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## The Importance of Peer-to-Peer Grooming Among Non-human Primates



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### Abstract

Among non-human primates, grooming is a common practice. Research has shown that there are many underlying reasons why non-human primates groom. It is not completely altruistic or selfish but is often a resource traded for food, mating access, protection, and other social benefits. It can be used to achieve higher social rank as the bonds formed from grooming help primates climb the social ladder. There are other advantages of grooming, which include increased social bonding, mating access, and offspring support.

*Keywords:* grooming, non-human primates, social ranking, infant survival, protection.

Grooming is one of the most common and crucial social behaviors in almost all non-human primates, and it has been a topic of debate. At first, onlookers assumed it occurred solely because a hungry animal was looking for food in its peer's hair (Carne, Wiper, & Semple, 2011). Other researchers viewed grooming as altruistic, because there appeared to be personal costs to the groomer and benefits to the groomed peer.

Research by Kanngiesser, Sueur, Riedl, Grossman, and Call (2011) found that grooming is exchanged for reciprocal grooming and many commodities. Their research suggested that peer-to-peer grooming is not altruism or selfishness but a calculated gesture. It eases social stress and may bring troops and individuals closer, thereby strengthening social bonds. It is also a factor in social rank (Kanngiesser et al., 2011). In addition, grooming promotes increased odds of survival for offspring, and protection provided by the grooming partner.

### Social Rank

Fruteau, Lemoine, Hellard, van Damme, and Noë (2011) investigated the use of grooming as an “inexpensive currency” among primates. They observed grooming sessions among sooty mangabeys and vervet monkeys at times when there was no apparent reciprocation or exchange

for commodities. Most females had frequent grooming partners. Regular grooming over a long period of time with the same preferred partners yielded stronger bonds, as measured by the amount of time each grooming pair spent together. The partner choice in these relationships was partially explained by the ranking system among those involved. Females that mutually groomed had similar social rankings. As they moved up in rank, females usually groomed those of similar rank as a means of establishing that rank as their own. Within the rank, the females mostly traded grooming for a chance to be groomed. Their mutual grooming was rewarded by a stable position among the others. This was evident in both species.

Females' ranks were also correlated with the amount of grooming they performed. Lower-ranking females needed to groom and be groomed for a longer period of time in order to move up in rank. Moreover, lower-ranking females groomed their partners longer than they were groomed in return (Fruteau et al., 2011). Rank dynamics and correlated grooming vary across primate species. In some, it is acceptable for either dominant or subordinate members to initiate a grooming session. Within others, however, most interactions are initiated by a lower-ranking member in an attempt to gain favor. For example, among the vervets,

lower-ranking females initiated 262 of 323 grooming sessions, a significantly higher proportion than that of their higher-ranking partners (Fruteau et al., 2011). Carne et al. (2011) studied peer-to-peer grooming in female Barbary macaques. Individuals groomed females with a higher rank than themselves more than they groomed females with a lower rank.

Male chimpanzees have demonstrated similar grooming relations. Mitani (2009) measured the content, quality, relative frequency, and patterning of grooming interactions within male pairs. The more equitably and frequently they groomed each other, the stronger the bond between them became. Male pairs were found more likely than female pairs to maintain these social bonds for at least one year, and 68% of the bonds remained stable during that period.

### Infant Survival

Some primates groom one another and thereby increase the odds of survival for their infants. In a study on female baboons' bond-forming, Silk, Alberts, and Altmann (2003) found that when females were more socially integrated, their infants were more likely to survive. The extent of an individual's social integration was determined using a composite sociality index made up of three separate

measures: proximity to other adults, being groomed by other adults, and grooming other adults. Females with higher scores had offspring with a higher survival rate than females with low scores. Female baboons strive to maintain connections with other baboons in order to ensure their offspring's survival and success (Silk, 2003). This experiment showed one of the driving forces behind social relationships and the power these social bonds have on offspring. Social bonds are largely formed through the equitable and frequent grooming pattern between two similarly ranked primates. Grooming is used more frequently among females as a ladder to gaining higher sociality, which directly influences survival rate in their offspring.

### Protection

The social bonds formed through peer-to-peer grooming also protect the individuals directly involved in the exchange. Hemelrijk (1994) found that long-tailed macaque females were more likely to support others after being recently groomed by them, where support was defined as one animal defending another during an attack. Individual females were given the opportunity to support their peers under three separate conditions: after grooming the other, after being groomed by the other, and without any prior

grooming. Levels of support were significantly higher in the first two conditions than in the third.

In a study of female Japanese macaques, Schino, di Sorrentino, and Tiddi (2007) found that they supported those macaques that returned their support. Often these were those that had groomed them most. Such support was a critical form of protection during feeding, mating, and other critical activities. Japanese macaques are also more capable of defending themselves with the support of their grooming partners. It is still debated whether biological relatedness also plays a role in the exchange of grooming for social support (Carne, 2011).

Capuchin monkeys have been observed to exchange grooming in order to eat without fear of being attacked (Tiddi, Aureli, di Sorrentino, Jansen, & Schino, 2011). This implies a "what's mine is yours" relation should a female encounter hostility while feeding. Sharing food and infant care are more likely to occur. The high levels of tolerance demonstrated among capuchin monkeys were significantly associated with high levels of grooming, regardless of kinship or sex (Tiddi, 2011). Similarly, rhesus macaques exchange grooming for peer protection at drinking basins (Carne et al., 2011).

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### Conclusion

Recent research has brought a better understanding of the causes for peer-to-peer grooming in non-human primates. Grooming as a valuable and exchangeable commodity is now a widely accepted theory. Grooming relations can lead to higher social ranking, increased odds of survival for offspring, and protection. It has been shown that social rank is one of the top motivations for grooming and is important for every aspect of a primate's life. Secondary to this motivation is the passing down of one's genes, a drive that every primate is born with. Lastly, grooming is also used as a means of obtaining protection. Without the ability to groom one another, the aforementioned necessities would not be attainable for non-human primates.

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