Supporting Information

Langergraber et al. 10.1073/pnas.1211740109

SI Materials and Methods

Ape Study Groups. For all offspring considered, we used data from genetic parentage analysis to confirm the identity of the mother and to assign paternity. Parentage assignments were done using nine or more autosomal microsatellite markers applied to DNA derived from noninvasive samples as described in detail in the respective publications (see below). Noninvasive samples for genetic analysis are rarely obtained before chimpanzee infants reach 3 y of age (1, 2) and we found results were consistent when either including or excluding chimpanzee infants who did not survive to the age of 5 (see below). With one exception of an offspring who survived only until age 2, only offspring who had reached the age of 3 y were included in the gorilla analysis.

Research on western chimpanzees (Pan troglodytes verus) in the Tai National Park, Côte d’Ivoire began in the 1980s. Our ongoing genetic assessments of paternity have resulted in parentage assignments for 60 offspring born into three groups between 1987 and 2007 (1). Also included in our analyses are data from several long-term eastern chimpanzee (Pan troglodytes schweinfurthii) research sites. We used the published ages of the genetically identified parents of 31 offspring at Gombe National Park, Tanzania (2). Genetically determined parentage data are also available for 14 offspring born into the M group at Mahale Mountains National Park, Tanzania (3). We determined the parentage of 72 offspring of the Ngogo community and 15 offspring of the Kanyawara community, both in Kibale National Park, Uganda (4). Finally, we determined the parentage of a total of 34 offspring of the Sonso community in Budongo Forest Reserve, Uganda (5).

Beginning in the late 1960s, researchers affiliated with the Karisoke Research Center have monitored births, deaths, and dispersal events in several groups of mountain gorillas (Gorilla beringei beringei) living in the Virungas Volcanoes region of Rwanda, Uganda and the Democratic Republic of Congo. Approximately half of mountain gorilla groups contain more than one male of reproductive age, and ongoing genetic studies of paternity begun in the late 1990s have revealed, to date, parentage for 97 offspring born into the 3, but infant mortality was not significantly correlated with maternal age (3).
Parks, Mahale Mountains National Park, and Mahale Mountains Wildlife Research Centre for supporting research at Mahale. The Karisoke Research Center is a project of the Dian Fossey Gorilla Fund International (DFGFI). DFGFI thanks the Rwandan government and national park authorities for their long-term commitment to gorilla conservation and their support of the Karisoke Research Center. Research at Kanyawara is funded by the Leakey Foundation, National Science Foundation (NSF) Grants 9807448 and 0416125, the National Geographic Society, and the Wenner Gren Foundation. Research at Ngogo is supported by the Leakey Foundation; the National Geographic Society; NSF Grants SBR-9253590, BCS-0215622, and IOB-0516644; the University of Michigan; Yale University; Boston University; and the Max Planck Society. The Royal Zoological Society of Scotland provides core funding to the Budongo Conservation Field Station.


Fig. S1. Proportion of offspring produced by mothers and fathers of different age classes in chimpanzees (A) and gorillas (B).
Table S1. Comparison of mass and generation time estimates for humans and great apes

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th></th>
<th></th>
<th>Males</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mass</td>
<td>Generation time</td>
<td>Mass</td>
<td>Generation time</td>
<td></td>
</tr>
<tr>
<td>Humans</td>
<td>54.4</td>
<td>25.6</td>
<td>62.2</td>
<td>31.5</td>
<td></td>
</tr>
<tr>
<td>Chimpanzees</td>
<td>40.4</td>
<td>25.2</td>
<td>49.6</td>
<td>24.1</td>
<td></td>
</tr>
<tr>
<td>Gorillas</td>
<td>80</td>
<td>18.2</td>
<td>169.4</td>
<td>20.4</td>
<td></td>
</tr>
<tr>
<td>Orangutans</td>
<td>35.7</td>
<td>26.7</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

Human generation time estimates are from ref. 1, orangutan generation time estimate is from ref. 2, and mass estimates are averages across subspecies and populations and are from ref. 3. NA, not applicable.