

"Science and Justice: How Narco Tests, Lie Detectors, and Brain Scans Are Used in India"

Richa Pandey

Introduction

In modern-day India, the fast-changing world of crime and justice has augmented society's dependence on scientific and technological methods in the quest for truth. Confronted with the issue of rising crime and the lack of effectiveness of conventional methods of investigation, the police and judiciary have increasingly sought to close the loophole between suspicion¹ and evidence by resorting to high-tech methods—narco analysis, polygraph (lie detector) tests, brain mapping (BEOS/P300)².

But even as these scientific methods hold out the promise of more objective ways of determining guilt or innocence, their application has raised basic legal, ethical, and constitutional issues. There is a question mark over the reliability of such techniques. Can science today really detect human dishonesty? Are such techniques useful to justice, or do they jeopardize the rights and dignity guaranteed in the Indian Constitution?

Through an analysis of the social history of lie detection, the technical principles and procedures of such scientific tests, a detailed scrutiny of case law and statute law provisions, and a realistic evaluation of their strengths and weaknesses, this article aims to present a balanced and complete picture of the place of scientific evidence in Indian law and justice. In the end, the quest for truth must be as much a function of respect for fundamental rights, procedural justice, and the abiding values of justice as it is a function of scientific advancement³.

¹ Dhiman, Dr.S. and Kaur, Noorkamal (2025) *Lawjournals, Invisible guardian: Constitutional boundaries in forensic investigation*. Available at: <https://www.lawjournals.net/assets/archives/2025/vol7issue1/7012.pdf> (Accessed: 30 July 2025).

² Kumar, A. (2019) *Use of Scientific Procedure in the Indian Criminal Justice System for Investigation: Study with Special Reference to DNA Profiling, NarcoAnalysis and Polygraph Test, Use of Scientific Procedure in the Indian Criminal Justice System for Investigation: Study with Special Reference to DNA Profiling, NarcoAnalysis and Polygraph Test*. Available at: <https://www.jetir.org/papers/JETIR1907P34.pdf> (Accessed: 30 July 2025).

³ *Inflibnet*. Available at: https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000016FS/P000702/M015234/ET/1516271769FSC_P15_M22_e-text.pdf (Accessed: 30 July 2025).

Cultural and Folk Attempts at Lie Detection

Prior to the invention of contemporary forensic science, communities have developed their own systems to guess the truth. These varied from affective oaths (swearing before loved ones or gods) to clever psychological illusions, all the time taking for granted that the internal tension of deceit would be physically or behaviorally expressed.

One famous example is the ancient method of having a suspect chew dry rice grains. It was believed that being frightened of lying and so developing dryness of the mouth under fear would keep the chewed rice from sticking together—thus, the "guilty" subject's lie was visually revealed.

These traditional techniques—though ingenious—were by no means foolproof. They were based on subjective tests, cultural presuppositions, and frequent social pressure. As crime developed in complexity and societies expanded, such primitive techniques were no longer sufficient. Modern legal systems found that justice had to be more than mere intuition or ritual: it had to be evidence, procedure, and respect for rights.

Therefore, the quest for objectivity in lie detection spawned scientific methods of interrogation: initially in the guise of polygraphy, and subsequently by using pharmacological and neurophysiological techniques.⁴

The Rise of Scientific Interrogation

The police, working under immense pressure to solve huge numbers of cases, have from time to time employed coercive "third-degree" techniques. Such methods, though at times yielding quick results, are susceptible to abuse and miscarriage of justice. The emergence of the scientific deception detection methods—polygraph, narco analysis, and brain mapping—was viewed as a more humane, objective solution.

⁴ *The truth about lie detection in ancient and modern times* | *ancient origins* (2014) *ANCIENT ORIGINS*. Available at: <https://www.ancient-origins.net/myths-legends/truth-about-lie-detection-ancient-and-modern-times-002125> (Accessed: 30 July 2025).

Polygraph (Lie Detector Test)

The Polygraph, or lie detector test, measures several physiological reactions including heart rate, blood pressure, skin conductivity, and breathing as a subject responds to a series of questions. Sensors are placed on the fingers, chest, or arm to monitor these physical changes during the test, determining baseline reactions to honest responses versus reactions that could be indicative of deception. But the polygraph's accuracy depends on a person's psychological and cultural background. For example, an emotionless liar may not register pronounced physiological changes, while an anxious honest person can provide responses that are commonly equated with dishonesty. This has sparked criticism of the polygraph's reliability, illustrating situations where professionals can defeat the machine, such as in movies like "Right Ya Wrong." Moreover, in certain cultures where lying is routine or culturally conditioned, the physiological "stress markers" that the polygraph depends on may not appear clearly, thus diminishing the test's usefulness.

Narco Analysis

Narco Analysis is done by giving a controlled amount of drugs like sodium pentothal, which put the subject into a trance or hypnotic state. Conscious control is reduced in this state, and the subject's conscious ability to manipulate or create responses is lowered. The subject is neither awake nor asleep but is interrogated while their responses are recorded. While narco analysis is regarded as a way to obtain concealed or repressed information, it is highly risky from a medical standpoint if the dosage does not go as planned, and there's a chance of coma or death. What's more, the answers can't be relied on; the subjects might provide incoherent or lying answers because of the changed state of mind.⁵

Brain Mapping (BEOS/P300)

Brain Mapping, in the form of methods such as BEOS or the P300 test, has its basis in neuroscience. Brain Mapping through these methods evaluates involuntary brain activity in

⁵ Team, V.I.E. (2025) *Constitutional validity of Narco tests: Current affairs: Vision IAS, Current Affairs | Vision IAS*. Available at: <https://visionias.in/current-affairs/monthly-magazine/2025-07-22/polity-and-governance/news-in-shorts> (Accessed: 30 July 2025).

response to criminal stimuli through electroencephalogram (EEG) recordings. The P300 wave is a specific brain reaction that indicates recognition or memory processing and occurs when the subject identifies familiar or meaningful information. In contrast to polygraph or narco analysis, however, brain mapping does not use drugs or active interrogation; electrodes capture patterns of brain waves as the subject is passively presented with words, pictures, or sounds that pertain to the crime. The BEOS technique pioneered by Dr. C.R. Mukundan in India has been utilized to distinguish between a person who has heard only about a crime and one having direct experiential memory of it. The method has also been used in big-ticket investigations in states such as Gujarat and Maharashtra, for instance, in the case of Santokhben Jadeja and the Pune poisoning case in 2008.

Legal and Constitutional Framework

Fundamental Rights

Article 20(3)⁶: Right against self-incrimination—no one can be forced to be a witness against themselves.

Article 21: Right to life and personal liberty—including privacy and dignity. Scientific tests must be just, reasonable, and given effect by law.

Statutory Provisions

Bharatiya Sakshya Adhiniyam, 2023 (Section 23)⁷: Only facts discovered as a result of information supplied during an allegedly compelled test are admissible.

Bharatiya Sakshya Adhiniyam, 2023 (Section 39(1)): Admits scientific expert testimony for disputed facts, including DNA.

Key Judicial Precedents on Narco-Analysis

⁶ *The constitution of India*. Available at: https://www.indiacode.nic.in/bitstream/123456789/19150/1/constitution_of_india.pdf (Accessed: 30 July 2025).

⁷ *India code: Bharatiya Sakshya Adhiniyam, 2023*. Available at: <https://www.indiacode.nic.in/handle/123456789/20063> (Accessed: 30 July 2025).

Selvi & Ors v. State of Karnataka (2010)⁸ – Supreme Court of India

The judicial milestone of the Supreme Court in *Selvi & Ors v. State of Karnataka* established that the forced administration of narco-analysis, polygraph, or brain-mapping tests contravenes Articles 20(3) (protection of the right against self-incrimination) and 21 (right to personal liberty and privacy) of the Constitution. The Court pronounced that no one—neither an accused, nor a suspect, nor a witness—can be forced to submit to these methods without their consent. Anything obtained from such coercive processes is not evidence. The court established strict procedural protection: no test can be done without free, informed consent recorded in front of a judicial magistrate, with the individual being given full legal counselling. The Court emphasized the constitutional right against self-incrimination, deeming obligatory narco-analysis an "unwarranted invasion of personal liberty" and violation of the protection against self-incrimination.

State of Bombay v. Kathi Kalu Oghad (1961)⁹ – Supreme Court of India

In this foundational case, the Court laid down the fundamental principle that incriminating evidence obtained by torture or coercion is inadmissible. Forcing a person to make self-incriminating admissions by any method is unconstitutional and violates Article 20(3). Although it was not a direct narco-analysis case, this ruling has been the basis of subsequent decisions on the topic by asserting the inviolability of the right against self-incrimination.

Nandini Sathpathy v. P.L. Dani (1978)¹⁰ – Supreme Court of India

This case solidified the right against silence at investigation, ruling that the accused cannot be compelled to respond to questions that can be self-incriminatory. The Court established the right of the accused to silence as an essential aspect of individual liberty and the right against self-incrimination under Article 20(3).

⁸ *Indian kanoon - search engine for Indian law Selvi & Ors vs State Of Karnataka & Anr on 5 May, 2010*. Available at: <https://indiankanoon.org/> (Accessed: 30 July 2025).

⁹ *The state of Bombay vs Kathi Kalu Oghad and others on 4 August, 1961*. Available at: <https://indiankanoon.org/doc/1626264/> (Accessed: 30 July 2025).

¹⁰ *Nandini Satpathy vs Dani (P.L.) and ANR on 7 April, 1978*. Available at: <https://indiankanoon.org/doc/1938988/> (Accessed: 30 July 2025).

Ramchandra Ram Reddy v. State of Maharashtra (2004)¹¹ – Bombay High Court

The Bombay High Court addressed the constitutionality of conducting narco-analysis. It recognized narco-analysis and brain-mapping as potentially permissible if performed with consent and due process, acknowledging their use as investigatory tools but not as conclusive evidence. However, the test's evidentiary value remained limited and subject to the strictures of the Constitution and the Evidence Act.

Dinesh Dalmia v. State (2006/2008)¹² – Madras High Court and Supreme Court

Both courts underscored the importance of voluntary consent when administering narco-analysis. The Supreme Court specifically held that any evidence obtained without such consent is inadmissible in law, and judicial scrutiny is always required.

Is Narco-Analysis a Right of the Accused¹³?

The Amlesh Kumar case by the Supreme Court dismissed the argument that narco-analysis is an absolute or "indefeasible" right of the accused.

No Coercion: Forced narco-analysis is strictly prohibited. Any order for subjecting an accused to such a test without his free, informed, and judicially recorded consent is unconstitutional and shall be held in abeyance by the courts.

Not a Right: The accused has no absolute or "indefeasible" right to require a narco-analysis test as part of their defense. Although they can offer themselves for the test at a suitable stage (for example, while leading defense evidence under Section 256 in Bharatiya Nagarik Suraksha Sanhita, 2023 the court's permission is required, and the choice is not obligatory.

¹¹ *Indian kanoon - search engine for Indian law* (no date a) *Ramchandra Ram Reddy vs The State Of Maharashtra* [Alongwith ... on 5 March, 2004. Available at: <https://indiankanoon.org/> (Accessed: 30 July 2025).

¹² *Dinesh Dalmia*. Available at: <https://indiankanoon.org/search/?formInput=dinesh+dalmia> (Accessed: 30 July 2025).

¹³ *Accused persons do not have an absolute right to seek a narco-analysis test* (no date) *Supreme Court Observer*. Available at: <https://www.scobserver.in/supreme-court-observer-law-reports-scolr/accused-persons-do-not-have-an-absolute-right-to-seek-an-narco-analysis-test-amlesh-kumar-v-the-state-of-bihar/#:~:text=The%20Supreme%20Court%20held%20that,tests%20for%20all%20the...> (Accessed: 30 July 2025).

Judicial Protections: If a court permits the test, consent needs to be real, informed, and documented in front of a judicial magistrate. Legal representation should be there, and the test needs to be conducted with stern procedural and medical protections as specified in *Selvi v. State of Karnataka* (2010).

Evidentiary Value: Though even a test under narco-analysis is offered voluntarily, it cannot form the sole basis of conviction. It may at best corroborate other evidence, and only those facts so discovered in consequence which are independently admissible-for instance, under Section 23 of the Bharatiya Sakshya Adhiniyam (BSA) 2023, may have any legal weight.

When Prohibited: Bail hearings are not the proper stage to impose or insist on narco-analysis. This invasive test should be left for trial proper, and only if the accused wants to present it as part of their defense.

These principles were reinforced in *Amlesh Kumar v. State of Bihar* (2025), where the Supreme Court set aside a High Court order permitting forced narco-analysis during bail proceedings, reaffirming that the Constitution's protection of personal liberty and dignity must always come first.

At What Stage Can Narco Be Demanded¹⁴?

The Supreme Court explained that a suspect can voluntarily submit to a narco-analysis test, but only at the proper time of trial, namely when the suspect is availing themselves of their privilege to present evidence in their defence (usually after the case of the prosecution is closed and before judgment by the court).

A narco test cannot be requisitioned nor performed during bail proceedings or inquiry without the consent and with proper protection of the judiciary.

¹⁴ Team, V.I.E. (2025) *Accused has right to voluntarily undergo narco-analysis test subject to court's permission: Sc: Current affairs: Vision IAS, Current Affairs | Vision IAS*. Available at: <https://visionias.in/current-affairs/news-today/2025-06-10/polity-and-governance/accused-has-right-to-voluntarily-undergo-narco-analysis-test-subject-to-courts-permission-sc> (Accessed: 30 July 2025).

This must be done voluntarily, before a magistrate, under all legal and medical safeguards.

Even then, the court has discretion to accept or reject the request based on the "totality of circumstances" and must ensure the accused genuinely understands the implications¹⁵.

Conclusion:

Scientific methods such as narco analysis, polygraph, brain mapping, and DNA profiling have transformed India's criminal investigations to crack difficult cases and avoid wrongful convictions. But their application poses serious legal and ethical issues, particularly on the issue of consent and privacy. The Supreme Court has insisted that these tests must not be forced and should be conducted with voluntary, informed consent under strict conditions. Though DNA evidence is universally accepted for reliability, narco analysis and brain mapping are controversial and must be corroborated. India's legal system attempts to balance scientific advancement with safeguarding basic rights, so that justice is at once fair and effective.

¹⁵ *ibid*