F25 Cheiloscopy: Lip Print Prevarications

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Learning Overview: After attending this presentation, attendees will understand that cheiloscopy lacks scientific evidential value.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by informing attendees of cheiloscopy's non-compliance with scientific and evidential standards.

Cheiloscopy in forensic science is the comparison use of lip prints and impressions to known exemplars for personal identification in the judicial system. Architectural pattern wrinkles and grooves on lips are used for determining individual characteristics with its appearance varying according to pressure, direction, anatomical surface, and the method of creation (similar to a fingerprint). Lip prints can be found on paper, clothes, glass, cigarette butts, and other surfaces resulting in variations of recovery and analysis.

Cheiloscopy initially began as a purported method of identification around 1970.[1] A survey inquiry of scientific literature from 1993, when *Daubert v. Merrill Dow Pharmaceuticals, Inc*. announced the judicial standards for scientific evidence, is presented for an overview assessment of cheiloscopy in human forensics.[2,3] Publications are often regionally from India.[4] The publications generally rely on erroneous statements and dated material and omit relevant judicial decisions, thereby presenting a veneer of credibility.[2,5]

Applicable standards and criteria for credible research are promulgated by the scientific community. Principles of metrology, including reproducibility and reliability, are necessary tenets of trustworthy science. In order to establish reliability, uncertainty of measurement and known error (random, systemic/procedural arithmetic, gross and confirmation bias) are required. Standardization of methodology is necessary for reproducibility.[6] Confirmatory DNA testing increases the test results reliability.[7] Unbiased peer-reviewed publication in respectable journals containing current research is necessary to establish reliability of methodology and results.[8]

Scientific evidence is derived from a process governed by the scientific method. Forensic science is the application of science to law. Forensic science is the most persuasive of all evidence. Reliable scientific evidence is essential for conviction and exoneration. Under *Daubert*, judges decide whether the discipline is reliable and admissible.[3] The 2009 National Academy of Sciences Report made numerous recommendations for objectivity and accountability, including standardization, rules governing courtroom scientific evidence, and pattern impressions.[9]

" 'Junk science' is the mirror image of real science, with much of the same form but none of the same substance."[10] Junk science or pseudo-science usually consists of flawed, unreliable, exaggerated, and sometimes fabricated testimony routinely founded on questionable methodology. Misrepresentation is a basis for publication retractions.

Proponents of cheiloscopy claim imprints are comparable to known exemplars for individual identification due their "unique" characteristics. However, the distinctiveness of an individual's lip prints fails scientific and legal scrutiny.[2,3]

Current literature has adduced the following sample lip print prevarications: (1) focuses generally on anthropological topics; (2) reliance on outdated references from non-primary sources; (3) supposed uniqueness of labial wrinkles and grooves; (4) methodology lacks validity and reliability; (5) lacks current standards and techniques; (6) absence of method validation and quality assurance; (7) erroneously quotes reference sources; (8) lacks confirmatory salivary DNA analysis; (9) subjective pattern identification complications (guesswork, speculation, and bias); (10) non-existent forensic metrological analysis (uncertainty and potential error rate); (11) data integrity appears incompatible with modern tenets of "good science;" (12) paradigm conflicts exist (current scientific and legal standards); (13) ignores severe criticisms of the 2009 National Academy of Science Report on pattern evidence; and (14) disregards wrongful conviction where "phony forensic testimony" regarding cheiloscopy was a pivotal component.[5]

The American Bar Association has a post-conviction relief resolution to challenge convictions based on discredited forensic science.[11] California and Texas have post-conviction statutes for contesting convictions based upon false evidence, debunked science, or repudiated expert witness opinions.[12-15] The lack of judicial acumen and attorney competency regarding scientific evidential standards fosters unreliable (phony) scientific testimony and perpetuates wrongful convictions.

The scientific accuracy and legal reliability of cheiloscopy identification are not validated in current scientific literature. Accordingly, cheiloscopy should be considered pseudoscience or junk science.

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11. *ABA, Crim. Just. Sect., Resolution* 108b (Feb. 5, 2018).
12. Calif. Penal Code, Title 12, Chpt. 1, Sect. 1473 (e)(1), Writ of Habeas Corpus, eff. Jan. 1, 2015.
13. Tex. Code Crim. Pro., Chpt. 11, Art. 11.073 (a)(2), eff. Sept. 1, 2013.
14. Habeas—Procedures related to certain scientific evidence. *The Junk Science Writ*.
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