

# Without grandmothers we might not be here at all

November 17 2015, by Darren Curnoe

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Grandmother amusing her young companion in the waiting room of the Greyhound Bus Station, New York City, 07/1947 Credit: National Records and Archives Administration, U.S., Wikimedia commons

As adults, we're often nostalgic for our childhood. A time when life seemed so much simpler. When we were free from the hassles of money, pressures of work and responsibilities of family and care.

When we were free to play and imagine people and worlds far from reality, and almost everything we did was new, exciting, and to be explored and understood; to be conquered, torn apart, feared, cuddled or tasted.

It might come as a surprise to learn that even having a [childhood](#) is something unique to humans.

We're the only primate to have one, and the only one also to suffer the pangs of adolescence; but that's another story.

Childhood is one stage in the human life cycle, or what biologists call our ['life history'](#).

Life history is, for example, the time it takes for a fetus to grow, or the length of the various stages of life, like childhood or adulthood, important events like the age at first birth for a mother or the number offspring she has at each birth, age at death, and so on.

While every species has a unique life history, ours is downright weird compared to other primates, and indeed, most mammals.

Even among hunter-gatherers, our species normally lives around twice as long as our chimpanzee cousins do; we have the longest lifespan of all primates.

Infant mortality was similarly high among human foragers and chimpanzees, but if you survived until 15 years of age, [your life expectancy would have soared](#) to about 54 years (human forager) and 30

years (chimp) of age.

Most mammals including chimps have three stages in their life cycle: infancy, a juvenile stage and adulthood.

Infancy, the period from birth until weaning, when kids move onto solid food, is a lot shorter in humans though than other apes.

Infants in traditional societies were often weaned after about 3 years of age, but in chimpanzees it normally occurs around age 7.

Now, all primates except humans make the transition from infancy to adulthood via a juvenile (or 'tween') stage.

Instead, we pass through two extra stages in our life cycle – childhood and adolescence – giving us five stages of growth and development instead of three.

At each of these stages the body grows at different rates, different organs mature at varying times, and in traditional human societies, there were changes in the kinds of foods eaten and the roles kids played in society.

Childhood normally lasts around 4 years, from ages 3 until roughly 7 years of age. It's the time after weaning when we would have been learning how eat solid foods, prepared for us by adults, when our brains reached their full size, and our first permanent molar teeth appeared.

Why are we the only primate to have a childhood? Well, [it probably evolved](#) as a mechanism to allow women to have more offspring.

Human females reproduce for around twice as long as chimps, owing to childhood and early weaning.

Breastfeeding [can be an effective form of birth control](#) by delaying the return to ovulation.

So, by weaning kids much sooner, mothers are free to reproduce again, and much, much, sooner than in other apes.

So our species can have many more children than any other apes through extending our overall period of reproduction and reducing the interval between births; which helps in part to explain why there's seven billion of us today.

Intertwined with the evolution of childhood is the origins of grandmothering.

We're also the only primate to experience menopause, or more correctly, [to have grandmothers](#); women who live well beyond the reproductive stage of their lives.

We're apparently not completely alone in this among mammals, [with some species like killer whales also experiencing menopause](#).

But human grandmothers probably evolved as a result of the early weaning of infants: weaned children rely heavily on foods collected and prepared by adults.

Hunter-gatherer children would also have been highly vulnerable to being killed by predators, and are especially vulnerable to disease. So, they would have, still do, demand considerable care and attention.

Because grandmothers have finished reproducing themselves, they are uniquely placed to invest time into helping feed and care for their grandchildren.

This would have greatly improved the survival of children, and allowed their daughters to have more of them, passing on more of their own genes through better survival rates among their grandkids.

And, not wanting to neglect the granddads entirely, the wisdom of a lifetime of experience for both grandparents must have been a great bonus for the entire community in handing down traditional knowledge, culture and understanding of the environment.

Hunter-gatherer fathers and grandfathers are also known to [play a much larger role in childcare](#) than other kinds of societies like pastoralists or farmers, and not just in providing food.

But studies of recent populations suggest there is probably [no real reproductive benefit](#) to men surviving to be grandfathers.

Perhaps men live to a ripe old age because evolution has favoured long lifespan for the entire species owing to the benefits of grandmothering? In this case, grandfathers might simply be incidental rather than a necessity.

Still, one [pattern that seems to be consistent](#) across many foraging societies is that an absence of grandmothers leads to higher childhood mortality than an absence of fathers.

When did childhood and grandmothering evolve? Its difficult to be certain because the different stages in human life cycle often don't leave clear evidence for us in the fossil remains our ancestors.

Certainly, there seems to have been a shift in longevity [by around 40,000 years ago in Europe](#) when we see many more individuals surviving into old [age](#).

But this is more than three-quarters of the way through the evolution of our species, which [evolved more than 200,000 years ago](#) in Africa.

The five stages in the human life cycle are universal and must therefore be under the strong influence of our genes. So its very likely that our unusual [life cycle](#) was present from the birth of our species as well.

Before 40,000 years ago old people were probably very rare in all communities, but their existence, especially of grandmothers, could have made a huge difference to child survival and mortality and may be the main reason we're here at all.

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