

ABSTRACTS

were compared to chronological age. From ages 2 to 12, the MLE and chronological ages were not significantly different, but differences increased at age 13, as previously shown. We adjusted the numerical parameters underlying the stages for developing teeth based on the combined sample, and results from testing with a modern forensic sample will be presented. This study shows that the Shackelford et al. method is applicable and accurate when aging subadults.

Ingestive Behavior of Bornean Orangutans (*Pongo pygmaeus wurmbii*): coping with mechanical challenges while foraging

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Bornean orangutans (*Pongo pygmaeus wurmbii*) preferentially eat pulp and mesocarp when fleshy fruit is abundant. However, during non-mating periods, orangutans rely on foods that can be mechanically challenging, including leaves, woody plant tissue, and seeds. Although adult orangutans' jaws are well adapted for intense and, perhaps, repetitive loading during chewing, it may be easier for flanged adult males to process tough or hard foods than for adult females because of dramatic sexual dimorphism. Here, we use video data and *in situ* focal observations from Gunung Palung National Park, West Kalimantan, Indonesia to test the hypotheses that orangutans exhibit food- and sex-specific oral processing profiles.

Pilot data (n=94 feeding bouts; 76 adult females, 18 adult males) suggest no significant differences in use of incisors ($F(3,71)=0.41$, $p=0.75$), canines ($F(3,71)=0.78$, $p=0.52$), or molars ($F(3,71)=0.88$, $p=0.46$) per ingestive action while processing fruit, leaves, termites, or bark. Females used significantly more incisions per ingestive action (2.20) than males (1.01) ($t=2.44$, $p=0.008$), and, though differences were not significant, performed more canine bites (female mean=0.08, male mean=0.00, $p=0.17$) and mastications (female mean=4.88, male mean=3.95, $p=0.24$) per ingestive action than males.

We detected no difference in the behaviors used by orangutans to process different food types, despite great variation in food mechanical properties. However, this may be because our pilot data did not capture the range of mechanical challenges in orangutan diets. Nevertheless, our preliminary results support the hypothesis that adult females work harder than flanged males

during oral food processing, explicable due to sexual dimorphism.

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Late copper age population dynamics in the Carpathian Basin

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The skeletal remains of neonates and subadults provide information about cultural practices and demography of past populations. The present study presents a preliminary analysis of population dynamics via subadult data from Budakalász, a Late Copper Age (3500-2700 B.C.) cemetery in Europe's Carpathian Basin located north of Budapest, Hungary. The Budakalász cemetery is associated with the Baden culture and more than 450 individuals were excavated from the site. While approximately 16% of the burials are cremations, inhumations predominate. 180 subadults (individuals less than 20 years old) were selected for analysis, with 23 individuals aged 0-1 years and 157 individuals aged less than 20 years. Drawing primarily on the subadult data, population mortality and fertility are evaluated including the calculation of the Gross Reproductive Rate (GRR) from the subadult fertility formula. Burial practices are assessed in conjunction with the subadult demographic data, and cultural implications are discussed. Potential sources of bias in the Budakalász skeletal series and their effects on demographic reconstruction are also explored. This project aligns itself with ongoing efforts to reconstruct Copper Age population dynamics for the region.

Consistency and diversity of male life history and social structure: Insights from long-term study of Japanese macaques (*Macaca fuscata*)

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Life history is one of the essential aspects to seek biological evolution. However, especially male life histories in non-human primates and its relevance to humans are still unclear due to lack of data based on long-term observation. Macaques form multi-male and multi-female groups. Male macaques disperse from their natal group and repeatedly migrate between groups, and some males form all-male groups or spend solitary life stage. Japanese macaques are one of the non-human primates which have been studied for long period. I reviewed age at dispersal,

tenure, immigration pattern, and the demography to show consistency and diversity of life histories on male Japanese macaques. I also analyzed affiliative relationships among males and its relevance with age to discuss the possibility that male social bonds will affect their immigration. I reviewed data collected in Kinkazan and Yakushima where is the long-term study sites of wild non-provisioned Japanese macaques. I also collected behavioral data on male affiliative interaction from 2007 to 2010 in Kinkazan. Male macaques tended to show the consistency about their age of natal dispersal, social mechanisms of dominance rank change, and residence time in one bi-sexual group. However, the ratio of males to females in one group and the dominance rank at bi-sexual group entry was differed between two sites. The younger males tended to engage affiliative interaction with other males more frequently. These findings of consistency, differentiation, and age dependence on male life histories in a non-human primate would contribute to well understanding of life-history in humans.

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The association between knee breadth and body mass

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Body mass estimation from skeletal dimensions is a useful tool for studies of archeological human populations and early hominins. Bony articular surface areas have been used to estimate body size, especially body mass. In this study breadth of distal femur and its association with body mass in modern humans was investigated. Body mass estimation equations were derived from distal femur measurement in a modern sample of Northern Europeans with known body mass.

Our study sample consists of 1484 subjects belonging to the Northern Finland Birth Cohort 1966. Breadth of distal femur (femoral biepicondylar breadth) was measured of subject's lower limb posteroanterior-radiograph taken at 46 years old. Measurements were analyzed using a