The Implications of Gorilla, Chimpanzee, Orangutan and Bonobo Mating Patterns on the Sexual Behavior of Ancestral Humans

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Physical anthropologists draw from living primate studies to gain information on the social and sexual behaviors of ancestral humans. From examining physiology as well as studies of animal ethology in settings parallel to those of the early hominids, it is possible to gain useful insights on ancestral social and mating behaviors. Physiological differences place humans in an interesting place. Primatologists have established that species in which there is pronounced **sexual dimorphism**, size and other physical differences between males and females, are typically non-monogamous (Diamond 1992). Interestingly, gibbons are the only apes that are routinely monogamous—and as expected there is virtually no size differential between males and females.

Another indicator for non-monogamy is **testicle size**. Species, in which it is routine for multiple males to inseminate an estrus (fertile) female, sport relatively large male testes. Reproductive strategies in these conditions include intra-uterine sperm competition wherein the ejaculate of multiple males engages in "sperm warfare" to gain access to the female's egg. Baker and Bellis (Baker 1996) established that male ejaculate contains three kinds of sperm: blockers, fighters, and egg penetrators. Blockers prevent intruder sperm from accessing the egg and fighters kill off foreign blockers and penetrators. Both of these non-fertilizing sperm make it possible for "their" egg penetrators to effectively inseminate the egg. The alpha male in a troop of chimpanzees will typically fertilize upwards of 50% of the females due his ability to assert sexual access.

Let's begin by examining the social and mating behaviors of several primate species: Gorillas live in "harems" with one alpha male and between two and seven females and their offspring. Gorillas express the greatest amount of sexual dimorphism in the primate world with males averaging 400 pounds and females around 200 pounds. Whenever a female goes into estrus the harem male inseminates her. Gorilla males have relatively small testes and penises because they do not engage in sperm competition. When male gorillas become adolescents they leave their troops and create temporary (non-mating) troops with other adolescents. As they begin to bulk up in size and strength, they'll attempt to attract females from other troops to join them in a "harem." It's very uncommon for adult gorilla males to engage in physical fights with each other to gain access to females.

Chimpanzees live in multi-male / multi-female troops and engage in what primatologists consider a *fission-fusion* type society (Stein and Rowe 2000). Here, a variety of social groupings can occur at once: groups of females and their offspring, groups of males, adult male/female consorts, and lone individuals. Chimp females openly display estrus with large pink genital

swellings. During estrus they actively present themselves to the males in their troops. An estrus female may copulate 30 times in a day, leaving her little time to forage for food! When females are not in estrus they typically don't have sex. Unlike humans, chimp females who have established themselves as mothers hold greater sexual interest to the males than those who are still adolescents.

Unlike chimps, orangutans do not live in multi-male troops. Orangutan males are typically solitary, while orangutan females are bonded with their offspring. A male orangutan only approaches a female when she is sexually receptive. Long term male-female bonds don't occur amongst orangutans.

Bonobos are unique. They live in erotically charged troops where females willingly engage in sexual encounters whether or not they are displaying estrus (Small, 1992). When a new female joins a troop, she will typically engage all members sexually. A highly exciting moment, like discovering a mango tree brimming with juicy fruit, is often dissipated by everyone first having sex with each other. Female-Female sex, referred to G-G (genital-genital) rubbing is often so desirable, that females will shun an interested male and have sex with each other instead. Unlike most primates, bonobos engage in frontal kissing and frontal (missionary) style copulation. Orgies, which can include the young riding atop their parents' backs, are common, as well. Where chimpanzees might engage in high levels of physical aggression, Bonobos are likely to settle differences through sex.

Human DNA is 98% the same as Bonobos and Chimpanzees. The hominid line and chimp/bonobo line split off between five and six million years ago, while the chimp/ bonobo line split apart about two million years ago. We don't know if the original species was more like today's chimps or today's bonobos. We do know that all three species are sexually dimorphic (revealing that the males seek multiple female mates) and that all are equipped for sperm competition (confirming that the females may seek to access multiple males).

Primatologists have spent much time speculating whether and when and if ancestral human females had an estrus display. Clearly such a display amongst chimpanzees has a huge impact on troop activity. Meanwhile, bonobo females engage in sexual activity constantly, despite that sometimes they're displaying estrus, and sometimes they're not. Some anthropologists have speculated that a human female estrus display would be very disruptive: as in a chimpanzee troop, the males would be so focused on the blossoming female, they'd get no work done. Others have speculated that ancestral females evolved to act as if they were in estrus (by having sex with males) even when they weren't, to access male gifts such as freshly killed meat. And certainly today women know how to dress and behave to appear sexually interested so to secure male gifts such as dinner and jewelry. Interestingly, pre-ovulatory women who attend nightclubs have been shown to wear dresses that expose more skin and to attend without their husbands or partners.

Ultimately, the evolutionary value of concealed estrus/ovulation would be that a female could entice multiple males into having sex with her, all believing that they could be her baby's father, and thus they would each be protective if not helpful towards her infant. Interestingly, pair bonding often arises in species that already have concealed ovulation (Diamond, 1993)

perhaps as a means for females to keep their mates around since its never known when the exact moment of ovulation occurs. Since signal switching (re: concealed vs. displayed estrus) has been rampant in primate history, it's very possible that ancestral humans have both lost it and regained it, depending upon when it was reproductively advantageous.

Perhaps the reason that humans (other than at sex parties) don't behave like bonobos is because since the advent of private property, males became concerned with tracking the females who were carrying their offspring. As a result they've done all they can to control the sexual access of their wives, daughters, and concubines. Before the easy access of DNA tests males were readily cuckolded into providing for their wives' offspring. What primatology research confirms is that humans have never been a monogamous species: sperm competition confirms the female drive for multiple mates and sexual dimorphism confirms the male drive for sexual variety. Concealed ovulation coupled with year round female sexual receptivity enables females to both seek pair bonds as well as access sexual variety. Being that human sexual behavior in many ways parallels bonobo sexual behavior; the differences (human pair bonding and human abhorrence of adult-child erotic expression) largely reflect human cultural beliefs and practices.

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