ESi

# CASE STUDY

*fig.1*

# STAB TO THE BACK: SELF DEFENSE OR MURDER

ESi performs a biomechanical analysis and reenactment of an altercation between two men to help resolve conflicting accounts of how one of the men was killed. This analysis was used to support a not-guilty verdict for the murder charges brought against the defendant.

## SITUATION

A 49-year-old father was arguing with his daughter's ex-boyfriend when tensions escalated. The father was killed in the resulting fight. In the middle of the argument, the boyfriend threw a candle holder at a trash can and missed, causing the candle holder to shatter on the floor. The father interpreted this action as something being thrown at his daughter and approached the boyfriend in the kitchen. The mother and the daughter left the apartment, leaving the two men alone. At this point, the story diverges.

The boyfriend stated that the father charged him in the kitchen, grabbing his hair with one hand and his right wrist with the other. Then, while they were wrestling, the boyfriend claims that he grabbed a knife with his free, left hand and reached around the father, stabbing him once in the back *(fig. 1)*. However, the Prosecution argued that the stab wound clearly indicated that the father was running away when he was stabbed in the back *(fig. 2)*.

ESi was contacted on behalf of the Defense to conduct a biomechanical investigation of the evidence to determine which explanation was most consistent with the facts.

**Practice:** Biomechanics

**ESi Consultant**

Andre M. Loyd, Ph.D.
Senior Staff Consultant
amloyd@engsys.com
(763) 557-9090

**Services Utilized**

- Biomechanical Analysis
- Accident Reconstruction
- Injury Analysis
- File Review

**About ESi**

For over 30 years, ESi has leveraged its multidisciplinary team of engineers, scientists, and professional technical staff to investigate many major accidents and disasters. Our technical expertise, hands-on experience and state-of-the-art facilities, combined with diagnostic, analytical and physical testing capabilities create an ideal environment for quickly identifying and interpreting the facts of a case.

**Contact ESi**

For more information visit our website or call us toll free at 866.596.3994.

**www.engsys.com**

## SOLUTION

ESi reviewed the case file, which included the autopsy report, police reports, photographs of the scene, and photographs of the injuries incurred by the father and the boyfriend. ESi also reviewed the boyfriend's statement about the incident and the pathologist's findings that the injuries were consistent with a stab in the back of a fleeing man.

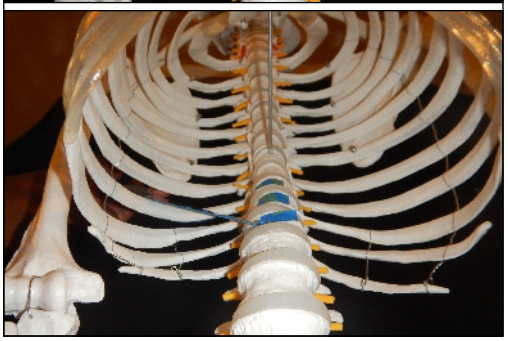
### The Facts

- The father's stab wound went into the right side of his back, between the soft tissue of the 8th and 9th ribs, then traveled downward and leftward before stopping at T10, T11, and T12 of the thoracic spine *(fig. 3)*.
- The right lower lung lobe, right hemi-diaphragm, and the lower part of the liver were lacerated *(fig. 4)*.
- The knife was stainless steel and had an 8-inch blade.

An exemplar knife and model skeleton were used to recreate the stabbing incident *(fig.1 and fig. 3)*. Then, both human and skeleton models were used to reenact the body positions to see which explanation was consistent with the injuries caused by the knife wound.


fig. 2


fig. 3



## RESULTS

Based on the analysis, the boyfriend's explanation was consistent with the path of the knife wound. The reenactment showed that the boyfriend's left hand would have inserted the knife on the right side of the father's back, starting between the 8th and 9th ribs and traveling to the lower thoracic spine. Alternately, the reenactment of the Prosecution's theory showed that stabbing a fleeing person from behind would create a more horizontal wound path from the back to the chest *(fig. 2)*. ESi testified at trial using the illustrations throughout this case report as exhibits. ESi also reenacted the stabbing motions and wound paths for the jury, using a prop knife and skeleton model. The boyfriend was found not guilty.

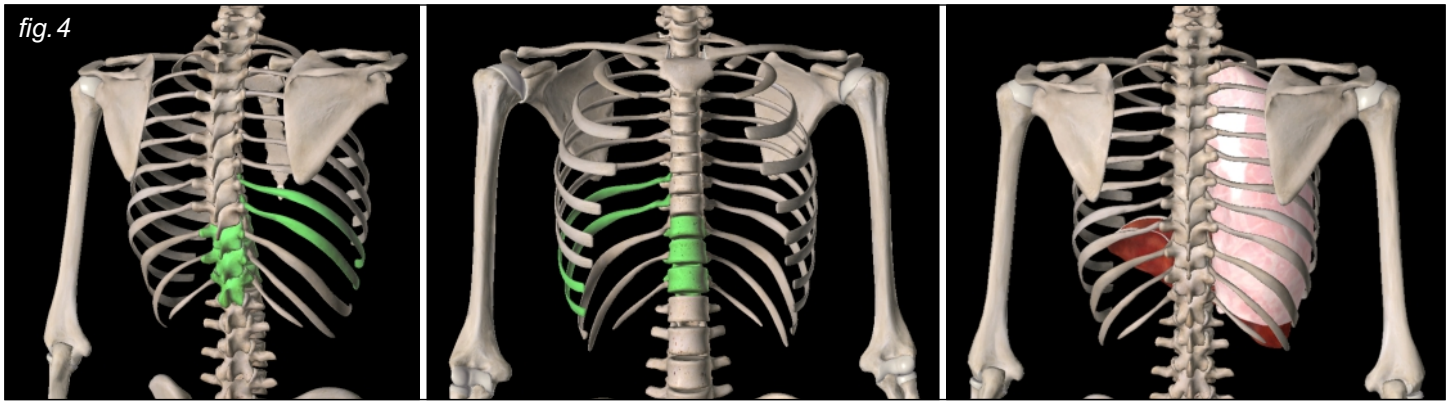


fig. 4

**WHY ESi.** Our biomechanical experts conduct investigations and recreate incidents pertaining to the mechanism and causation of injury in criminal cases that involve:

- Assault
- Child Abuse
- Murder
- Police Brutality
- Shootings
- Stabbings
- Traumatic Brain Injury
- Vehicular Accidents

ESi

**Engineering Consulting and Forensic Investigation**

**www.engsys.com**