

EDITORIAL HIGHLIGHTS

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GS 3: SCIENCE AND TECHNOLOGY

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Stem cell therapy for autism only in approved clinical trials: Centre

Bindu Shajan Perappadan
NEW DELHI

The Union Health Ministry has asked States and Union Territories to ensure that stem cell therapy is offered as standard clinical care only for disease conditions and indications approved by the Ministry, with its use for Autism Spectrum Disorder (ASD) restricted to duly approved clinical trials.

In an advisory issued on September 16, the Ministry reiterated the existing regulatory framework governing stem cell research and therapy. The advisory was issued to States and Union Territories that have adopted the Clinical Establishments (Registration and Regulation) Act, 2010, following a January 30, 2026, judgment of the Supreme Court in *Yash Charitable Trust & Ors. v. Union of India & Ors.*

For ASD, the Ministry said therapeutic use of any



ICMR review said that available evidence does not support stem cell therapy for ASD.

type of stem cell must remain confined to duly approved clinical trials in accordance with the National Guidelines for Stem Cell Research, 2017, issued by the Indian Council of Medical Research (ICMR) and the Department of Biotechnology.

Stem cell interventions that have not been approved for routine clinical use, including those offered for autism, and

should not be provided as routine, standard or commercial clinical services, the advisory said.

No supporting evidence

The move comes against the backdrop of the continuing use of stem-cell interventions for autism despite the lack of established evidence supporting them as a standard treatment. An ICMR review has said that available evidence does not support stem cell therapy over behavioural and supportive therapies for ASD and recommended that such therapy be restricted to approved clinical trials.

The Ministry has asked States and Union Territories to disseminate the Supreme Court's directions to State and district regulatory authorities as well as government and private clinical establishments involved in stem cell research, treatment, promotion or administration.

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THE HINDU PAGE: 7

Melanoma in India: messaging about skin cancer needs to change, to catch it early

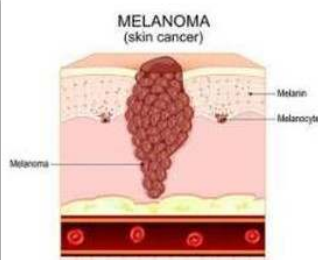
Jyoti Bajpai

Thousands of patients in India are diagnosed with melanoma, a type of skin cancer, each year.

While melanoma is far less common here than in Western populations, it is far from rare and the way it presents in our patient population makes it uniquely difficult to detect early. Too many patients come to us when the disease is already advanced, precisely at a time when treatment options have never been more powerful or more personalised. This contrast between available therapies and the stage at which patients are diagnosed defines one of the most pressing challenges in melanoma care in India today.

The warning signs most people associate with skin cancer come from research developed for fairer-skinned populations, where melanoma tends to appear on sun-exposed areas as an irregular or darkening mole. That picture does not reflect what clinicians see in India.

Melanoma here, most commonly presents on the soles of the feet or beneath the nails, sites that are rarely examined and even more rarely associated with cancer. This condition is called



Spreading awareness: Thousands of patients in India are diagnosed with melanoma, a type of skin cancer, each year. GETTY IMAGES

acral lentiginous melanoma, a subtype that accounts for 35 to 60% of cases in dark-skinned individuals. Such lesions are frequently mistaken for bruises, fungal infections, or diabetic ulcers, and by the time a biopsy is taken, the disease has often progressed.

Mucosal melanomas, a rare type of cancer that starts in the mucous membranes, are highly aggressive with a very low chance of recovery and produce few early warning signs. Most are diagnosed only after spread has occurred.

Any pigmented lesion that changes or persists, wherever it appears on the body, deserves investigation rather than reassurance.

When I began my oncology career, managing advanced melanoma meant offering patients limited and rarely durable options. That has fortunately changed significantly.

The foundational shift came from James Allison and Tasuku Honjo, whose discoveries on CTLA-4 and PD-1 earned them the 2018 Nobel Prize in Physiology or Medicine. Their research established the principle of immune-checkpoint blockade: rather than attacking a tumour directly, we can sometimes release the biological brakes that stop the patient's own immune system from doing so. The results can be extraordinary.

Precision medicine has reshaped the approach in parallel. Some melanomas carry specific mutations, particularly in the BRAF pathway, that can be directly targeted with molecularly designed therapies. This is where next-generation sequencing, or NGS, becomes critical. In simple terms, it reads the genetic blueprint of a patient's tumour and identifies the alterations that should guide treatment, turning what was once a single clinical decision into a detailed, individualised process.

The melanoma story is not over; it is only becoming more

exciting. TIL therapy takes tumour-infiltrating lymphocytes, expands them in the laboratory, and reinfuses them in far greater numbers, a step toward truly personalised cellular treatment.

In August 2026, intismeran, a personalised mRNA vaccine built from the patient's own tumour sequence, was combined with pembrolizumab in high-risk melanoma patients after surgery. The results were striking: a significant reduction in recurrence compared with pembrolizumab alone, making it the first positive late-stage trial of a personalised mRNA cancer vaccine, though survival data remain pending.

What still needs to change

All of these advances deliver their best results when treatment begins early. The more sophisticated our therapies become, the more clearly we see that they work best before the disease has spread. In India, awareness and referral gaps continue to push diagnosis toward advanced stages.

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GS 2: POLITY

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The crucial Uttar Pradesh test of the BJP's hegemony

The political dominance of the Bharatiya Janata Party (BJP), which appeared almost unassailable after 2014, is beginning to show cracks. The 2024 general election was an important setback; the party lost its parliamentary majority and had to depend on its allies to form the government. Since then, disillusionment has acquired greater political salience through youth protests, rising prices, unemployment and failures of governance, particularly irregularities in the education and examination systems. To these can be added the defeat of the Constitutional Amendment Bill on delimitation and women's reservation in April, the Cockroach Janta Party (CJP) protests that led to the resignation of the then Union Education Minister and the complete washout of the monsoon session of Parliament, as both the Prime Minister and Home Minister stayed away. Questions over accountability for the excessive police action against student protesters on July 20, compounded by the absence of the two leaders from Parliament, reinforced the impression of a government unwilling to answer for its actions.

But these setbacks do not by themselves amount to an erosion of hegemony. The BJP remains a formidable political force, retaining a substantial electoral base and considerable ideological appeal. What is now at issue is whether the forces that produced the BJP's dominance are beginning to encounter limits. Uttar Pradesh is where this can be most clearly tested.

The citadel of the party's power, 2024 result U.P. is not merely India's most populous State; it is the citadel of BJP power, central to the party's rise to national prominence. In the 2014 general election, the BJP won 71 of the State's 80 seats, establishing it as a crucial pillar of its national power. In the 2019 general election, it won 62 seats on its own despite the formidable alliance of the Samajwadi Party (SP) and the Bahujan Samaj Party. The State's electoral weight was thus instrumental to its successive parliamentary majorities at the Centre. U.P. is still the crucible of the BJP's majoritarian politics and its Hindu-Muslim mobilisation. A weakening of the BJP here would therefore have implications far beyond the State.

The 2024 general election strongly indicates that the BJP had lost ground in U.P. Its tally fell from 62 seats in 2019 to 33, while the SP won 37 and the Congress six. The sharpest erosion occurred in Awadh, once the heartland of the Ayodhya temple movement. In 2022, the BJP won 101 of Awadh's 154 Assembly seats. In 2024, it was



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leading in only 51 of those Assembly segments – 50 fewer than the number it had won in 2022.

The timing made the 2024 general election result extremely significant. It followed the inauguration of the Ram temple in Ayodhya, which was the culmination of a political and cultural project that had animated the BJP and the wider Hindu right for decades. Yet, the inauguration did not produce the electoral impact that might have been expected: most strikingly, the BJP lost the Faizabad seat, which includes Ayodhya itself. It also lost in many constituencies around it. This does not mean that Ayodhya or the majoritarian politics surrounding it has ceased to matter. The consequential point is that it was no longer enough to win elections even in the movement's heartland. The fact that the erosion was most visible in this region adds to its significance, given the subsequent controversy over donations to the temple. The episode, whose effects are still being felt across the State, showed that even powerful ideological symbols are not beyond questions of integrity.

This matters because the BJP's political hold in U.P. has rested on a combination of communal mobilisation, a durable electoral base and social coalitions built around the temple campaign. The 2024 general election showed that this alignment could be disrupted. Its longer-term implications will depend on whether that disruption proves temporary or marks a lasting shift in the electorate's preferences and expectations.

Some of the prominent fault lines

The 2024 result also suggests that voters are becoming less willing to let a single dimension of politics overwhelm all others, especially when claims of economic performance do not match the realities on the ground. U.P. remains among the poorer-performing economies of the north and east – as it has for decades. Its economy has grown, but growth has not fundamentally altered its relative economic position or generated enough productive employment. The gap between the rhetoric of transformation and economic experience on the ground is particularly visible in the State's industrial clusters. In Kanpur, Firozabad, Bhadohi and Moradabad, exporters have faced serious disruption from the tariff regime of the United States, and the duties raised on Indian goods, with falling orders, shrinking market access and risks to employment, principally among temporary and contract workers.

The frustration among young voters is strikingly evident in the precarity of employment and recruitment. Many were actively involved in the anti-National Eligibility cum Entrance Test

protests earlier in the year. U.P. has seen repeated examination leaks and cancellations. In 2024, the police constable examination, taken by around 48 lakh candidates for 60,244 posts, was cancelled following a paper leak. The Review Officer/Assistant Review Officer examination was similarly cancelled amid allegations of irregularities, where out of a total of 10.76 lakh registered candidates, about 6.8 lakh candidates appeared, competing for just 411 posts. For a generation that invests years in its preparation for scarce government jobs, such failures are not merely administrative lapses. They can mean the loss of money spent on coaching and applications, income and opportunity in a State where government employment remains a highly valued path to economic security.

The battle lines are being drawn

In these circumstances, the 2027 U.P. election is likely to be more closely contested than those that the BJP has faced in the State in recent years. The party remains the strongest contender, but the 2024 result has opened space for the Opposition and revealed strains at various levels that were barely perceptible in earlier elections. The government is working overtime to address the gap on several fronts, reflected in a slew of measures to promote local entrepreneurship and provide stipends for students in corporate and technical institutions.

It is also set to introduce new schemes for women, such as the Mahila Udyami Credit Yojana, under which around one crore women associated with self-help groups are expected to receive interest-free credit of up to ₹1 lakh in stages. The Opposition, too, sees an opening. Both the SP and the Congress are seeking to strengthen their appeal among younger voters, with their leaders, Akhilesh Yadav and Rahul Gandhi, focusing on student unrest, unemployment and widening caste fault lines, particularly divisions among upper castes and between them and the Other Backward Classes. Convergence between the two parties, as in 2024, could bolster the Opposition's chances in the 2027 U.P. election.

The 2027 election will therefore reveal more than the BJP's ability to recover lost seats. It will show whether the political template that carried the party to power from Lucknow to New Delhi still commands the same electoral force. The 2024 result has already shown that this template is no longer invulnerable in U.P. The 2027 election will determine whether the shift revealed in 2024 becomes more durable. What happens in U.P. could therefore alter the political balance on which the BJP's national dominance has rested.

The State's changing electoral landscape, marked by the BJP losing ground in 2024, raises questions about how long the party's political dominance can endure

GS 3: DISASTER MANAGEMENT

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• CLIMATE

How melting glaciers could 'put 20% of GDP at risk'

Yashee

New Delhi, September 17

WHILE THE Himalayas' melting glaciers are under the spotlight due to the Nepal floods, damage from the warming mountains also means economic drain — as glaciers retreat, water supplies become less reliable and the rivers that sustain agriculture, industry, cities and hydropower change. A new report puts a number to this economic dependence: More than a fifth of India's GDP is underpinned by the Himalayas.

The report, 'A resilient Himalaya: protecting a region at risk and securing future prosperity', was compiled by the consultancy Systemiq, in partnership with Integrated Mountain Initiative, and supported by the International Centre for Integrated Mountain Development, Nepal, and GB Pant National Institute of Himalayan Environment, Uttarakhand. The report estimates that Rs 64.8 lakh crore, 21.5% of India's FY24 GDP, is dependent on the Himalayas.

Glaciers and the economy

The Himalayas feed the Indus, Ganga and Brahmaputra river systems, supporting agriculture, cities and industry downstream. "The rivers that carry risk downstream also carry the water that sustains India's economy: wheat and rice across the Indo-Gangetic plain, tea in Assam and Bengal, hydropower in the Northeast, and pilgrimage economies in downstream towns," the report says.

PEAK WATER

- Glaciers hold water as ice and release meltwater into rivers, particularly during the dry season. But as warming accelerates melting, this flow cannot continue indefinitely.
- Himalayan river basins are expected to reach 'Peak Water' around the middle of this century — the point at which glacier meltwater reaches its maximum, after which flows begin to decline as ice reserve shrinks.

On how it calculated the 20% of GDP figure, the report explains three layers it used: "(1) direct: GSDP of Himalayan states; (2) indirect: downstream agriculture, manufacturing, hydropower, and services reliant on Himalayan-fed rivers and groundwater recharge (rain-fed production excluded); and (3) induced: supply-chain (e.g., tractors sold from southern states to IndoGangetic Plains) and wage-spending effects (e.g., spent on food and services)."

The report highlights that the Himalayas are already a major disaster hotspot. They account for 18% of India's land but around 35% of its disasters. Disasters can create food and water insecurity, disrupt supply chains, displace people and increase macroeconomic and sovereign-debt pressures, creating a cycle in which reconstruction spending leaves less money for future resilience.

The black carbon connection

The report identifies black carbon — soot produced by incomplete combustion — as a pollutant that is causing damage and which India has the power to act on fast, unlike global warming. It suggests modernising the brick kiln industry as a solution. Other experts agree with the dangers of black carbon. "Black carbon has a real, major, and measurable effect on the Himalaya. When it lands on snow, it darkens the surface, so the snow absorbs more sunlight instead of reflecting it. Modelling shows this 'snow darkening' effect alone adds about 40 watts/m² of surface heating in spring season across the Himalaya."

Nimish Singh, president and director, Gateway Research, the India arm of the Institute for Governance and Sustainable Development, told *The Indian Express*.

Singh said while fixing brick kilns would have measurable benefits, "brick kilns are not the whole story". "Converting kilns to zigzag technology (a method of firing the bricks in a way that fuel is burnt more efficiently) cuts black carbon and particulate emissions by roughly 70% and fuel use by 20–30%. But adoption is uneven in India. Punjab and Haryana have completed the switch to zigzag kilns. Uttar Pradesh, India's largest brick producer, is still at only 56%. The rest of India is running on traditional tech," Singh said. But he added that "real progress needs kilns, cookstoves, transport, and crop-residue burning to be tackled together."

GS 3: SCIENCE AND TECHNOLOGY

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• SPORT

Skincare to sporting success: How collagen is powering athletes

Amit Kamath

Mumbai, September 17

FOR YEARS, skincare companies have marketed cosmetic products by focusing on collagen, claiming it to be a miracle worker of an ingredient that can ward off wrinkles, hydrate the skin and activate the "fountain of youth". But there's demand for collagen from another specific sub-set, too: high-performance athletes, chasing not wrinkle-free skin, but perfection on the sporting field.

It is used particularly by athletes — consumed orally as peptides or powder — coming back from injury and those who compete in sports that put a higher load on the body.

Wayne Lombard, the head of athletic performance for the Indian women's hockey team, told *The Indian Express*: "The science is still developing about the use of collagen by athletes. But we know that using it as a supplement probably gives you 1-3% improvement in certain things. Why

athletes use collagen is because it helps with joint regeneration in ligaments, meniscus, labrum — all areas of the body that are relatively avascular (having few or no blood vessels, which means that there's not much blood supply there)."

Supplements not the answer

Collagen is the most abundant protein in animals, found as a structural component of connective tissues. It is found in fibrous tissues such as tendons, ligaments, cartilage and skin, but its production slows with age.

Lombard, who also helps athletes, including badminton player P V Sindhu, decathlete Tejaswin Shankar, and long jumper Murali Sreeshankar, said that athletes use collagen to strengthen soft tissues to ensure they are in a "robust state".

"This is so they don't sustain overuse or acute injuries. When someone is injured, supplementing with collagen tends to help with not only regeneration of those soft tissues, but also some sort of help with blood

Range of benefits

● Collagen has been found useful for joint health and pain management.

● It is being used by athletes in rowing, swimming and athletics, particularly the triple jumpers, since these disciplines put a high load on the body.

flow," he added.

It's not just Lombard. Over at the Inspire Institute of Sport (IIS) in Vijayanagar — where many of India's Asian Games-bound athletes are training — the belief is that supplementation is not the answer to everything. The high-performance training centre in Karnataka has enforced a "food first approach", meaning athletes are encouraged as much as possible to get whatever their body needs from natural food sources rather than supplements. But collagen is used by athletes in sports like rowing, swimming and athletics, particularly the triple jumpers, since these disciplines put a high load on the body.

"Collagen is useful for joint health and pain management. In elite athletes, some regular supplementation, which is timed at specific phases in training or during rehab, will help maintain cartilage density, the cushioning of the joints," Samuel Pullinger, head of sport science at IIS Vijayanagar, told *The Indian Express*.

'Golden window'

Pullinger added that collagen has a "golden window" of when it should be taken and ideally should be paired with vitamin C.

"This is a major issue, unfortunately, in Indian sport. Athletes will see someone use a specific supplement or they will have read that a supplement is used and they will just use it, right? Like three times a day. With collagen, there's a specific time period where it is going to be extremely valuable: around 45 to 60 minutes before training or a rehab session," said Pullinger.

"This timing window is better than some of the other timings because it's in and around the presence of amino acids in the bloodstream," he said.

Pullinger also warned against athletes thinking of collagen as some sort of secret ingredient to athletic performance. "Some supplements are extremely valuable. But this is not going to mean that all of a sudden, you will go from finishing 28th to winning the gold medal in your event."

GS 3: ENVIRONMENT

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• WILDLIFE

Orangutans in Odisha: The laws governing animal trade and repatriation

Nikhil Ghanekar
New Delhi, September 17

LAST WEEK, the Odisha Forest department rescued five baby orangutans, a critically endangered animal, from a forest in Balasore district. As orangutans are native to the rainforests of Indonesia and Malaysia, the incident prompted multiple questions — how did they reach India's shores? Were they smuggled? And does India need to return them?

The incident brings to the fore a trend that has been repeatedly flagged by wildlife crime control experts: That India is no more just a transit route, but is fuelling demand for exotic pets.

Global treaty on animal trade

The international trade of wildlife, their body parts and trophies is not prohibited. But it is strictly regulated through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The international treaty came into force in 1975, and India became a party to it in 1976. The treaty's aim is to ensure that cross-border trade in wildlife and plants is legal, sustainable and traceable without harming their survival in the wild.

It is essentially a licensing system that puts in checks and controls on the import,

export and re-export of live animals and plants, wildlife body parts, and trophies. The controls are implemented via an exhaustive "CITES species-list", which is divided into three appendices. These appendices determine the level of protection accorded to those species.

CITES protects around 6,700 species of animals, comprising 359 mammals, 159 birds, 133 reptiles, 21 amphibians, 36 fish, and 69 invertebrates.

Appendix-1 listed species are those facing the threat of extinction. Such species can be traded only with valid permits — provided they are captive-bred and are for conservation purposes. Some notable and controversially allowed trade related to charismatic species includes elephant ivory, rhino horn, elephant and lion trophy hunting, and crocodile skin.

India's Wildlife (Protection) Act, 1972, was amended in 2022 to harmonise it with CITES. The amendment added a Schedule to include CITES-listed species.

Repatriation not a must

There are three species of orangutans — Bornean, Sumatran and Tapanuli — and they are all listed under Appendix-1 of CITES. This means their trade is strictly restricted to non-commercial purposes, such as research, transfers between recognised

THE RISING DEMAND FOR 'EXOTIC' PETS

THE APPEAL of 'unique and unusual' pets is driving rising trade in exotic wildlife, says a report by Humane World for Animals India.

SEIZURES INDICATE 2 key routes — overland via Northeast India's borders with Bangladesh and Myanmar, and by air via major international airports (Chennai, Bengaluru, Mumbai).

IF YOU LOOK at data from social media and seizures, it's clear that Indians are acquiring many species listed in CITES. There is also massive trade in species not on the CITES list,' says wildlife trade expert Uttara Mendiratta.

SOME OFFICIAL DATA first came to the fore in 2023, when the govt brought a voluntary disclosure scheme. RTI data, obtained by Vidhi Centre for Legal Policy, showed 43,693 applications for amnesty were made from 30 states and UTs. Lemurs, kangaroos and 'rhinoceros iguanas' were among the species declared.

zoos and breeding projects

The orangutans found in Odisha are suspected to be from Sumatra. Since they appear to have been traded for commercial purposes, in alleged violation of CITES, the treaty's provisions and the 1972 Act mandate certain steps for their welfare or return.

The treaty does not make it obligatory to return animals to the wild.

The first challenge on the hands of en-



The orangutans found in Balasore.

closure scheme. RTI data, obtained by Vidhi Centre for Legal Policy, showed 43,693 applications for amnesty were made from 30 states and UTs. Lemurs, kangaroos and 'rhinoceros iguanas' were among the species declared.

forcement agencies is to look after the survival of trafficked species.

Under CITES, it is recommended that the management authority implementing its provisions — in this case, the Environment Ministry — consult with the scientific authorities and, if possible, the state of export or origin of the species before taking a call on repatriation.

If repatriation is feasible, it has to be car-

ried out at the expense of the state of origin. If it is not feasible, it has to be sent to a rescue centre or "such other place" as the management authority deems appropriate.

In the Odisha case, Indonesia's Ministry of Forestry has reached out to Indian authorities. It is learnt to be "preparing technical requirements" for their repatriation, if investigations confirm they are from Indonesia.

The treaty says the authority that has confiscated the animal must ensure that recipient states are cognisant of the impacts of repatriation. The amended Act prescribes a similar line of action, calling for consultation with the country of "export" for the animal's return, or welfare at a recognised zoo or rescue centre in case it can't be returned.

Challenges with repatriation

Repatriation involves establishing the country of origin, following protocols, handling legal tangles and, most importantly, maintaining the health of the confiscated animals.

A report on exotic pet trade in India by the global nonprofit Humane World for Animals India, released this July, said that repatriation is complex as the wildlife consignments change multiple hands, passing through different geographies, making a return to the wild rarely feasible. Many species, it said, are captive bred with no

known geographic origin.

Pawan Sharma, advocate and founder of the Mumbai-based wildlife rescue organisation Resqink Association for Wildlife Welfare, said that in the case of airport seizures, most of them are immediately returned to the place of origin in accordance with July 2025 guidelines of the Directorate General of Civil Aviation (DGCA).

Sharma said, "We have to keep science, conservation, welfare, and legalities in mind. Repatriation has to factor in what is the exact state of origin, whether that country is willing to take back the animals. Several times the place of origin is not the same as the range or habitats where they are originally found in the wild."

Odisha: An atypical case

The rescue of the orangutans from a forested area is not a typical case of illegally trafficked wildlife seizure. Across India's airports, sea ports and land border posts, seizures of illegally trafficked wildlife consignments are usually of multiple animals, sometimes in bulk. Small mammals, reptiles, and amphibians are snuffed in gunny sacks, small cages or plastic boxes. In an infamous May 2022 case from Mizoram's Champhai district near the Myanmar border, authorities seized 468 animals from six or seven different species.