

Data from Europe, Part B

Work with your group to decide whether the data and conclusions described below support or refute one of the hypotheses for the evolution of lactase persistence.

Skeletal evidence

Archaeologists study human remains to infer how frequent a disease might have been in the past. Rickets causes specific changes to bones that allow researchers to determine whether a person had the disease. Use the data in Table 1 to decide whether the frequency of rickets was high in the past.

Table 1. Data about Possible Rickets Cases for Sites in Europe

Approximate time period	Number of skeletons examined	Possible cases of rickets
3000 B.C.E.	616	6*
C.E. 400–1000	635	0
C.E. 800–1100	1,055	6
C.E. 1200	364	1

*Some researchers interpret these skeletons differently and claim they did not have rickets.

Data source: F.J. Simoons. 2001. Persistence of lactase activity among Northern Europeans: A weighing of evidence for the calcium absorption hypothesis. *Ecology of Food and Nutrition* 40(5): 397–469.

Calcium absorption

Some studies suggest that simple sugars like glucose or galactose can help people absorb calcium, just as lactose does.** When people make yogurt from milk, the lactose gets broken down into simple sugars. This means that people in cultures that made dairy products like yogurt may not have had a problem obtaining enough calcium.

Computer models

Researchers developed a computer model of natural selection and the movement of individuals among populations.† Their results show that the pattern of lactase persistence in Europe could be explained by the culture-historical hypothesis.

** Summarized in F. J. Simoons. 2001. Persistence of lactase activity among Northern Europeans: A weighing of evidence for the calcium absorption hypothesis. *Ecology of Food and Nutrition*, 40(5): 397–469.

† Study by Y. Itan et al. 2009. The origins of lactase persistence in Europe. *PLoS Computational Biology*, 5(8): e1000491. doi:10.1371/journal.pcbi.1000491.