

Re: limit of selection???

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"A.C.H." <br.hessels@planet.nl> wrote

>

> *The issue i was trying to pose was what this would mean, how far
> selection can push an adaptation, how perfect it'll become.*

>

> *[moderator's note: I can't be the only one thinking of Fisher's
> Fundamental Theorem here, can I? The rate of evolution is proportional
> to the product of the selection gradient, the genetic component of
> phenotypic variation, and the heritability of the trait. Does no one
> else think this is relevant here? – JAH]*

>

>

Yes, I think that's right.

>

> *Compare these two situations:*

>

> *1) Childbirth is a problem, females die during birth. Evolution by
> natural selection is happening, which is the cause of adaptation
> (easier childbirth).*

>

> *2) Women are perfectly adapted to giving birth, childbirth is no
> problem at all, no women die giving birth.
> In this case, the natural selection, which caused the adaptation in
> the first place, falls away.*

>

> *Therefore the state of perfect adaptation (all women give birth easy)
> cannot be reached, because, paradoxically, the cause of the
> adaptation: natural selection, falls away when you approach this
> state.*

>

> *So i predict: child birth will be less hazardous, but will never be
> easy.*

>

What you've got to remember is that mathematical models of evolution are an abstraction. A complex behaviour like childbirth is affected by a huge number of genes. However there is a single gene with a very pronounced influence on head size, called microcephalin. The isoleucine / glutamine

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(IQ) repeats seem to control head size, the more repeats, the bigger the head. This is a discrete number, and can reach an optimal figure. Normal humans have 74 repeats, and low