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STATE OF CONNECTICUT *v.* ALBERTO NIEVES
(AC 21856)

Lavery, C. J., and Mihalakos and McDonald, Js.

Argued January 9—officially released April 9, 2002

(Appeal from Superior Court, judicial district of New Haven, Fracasse, J.)

Donald D. Dakers, special public defender, for the appellant (defendant).

Toni M. Smith-Rosario, assistant state's attorney, with whom, on the brief, were *Michael Dearington*, state's attorney, and *Gary Nicholson*, senior assistant state's attorney, for the appellee (state).

Opinion

MCDONALD, J. The defendant, Alberto Nieves, appeals from the judgment of conviction, rendered after a jury trial, of murder in violation of General Statutes § 53a-54a[1] and carrying a pistol without a permit in violation of General Statutes § 29-35 (a).[2] On appeal, the defendant claims that the trial court abused its discretion in permitting an expert witness to testify as to the results of an atomic absorption gunshot residue test performed on the defendant's hands. We affirm the judgment of the trial court.

The jury reasonably could have found the following facts. At approximately 8 p.m. on June 28, 1996, the

defendant, Alex Rivera, Jose Rivera, Luis Rosa, Ervin Rosado and others were near 100 Hobart Street in Meriden. The victim, David Laureano, who was not friendly with them, drove his vehicle, in which there were two passengers, down Arch Street toward the vicinity of 100 Hobart Street. When the vehicle stopped, Jose Rivera approached it, began an argument with the occupants and then threw a punch at Laureano. Laureano exited the vehicle, and Jose Rivera struck him. A fight ensued with golf clubs being used by Laureano's passengers against several of the defendant's companions. During the fight, the defendant was injured. As the fighting continued, Laureano was left fighting alone by his companions, who fled the scene when their golf clubs were taken away from them. The defendant at this time went to his apartment at 65 Arch Street, returned with a small semiautomatic handgun and shot Laureano, killing him. The defendant then ran back to 65 Arch Street.

The police arrived on the scene shortly thereafter. A witness identified the defendant and his companions as those involved in the altercation and shooting. The witness pointed out to the police officers a red vehicle leaving 65 Arch Street. Upon stopping the vehicle, an officer took the witness to the vehicle, were she identified Jose Rivera and Rosado. The witness then saw Alex Rivera walking down the street, whereupon he was arrested. The witness also told the police that she saw the defendant run into 65 Arch Street after the shooting. Upon investigating 65 Arch Street, the police found Rosa climbing into the defendant's apartment window and took him into custody. A subsequent search of the back hallway at 65 Arch Street led to the defendant. Upon being discovered and before the police said anything, the defendant shouted at the police that he had not shot or killed anybody. The defendant resisted when the police attempted to apprehend him, requiring officers at the scene to call for additional help. No handgun was found at 65 Arch Street.

Once in police custody, all five individuals were given a gunshot residue test. The defendant and Rosa tested positive for the presence of lead on their hands. Lead was found on the defendant's left palm, right palm and on the back of his right hand, and on Rosa's left palm and the back of both of his hands. When Rosa testified at the defendant's trial, he was unable to identify any source for the lead found on the defendant's hands. The defendant was subsequently convicted of murder and carrying a weapon without a permit and sentenced to a total effective sentence of forty-five years. This appeal followed.

The defendant claims that the court abused its discretion when it failed to strike the testimony of the state's expert witness, Robert O'Brien, after he testified that the gunshot residue test revealed the presence of lead on the defendant's hands. We are not persuaded.

The following additional facts are necessary for our resolution of the defendant's claim. At trial, the state called O'Brien, a supervising criminologist with the state police forensic science laboratory, to testify as to the results of the atomic absorption test for gunshot residue that was performed on the defendant's hands. O'Brien testified that, in conducting a gunshot residue test, he looks for the presence of three metals or elements to ascertain whether an individual has recently fired a firearm: lead, barium and antimony. Further, O'Brien testified that when a person fires a firearm, there is a mist of gas created that will blow back on the person's hand. This is a result of the detonation of the primer and the burning of gunpowder. Gunshot residue tests attempt to detect the primer residue that is left on an individual's hands after firing a firearm. O'Brien stated that lead is the element most commonly found in gunshot residue, followed by barium, and then antimony. O'Brien also explained that each shot will produce a different amount of residue ''so it really varies as to the amounts and the concentrations we get from the hands in any test firing . . . .'' Only if lead, the most common component, is found will the residue be tested for the other elements. O'Brien explained that if lead is not found, it is not likely the other elements will be found.

The defendant's test results disclosed that the defendant had traces of only lead on his hands, and not barium or antimony. When O'Brien was asked to state whether the lead on the defendant's hands was a result of his firing a weapon, he testified, ''I can't be a hundred percent certain. It is one of the possibilities, that's it.'' O'Brien explained that environmental factors, such as a person's occupation, might explain the presence of lead. He noted, however, that lead products are not common in society, but contact with a lead source could be a reason that an individual would have lead on his hands. Additionally, O'Brien explained that an individual could remove gunshot residue from his hands by wiping or washing them.

On cross-examination, O'Brien testified that the presence of only lead would be of the least significance, as opposed to a finding of all the elements. O'Brien stated that even if all three elements were found, however, he could not rule out the environmental factor, but the presence of all three elements made it more likely that a firearm was the source of the residue.

The following day, the defendant moved to strike O'Brien's testimony. The defendant argued that the testimony's relevance was outweighed by its prejudicial nature. In denying the defendant's motion, the court stated that ''there is some relevance to this testimony and the prejudicial effect does not outweigh the relevancy of it . . . .''

"It is well settled that [t]he trial court's ruling on the admissibility of evidence is entitled to great deference. . . . [T]he trial court has broad discretion in ruling on the admissibility . . . of evidence. . . . [Its] ruling on evidentiary matters will be overturned only upon a showing of a clear abuse of the court's discretion. . . . We will make *every reasonable presumption* in favor of upholding the trial court's ruling, and only upset it for a *manifest abuse of discretion*. . . . Moreover, evidentiary rulings will be overturned on appeal only where there was . . . a showing by the defendant of substantial prejudice or injustice." (Emphasis in original; internal quotation marks omitted.) *State* v. *Turner*, 62 Conn. App. 376, 383, 771 A.2d 206 (2001).

"Concerning expert testimony specifically, we note that the trial court has wide discretion in ruling on the admissibility of expert testimony and, unless that discretion has been abused or the ruling involves a clear misconception of the law, the trial court's decision will not be disturbed. . . . Expert testimony should be admitted when: (1) the witness has a special skill or knowledge directly applicable to a matter in issue, (2) that skill or knowledge is not common to the average person, and (3) the testimony would be helpful to the court or jury in considering the issues." (Internal quotation marks omitted.) *State* v. *Wargo*, 255 Conn. 113, 123, 763 A.2d 1 (2000).

A predicate to the admissibility of expert testimony is its relevance to some issue in the case. "Relevant evidence is evidence that has a logical tendency to aid the trier in the determination of an issue. . . . One fact is relevant to another if in the common course of events the existence of one, alone or with other facts, renders the existence of the other either more certain or more probable. . . . Evidence is irrelevant or too remote if there is such a want of open and visible connection between the evidentiary and principal facts that, all things considered, the former is not worthy or safe to be admitted in the proof of the latter. . . . Evidence is not rendered inadmissible because it is not conclusive. All that is required is that the evidence tend to support a relevant fact even to a slight degree, so long as it is not prejudicial or merely cumulative." (Internal quotation marks omitted.) Id., 123–24; see also Connecticut Code of Evidence § 4-1.

The defendant concedes that O'Brien's testimony was relevant. He does not claim that the results of gunshot residue tests should be prohibited under *State* v. *Porter*, 241 Conn. 57, 698 A.2d 739 (1997), cert. denied, 523 U.S. 1058, 118 S. Ct. 1384, 140 L. Ed. 2d 645 (1998), which adopted the test enunciated in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993), for the admissibility of scientific evidence. The defendant's sole claim is based on his contention that because the results of the atomic

absorption test performed on his hands revealed the presence of lead only, without a showing of barium or antimony, the probative value of O'Brien's testimony was outweighed by its prejudicial impact.

In support of his claim, the defendant relies on our Supreme Court's decision in *State* v. *Moody*, 214 Conn. 616, 573 A.2d 716 (1990). This reliance, however, is misplaced. In *Moody*, the defendant argued that the trial court incorrectly permitted the state's serologist to testify that a stain on one of the soles of the defendant's shoes showed a positive result for the ''presumptive test for blood.'' The ''presumptive test for blood'' is ''a preliminary screening test that determines whether the actual test for blood should be administered.'' Id., 627. In *Moody*, because the stain was too small, the determinative test for blood could not be performed. Id., 628. Our Supreme Court found that the test result was ''entirely irrelevant'' and had ''no probative value [because it] did nothing toward establishing the likelihood of the presence of human blood on the sole of the defendant's shoe.'' Id.

In this case, the testimony contributed toward establishing the likelihood that the defendant had recently fired a handgun. O'Brien testified that lead, the most commonly found element in gunshot residue, was in fact found on the defendant's hands. While he could not be 100 percent certain, the defendant's firing a handgun could have caused the presence of lead. As pointed out in *Wargo*, the test result need not be conclusive to be admissible because ''[a]ll that is required is that the evidence tend to support a relevant fact even to a slight degree . . . .'' (Internal quotation marks omitted.) *State* v. *Wargo*, supra, 255 Conn. 124.

The analysis of possible gunshot residue is a widely accepted technique to determine if an individual has recently fired a gun. See R. Koons, D. Havekost & C. Peters, ''Analysis of Gunshot Primer Residue Collection Swabs Using Flameless Atomic Absorption Spectrophotometry: A Reexamination of Extraction and Instrument Procedures,'' 32 Journal of Forensic Sciences 846, 847 (1987). ''When a firearm is discharged, an assortment of vaporous and particulate materials are expelled in the area around the firearm.'' Id., 846. ''These residues are principally composed of burnt and unburnt particles from the propulsive charge . . . the cartridge case and the firearm itself, and they are generally called gunshot residue . . . .'' F. Romolo & P. Margot, ''Identification of Gunshot Residue: A Critical Review,'' 119 Forensic Science International 195 (2001). ''Most primers produce residue deposits that contain lead, antimony, and barium. These elements normally become more abundant on the hand after a handgun is fired.'' H. Meng & B. Caddy, ''Gunshot Residue Analysis—A Review,'' 42 Journal of Forensic Sciences 553, 555 (1997). ''The standard explosive initiator in primers is lead styphnate.

. . . Oxidizing agents are used in primers to increase the heat of ignition. Barium nitrate is most commonly used in small-arms ammunition, but barium peroxide, lead nitrate, or lead peroxide may also be encountered. Antimony sulfide is commonly used as fuel in primers, but calcium silicide, lead thiocyanate, powdered aluminum, and powdered zirconium, magnesium, and titanium have also been used.'' Id., 554.

Although the results from atomic absorption analysis are indicative of whether an individual has recently fired a gun or has been in contact with such a gun, they are not conclusive. The presence of lead, barium and antimony can be present on one's hands without ever having been in contact with a firearm.[3] F. Romolo & P. Margot, supra, 119 Forensic Science International 197.

The use of atomic absorption analysis to detect the presence of gunshot residue has been recognized by the legal and scientific communities as a sufficiently reliable test. See *State* v. *Fuller*, 56 Conn. App. 592, 615–16, 744 A.2d 931, cert. denied, 252 Conn. 949, 748 A.2d 298, cert. denied, 531 U.S. 911, 121 S. Ct. 262, 148 L. Ed. 2d 190 (2000); *Chatom* v. *State*, 348 So.2d 838, 842 (Ala. 1977); *People* v. *Ward*, 154 Ill.2d 272, 316, 609 N.E.2d 252 (1992); F. Romolo & P. Margot, supra, 119 Forensic Science International 200; H. Meng & B. Caddy, supra, 42 Journal of Forensic Sciences 556–57. Consequently, the atomic absorption test results in this case do not suffer from the same infirmities that the ''presumptive test for blood'' ruled inadmissible in *Moody* did.

''[S]cientific evidence, like all evidence, is properly excluded if its prejudicial impact outweighs its probative value, even if it is otherwise admissible. . . . Of course, [a]ll adverse evidence is damaging to one's case, but it is inadmissible only if it creates undue prejudice so that it threatens an injustice were it to be admitted. . . . The test for determining whether evidence is unduly prejudicial is not whether it is damaging to the defendant but whether it will improperly arouse the emotions of the jury.'' (Citation omitted; internal quotation marks omitted.) *State* v. *Pappas*, 256 Conn. 854, 887–88, 776 A.2d 1091 (2001).

''Logically relevant evidence must also be legally relevant . . . that is, not subject to exclusion for any one of the following prejudicial effects: (1) where the facts offered may unduly arouse the jury's emotions, hostility or sympathy, (2) where the proof and answering evidence it provokes may create a side issue that will unduly distract the jury from the main issues, (3) where the evidence offered and the counterproof will consume an undue amount of time, and (4) where the defendant, having no reasonable ground to anticipate the evidence, is unfairly surprised and unprepared to meet it.'' (Internal quotation marks omitted.) *State* v. *Hunter*, 62 Conn. App. 767, 774, 772 A.2d 709, cert. denied, 256 Conn. 925,

776 A.2d 1144 (2001).

In this case, the court properly denied the defendant's motion to strike O'Brien's testimony. O'Brien testified that the defendant tested positive for lead on his hands, which could have resulted from the defendant firing a weapon, although he could not be 100 percent certain. O'Brien explained that environmental factors cannot be ruled out as the source of the lead, and that, without barium and antimony, the presence of only lead is less significant than a finding of all three elements. The jury also heard testimony that Rosa knew of no environmental factor accounting for the lead found on the hands of his friend, the defendant. After a thorough review of O'Brien's testimony, we conclude that its relevance outweighed any prejudicial impact it may have had and that it was for the jury to determine how much weight to assign to O'Brien's findings and opinion.

Accordingly, we conclude that the court did not abuse its discretion in admitting into evidence O'Brien's testimony on the results of the atomic absorption test that was performed on the defendant's hands.

Even if we were to find that the court improperly denied the defendant's motion to strike O'Brien's testimony, we would still affirm the judgment because the defendant has failed to establish that substantial prejudice or injustice has resulted. The testimony of two eyewitnesses who positively identified the defendant as the person who shot the victim, combined with the defendant's statements when approached by the police, would have rendered the admissibility of O'Brien's testimony harmless. See *State* v. *Campbell*, 225 Conn. 650, 657, 626 A.2d 287 (1993).

The judgment is affirmed.

In this opinion the other judges concurred.

[1] General Statutes § 53a-54a (a) provides in relevant part: "A person is guilty of murder when, with intent to cause the death of another person, he causes the death of such person . . . ."

[2] General Statutes § 29-35 (a) provides in relevant part: "No person shall carry any pistol or revolver upon one's person . . . without a permit to carry the same issued as provided in section 29-28. . . ."

[3] "Lead is found in plumbing materials, in battery plates, in type metal, in solder, in glass and in paint. Antimony is found in several alloys, often with lead, and its oxide is used as a fire retarding in cotton and polyester blend fibres. Barium is found in paint, in automobile grease and barium sulphate from paper is probably the dominant source of environmental barium on hands." F. Romolo & P. Margot, supra, 119 Forensic Science International 197.