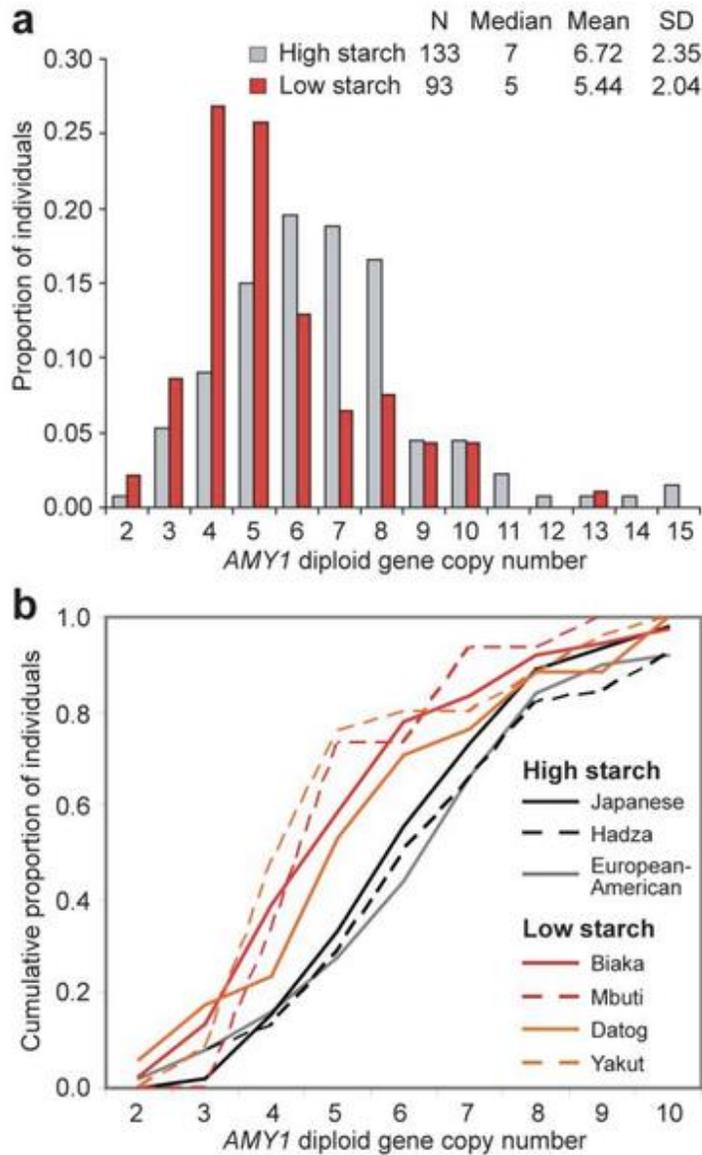




Amylase Copy Number and Diet



Caption: Graph a shows the distribution of the number of salivary amylase gene (AMY1) copies in individuals consuming high-starch (gray bars) and low-starch (red bars) diets. Graph b shows the cumulative proportion of individuals in the sampled populations grouped by diet type. Red and orange lines represent populations consuming low-starch diets, while black and gray lines represent populations consuming high-starch diets.

BACKGROUND INFORMATION

Starch is a high-energy component of foods found in nature. As early humans transitioned from hunting and gathering to more agrarian lifestyles, their diets changed to include more high-starch foods. Some cultures incorporated more starch into their diets than others, and those cultural differences in human populations are still present in some cultures today. Salivary amylase is the enzyme that breaks down starch in saliva. The gene

that encodes salivary amylase (*AMY1*) is somewhat unusual, as most humans have more than one diploid copy of the gene; in fact, the number of copies ranges from 2 to 15. The authors investigated whether the number of *AMY1* gene copies is correlated with the type of diet (high-starch or low-starch) of a population, presented in the two graphs above. A correlation would indicate that having more copies of the *AMY1* gene provides a selective advantage, allowing individuals to break down starch more efficiently.