



DNA Testing

Prosecutors and law enforcement use DNA as a tool to convict the guilty and exonerate the innocent. DNA is genetic, hereditary material found in virtually every cell of a person's body. DNA can come from blood, bone, hair, saliva and other body tissues and products from an individual. More than 99 percent of human DNA sequences are the same in every person – but enough differences still exist to distinguish one person from another. Only identical twins have exactly the same DNA. Scientists can use these differences to generate a DNA profile of an individual.

History

The ability to determine a DNA profile began in the 90s. In 1992, the Ohio Supreme Court held that DNA evidence may be relevant and admissible at trial. By 1997, the State began to take blood samples from convicts and put the results into CODIS (Combined DNA Index System) to help solve crimes that would otherwise go unsolved. Today mouth swabs are used to collect DNA from all convicted felons and compared to evidence left at the scene of a crime.

How it Works

Crime scene investigators collect biological samples found at crime scenes. These samples are analyzed at forensic labs to determine the DNA profile of the person who may have left the substance behind. Once the profile is determined, the question becomes whether or not the profile eliminates the suspect or is a match. When the DNA profile does not match, we know that person did not contribute to the sample.

Examples of How DNA Can be a Crime-Fighting Tool

A person is raped and does not know the attacker. Semen is left behind on the victim or on clothing. Swabs are taken and submitted to a lab. The lab puts that DNA in the CODIS system. If the attacker cannot be eliminated as a suspect, his photograph is produced with five others and shown to the victim. The victim positively identifies the suspect. This is an example of DNA leading to a suspect's arrest.

Or consider the "Grim Sleeper" serial killer suspect in California. DNA from the crime scenes were a partial match to a young man in the CODIS system. The partial match

indicated the young man was either the child or parent of the serial killer. From these leads, detectives narrowed the investigation to the father. They tested a discarded slice of pizza the father left at a public food court. He was arrested and ultimately convicted.

What DNA Can't Do

Popular television shows, the press and movies give the impression that DNA solves every crime like a magic wand. This leads many people to believe that DNA testing should be used in every criminal case. Police and prosecutors often criticize law enforcement TV shows because they portray an inaccurate image of the usefulness of DNA.

DNA test results do not tell you when an item was deposited or who left it behind. For example, a cigarette butt with saliva found at a crime scene may have been left days before a homicide or from a friendly guest and not the killer. Items left at a crime scene may or may not be related to the crime. A person may be a welcome guest at a home that is burglarized. An abundance of their DNA or fingerprints in the home proves only that they were there before the crime was committed.

Sometimes there is not enough DNA or biological material to test. If a burglar wore gloves, not only would no fingerprints be left behind, but there likely would be no bodily substances, either. When a crime is committed from a distance, like a drive-by shooting, DNA testing in the home would only produce confusing results. Ballistic tests on the bullets would produce far better results. Also, DNA degrades as time goes on, so additional DNA testing in old cases may not give reliable results.

DNA evidence testing is time-consuming and at times expensive. Testing a single sample in a typical case takes 54 hours and 15 minutes at a cost of \$1,180 per sample. Few cases have single samples, so it is difficult to assign a cost or actual time for the laboratory process.

Summary: DNA + additional evidence

Without question, DNA testing is a resourceful tool, especially when the perpetrator is unknown. A sample of blood, urine, semen, saliva or skin cells can help identify a criminal who would otherwise go uncharged. However, additional evidence is usually needed to obtain a conviction.