



## FORENSIC LITERATURE THESIS

### LITERATURE THESIS

Title	: <b><i>Tertiary (concentric) fractures in cranial gunshot trauma</i></b>
Keywords	: <i>Forensic anthropology, fracture pattern, gunshot trauma</i>
Forensic Expertise Area	: <i>Forensic Anthropology</i>
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### SHORT DESCRIPTION

Tertiary fractures in the cranial vault are concentric fractures that are often seen around the entrance and exit wound, especially in high-energy trauma. The forensic examination of deceased victims of gunshot trauma is a frequent challenge in forensic medicine, in which the cause and circumstances of death must be reconstructed. Unfortunately, biomechanics and forensic implications on cranial tertiary fractures are very dispersed and up until today there is no revision that compiles all the available information. The importance of these fractures lies in the fact that they are one of the main clues to differentiate between gunshot trauma and blunt trauma, which is a big challenge for the Forensic Anthropologist. The aim of this thesis is to develop a state-of-the-art review on ballistic trauma in cranial bone. Particularly on the biomechanical implications of the tertiary (concentric) fractures, in order to perform a practical and reliable revision that can be of great interest for the forensic anthropologist.

### REFERENCES

- Berryman, H. E., & Symes, S. A. (1998). Recognizing gunshot and blunt cranial trauma through fracture interpretation. *Forensic osteology: advances in the identification of human remains*, 2.
- Berryman, H. E., Lanfear, A. K., & Shirley, N. R. (2012). The biomechanics of gunshot trauma to bone: research considerations within the present judicial climate. *A companion to forensic anthropology*, 390-399.
- Dougherty, P. J., Sherman, D., Dau, N., & Bir, C. (2011). Ballistic fractures: indirect fracture to bone. *Journal of Trauma and Acute Care Surgery*, 71(5), 1381-1384.
- Smith, O. C., Berryman, H. E., & Lahren, C. H. (1987). Cranial fracture patterns and estimate of direction from low velocity gunshot wounds. *Journal of forensic sciences*, 32(5), 1416-1421.
- Wen, Y., Xu, C., Wang, H., Chen, A., & Batra, R. C. (2013). Impact of steel spheres on ballistic gelatin at moderate velocities. *International Journal of Impact Engineering*, 62, 142-151.

### REQUIRED/RECOMMENDED EXPERTISE

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