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## Survival of gunshot residue deposition on contact wounds with bony support submerged in marine environments

Anne-Christine Lindström  
Otago University, New Zealand

The underlying hypothesis of this study is the following. Gunshot residues (GSR) can provide important information regarding type of ammunition, range of fire and in some cases link the gunshot wound (GSW) to the weapon used. One of the unsolved questions of GSR is its persistence in tissues during the process of decomposition in different environments. There may be a linkage between the postmortem interval and the preservation of GSR, but inquiring into this link is challenging because of the cost of sophisticated techniques necessary to address this issue. Understanding how GSR is deposited in bony wounds and subsequently lost during decomposition can be expected to provide valuable forensic data and to lay the foundation for exploring different patterns associated with different bullets and environments. In this study bovine bone specimens were shot at contact range with .22-caliber hollow point ammunition using a Stirling .22-caliber long rifle. Three environments, namely at 1.5 m depth, intertidal and shore were designated, where triplicates of fleshed and defleshed specimens decomposed for 3, 10, 24 and 38 days. Non-shot bones submersed under the same conditions and non-exposed shot bones served as controls. Scanning electron microscopy with energy-dispersive X-ray spectrometry showed evidence of GSR surrounding the entry wound throughout the study on defleshed bones and 10 days on fleshed bones submerged at 1.5 m depth, up to 38 days on intertidal and coastal bones. Inductively coupled plasma mass spectrometry showed a faster loss of GSR at 1.5 m depth compared to the other environments.

### Biography

Anne-Christine Lindström has completed her Master of Science, Major in Biology as well as a Master in Forensic Science, Major in Medical Science. She is now doing her PhD at Otago University in Dunedin, New Zealand. She has also worked as a research engineer at Uppsala University. In 2010, while presenting a poster "A Genetic and Morphological analysis of Arrhythmogenic Right Ventricular Cardiomyopathy in Patients and in Alcoholics afflicted by Sudden Unexpected Death" at the 1st Annual World Congress of Forensics in Dalian, China she was invited by Professor Jules Kieser to Dunedin to do a PhD in Forensic Science.

[lingu035@student.otago.ac.nz](mailto:lingu035@student.otago.ac.nz)