



Criminalistics Section – 2004

B106 The Current Status of Microscopical Hair Comparisons

*Walter F. Rowe, PhD**, Department of Forensic Sciences, The George Washington University, Samson Hall,
2036 H Street, NW,
Washington, DC

Upon completion of this presentation the participant will have an understanding of the limits of microscopical hair comparisons.

Although the microscopical comparison of human hairs has been accepted in courts of law for over a century, recent advances in DNA technology have called this type of forensic examination into question. In a number of cases, postconviction DNA testing has exonerated defendants who were convicted in part on the results of microscopical hair comparisons. A federal judge has held a *Daubert* hearing on the microscopical comparison of human hairs and has concluded that this type of examination does not meet the criteria for admission of scientific evidence in federal courts. A review of the available scientific literature on microscopical hair comparisons (including studies conducted by the Royal Canadian Mounted Police and the Federal Bureau of Investigation) leads to three conclusions: (1) microscopical comparisons of human hairs can yield scientifically defensible conclusions that can contribute to criminal investigations and criminal prosecutions, (2) the reliability of microscopical hair comparisons is strongly affected by the training of the forensic hair examiner, and (3) forensic hair examiners cannot offer estimates of the probability of a match of a questioned hair with a hair from a randomly selected person. In order for microscopical hair examinations to survive challenges under the U.S. Supreme Court's *Daubert* decision, hair microscopists must be better trained and undergo frequent proficiency testing. More research on the error rates of microscopical hair comparisons should be undertaken, and guidelines for the permissible interpretations of such comparisons should be established. Until these issues have been addressed and satisfactorily resolved, microscopical hair comparisons should be regarded by law enforcement agencies and courts of law as merely presumptive in nature, and all microscopical hair comparisons should be confirmed by nuclear DNA profiling or mitochondrial DNA sequencing.

Comparative Microscopy, Hair, DNA