



The Positional Asphyxia Hypothesis, Part One: Fact or Fiction?

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Background

When unexpected death occurs and there is no obvious cause, leaps of faith not supported by adequate research may occur. For example, in the 1970s climate experts were warning of a new ice age. Chicken Little was on overdrive. Now a few decades later, the same experts are warning of global warming and the approaching disaster. I will leave it to history to determine which – if either – theory ultimately turns out to have some degree of merit.

In the criminal justice world, we are not immune from well-meaning, seemingly logical theories being concocted by experts, gaining acceptance from other experts, and eventually becoming incontrovertible truths. Positional asphyxia is an example of a theory being developed by a respected state pathologist who then published his conclusions in a professional journal.¹ A flood of other pathologists conducting post-mortem examinations who had read his persuasive theory suddenly had a convenient cause of death when a person suddenly died while being restrained and there was no other obvious cause of death.

What is positional asphyxia? “Asphyxia” is defined as an inadequate oxygen level in the blood and/or an excessive increase of carbon dioxide in the blood causing unconsciousness or death. “Positional asphyxia” is described as asphyxia brought on by the subject being placed in a body position which does not allow the subject to breathe freely and replace the spent oxygen in sufficient time to prevent death. Positional asphyxia during the late 1980s and through the 1990s became a widely accepted theory of wrongful death alleged by plaintiffs in litigation in cases involving death when substantial exertion was immediately

followed by application of restraints or compression on the subject’s thorax.

One such example occurred in a California jail when a physically powerful prisoner (about 6’5” and well over 200 lbs.) violently resisted efforts to search him during the admission process. The prisoner described as being built like Karl Malone was able to physically withstand the combined efforts of four jail deputies to control him. One witness stated the prisoner was “tossing officers around like rag dolls.” It required the addition of two more husky jail officers to join in and use their combined strength and weight to force the prisoner to the floor.

After an exhausting effort and with the subject face down officers handcuffed the prisoner. The prisoner’s breathing became labored and he suffered cardiac arrest. Despite the fact the autopsy showed that the prisoner had a seriously enlarged heart and was high on both cocaine and alcohol, Plaintiffs sued claiming the cause of death was caused by positional asphyxia resulting from the deputies’ pressure on the prisoner’s torso.

In many of the so-called positional asphyxia deaths, there are many factors that likely caused or contributed to the prisoner’s death. Cocaine and alcohol consumption can place such persons at risk of heart arrhythmia, an even greater risk for persons with heart problems. Risks of cardiac arrest increase following heavy physical exertion. But, in such cases, making positional asphyxia claims is an attempt to shift the blame to the officers with whom the prisoner chose to engage in physical combat, rather than the prisoner’s own actions (i.e., use of drugs and/or alcohol and violent exertion) and/or medical issues (i.e., preexisting cardiac or other health problems).

The Positional Asphyxia Hypothesis

The theory of positional asphyxia suffered a head-on collision with objective scientific research during the Price

¹Dr. Donald T Reay, M.D., “Effects of Positional Restraint on Oxygen Saturation and Heart Rate Following Exercise,” 9 *Am. J. Forensic Med. Pathology* 16 (1988); Reay et al., “Positional Asphyxia During Law Enforcement Transport,” 13 *Am. J. Forensic Med. Pathology* 90 (1992).

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v. County of San Diego² trial – a battle between experts who had conducted research on the effects of physically restraining prisoners during or immediately after vigorous exertion. The plaintiff's expert, Dr. Donald T Reay, M.D., (chief medical examiner for King County, Washington) is credited by the court as being the first person to hypothesize the theory of positional asphyxia. The Defendants relied on expert Dr. Thomas Newman, University of San Diego Medical Center, who had been part of a team of medical experts who conducted extensive research on the positional asphyxia theory that refuted Dr. Reay's findings.

Factual Review of Incident

Daniel Price, a chronic abuser of methamphetamine, after refusing San Diego County deputy sheriffs' demands that he exit his vehicle, aggressively resisted efforts to control and restrain him. After getting Price face down on the road, deputies handcuffed Price's wrists behind his back and shackled his ankles. He continued to kick at the deputies, so they used a second pair of handcuffs to secure the handcuffs securing his wrists to the shackles on his ankles. This method of restraint is often referred to as hogtying. During the effort to apply the restraints, deputies applied pressure to Price's torso, holding him down with a knee on his back to "communicate [the deputy's] presence." Price appeared to be experiencing trouble breathing so deputies called an ambulance. Medics responded quickly, but Price had no pulse when they arrived. Price's vital signs were briefly restored en route to the hospital, but he failed to regain consciousness.

Dr. John W. Eisele, a medical examiner for San Diego County, conducted the autopsy, concluding that the cause of death was "due to restrictive asphyxia with cardiopulmonary arrest due to maximum restraint in a prone position. . . ."³ Dr. Eisele testified that the manner in which Price was restrained prevented him from "blowing off" excess carbon dioxide. In concluding the death was the result of positional asphyxia, Dr. Eisele relied largely on the research of Dr. Reay, who was subsequently retained as an expert witness by Plaintiffs in the Price litigation.

Dr. Reay had conducted experiments that led him to believe that after physical exercise oxygen levels in the blood significantly decrease. He further concluded that restraints such as hogtying prevented the body from recovering to adequate oxygen levels by impairing the process of inhaling

and exhaling.⁴ Since no serious researcher had ever challenged or critically evaluated Dr. Reay's methodology or conclusions, it appeared that the positional asphyxia finding would not be easily refuted; however, the San Diego County Counsel's office asked Dr. Neuman to conduct a study of positional asphyxia and the hogtie method of restraint. The study which the court characterized as "sophisticated," attacked the two pillars on which Dr. Reay's conclusions were supported, that:

(1) blood oxygen levels decrease after exertion; and

(2) hogtying so impairs a subject's ability to inhale and exhale that the body cannot replenish the oxygen and "blow off" the carbon dioxide.

U.S. District Court Evaluates the Research

Dr. Neuman was able to refute Dr. Reay's conclusions, finding that blood oxygen levels do not decrease significantly after exercise. Neuman's research⁵ also found that hogtie restraint does not significantly affect blood levels of either oxygen or carbon dioxide. Plaintiffs' expert Dr. Reay conceded Dr. Newman's research "rests on exemplary methodology." The court found that, "the impairment is so minor that it does not lead to asphyxia, and in fact has no practical significance." Further, the Neuman study concluded the blood needed no replenishment of oxygen because it was already adequately supplied. Dr. Neuman compared the blood carbon dioxide levels of two groups of subjects: those who had exercised and then been hogtied and those who had exercised and not been hogtied. No difference in carbon dioxide levels was observed.

Dr. Neuman's research was persuasive to both the court and even to Dr. Reay, the plaintiffs' expert and leading proponent of the positional-asphyxia theory. The court said, "Thus, as Dr. Neuman testified and **Dr. Reay now concedes**, the hogtie restraint is 'physiologically neutral.'" The Court concluded, Dr. Neuman's study "eviscerates" Dr. Reay's conclusions. The **Price** court then turned its attention to the other research that supported the positional asphyxia hypothesis.

After Dr. Reay's retraction, little evidence is left that suggests the hogtie restraint can cause asphyxia. All of the

² 1990 F.Supp. 1230 (S.D. Cal. 1998).

³ Dr. Eisele found "acute methamphetamine abuse" as a contributing factor in Price's death.

⁴ See Reay et al., "Effects of Positional Restraint on Oxygen Saturation and Heart Rate Following Exercise," 9 *Am. J. Forensic Med. Pathology* 16 (1988); Reay et al., "Positional Asphyxia During Law Enforcement Transport," 13 *Am. J. Forensic Med. Pathology* 90 (1992).

⁵ The Neuman research was published as "Restraint Position and Positional Asphyxia," 30 *Annals of Emergency Medicine* 578 (1997).

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other scientists who have sanctioned the concept of positional asphyxia have relied to some degree on Dr. Reay's work. The [Neuman] study has proven Dr. Reay's work to be faulty, which impugns the scientific articles that followed it. **Like a house of cards, the evidence for positional asphyxia has fallen completely.** (emphasis added).

After the positional asphyxia claim was dismantled, the court concluded that hogtie restraint in and of itself does not constitute excessive force when used to immobilize a violent individual who has resisted less severe restraint techniques. The court cited for support **Mayard v. Hopkins**,⁶ holding that placing a person in handcuffs and leg restraints in a prone position was reasonable as a matter of law where the person had violently resisted arrest.

The Price Court also shot down the Plaintiffs' claim that the Defendant deputies should have taken special precautions when using the hogtie technique. "Plaintiffs' argument that the deputies should have taken precautions because of the dangers of hogtying obviously fails. The [Neuman] study has shown the dangers to be fictitious, which obviates the need for precautions." The Plaintiffs' next argument was that even if positional asphyxia does not occur with persons, generally, with obese subjects such physical restraints pose a grave danger. The court found, however, "Plaintiffs have adduced no reliable evidence that suggests that Price's girth impaired his breathing." While Dr. Reay testified that hogtying a subject with a large abdomen "could have impaired his breathing," the court noted that **Dr. Reay admitted that he had no empirical evidence to support that opinion.** It is important to note that while Dr. Neuman's study included over-weight persons, he cautioned that his study would have limited applicability to extremely obese individuals.

Regarding Plaintiffs' claim that the pressure applied to Price's back by deputies impaired his breathing and caused his death. The deputies testified that in the process of handcuffing and hogtying Price, it was necessary for a deputy to apply pressure with a knee in Price's back "to control him from thrashing around." The judge compared the subduing of Price to the facts and findings in **Estate of Phillips v. City of Milwaukee**,⁷ where the Court ruled it was reasonable for officers to apply enough weight to keep the arrestee from rolling over and kicking while he was hogtied. The Court in **Phillips** had also found it reasonable that the deputy continued the pressure on the back for a few seconds after he had been secured. In **Price** the court found it reasonable that a deputy continued to main-

tain some pressure with a knee on Price's back even after he had been hogtied. The deputy testified that he did so "to convey a sense of control in a tense, confused situation" and to prevent Price from hurting himself. Regarding the more-or-less constant pressure to Price's back, the Court ruled, "Plaintiffs have not proven that the hogtie as applied posed any danger to Price, or that it lead to his death. Accordingly, the Court concludes that the deputies used reasonable force when they placed Price fade-down and hogtied him, with incidental pressure to his torso."

Price is a very important decision in responding to positional asphyxia claims. However, it is not the final punctuation on the issue. Part two, "The Positional Asphyxia Hypothesis: Lessons Learned and Precautions," will follow. ☛



BI Incorporated Selected to Operate Day Reporting Centers in Pennsylvania and Louisiana

BOULDER, Colo. – August 11, 2010 – Luzerne County, Pennsylvania and the Louisiana Department of Corrections (DOC) and have both selected BI Incorporated to operate intensive Day Reporting Centers (DRC) to reduce recidivism and promote successful offender reentry to local communities.

The Luzerne County, Pa. DRC, located in Wilkes-Barre, will provide cognitive behavioral treatment and training services aiming to alleviate jail overcrowding while reducing chronic recidivism. Services will be provided for approximately 150 clients. The center opened on July 19.

A DRC located in Shreveport, La. will supplement supervision efforts of the Probation and Parole Division to manage higher risk parolees and probationers living in the community who are non-compliant with supervision requirements and are on the cusp of being sent back to jail. The program began operation on August 9.

BI Day Reporting Centers provide intensive cognitive behavioral treatment and training geared to change criminal behavior including: substance abuse treatment, adult basic education and GED prep, anger management, employment skills building, linkage to community services, and much more.

To learn more about BI Incorporated, visit www.bi.com or call 800.701.5171

6 ⁶105 F.3d 1226, 1227-28 (CA8 1997).

7 ⁷123 F.3d 586, 593 (CA7 1997).