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## Bone fractures in the late medieval Bribirska glavica site

The Bribir archaeological site is well-known for its rich past, material heritage and large number of skeletons that were excavated from it. The cemetery contains numerous individual graves as well as collective, possibly family graves. A comparative analysis was conducted in order to determine trauma frequencies and distribution in the recovered skeletal series, and to ascertain how values from Bribirska glavica correspond to those recorded in other eastern Adriatic sites. A sample of 48 skeletons from individual graves consisting of 31 males and 17 females was analyzed for the frequency and patterning of bone traumas. Data were collected for the complete skeleton, individual long bones, the craniofacial region and by type (perimortem vs. antemortem) of injury. The results show that the Bribir sample exhibits significantly higher trauma frequencies when calculated by skeleton than those recorded in a composite Late antique ( $\chi^2=10.76$ ;  $P=0.001$ ), and a composite Early medieval ( $\chi^2=3.72$ ;  $P=0.005$ ) series, as well as higher fracture frequencies than those recorded in a composite Late medieval series (37.5% vs. 24.9%;  $\chi^2=2.96$ ;  $P=0.08$ ) without, however, achieving statistical significance. The results also indicate high frequencies of craniofacial injuries in the Bribir series and a high frequency of perimortem fractures: 6,25% of all skeletons exhibit perimortem fractures. Analysis conducted by sex and age show higher trauma frequencies in males and a clear positive correlation between overall trauma frequencies and advanced age in both sexes. Collectively, the data from the Bribir series confirms the previously noted trend of increasing violence on the eastern Adriatic coast and its hinterland from the Late antique to the Late medieval period with the Bribir series exhibiting the highest trauma frequencies recorded in the Late Medieval period. Further osteological, archaeological and historical research is needed to determine the cause of these elevated trauma frequencies.

## Frakture kostiju kasnosrednjovjekovnog stanovništva Bribirske glavice

Arheološko nalazište Bribir poznato je po svojoj bogatoj prošlosti, materijalnoj baštini i velikom broju kostura koji su tamo pronađeni. Groblje sačinjavaju brojni pojedinačni grobovi, kao i skupne, vjerojatno obiteljske grobnice. U radu je



provedena komparativna analiza učestalosti i distribucije trauma kako bismo: 1. ustanovili vrijednost ovih parametara na Bribirskoj glavici, i 2. usporedili te vrijednosti s rezultatima iz drugih istočnojadranskih nalazišta. Učestalost i distribucija trauma analizirana je na uzorku od 48 kostura iz pojedinačnih ukopa koje sačinjavaju dobro ušćuvani kosturi 31 muškarca i 17 žena. Prikupljeni su podatci za učestalosti trauma na razini čitavih kostura, pojedinačnih dugih kostiju, kraniofacijalnog područja te prema tipu (perimortalne odnosno antemortalne) ozljede. Rezultati analize pokazuju kako su u uzorku s Bribira traume značajno učestalije nego li u kompozitnom kasnoantičkom ( $c^2 = 10.76$ ;  $P = 0.001$ ), rano-srednjovjekovnom ( $c^2 = 3.72$ ;  $P = 0.005$ ) te kasnosrednjovjekovnom uzorku ( $c^2 = 2.96$ ;  $P = 0.08$ ) kod kojeg, međutim, jedino nije uočena statistički značajna razlika. Uzorci s Bribira također pokazuju visoku učestalost kraniofacijalnih i perimortalnih (ozljeda koje nastaju u ili neposredno prije odnosno nakon trenutka smrti) frakture: 6,25 % svih kostura ima perimortalne frakture. Rezultati analize provedene prema spolu i dobi pokazuju veću učestalost trauma kod muškaraca te jasnu pozitivnu korelaciju između učestalosti trauma i povećane životne dobi kod obaju spolova. Zajedno, dobiveni podatci potvrđuju prethodno uočen trend porasta nasilja na istočnojadranskoj obali i u njenom zaleđu od razdoblja kasne antike do kasnoga srednjeg vijeka, s time da uzorak s Bribira pokazuje do danas najveću učestalost trauma zabilježenu u kasnom srednjem vijeku. Buduća osteološka, arheološka i povijesna istraživanja nužna su kako bi se odredio uzrok ovoj izuzetno visokoj učestalosti trauma.