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questionnaire to assess stress among Mexican immigrant women and children. This questionnaire can be used in future analyses to determine if immigrant-related stressors are associated with precursors of cardiometabolic diseases in children.

The Importance of Multi-Ethnic Genetic Studies: the Population Architecture using Genomics and Epidemiology (PAGE) Study

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Genomic studies in individuals of European ancestry have identified loci associated with several cardiometabolic traits (CMT). As efforts continue to unravel the genetic underpinnings of disease, there is a need for better representation of ethnically diverse populations who are disproportionately impacted by complex diseases and have unique patterns of genetic variation related to human disease. The Population Architecture Using Genomics in Epidemiology (PAGE) consortium provides an optimal opportunity to investigate the association of genetic variants with complex diseases in ancestrally diverse populations. We typed the Metabochip, a high-density array developed to capture known genetic variants for CMT phenotypes that also includes variants polymorphic in any 1,000 Genomes project population, so that ancestral diversity is captured. Our analyses included 35,000 African Americans (AA), 26,000 Hispanics (HA), 17,000 Asians, and 18,000 European Americans (EA). We assessed associations for lipid and obesity phenotypes, assuming an additive model, adjusting for age, sex, and population structure and then used a fixed-effects meta-analysis to combine within and across race/ethnic groups. We identified novel signals for BMI in non-EA, for example *KCNQ1* rs2237897 (p<5E-8). We also detected associations for several well replicated SNPs, for example with BMI for rs543874 near *SEC16B* (AA and HA, p < 5*10-5). Signals with distinct independent lead SNPs were also identified, for example with HDL-C for *CETP* (rs247617 in HA, rs183130 in AA, p<5E-5). Our study emphasizes the importance of leveraging differences in linkage disequilibrium patterns among populations to identify new susceptibility variants, refine association boundaries, and prioritize SNPs for functional evaluation.

Skin, hair, and iris pigmentation: quantifying phenotype and identifying genetic loci associated with variation in diverse populations

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Characterizing skin, hair, and iris pigmentation and understanding the genetic architecture underlying this phenotype is of interest to the fields of anthropology, evolutionary biology, and forensic science. Compared to European populations, we know little about patterns of variation in non-European and admixed populations or the genetic variants that contribute to this diversity. Here we describe quantitative estimates of pigmentation in large samples of European, East Asian, South Asian, Hispanic, and African American ancestry. Skin and hair pigmentation were measured as M (melanin) index using a DSM II reflectometer. Iris pigmentation was quantitatively assessed from digital photographs and translated into CIELAB color space using novel methods. We observe significant variation among populations in skin (F = 543.8, p < 0.0001) and hair (F = 164.6, p < 0.0001). Mean skin pigmentation is lightest in Europeans (M = 35.4, SD = 3.1) and East Asians (M = 38.0, SD = 2.9), while South Asians (M = 47.5, SD = 6.1) and the admixed African American (M = 64.6, SD = 11.9) and Hispanic (M = 41.6, SD = 7.5) populations are darker and more variable. Analysis of a subset of samples indicates that variation in iris color, including in East and South Asian irides (categorically described as "brown"), can be quantitatively described using CIELAB values. We argue that this refinement in phenotype characterization will increase our power to detect genetic loci with small effects and highlight as examples loci identified as influencing skin and iris pigmentation in East Asians.

Child health in the early medieval community from Omey Island, western Ireland

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Children were always the most vulnerable part of a human society. They are susceptible to various forms of metabolic stress that may leave a permanent record on bones and teeth and as such are excellent indicators of health. The aim of this paper is to investigate the frequency and distribution of cribra orbitalia (CO) and linear enamel hypoplasia (LEH) in children and adults, and periostitis in children from the early medieval (7th-10th c. AD) site of Omey Island in western Ireland. A possible case of clavicular ante-mortem trauma in an infant from this rural community is also discussed.

The total analysed sample consists of 43 subadults and 75 adults (40 females and 35 males). The CO frequency in adults is 33.3% (25/75) with a slightly higher frequency in males, while in children it was observed in 50% (14/28) of cases. LEH was observed in 65.0% (26/40) of studied individuals, and in 40.4% (101/250) of anterior teeth. The age ranges of LEH formation vary between 2.5 and 4.9 years for all anterior teeth combined. Periostitis was recorded in six subadults, and in three cases it was generalised active inflammation suggesting systemic infections. One infant (1-2 months old) exhibits ante-mortem healed fracture of the left clavicle, an injury mostly associated with complicated births.

The results of this study strongly suggest that most of the individuals from Omey Island suffered from severe physiological disturbances during their childhood caused by a synergistic relationship between infectious diseases, inadequate nutrition, and poor sanitary conditions.

The effect of social factors on body length proportions in Polish schoolchildren from Lower Silesia

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Many studies have shown that in Poland social factors significantly affected the growth of children in height. However, very few researchers studied influence of social factors on body length proportions. The aim of the present study was assessment of an effect of urbanization level, sibship size and parental education on body length proportions in schoolchildren.

325 boys and 335 girls aged 7-18 years were measured in schools in Wroclaw (city about 640 000 inhabitants), two small towns (below 50 000 inhabitants) and rural area around towns. Height, sitting height, leg length (B-tro), and lower leg length (B-ti) were measured in all children, then relative lengths (in relation to height) were calculated: leg, femur (B-tro–B-ti), lower leg, estimated leg (B-v–BS-v), and femur-to-lower leg ratio. Height were standardized on age using LMS parameters for CDC 2002 year cohort. Other indexes were standardized on age by using residuals variance derived from linear regressions. Four-way analysis of variance was used for height and each index, where independent variables were four social factors.