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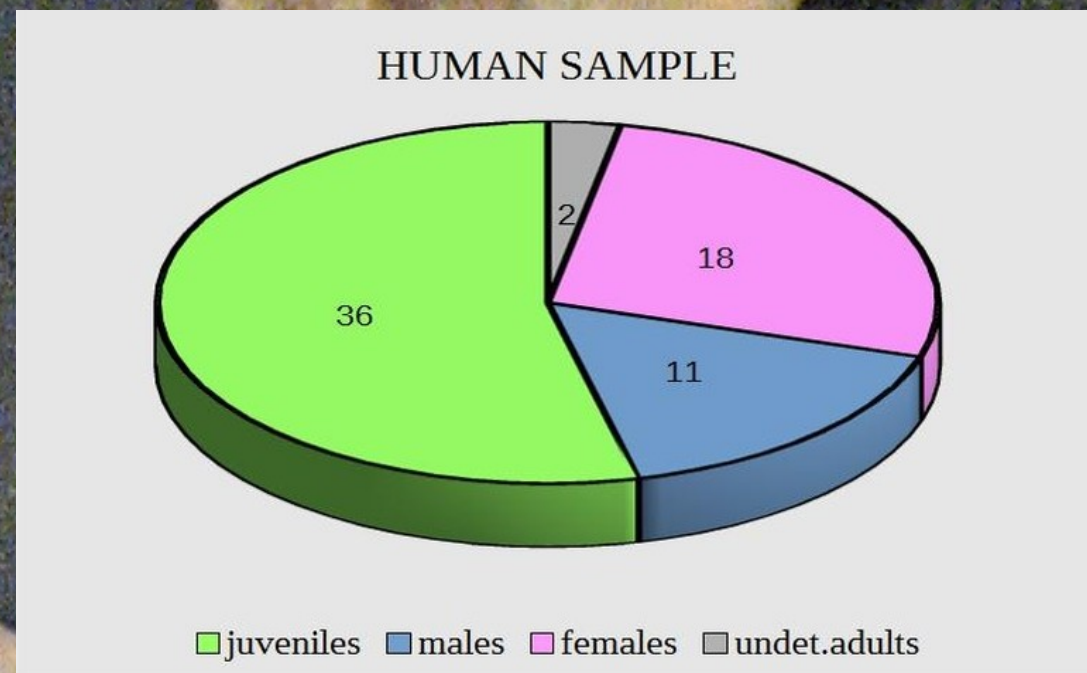[2] Istituto di Medicina Legale, Università di Macerata, Italy

Analysis of dental pathologies and stress indicators in a human sample from the Medieval cemetery of Jesolo Le Mure-Venice, Italy

HUMAN SAMPLE

Human Sample. In the site **67 individuals** have been brought to light and studied from a paleobiological and paleopathological perspective. The burials dated approximately to **VI-VIIth century A.D.**
**50% of juveniles died during their first year of life**, frequently around birth or in their very early months, other 16 died before they could reach 5 years of age, just 7 were aged between 5 and 10 years; after this critical period mortality tend to decline. Among **adults**, **females died more frequently between 18 and 35 years** – partly as consequence of the health risks linked to pregnancy, childbirth and prolonged breastfeeding – while **males seem to reach older ages.**
Permanent teeth were preserved in 23 individuals (aged more than 18 years) for a total figure of **459**, that is about 45% of teeth that could be counted for 32 individuals (3rd molars included), while preserved **deciduous teeth** are **225** in 22 juveniles.


AGE AT DEATH
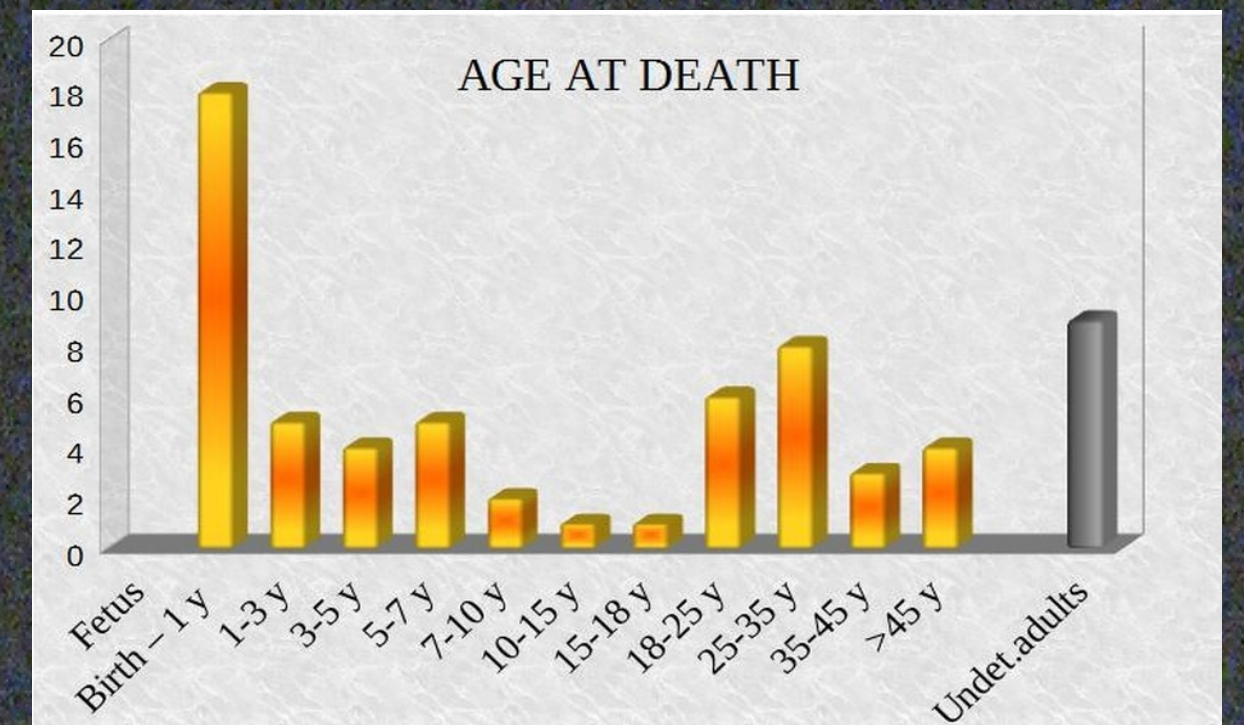
Dental Caries Analysing **adult dentition** we noticed that just **31 teeth revealed carious lesions** (**6.75%** of teeth preserved). As it is expected, frequency is higher in molars followed by premolars, but in the anterior dentition, mandibular teeth are more affected than maxillary, while, on the contrary, mandibular teeth are slightly less affected than maxillary ones in the posterior dentition. The **prevalence of interproximal caries** between adjoining teeth and low number of occlusal caries are explained as a result of hard food consumption, because chewing abrasive materials helps to keep clean the occlusal surface and avoid occlusal carious lesions. Hard or soft food consumption could definitely influence age at death determination when based on dental wear. **Males are less affected by caries than females** (number of individuals and of teeth). It is possible that diet - meant as access to food resources - was quite similar, but with slight differences in the two sexes, even if females tend to have higher rate even at present day. In 225 **deciduous teeth** examined **only 7 revealed carious lesion** (7,11%, the affected elements belong to two subjects aged between 6 and 10 years, but one had 6 caries out of 11 deciduous teeth preserved).

Ante-mortem tooth loss Teeth sockets observed are **511**, **tooth loss during life** in mandibular and maxillary portions preserved is **11,15%**. In this adult sample a total number of more than 1000 teeth (3rd molars included) can be expected, missing teeth are 565 but only 10,09% of them have been lost before death and not for taphonomical causes or post-excavation damage.
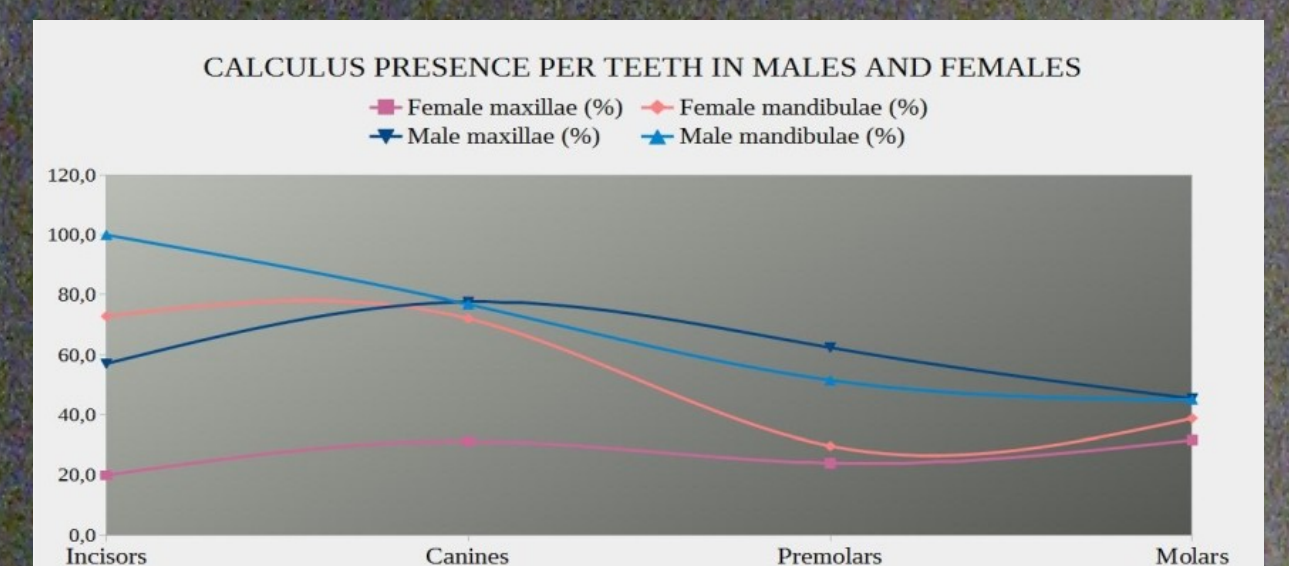

DENTAL CARIES

POSITION OF CARIES ON TEETH

DENTAL PATHOLOGY INDEX
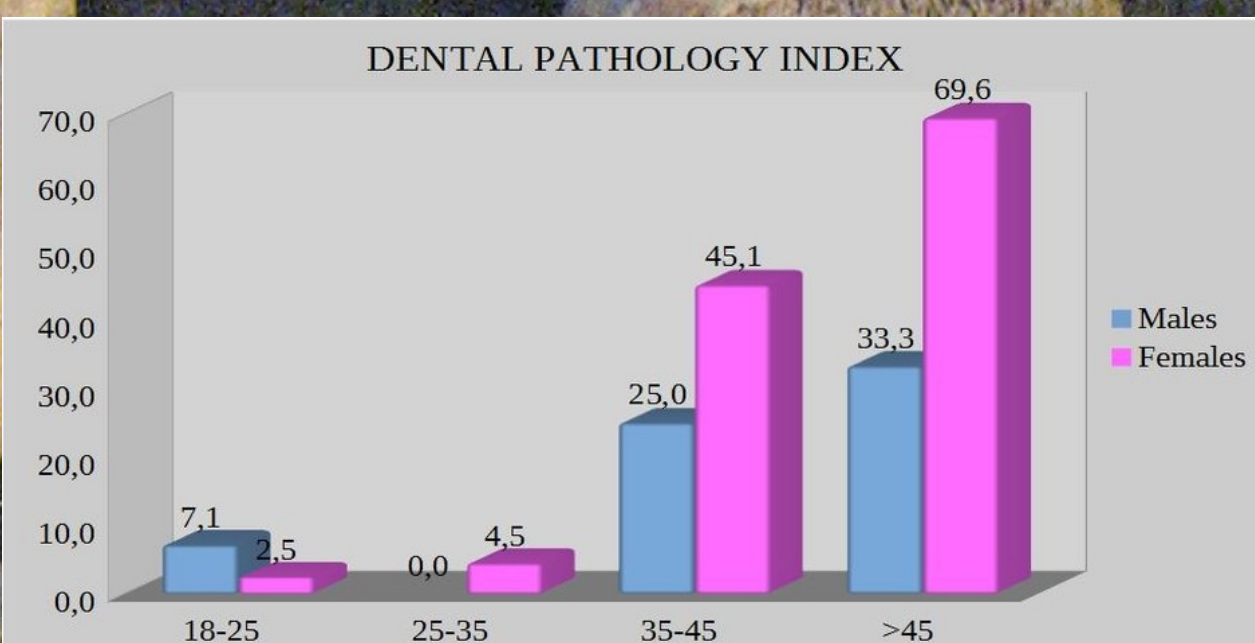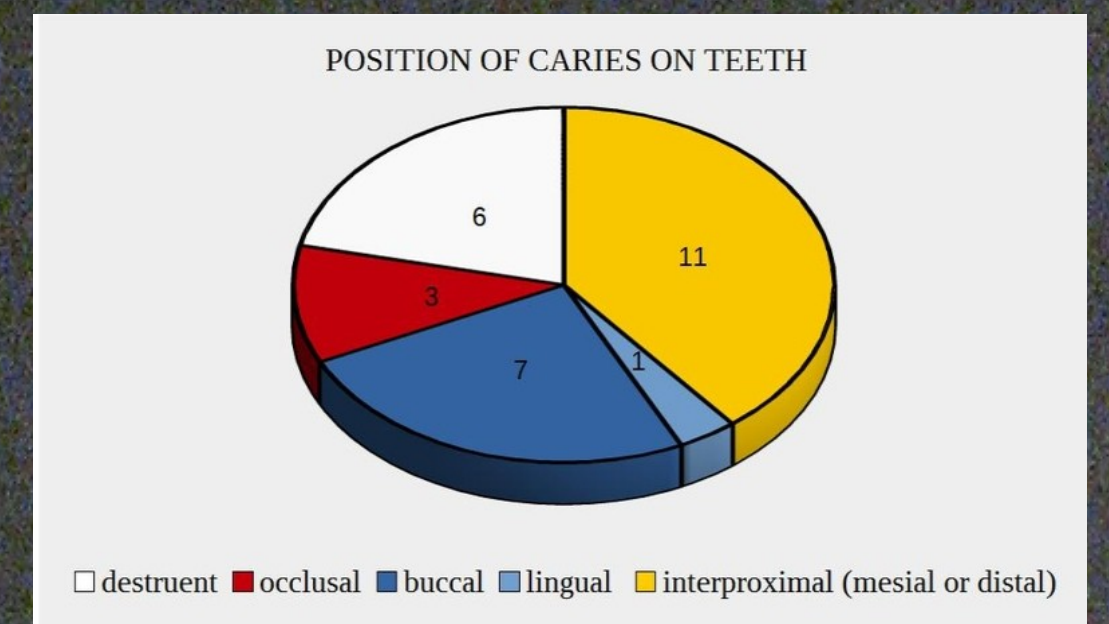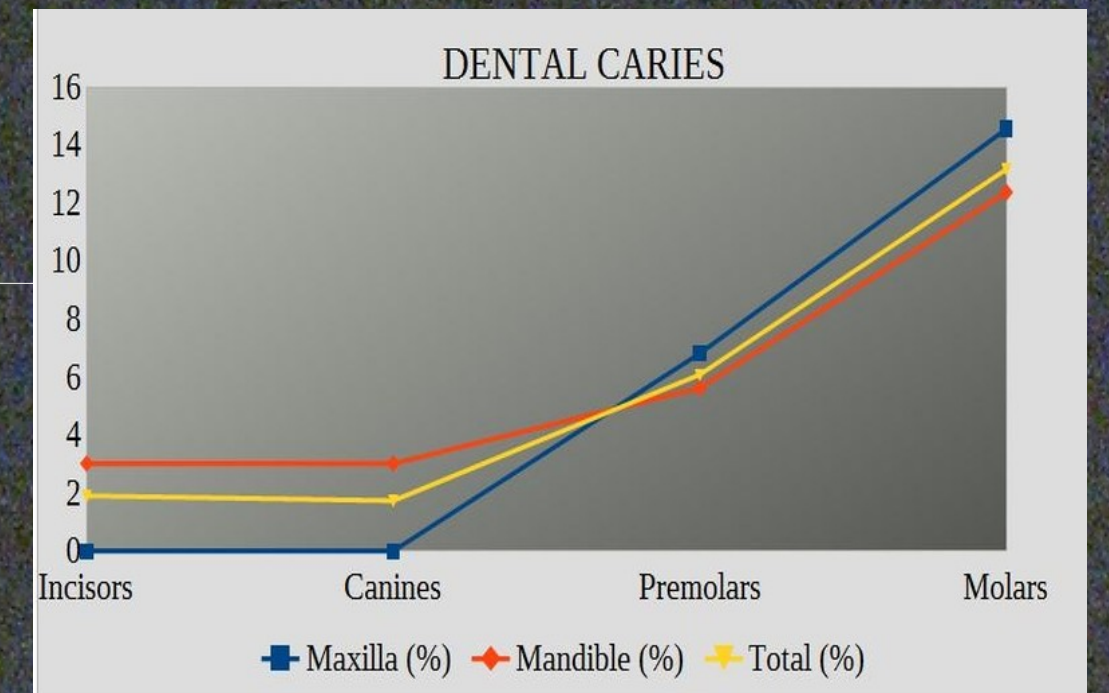
Dental pathology index represents the **occurrence of tooth affected by caries or lost during lifetime** in each individual on the total number. Individual index generally increases with age, but not in a predictable or proportional way and some subjects fall far from the mean value for their age class.

DENTAL CARIES IN MALES AND FEMALES
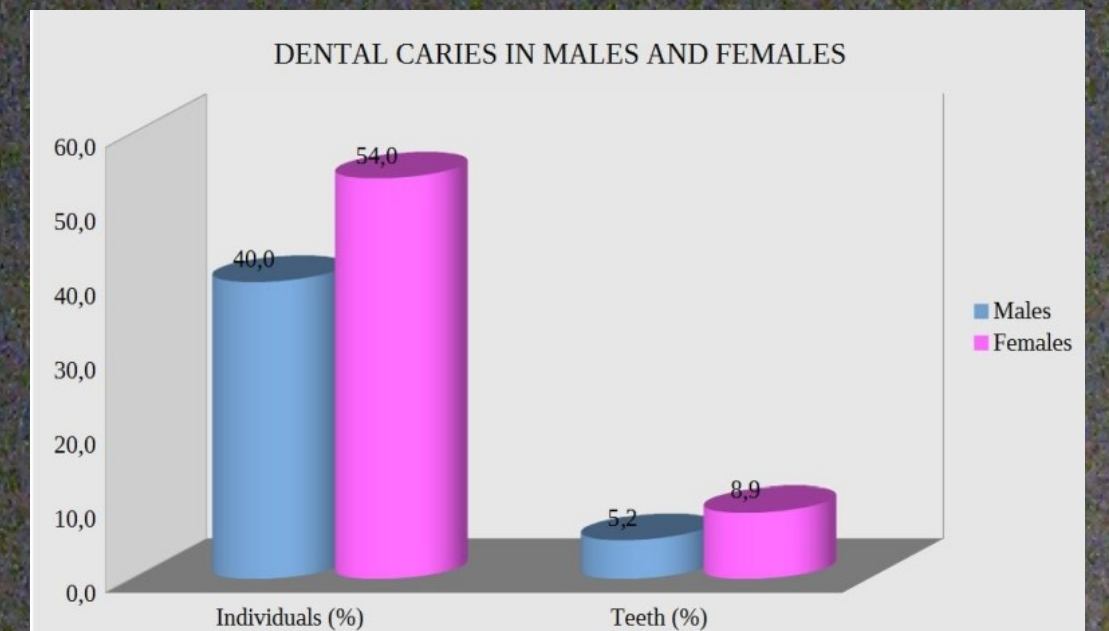
The occurrence of **Calculus** is probably underestimated in archaeological samples due to taphonomical or post-excavation factors that can contribute to remove calcified plaque away from the crowns.
Posterior teeth in the sample are equally affected, but **anterior teeth present different rates** of calculus presence: mandibular incisors have higher values, mandibular and maxillary canines follow, while it appears as non-relevant on maxillary incisors. **Females are less interested** both in number of individuals (9 males on 11 – 81,8% - and 11 on 18 females - 61,1%) and in number of teeth affected (males: 61,63%, females: 39,54%). However the **degree is usually low in both sexes**, rarely moderate in anterior mandibular teeth in males and never high.

CALCULUS PRESENCE PER TEETH IN MALES AND FEMALES

FUTURE DEVELOPMENT:
The "Cameriere Method" turned out to be useful for a more accurate age at death diagnosis, especially with older subjects (45+ years). Our purpose is to compare its results with those offered by traditional anthropological methods (e.g. cranial sutures, pubic symphysis, dental wear, epiphyseal union, development stages of each bone). This method is based on the principle of the **progressive reduction of the teeth pulp chamber, as age increases**, due to the formation and deposition of **secondary dentine**. Teeth of our Jesolo sample will be analysed with a portable X-ray machine; the total area of tooth and the area of the pulp chamber will be calculated on radiographies and these values inserted in the Cameriere's formula to obtain the age at death of the subject as a single numerical value and not as a mere age span. Formulae are available for single-rooted teeth, because their shape and contour is easier to observe and to measure than pluri-rooted teeth, so far **15 permanent canines or premolars have been sampled** out of a total of 14 adult individuals.

Enamel Hypoplasia Comparing its presence on permanent dentition and juvenile death rates can show how at **3-4 years of age** hypoplasia coincides with a critical age for the infants' health. This allowed us to consider this span of life as a **very difficult moment for children**, some of them died and others survived but their teeth held memory of this very risky period through enamel hypoplastic defects.

AGE AT DEATH AND ENAMEL HYPOPLASIA