Parasite infection in primates is thought to be costly and to have shaped behavioral and physiological adaptations of hosts and parasites. Assessing patterns of infection will inform our understanding of the interactions between parasites and their primate hosts and the adaptations that mitigate costs of infection. Ten years of parasite occurrence data in 14 diurnal lemur species with outdoor access were extracted from routine veterinary visit records at the Duke Lemur Center. These data were combined with demographic information on the individuals sampled to facilitate cross-species comparisons.

The most prevalent parasite across this population was a pinworm from the family Oxyuridae. A G-test showed that pinworm ova appeared significantly more frequently than did strongylid ova ($p < .0001$), which were the second most frequently found ova. Based on the contact and airborne transmission routes of species within Oxyuridae, it was hypothesized that lemur species housed in larger groups would have increased exposure risk and would be more frequently diagnosed with pinworms. This hypothesis was not supported by the data, which show that pinworms were significantly more frequently diagnosed in eight *Eulemur* species, which are housed in small groups, than in *L. catta*, *P. coquereli*, *V. rubra*, and *V. variegata*, which are housed in larger groups. Future analyses will integrate age, sex, and more detailed housing data to determine whether the observed pattern can be further explained by these parameters. Articulating the risk factors for parasites provides the framework in which adaptations to minimize infection or pathogenesis in lemurs can be understood.

In-vitro analysis of nutrition in Hadza tubers using Hadza simulated cooking techniques.

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Cooking is widely recognized as a highly significant step in human evolution because it possibly facilitates increased availability of nutrition. Cooking mechanically and chemically changes food, which can increase digestibility. This is particularly important for starchy foods because heat causes starch to absorb water and lose its otherwise highly resistant crystalline structure, a process called gelatinization. Gelatinization makes starch more digestible in the small intestine and increases the bioavailability of nutrition. However, some have questioned whether gelatinization of starch is the main goal of cooking. The Hadza hunter-gatherers of Tanzania roast their wild tubers for only a few minutes on an open high-flame fire. The same tubers are also often consumed raw. These observations led us to propose a series of questions regarding the Hadza tubers: What does brief fire roasting do to the starch? Does the starch require cooking for salivary α-amylase activity? Are there differences in nutrient bioavailability between cooked and uncooked tubers *in-vitro*? Our results show that tuber starch remains mostly unchanged after brief fire roasting and there is subsequently little difference between cooked and uncooked tubers in nutrient bioavailability *in-vitro*. We make inferences as to why a subsistence-based population such as the Hadza would practice thermal food processing behaviors that do not seem to alter the nutritional elements of the food itself. In particular, we hypothesize that brief roasting enables faster peeling and ease of chewing of Hadza tubers.

Stable Isotopic Analysis of Human Diet in the Cape Region of Baja California Sur.

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Explorer accounts from 1533 on document populations in the Cape Region, Baja California Sur, Mexico as maritime foragers with varying descriptions of leadership, rank and occupational specialization within language groups. The antecedent and concurrent Las Palmas Culture (A.D. 1200 to 1700) was originally defined by William Massey based on excavation of small exclusive-use burial caves. Each cave held one or two primary interments and several secondary bundle burials representing both sexes and all ages. Skeletal elements in bundle burials were often painted with ochre before being wrapped in sewn palm fiber mats or occasionally animal hides. Both burial types have produced a diversity of largely perishable grave offerings.

Preliminary analysis of stable carbon and nitrogen isotope ratios of human bone collagen previously demonstrated marine protein contributed substantially to local diets and that while variability was evident, differential mortuary treatment offered little explanatory value. The present study builds on this earlier research with analysis of carbon isotope ratios of bone apatite carbonate and collagen from 81 individuals interred in nine cave burial and three open-air sand dune sites dating between A.D. 800 and A.D. 1650. Gender differences in whole diet and dietary protein intake outweigh differences observed by burial context, mortuary treatment or grave offerings. However variability between isotopic signatures and patterning between burial caves supports their use as markers of resource territories. Additional variability is accounted for by macronutrient shifts during weaning observed more clearly in bone apatite carbonate to collagen spacings than nitrogen isotope values of bone collagen alone.

Skhul V segmentation and Broca's region asymmetries in Neandertal endocasts.

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One of the endocranial hallmarks of modern *Homo sapiens* are observable asymmetries over Broca's regions (BA 44, 45, 47) of the brain that are presumed to be related to motor aspects of speech production and language. CT scans and segmentation procedures have made it possible to quantitatively measure asymmetries of these regions in fossil hominins. Here we demonstrate the patterns of asymmetries in the endocasts of La Chapelle-aux-Saints, La Ferrassie, La Quina, Saccopastore, as well as the Middle Eastern Skhul V endocast from Mt Carmel, Israel, which has not been shown before. The Skhul V endocast shows a left-handed association of petalial features, and a right Broca's cap prominence. The French and Italian Neandertals demonstrate a different endocranial shape, and a mix of right and left-handed petalial associations, as well as asymmetry of the Broca's cap region. These observations are consistent with the view that Neandertals from both Europe and the Middle East had brains very similarly organized as those of modern *Homo sapiens.*

Reproductive competition in male white-faced capuchin monkeys (*Cebus capucinus*): Variation in testosterone, DHT, and glucocorticoid production.

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In many wild primates, male dominance rank is correlated with reproductive success. However, not all males compete successfully, suggesting that the costs of obtaining and maintaining high dominance are significant. Testosterone (fT) and dihydrotestosterone (fDHT) are androgens that facilitate male aggression and sexual behavior. Glucocorticoids (fGC) are associated with the stress response and mobilization of energy stores, but chronically elevated levels are associated with immunosuppression. We investigated the hormonal mechanisms underlying reproductive competition in alpha and subordinate male white-faced capuchin monkeys (*Cebus capucinus*) across female reproductive phases. From July 2008–October 2009, we collected weekly fecal samples (N=989) from all adult and subadult males (N=14) residing in three habituated groups in the Santa Rosa Sector of the Area de Conservación Guanacaste, Costa Rica. Fecal samples were also collected from females to identify periovulatory phases (POP) using progesterone and estradiol assays. Males responded to the presence of ovulatory females with increases in fT, fDHT, and fGC regardless of dominance status (GLMM, fT: $F=70.352$, $P<0.001$; fDHT: $F=8.474$, $P<0.001$; fGC: $F=8.474$, $P=0.004$), suggesting that all males experience increased competition and stress during POPs. Alpha males had higher fT, fDHT, and fGC than subordinate males independent of female reproductive state (GLMM, fT: $F=161.313$, $P<0.001$; fDHT: $F=78.774$, $P<0.001$; fGC: $F= 1.367$, $P<0.001$). These findings suggest that while alpha males may benefit from increased competitive ability associated with