

Question: What is Shaken Baby Syndrome?

Shaken baby syndrome or SBS is a term used to describe a constellation of injuries and the mechanism of abuse that causes these injuries. The major signs of shaken baby syndrome are sub-dural and/or sub-arachnoid hematomas which are bleeding in the membranes that cover the brain - retinal hemorrhages which are bleeding in the back of the inner surface of the eyes - - - with little or no sign of external injury. In some cases there are broken ribs and fractures of the skull. The broken ribs are said to be caused by the manner in which the child is held around the rib cage during the shaking. When a fractured skull is found it is usually seen to be caused by the head striking an object, during shaking. Brain injury in these cases is usually caused by an individual who shakes an infant usually under the age of two years, severely back and forth.

Infants who are less than two do not have the developed neck muscles of older infants and so the head will whip and lash back and forth. Because these young infants' brains do not yet fill the entire cavity of the skull - the brain becomes bruised as it literally bounces back and forth and rotates inside the skull as the child is shaken. The rapid acceleration, deceleration and rotation of the brain also tears the bridging veins that cover its surface which accounts for hematomas or bleeding in the brain. The combination of surface bruising and hematomas ultimately lead to cerebral edema or swelling of the brain.

Not all infants die from SBS, but if the swelling of their brain cannot be controlled, the brain tissue deteriorates when it runs out of space to swell within the skull. It is usually the cerebral edema or brain swelling that leads to death. If the child does not die, brain damage and mental retardation are common as a result of the edema. The original medical research article on SBS was written by Dr. John Caffey and was entitled *The Whiplash Shaken Infant Syndrome, Manual Shaking By The Extremities With Whiplashed Induce Intracranial And Interocular Bleeding Linked With Residual Permanent Brain Damage And Mental Retardation*.

There are rarely witnesses to abusive shaking, therefore the case is usually a matter of attempting to recreate what occurred by using mechanical descriptions and analysis of the injuries. As you can imagine these cases turn into the battle of the experts. The opinions of these professionals can be contradictory because no one has sufficient scientific data in this area. It is not possible or ethical to create a controlled study that measures the affects of shaking on a real infant's brain. Unfortunately, opinions are sometimes based on personal bias when there is no scientific information available. This is the case with many child advocacy experts.

Child advocacy experts claim that SBS injuries can never be caused by a fall. This is based on the idea that a short fall cannot create the necessary acceleration - deceleration forces that bruise and tear brain tissue. But this is not always the case. Studies on artificial brains subjected to falls have shown

that acceleration, deceleration forces are 40 times greater when the head is suddenly stopped by an object than when the head is shaken in mid air. Government statistical reviews of children who have suffered short distance falls show skull fractures, sub-dural hematomas and sub-arachnoid hematomas. In addition autopsies of automobile accident victims have described some of these same injuries. This empirical research demonstrates that it is possible for the brain to be damaged by an accidental fall or sudden accidental impact. This is why when a parent claims that an accident occurred the defense attorney must place into evidence research data showing that the injuries that the child sustained *could* have been sustained by an accident. One of the serious problems with SBS is that researchers have not actually seen a child being shaken and then done an autopsy to show or measure the injuries. Without scientific studies to guide the cross examination of child advocacy experts - SBS is open to exaggerated claims about how violent the shaking must be in order to cause the injuries in any given case. Descriptions from the child advocacy experts of a child having to fall from a third story window or having to be slammed against the wall while swung by the feet to sustain the alleged injuries have enormous emotional impact on a jury. Moreover, these unsubstantiated and unscientific stories interfere with the jury's fair determination as to whether or not the injury was an accident caused by another caretaker or whether or not the defendant is guilty of manslaughter, 2nd degree murder or 1st degree murder. In shaken baby syndrome cases a mother or a female babysitter is just as likely to be charged with child physical abuse or murder as is a husband or male babysitter. The person that is charged is normally the individual who was caring for the child when the symptoms first became evident.

Another claim of the child advocacy experts is that the SBS injuries are so severe that the symptoms of such trauma would be immediately apparent making it impossible for anyone to claim that an injured child appeared normal when it came into his or her care. In other words, there is no time delay between inflicting the trauma and observing it - say the child advocacy experts. Nothing could be further from the truth. In the cases that our office has handled - prosecution witnesses on cross-examination have attempted to claim that their research supports their theory that there is no time delay between injury and symptoms. When our researchers analyzed the studies that the child advocacy experts named - they did not find any evidence to support the non-time delay theory. In fact the main study that our team found stated that there could be a delay between the time of the injury and the time the symptoms showed up due to the fact that it takes time for a two year old's brain to swell and fill the cavity space. Yet a number of child advocacy experts continue to make these unsubstantiated claims despite the lack of any scientific evidence to support their opinions.

Our researchers have found numerous studies that strongly support a delay between injury and symptoms and not minutes but many hours in some cases. And if there can be a delay of numerous hours between the time of injury and the

time of symptoms, then it is also possible that several people could have been involved in caring for the child. Therefore, there are other people who should be investigated not just the individual who was with the child at the time the symptoms first appeared in order to determine how and when the child sustained such life threatening physical trauma.

A shaken baby syndrome case is extremely difficult to prepare and present to a jury. The cost for the necessary experts is staggering because most of the evidence relies on medical expert testimony and medical research papers. The most serious problems however are (1) insufficient research and (2) the inaccessibility of supporting research. First one simply cannot shake a baby in a lab with monitors on the baby to see what damage is done to the brain and body. Secondly, supporting studies are not only difficult to find but sometimes are written in other languages. These two factors enable the child advocacy experts to substitute their judgment and their own personal or political beliefs for facts. Even the educated public is not familiar with head trauma studies or the complexities of shaken baby syndrome. Therefore the role of the defense team is to teach the jury the difference between scientific research and the opinions of an advocate. Finally, the defense must educate the jury members on the actual state of knowledge with regard to brain trauma so they can determine the truth of the child's injuries and the innocence or guilt of the defendant.