

Kissing Cousins Sire Kids by the Dozens

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Johann Sebastian Bach, Edgar Allan Poe, and Albert Einstein all married cousins. Maybe these creative geniuses were on to something. A new study suggests that mating with relatives has reproductive advantages.

Many societies regard inbreeding as taboo. Research seems to back this up, showing that children of related couples are more likely to inherit two copies of disease-causing recessive genes. Other work, however, has shown a positive outcome--namely, that married cousins have more children. But those studies--carried out in India and Pakistan--have not been conclusive because the data are hard to disentangle from social and economic factors. For example, poorer women tend not only to marry relatives but also to marry at a younger age, leaving more time to have children.

Geneticist Kári Stefánsson and colleagues at deCODE Genetics, a biopharmaceutical company based in Reykjavik, Iceland, decided to look at couples in their own country. Social and economic factors are more uniform in Iceland because the income gap is not wide and there is little variation in family size, use of contraceptives, or marriage practices. In addition, because deCODE already had a genealogical database for all of Iceland going back 1000 years, Stefánsson says, the team just needed to do some calculations. After determining the relationships between all known Icelandic couples born between 1800 and 1965, they compared the number of children and grandchildren descended from these couples.

Iceland turned out to be not much different from India or Pakistan. Related couples had more children and grandchildren than unrelated couples, with third cousins having the most offspring, Stefánsson's team reports tomorrow in *Science*. Women born between 1800 and 1824 who married a third cousin had an average of 4.0 children and 9.2 grandchildren, whereas those who married their eighth cousin had only 3.3 children and 7.3 grandchildren. The trend continued through the 1960s, although the number of children and grandchildren fell as Iceland became more industrialized.

"This is as good a study as we are going to get," says community geneticist Alan Bittles of Murdoch University in Perth, Australia. Still, he cautions that social and economic factors could be at play. Bittles studies fertility in a population in Sweden and says that despite similarities, there are still marked differences between the prosperity of fishers and farmers that could affect the number of children in a family.

If there is a biological basis, Bittles suspects that it may have to do with compatibility between a mother and her fetus. For example, if the maternal and fetal blood types differ too much because the fetus received an unusual variant from the father, the fetus could be at risk. "No one knows why a high proportion of pregnancies fail to end in live birth," Bittles says, but consanguinity may reduce the risk. "So, there's a balance between the disadvantages and