**Can foramen magnum position be used to distinguish hominids and apes?**

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The anteroposterior position of the foramen magnum distinguishes living *Homo sapiens* from apes. Humans exhibit foramina magna that are far anterior on the cranial base, while the great apes exhibit foramina magna that are more posterior. Foramen magnum position has been used as evidence for the hominid status of numerable fossils in the history of human paleontology. Recently, foramen magnum position has been cited as evidence of the hominid status of *Sahelanthropus tchadensis* (Brunet et al. 2002). Specifically, the basion of *Sahelanthropus* is reported to both touch the biporion chord and intersect the bicarotid chord (Brunet et al. 2002).

We tested the hypothesis that the position of basion relative to the biporion and bicarotid chords can distinguish early hominids from *Pan troglodytes*. We measured the distances from basion to the biporion chord and from basion to the bicarotid chord on scaled, standardized digital images of a large sample of chimpanzee crania (N = 112) and a sample of Plio-Pleistocene hominid fossils (N = 4). The basion ñ bicarotid chord effectively distinguished the hominids from *Pan*. Half of the hominid fossils were also effectively distinguished from the *Pan* sample by the basion ñ biporion chord, however the other half fell well within the *Pan* sample for this chord. Our results indicate that the relative position of basion to the bicarotid chord can be used to distinguish hominids from *Pan troglodytes*, while the relative position of basion to the biporion chord cannot.

**Genetic etiology of autism endophenotypes.**

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Autism is a neurodevelopmental disorder, with complex genetic etiology, characterized by deficits in language and social skills, and repetitive behaviors. Despite the strong genetic risk for autism, heterogeneity and variable expression of the disorder have limited efforts to localize susceptibility genes. Our approach has been to identify heritable components of this complex disorder and use these to find autism loci. Thus, rather than investigate autism based on psychiatric diagnosis, we focused our search on its underlying cognitive components or endophenotypes. We performed a nonparametric quantitative linkage analysis of language deficits and repetitive behaviors measured by items from the Autism Diagnostic Interview. Initially, we presented evidence of linkage for ëage at first wordí to a 10 cM region on chromosome 7q35-36 in data from 152 families from the Autism Genetic Resource Exchange (AGRE; AlarcÛn et al., 2002). To confirm this result, we performed another multipoint analysis in an independent sample of 114 AGRE families. We included these new families and 9 additional markers in the linkage analyses and results support the original finding: a 5 cM region between D7S676 and D7S2511 was linked to 'age at first word' ($Z = 2.9$, $p < 0.002$). Although the second sample was small, preliminary results from the new families continue to support linkage in the 7q35 region for ëage at first wordí ($p < 0.05$). Thus, there may be a locus specific for language deficits associated with autism on chromosome 7q. Results from an analysis of the most recent sample will be presented.

**Effects of aging on normal adult brains.**

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The effects of aging on the human brain are not well understood. The aim of this study is to assess phenotypic effects of increasing age on the brain, and to determine whether these effects differ by gender. The study sample consists of in vivo magnetic resonance images (MRIs) of 109 healthy humans. Three-dimensional landmarks defined on surface and subcortical structures of the brain were located on 3-D MRI reconstructions for each individual. Data were scaled for differences in size and analyzed using Euclidean Distance Matrix Analysis (EDMA). Individuals were separated into three groups on the basis of age: 19-50, 51-70, and 71-99 years. Males and females were analyzed separately. Pairwise comparisons of each age group were performed. Patterns of differences observed between age groups for each sex were compared across males and females to determine whether the pattern of aging in the brain is similar for the two sexes.

Results show that there are obvious age-related changes in the human brain. The majority of changes occur early in males, while females undergo more gradual changes over all age groups, indicating differences in timing of phenotypic change. Many of these changes are similar in males and females, suggesting a common pattern of aging among humans. However, gender-specific patterns of change are also evident. Thus, although there is an overall pattern of neural aging common among humans, specific aspects of the pattern and timing of change differ between males and females.

Grant sponsors: NIH grant MH 60504 and PHS grant P60 DE13078.

**Hominid environments and faunal change in the lower Omo valley, Ethiopia: A comparison of the French and American databases.**

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The lower Omo valley in southwestern Ethiopia provides crucial evidence on the evolutionary paleoecology of Plio-Pleistocene mammals, including hominids. The Omo sample is made up of nearly 50,000 vertebrate fossils collected by two teams of researchers -- the French and American contingents of the International Omo Research Expedition. The French and American collections constitute two independently derived samples that can be compared for taphonomic and collection biases in relation to patterns of faunal change and hominid paleoecology. Comparison of the two samples reveals interesting differences and similarities. In both collections, taxa indicative of open environments vary in concert and become more common through time. The earlier part of the sequence is characterized by a high abundance of suids whereas bovids dominate the latter part of the sequence, beginning at about 2.3 Ma. In general the same taxa are encountered from the bottom to the top of the sequence in both collections. The two collections do differ in the geographic distribution of some taxa, especially during the best-documented intervals (lower Member G units G4 to G13). Grazing bovids and *Kobus sigmoidalis* are more common in the northern exposures (collected primarily by the American team), while *Menelikia* and *Kobus ancystrocera* are more common in the southern areas (collected primarily by the French team). The higher abundance of *Menelikia* in the southern areas implies that a wetter, more closed environment existed in the lower parts of the Omo drainage just as an expanding lake was