightening, or perms can cause damage to the hair, causing it to break off or fall out. The use of too much heat from the iron or hot blow-drying also causes damage to the hair.

Sulphur-containing chemicals are sometimes used in shampoos to have a nice, bubbly lather, but they also strip the oils from the scalp, causing hair to dry out, breaking down the protein essential for hair health, halting growth, and causing hair to break. Sodium chloride is also used in shampoos as a thickener, which can cause a dry, itchy scalp and encourage hair loss.

Another type of hair loss that goes with hair styling is traction alopecia. Wearing a hairstyle that pulls the hair too tightly can permanently damage the hair follicles if it is used for a long time. Pain after doing the hairstyle is a sign of too much traction on the hair. Styling hair while it is wet can also cause it to stretch and break.

Trichotillomania is a psychological disorder in which people repeatedly pull their hair out, often leaving bald patches. People with trichotillomania usually need help from a therapist or other mental health professional before they can stop pulling their hair out.

Sudden stressful events like undergoing surgery, going through a traumatic event, or having a serious illness or high fever can temporarily cause the shedding of large amounts of hair. It is also a reversible condition after solving the stress.

Eating a balanced diet, drying hair naturally, limiting the use of blow dryers at high heat, avoiding too tight hairstyles, being gentle when combing, brushing, or washing hair, not rubbing hair too vigorously, and careful use of chemicals (hair straighteners, hair colour) can be helpful for avoiding excessive hair fall among teens. When used, shampoo and hair gel should be removed properly as their prolonged persistence can clog pores, which in turn restricts the scalp's oxygen supply, leading to increased hair fall.

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## Multilateral development banks and WHO launch new investment platform to strengthen primary health care services

STAR HEALTH DESK

Three multilateral development banks, in collaboration with the World Health Organisation (WHO), have established the Health Impact Investment Platform to invest in and enhance primary healthcare services in low- and low-and-middle-income countries (LICs and LMICs).




Launched during the Summit for a New Global Financing Pact in Paris, the platform will provide an initial €1.5 billion in concessional loans and grants to expand the coverage and effectiveness of primary healthcare services, particularly for vulnerable and underserved populations. WHO will serve as the policy coordinator, ensuring that financing decisions align with national health priorities and strategies.

The platform's secretariat will assist governments in developing national health plans and prioritising investments in primary healthcare. Moreover, the platform aims to stimulate broader investments in primary healthcare in support of government health strategies.


The partner development banks are committed to supporting countries in strengthening their primary healthcare services to promote community health and enhance resilience against future health crises. Prior to the COVID-19 pandemic, WHO estimated that LICs and LMICs needed to significantly increase their health spending, requiring an additional combined annual investment of US\$371 billion by 2030 to achieve the health-related SDGs.

The Health Impact Investment Platform aims to catalyse and coordinate broader financing flows through national investment plans for primary healthcare. The platform's establishment builds on successful cooperation between countries, multilateral organisations, and development banks during the pandemic, as exemplified by collaborative efforts in Angola, Ethiopia, and Rwanda to strengthen health systems through technical assistance, grants, and advantageous investments.





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