

HEIGHT AND REPRODUCTIVE SUCCESS IN A COHORT OF BRITISH MEN

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Two recent studies have shown a relationship between male height and number of offspring in contemporary developed-world populations. One of them argues as a result that directional selection for male tallness is both positive and unconstrained. This paper uses data from a large and socially representative national cohort of men who were born in Britain in March 1958. Taller men were less likely to be childless than shorter ones. They did not have a greater mean number of children. If anything, the pattern was the reverse, since men from higher socioeconomic groups tended to be taller and also to have smaller families. However, clear evidence was found that men who were taller than average were more likely to find a long-term partner, and also more likely to have several different long-term partners. This confirms the finding that tall men are considered more attractive and suggests that, in a noncontracepting environment, they would have more children. There is also evidence of stabilizing selection, since extremely tall men had an excess of health problems and an increased likelihood of childlessness. The conclusion is that male tallness has been selected for in recent human evolution but has been constrained by developmental factors and stabilizing selection on the extremely tall.

KEY WORDS: Height; Human evolution; Mate choice; Reproductive success

Two recent studies have found that male tallness is associated with increased reproductive success in contemporary developed-world popula-

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tions. The first, by Pawlowski and colleagues (2000), used medical records of men aged 25–60 in Wroclaw, Poland. The authors found that, for two subpopulations of the sample, tallness was a highly significant though weak predictor of the number of children a man had for his age. In the second study (Mueller and Mazur 2001), the sample consisted of a cohort of military academy graduates for whom extensive physical, health, and life course information had been gathered. Mueller and Mazur found that male height was associated with increased numbers of children. The mechanism by which this occurred was not increased fecundity of the tall men's wives, but rather a higher probability that the taller men would take a second or subsequent wife. Moreover, there was no relationship between height and socioeconomic status within the Mueller and Mazur sample, so the mechanism of selection on tall men was directly through their physical attractiveness to potential mates rather than indirectly via their socioeconomic achievements. Thus it seems that tall men enjoy increased fitness by their intrinsic ability to attract more mates.

Mueller and Mazur also examined the type of selection involved. Rather than there being a threshold of height above which no further advantage accrues by being taller, they suggest that fitness increases linearly with increasing height. They also find no evidence of stabilizing selection impacting negatively on the extremely tall. They thus conclude that selection for male tallness is unconstrained in the human population and will lead to the evolution of ever-increasing male height until some limit or constraint is reached.

These recent results stand in contrast to those of an older study (Vetta 1975), which used data from a large sample of Harvard alumni (Damon and Thomas 1967). Vetta's analysis suggested an inverse U-shaped relationship between male height and number of children, with a decline in offspring among extremely short and extremely tall men. Vetta's paper was silent on whether the peak of the U was at the mean height for the population, though it was evidently close to it, and did not go into any more detail about the health, marital, or socioeconomic histories of the men involved. Thus the mechanisms associating height and reproductive success, and possible confounding factors, could not be further scrutinized.

The present study investigates similar effects in the UK's National Child Development Study (NCDS). This is an ongoing longitudinal study of all the children born in the UK in one week in 1958. The cohort members are now 42, and a considerable amount of information about their physical development and social and reproductive lives is now available. These data enable questions to be asked about the relationship between height and reproductive success.

The questions to be pursued within this dataset are as follows. First, is there an increase in reproductive success with increasing tallness? The two recent studies found an effect by looking at populations of men who were