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Familial Resemblance in Fatness and Fat Distribution in Nuclear Families from Biscay (Basque Country)

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ABSTRACT Even though the genetic bases of the body fatness quantity and distribution seem broadly accepted, the genetic contributions on obesity are not clearly defined. The aim has been to study the heritability of several indicators of fatness and fat distribution in nuclear families. **Material and Methods:** A cross-sectional sample of 3,023 individuals from 1,330 nuclear families (194 fathers, 461 mothers, 1,180 sons and 1,188 daughters) living in the Biscay province were analysed. Six skinfolds (and their sum, SF6), height, weight, waist and hip circumferences were measured. The waist-to-hip ratio (corrected for BMI) and the trunk/extremities ratio (TER, corrected for the sum of 6 skinfolds) were calculated. The six skinfolds were introduced in a Principal Components Analysis (PCA) in order to reduce the number of traits. Familial resemblance between all types of relatives was computed through the SEGPAT program for the two first PCA factors and for corrected WHR and TER. **Results and Conclusions:** Two factors were extracted (PC1, quantity of fat or adiposity, and PC2, distribution of fat trunk vs. extremities). In general, a high and significant heritability for all traits and pairs of relatives was found under the general and most parsimonious models. According to this last, there is not a significant effect of the sex on the offspring.