Forensic Science

Other Forensic Science Services

Forensic Pathology

- This field deals with the investigation of sudden, unnatural, unexplained, or violent death.
- The forensic pathologist in the role of either the coroner or medical examiner has the responsibility to answer the question…
- Who was the victim?
- What injuries are present?
- When did the injuries occur?
- How or why were the injuries produced?

The primary role of the medical examiner

- Determine the cause of death.
- If a cause cannot be found through observation, an autopsy is normally preformed to establish the cause of death.
- The manor in which death occurred is classified into FIVE categories.
- Natural
- Homicide
- Suicide
- Accident
- Undetermined

After the Human Body Expires

- The human body goes through several stages of decomposition.
- Time of death can usually be determined by degree of decomposition.
- Immediately following death, the muscles relax and become rigid without the shortening of muscle. This condition is known a RIGOR MORTIS., which manifests itself within 24 hours and disappears in 36 hours.

Livor Mortis

- When the human heart stops pumping, blood begins to pool in the lowest position of the body: (Portions of the body closest to the ground).
- The skin will appear dark blue over these areas.
- The onset of this condition occurs immediately at death, and continues for up to twelve hours.
- This information is useful when determining the position of death, or weather the body has been moved.

Algor Mortis

- Algor Mortis is the process in which body temperature continually cools after death until it reaches the ambient room temperature.
- Factors that affect heat loss are…
- Location
- Size of the body
- Victims Clothing
- Weather Conditions.
- As a general rule, beginning at the hour of death, the body will lose heat at a rate of 1 to 1 ½ degrees Fahrenheit per hour until the body reaches environmental temperature.

Other approaches for determining time of death.

- Potassium Levels in the ocular fluid of the Vitreous Humor.
- Cells inside the eye at the time of death begin releasing Potassium into the “Eyes” fluid. The effect is the increasing cloudiness of the eye.
- Therefore the more cloudy the eye…the longer the victim has been dead!

Other Factors During An Autopsy to help calculate time of death.

- The amount of food in the stomach!
- Typically it takes ~3 hours for a full meal to pass from you stomach into the small intestine.
- Medical Examiners must perform an autopsy in the case of suspicious or questionable deaths.
- The cause of death is not always what it appears at first glance!

Forensic Anthropology

- Forensic Anthropology is a specialty that is concerned with the identification and examination of human skeletons.
- Bones can take decades to centuries to decompose…a lot slower that skin.
- Skeletal examination can reveal the gender, age, race, skeletal injuries.
- The Forensic Anthropologist can through scientific findings with the assistance of computers create a 3-D images of the bones and perhaps a reconstruction of the face.
- Natural Disasters / Tragedy.

Forensic Entomology

- The study of insects and their relation to a criminal investigation in known as Forensic Entomology.
- The techniques can be used to determine the cause of death, when circumstances around the death are unknown.
- The insect of choice is the “Blow Fly”, which characteristically lays its eggs in the dead flesh…The entomological aspect is a simple progression from egg…to adult fly, eating the flesh along the way!
- The knowledge of the Flies life cycle can help identify the time of death for the victim.

Forensic Psychiatry

- Forensic Psychiatry is a specialized are in which the relationship between human behavior and legal proceedings is examined.
- For Civil Cases, Forensic Psychiatrists normally determine whether people are competent preparing wills, settling property, or refusing Medical Treatment. In Criminal Cases they determine whether people are competent for trial
- Also, help establish criminal profiling of a suspect.

Forensic Odontology

- Provide information about identification of victims when the body is left in a unrecognizable state.
- Teeth are composed of enamel…the hardest surface in the body, so it will outlast other more fragile tissues and organs.
- The use of dental X-rays along with records can help identify the remains of victims.
- Another application is “Bite Mark Analysis”.

Forensic Engineering

- Forensic Engineers are concerned with failure analysis, accident reconstruction, and cause and origins of fires and explosions.
- These scientists answer the “BIG Questions”.
- How did the accident or structural failure occur?
- Were the parties involved responsible?
- Accident scenes are examined, photographs are reviewed, and any mechanical objects involved are inspected.

Thank you for Your Attention

- I Hope you took notes…you will see this on your up-coming TEST.
- Please refer to your Plan of The Week for your next assignment.