



# MODERN SCIENTIFIC TECHNIQUES OF INVESTIGATION AND FUNDAMENTAL RIGHTS: A STUDY IN INDIAN SCENARIO

SURYANSH TIWARI

Student of Law, Allahabad University, Uttar Pradesh, India

## 1. Introduction

As the society has progressed, new techniques of Investigation have emerged. With the development of science and technology, new scientific investigation methods have also been introduced. Emerging new types of violent crimes has forced the introduction of these new techniques. Some of the popular techniques are DNA Tests, Lie Detector Test, Polygraph Test, Brain Mapping Test, Fingerprint evaluation, Narco-Analysis Test etc.

The development of these techniques may have made the Investigation process easier and efficient but it must be ensured that these techniques do not violate the fundamental rights guaranteed to the persons under the Constitution of India.

**Statement of Issues:** The main questions that arise in this context (in relation to fundamental rights) are-

- (a). Whether these tests can be conducted without the consent of the accused?
- (b). Whether the use of these Investigation techniques lead to the violation of Right to Self-Incrimination<sup>1</sup> guaranteed under the Constitution of India?
- (c). Whether these tests violate the Right to Privacy guaranteed under article 21 of the Constitution of India?
- (d). Whether these tests have an adverse impact on the health of the accused?

<sup>1</sup> The Constitution of India, art. 20(3)

**Investigation:** Investigation, according to the Code of Criminal Procedure<sup>2</sup>, includes “all the proceedings under this Code for the collection of evidence conducted by a police officer or by any person (other than a Magistrate) who is authorised by a Magistrate in this behalf”.

Criminal Investigation study of facts, searching, interrogations through various modes etc. In the current day and age, Investigation is based on modern scientific tools of Investigation.<sup>3</sup>

## **2. Modern Techniques of Investigation**

There are several scientific techniques which are employed in the Investigation process. Some of them have been discussed as follows:

**DNA TESTS:** DNA profile is the most common and probably most reliable investigation tool in forensic science. The biological material involved in establishing a DNA profile may include blood, semen, hair, teeth, bone, tissue etc. It can even be traced from victim’s bruises.<sup>4</sup> Every person has a unique DNA profile and only a small amount of genetic material can lead to a suspect. DNA samples are tested and identified and then cross-referenced with the profiles already in the database or with the genetic material of the accused to connect him with the crime.<sup>5</sup>

**Lie Detector Test:** Lie Detector (also known as Polygraph) is a kind of device that records tracings of several different pulsations as arterial and the apex beat of the heart. It records with high accuracy the physiological changes in breathing, perspiration, blood pressure and pulse rate to identify or differentiate a truth or a lie.<sup>6</sup>

**Narco-Analysis Test:** It is also known as the truth Serum Test. It involves administration of hypnotic drugs to bring the accused in a trance state. These drugs are Seconal, Hyocine, Sodium Pentothal, Sodium Amytal and Phenobarbital. The most commonly used drug is Sodium Pentothal. The quantity of the drug to be administered depends on variety of factors as Age, Sex, Physical condition of the accused and such considerations are vital as inappropriate dosage might have adverse effects as loss of memory, coma or even death.<sup>7</sup>

Under the influence of the drug, the subject is deprived of his self-control and his capacity to reason and thereby becomes incapable of manipulating his answers. The subject remains in a semi-conscious state in

---

<sup>2</sup> The Code of Criminal Procedure, 1973 (Act 2 of 1974), s. 2(h)

<sup>3</sup> Investigation and Law, available at: <http://www.legalserviceindia.com/article/1864/investigation-and-law.html> (last visited on Nov. 25, 2021)

<sup>4</sup> DNA Evidence: How It’s Done, available at: <http://www.forensicsciencessimplified.org/dna/how.html> (last visited on Nov 25, 2021)

<sup>5</sup> What is DNA Evidence? – FindLaw, available at: <https://www.findlaw.com/criminal/criminal-procedure/what-is-dna-evidence.html> (last visited on Nov. 29, 2021)

<sup>6</sup> Application of Modern Scientific Techniques in the Investigation of Crimes, available at: [http://lawhelpline.in/PDFs/CRIMINAL\\_LAWS/Scientific\\_investigation\\_of\\_crimes.pdf](http://lawhelpline.in/PDFs/CRIMINAL_LAWS/Scientific_investigation_of_crimes.pdf) (last visited on Dec 2, 2021)

<sup>7</sup> Ajay Kumar Barnwal and Prof. (Dr.) A. Nagendra Sole, “Development of Narco Analysis Test as Investigation Technique in the Criminal Justice System: An Indian Perspective” 21 *IOSR Journal of Humanities And Social Science* 98-99 (2016).

which he can answer simple and specific questions and is difficult for him to lie. In this state, he is interrogated by the investigating authorities in presence of a doctor and his revelations are recorded.<sup>8</sup>

**Brain-Mapping:** In this test, neuroscience techniques are applied by the forensic experts to determine if the suspect's brain is able to identify things from a crime scene which an innocent brain will have no knowledge of.<sup>9</sup> The test involves interrogating the witness on three categories of questions- neutral words which are directly linked to the case, probe words to elicit the information concealed by the accused, and target words which include findings pertinent to the case of which the subject is not aware.<sup>10</sup> The subject has to listen to the words and an oral response is not required from him. Sensors are attached to his head and he has to sit before a computer monitor. Certain images or shown to him or he is made to hear certain sounds and the sensors attached to his head monitor electrical activity in the brain. The sensors register P300 waves if the suspect has any connection with the sound or the stimulus.<sup>11</sup>

### 3. Impact of Modern tools of Investigation on Fundamental Rights

These tests shall now be examined on the touchstone of fundamental rights. These tests (Polygraph, Narco-Analysis and Brain-Mapping) are commonly called as the deception detection tests (DDT). The effect of these tests on fundamental rights can be examined in the light of following-

- (i). **Right against self-incrimination:** Article 20(3) of Constitution of India Declares that no person accused of an offence shall be compelled to be a witness against himself. This principle is also incorporated in US Constitution<sup>12</sup> and is fundamental to British system of criminal jurisprudence.<sup>13</sup> In **M.P. Sharma v. Satish Chandra**<sup>14</sup>, Supreme Court observed that the right implies: (i). It is a right pertaining to a person who is "accused of an offence".
- (ii). It is a protection against "compulsion to be a witness".
- (iii). It is a protection against such compulsion relating to his giving evidence "against himself".<sup>15</sup>

In **M.P. Sharma v. Satish Chandra**, the court interpreted the term to be witness very widely. The effect of such an interpretation was that the compulsory taking of finger impressions or handwriting specimens would fall within the trappings of article 20(3).

<sup>8</sup> New Tools of Criminal Investigation, available at: <https://www.lawteacher.net/free-law-essays/administrative-law-/new-tools-of-criminal-investigation-administrative-law-essay.php> (last visited on Dec 5, 2021)

<sup>9</sup> *Supra* note 3.

<sup>10</sup> Abhyudaya Agarwal and Prithwijiit Gangopadhyay, "Use of Modern Scientific Tests in Investigation and Evidence: Mere Desperation or Justifiable in Public Interest?" 2 *NUJS L. Rev.* 34 (2009).

<sup>11</sup> Just what is the brain-mapping test? ,available at: <https://m.rediff.com/news/2006/jul/19george.htm> (last visited on Dec 7, 2021)

<sup>12</sup> 5<sup>th</sup> Amendment of US Constitution provides that no person shall be compelled in any case to be a witness against himself.

<sup>13</sup> V.N. Shukla, *Constitution of India* 203 (EBC, Lucknow, 13th edn.)

<sup>14</sup> AIR 1954 SC 300

<sup>15</sup> Dr. J.N Pandey, *Constitutional Law of India* 260 (Central Law Agency, Allahabad, 55th edn.)

In **State of Bombay v. Kathi Kalu**<sup>16</sup>, the Apex Court conceded that the interpretation of the phrase “to be witness’ as adopted in M.P. Sharma’s case was too broad. The court clarified that “to be witness” is not same as “furnishing evidence”. Self-incrimination can only mean information based on personal knowledge of the person giving such information and does not include merely the mechanical process of producing documents in court.<sup>17</sup>

Thus, compulsory taking of photographs, fingerprint, Blood samples, specimen writing of the accused for comparison would not come within the mischief of article 20(3).

In **Nandini Satpathy v. P.L. Dani**<sup>18</sup>, the court broadened the scope of compulsion. The court observed that “compelled testimony” includes not only physical threat or violence but also includes psychic torture, atmospheric pressure, environmental coercion, intimidating methods and likewise.<sup>19</sup>

The Court in this case also held that no one can’t be forced to make a statement as he has right to remain silent during interrogation or investigation.<sup>20</sup>

In **Dinesh Dalmia vs State**<sup>21</sup>, the court observed that recourse to scientific tests may be taken by investigating authorities if the accused is not coming forward with the truth. Such recourse would not automatically violate right to self-incrimination unless the accused reveals any information falling within the trappings of article 20(3).<sup>22</sup>

## (ii). **Right to Privacy**

Right to Privacy has been recognised as a fundamental right under article 21 of the constitution. A nine-judge bench of the Supreme Court in the historic judgement of **Puttaswamy v. Union of India**<sup>23</sup> observed that right to privacy is a fundamental right and it stems from fundamental right to life and liberty.<sup>24</sup>

Thus, the modern tools of investigation must be adjudged on the touchstone of right to privacy as well. Tests like Narco-Analysis test invade the mind of the suspect. During the test he has no control over his mental faculty and reasoning power and thus may even divulge personal information as well. Thus, privacy concerns surround these tests.

<sup>16</sup> AIR 1961 SC 1808.

<sup>17</sup> *Supra* note 15 at 261.

<sup>18</sup> AIR 1977 SC 1025

<sup>19</sup> *Supra* note 13 at 208.

<sup>20</sup> Constitutional validity of the Deception Detection Tests, available at: <https://blog.ipleaders.in/constitutional-validity-of-the-deception-detection-tests-ddts/?amp=1> (last visited on Dec 8, 2021)

<sup>21</sup> 2006 CriLJ 2401

<sup>22</sup> Siddhi Singhal and Debarupa De Biswas “Analysis of Narco-Analysis as a serious danger to the violation of Human rights: Weapon of Power or Tool for abuse” 7 *Journal of Legal Studies and Research* 157 (2021)

<sup>23</sup> (2017) 10 SCC 1.

<sup>24</sup> Supreme Court declares right to privacy a fundamental right, available at: <https://www.mondaq.com/india/privacy-protection/625192/supreme-court-declares-right-to-privacy-a-fundamental-right> (last visited on Dec 11, 2021)

In **Ashok Kumar v. Raj Gupta and others**<sup>25</sup>, the Supreme Court observed that when the person is unwilling to subject himself to DNA test, forcing him to undergo one would intrude upon his personal liberty and his right to privacy.<sup>26</sup>

In **Bhabani Prasad Jena vs Convenor Secretary, Orissa State Commission for Women**<sup>27</sup> The court observed that in case of apparent conflict between the right to privacy of a person not to submit himself forcibly to medical examination and duty of the court to reach the truth, the court must exercise its discretion only after balancing the interests of the parties. The Court must consider that whether to reach a just decision, DNA is eminently needed.<sup>28</sup>

In **Ajay Singh vs Smt. Rama Bai**<sup>29</sup>, Madhya Pradesh High Court held that courts can not routinely order determination of paternity by way of DNA tests.

Thus, it can be said that these tests, if at all need to be performed, should be performed only with the consent of the accused after informing him of the implications that would accrue.

**(iii). Right to health:** In Narco-Analysis, drug is administered to the accused to get him in a semi-conscious state, whereby he becomes incapable of manipulating his answers. It is noteworthy that the test must be performed with extreme caution as an inappropriate dose of the drugs given in the test may have severe consequences upon the subject.

In **Urijit Singh vs State of Punjab**<sup>30</sup>, the Supreme Court right to health as an integral part of right to life enshrined under article 21 of the constitution.

In **State of Punjab v. Mahinder Singh Chawla**<sup>31</sup>, the Apex Court observed that right to life includes right to health. Subjecting a person to an unsafe scientific test as a part investigation will amount to denial of right to health.<sup>32</sup>

**(iv). Other Judgements:**

In **Sh. Shailendra Sharma vs State and another**<sup>33</sup>, the court observed that such scientific methods help in the investigation and may be of great utility. The court in this case, on the question that whether these tests are constitutionally valid, observed that no constitutional infirmity arises by the use of these tests.<sup>34</sup>

---

<sup>25</sup> 2021 SCC OnLine SC 848.

<sup>26</sup> Forcing Party to undergo DNA test against will impinges on Personal Liberty and Right to Privacy: Supreme Court, available at: <https://www.livelaw.in> (last visited on Dec 11, 2021)

<sup>27</sup> (2010) 8 SCC 633.

<sup>28</sup> Bhabani Prasad Jena vs. Convenor Secretary, Orissa State Commission for Women, available at: <https://privacylibrary.ccnlud.org/case/bhabhani-prasad-jena-vs-convenor-secretary-orissa-state-commission-for-women> (last visited on Dec 13, 2021)

<sup>29</sup> MP No.1239/2020

<sup>30</sup> AIR 1996 SC 1388.

<sup>31</sup> AIR 1997 SC 1225.

<sup>32</sup> Narco-analysis test a technology of torture, available at: <https://www.legallyindia.com/views/entry/narco-analysis-test-a-technology-of-torture-html> (last visited on Dec 15, 2021)

<sup>33</sup> CrI. WP No. 532 of 2008

<sup>34</sup> Deception detection tests and hypnosis in the criminal investigation, available at: <https://blog.ipleaders.in/deception-detection-tests-hypnosis-criminal-investigation/?amp=1> (last visited on Dec 16, 2021)

In **Rojo George v. Deputy Superintendent of Police**<sup>35</sup>, the court recognised the need of unconventional methods of questioning and considered such scientific tests helpful. If these tests are performed in strict supervision of an expert, they can't be said to impinge upon fundamental rights.<sup>36</sup>

In **Nupur Talwar v. Central Bureau of Investigation and Another**<sup>37</sup>, on having found the dead body of Aarushi Talwar, her father Rajesh Talwar got a FIR registered in which he pointed suspicion at the domestic help of the house, Hemraj. Later, Hemraj's body was also discovered from the terrace of same house in which Aarushi's murder was committed.<sup>38</sup>

On the findings suspicion was raised upon Dr. Rajesh and Nupur Talwar and they were subjected to Narco-Analysis test. In this case, the result of the test was admissible in the court though two years later, the Supreme Court ruled it unconstitutional. However, the court allowed the results to be used by the investigation authorities for leads.<sup>39</sup>

### **Selvi vs State of Karnataka**<sup>40</sup>

In this case the Supreme Court had to decide upon the validity of certain scientific techniques namely, Narcoanalysis, Polygraph and BEAP tests.

The Court in this case observed that the compulsory administration of these techniques violates the right against self-incrimination. The court recognised that the protective scope of article 20(3) encompasses protection at the investigative stage in criminal matters and read with section 161(2) CrPC, 1973, it protects accused persons, suspects as well as witnesses examined during an investigation. The results obtained through these tests are not admissible, if the test has been conducted with the aid of compulsion.<sup>41</sup>

The Court laid down certain guidelines<sup>42</sup>:

- (i). The Lie Detector Tests can't be done unless the accused consents to these tests. His consent should be recorded by a Judicial Magistrate and he should be informed of the implications of these tests.
- (ii). During the hearing before the Magistrate, the person who has allegedly given his consent must be represented by a lawyer.
- (iii). Actual recording of the test shall be done by an independent agency and the manner of receiving the information from accused must be taken on record.

---

<sup>35</sup> 2006 TLK ER 106

<sup>36</sup> Invasive investigative devices: Is the truth worth an unfair dare?, available at: <https://articles.manupatra.com/article-details/Invasive-investigative-devices-is-the-truth-worth-an-unfair-dare> (last visited on Dec 16, 2021)

<sup>37</sup> AIR 2012 SC 1921

<sup>38</sup> Nupur Talwar v Central Bureau of Investigation, available at: <https://www.lawyerservices.in/Nupur-Talwar-Versus-Central-Bureau-of-Investigation-and-Another-2012-06-07> (last visited on Dec 18, 2021)

<sup>39</sup> Mrs. Meenu Yadav, "Narco-Analysis and its evidentiary value in India" 7 *Indian Journal of Research* 60 (2018)

<sup>40</sup> AIR 2010 SC 1974

<sup>41</sup> B.R. Sharma, *Forensic Science in Criminal Investigation and Trials* 1533 (Lexis Nexis, Haryana, 6th edn.)

<sup>42</sup> *Supra* note 15 at 264.

### **Critical Analysis of these Tests (Polygraph and Narco-Analysis)**

Dr. B.M. Mohan, Director of FSL, Bangalore posited that narco-analysis has total 96-97 percent total screen rate.<sup>43</sup> It causes mental agony to the individual, more so if the procedure which has been video graphed is made public. Also, the accused in a trance-test may spill out information irrelevant to the case in question and thus this procedure violates his privacy. Moreover, sodium Pentothal, the most common drug administered in narco-analysis test, may raise serious health concerns, if employed in inappropriate amount.

Polygraph Test detects changes in physiological functions (as breathing, pulse, blood pressure etc) to stimuli. The machine does not detect lies. It only detects physiological changes which immediately follow any sudden stress emotion.<sup>44</sup> The accuracy of Polygraph has been controversial as there is no cogent evidence that any pattern of physiological reactions conclusively indicates deception. An innocent person may become nervous and hence show physiological changes while a hardened criminal may remain calm and answer the questions without any anxiety.<sup>45</sup>

#### **4. Suggestions and Conclusion**

- (i). These tests should be resorted to only in rare cases and not as a matter of routine. The tests should be performed only in those cases where judicial consent has been obtained.
- (ii). There must be minimum qualifications for the staff conducting such tests. Required training must be given to such persons. These tests must be performed by an independent agency and there must be a standard procedure.
- (iii). The video graphed footage of the suspect interrogated should be used only before the court, if admissible. It must be strictly ensured that the footage is not made public to avoid intrusion of privacy of the accused.
- (iv). The test can be conducted only if the accused has given an “informed consent”. This means that he understands the legal, emotional implications of the test before he consents to it.

To conclude, it is conceded that due to sophisticated nature of crime in the current scenario and desire for efficient investigation and conviction of a criminal without protraction, modern scientific techniques are required and can't be overlooked. However, the sanctity of fundamental rights of a person must not be violated. A balance has to be struck between 'efficient investigation' and 'protection of individual liberty'. The guidelines laid down by honourable Supreme Court in *Selvi vs State of Karnataka* must be followed. The question of “informed consent” must be sacrosanct if these tests are to be conducted and strict supervision of these tests must be done by the competent persons especially trained for such purposes.

---

<sup>43</sup> Sourodip Nandy and Himanshu Garg, “Constitutionality of Narco Analysis and Polygraph Examination” 2 *International Journal of Law Management & Humanities* 4 (2019).

<sup>44</sup> Benjamin Burack, “A Critical Analysis of the Theory, Method and Limitations of the Lie Detector” 46 *Journal of Criminal Law and Criminology* 414 (1955)

<sup>45</sup> The Truth about Lie Detectors (aka Polygraph Tests), available at: <https://www.apa.org/research/action/polygraph> (last visited on Dec 20, 2021)

## **BIBLIOGRAPHY**

### **STATUTES REFERRED**

1. Code of Criminal Procedure, 1973
2. The Constitution of India

### **BOOKS REFERRED**

1. V.N. Shukla, *Constitution of India* (EBC, Lucknow, 13th edn.)
2. Dr. J.N Pandey, *Constitutional Law of India* (Central Law Agency, Allahabad, 55th edn)
3. B.R. Sharma, *Forensic Science in Criminal Investigation and Trials* (Lexis Nexis, Haryana, 6th edn.)

### **JOURNALS REFERRED**

1. Ajay Kumar Barnwal and Prof. (Dr.) A. Nagendra Sole, "Development of Narco Analysis Test as Investigation Technique in the Criminal Justice System: An Indian Perspective" 21 *IOSR Journal of Humanities And Social Science* (2016).
2. Abhyudaya Agarwal and Prithwjit Gangopadhyay, "Use of Modern Scientific Tests in Investigation and Evidence: Mere Desperation or Justifiable in Public Interest?" 2 *NUJS L. Rev.* (2009).
3. Siddhi Singhal and Debarupa De Biswas "Analysis of Narco-Analysis as a serious danger to the violation of Human rights: Weapon of Power or Tool for abuse" 7 *Journal of Legal Studies and Research* (2021).
4. Mrs. Meenu Yadav, "Narco-Analysis and its evidentiary value in India" 7 *Indian Journal of Research* (2018).
5. Sourodip Nandy and Himanshu Garg, "Constitutionality of Narco Analysis and Polygraph Examination" 2 *International Journal of Law Management & Humanities* (2019).

### **ONLINE WEBSITES/ARTICLES ACCESSED**

1. Investigation and Law, available at: <http://www.legalserviceindia.com/article/1864/investigation-and-law.html> (last visited on No 25, 2021)
2. DNA Evidence: How It's Done, available at: <http://www.forensicsciencessimplified.org/dna/how.html> (last visited on Nov. 25, 2021)
3. What is DNA Evidence? – FindLaw, available at: <https://www.findlaw.com/criminal/criminal-procedure/what-is-dna-evidence.html> (last visited on Nov 29, 2021)
4. Application of Modern Scientific Techniques in the Investigation of Crimes, available at: [http://lawhelpline.in/PDFs/CRIMINAL LAWS/Scientific\\_investigation\\_of\\_crimes.pdf](http://lawhelpline.in/PDFs/CRIMINAL LAWS/Scientific_investigation_of_crimes.pdf) (last visited on Dec 2, 2021)

5. New Tools of Criminal Investigation, *available at:* <https://www.lawteacher.net/free-law-essays/administrative-law/new-tools-of-criminal-investigation-administrative-law-essay.php> (last visited on Dec 5, 2021)
6. Just what is the brain-mapping test?, *available at:* <https://m.rediff.com/news/2006/jul/19george.htm> (last visited on Dec 7, 2021)
7. Constitutional validity of the Deception Detection Tests, *available at:* <https://blog.ipleaders.in/constitutional-validity-of-the-deception-detection-tests-ddts/?amp=1> (last visited on Dec 8, 2021).
8. Supreme Court declares right to privacy a fundamental right, *available at:* <https://www.mondaq.com/india/privacy-protection/625192/supreme-court-declares-right-to-privacy-a-fundamental-right> (last visited on Dec 11, 2021).
9. Forcing Party to undergo DNA test against will impinges on Personal Liberty and Right to Privacy: Supreme Court, *available at:* <https://www.livelaw.in> (last visited on Dec 11, 2021)
10. Bhabani Prasad Jena vs. Convenor Secretary, Orissa State Commission for Women, *available at:* <https://privacylibrary.ccgnlud.org/case/bhabhani-prasad-jena-vs-convenor-secretary-orissa-state-commission-for-women> (last visited on Dec 13, 2021).
11. Narco-analysis test a technology of torture, *available at:* <https://www.legallyindia.com/views/entry/narco-analysis-test-a-technology-of-torture-html> (last visited on Dec 15, 2021)
12. Deception detection tests and hypnosis in the criminal investigation, *available at:* <https://blog.ipleaders.in/deception-detection-tests-hypnosis-criminal-investigation/?amp=1> (last visited on Dec 15, 2021)
13. Invasive investigative devices: Is the truth worth an unfair dare?, *available at:* <https://articles.manupatra.com/article-details/Invasive-investigative-devices-is-the-truth-worth-an-unfair-dare> (last visited on Dec 16, 2021)
14. Nupur Talwar v Central Bureau of Investigation, *available at:* <https://www.lawyerservices.in/Nupur-Talwar-Versus-Central-Bureau-of-Investigation-and-Another-2012-06-07> (last visited on Dec 18, 2021)
15. The Truth about Lie Detectors (aka Polygraph Tests), *available at:* <https://www.apa.org/research/action/polygraph> (last visited on Dec 20, 2021)