



B30 A Comparison of Varying Body Storage Conditions on DNA Typing Results

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Participants will be given an overview of the relative difficulties in producing STR profiles from human bones that were stored for 7–11 years in a variety of environmental conditions.

The International Commission on Missing Persons (ICMP) has been charged with the task of identifying mortal remains from the armed conflicts in the former Yugoslavia that occurred in the 1990s. This process is complicated due to several factors: at least seven years have passed since the conflicts ended; there are up to 30,000 missing persons in graves scattered throughout the former Yugoslavia; the conditions of the mortal remains being recovered; and, because DNA testing has become the only reliable means of identification in the majority of these cases.

The missing of tens of thousands of people cannot be observed as an isolated incident, but rather as a series of incidents in which different numbers of people went missing under different circumstances. The nature of the incidents ranges from individual graves to hundreds within one grave, with Srebrenica being the most infamous of the latter. In the ICMP's identification efforts, bodies have been found in rivers, buried in mass graves in direct contact with soil and other bodies, placed into body bags, recovered on the surface, placed into caves, and many diverse areas and terrains that have dramatically different soil conditions. Numerous deviations were observed in the type of burial, with early war victims often placed in body bags, which rarely occurred in later years. Lastly, as the front lines changed, many bodies were relocated, so some remains were subject to several different environmental conditions.

DNA testing of skeletal remains is a rather challenging task because the DNA in such bone samples is generally highly degraded. In addition, it is normal that a substantial microbial population infests the bone samples. The process is further complicated because of the diverse storage conditions in which bodies were placed at time of death. The recovery of the bodies started before the establishment of the ICMP, while the hostilities were ongoing, and several years before the DNA program was in place. As a result, not only have the locations of bodies differed, but also the post exhumation storage has been variable. Nonetheless, the ICMP has developed an extraction procedure that is successful in obtaining STR profiles in over 90% of the skeletal cases from the former Yugoslavia.

The effects of diverse storage conditions of mortal remains have been investigated and significant differences observed in the quality of the resulting STR profiles. It has also been observed that superior STR profiles were obtained from buried bodies compared to unburied surface remains. Preliminary results indicate that samples taken from bodies buried in body bags pose increased challenges. The data presented will reflect the quality of the STR profiles obtained from samples taken from mortal remains exposed to various environmental influences as well as the observed differences among them.

DNA, STR, ICMP