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## Cooperative Grooming

Karin Schneeberger  
University of Bern, Bern, Switzerland

### Synonyms

[Allogrooming](#); [Allopreening](#); [Mutual grooming](#); [Reciprocal grooming](#); [Social grooming](#)

### Definition

In contrast to autogrooming during which an individual cleans itself, cooperative grooming is defined as a social act during which an animal grooms a conspecific, usually implying costs to the groomer and benefits to the groomee.

### Introduction

Grooming functionally serves different hygienic purposes such as removing dead skin and parasites. Therefore, it is an important part of hygienic routine in most animals and is strongly associated with survival. In many species, individuals do not only groom themselves but are also frequently observed grooming conspecifics (reviewed in Spruijt et al. 1992) or even individuals from other species (cleaning symbiosis; Poulin and Grutter 1996). Within species, besides increasing

hygiene, allogrooming relaxes the receiving individual, serves as appeasement gesture to reduce aggression between partners, can be part of courtship behavior, and facilitates social bonds such as between mother and offspring or between individuals of a social group. However, allogrooming imposes important costs to the donor, such as decreasing their predator vigilance or time spent foraging. Symbiosis, kin selection, direct reciprocity, and being part of complex social functions are the main mechanisms proposed through which donor individuals may gain benefits and increase their fitness via grooming a conspecific.

### Mechanisms and examples of cooperative grooming

When grooming themselves, individuals can not always reach all parts of their body and thus depend on the help by conspecifics or specialized symbionts (e.g., cleaner fish; Poulin and Grutter 1996). In the latter case, the cleaner removes and eats parasites, dead skin, and other material from the surface of a host organism (the client), and thus grooming is of mutual benefit for both the donor and receiver. However, allogrooming among conspecific can usually not be explained by immediate benefits for the donor but is still one of the most commonly observed social interactions in many animals (Spruijt et al. 1992). In fact, time spend in grooming a conspecific has to be traded off against predator vigilance or

foraging, both which would increase the fitness of an individual. Similar to other altruistic behavior, allogrooming therefore is costly for the donor, and scientist have been searching for explanations on why this behavior evolved.

If animals groom individuals which they are related to, such altruistic behavior can be explained by kin selection (Hamilton 1964): An individual gains fitness by helping a conspecific sharing proportions of the same genes (i.e., siblings). After all, overall fitness or inclusive fitness is defined as the sum of own reproduction and the reproduction of relatives in comparison with the total reproductive output of the population. Thus, helping relatives promotes an individual's relative genetic representation in the gene pool in the next generation.

However, animals do not only groom relatives but also conspecifics which they are not related to. Direct reciprocity is one potential mechanism that may establish cooperative grooming among nonkin. Impalas (*Aepyceros melampus*), for example, groom each other in the head and neck area (Hart and Hart 1992), a behavior which is directly reciprocated between individuals, i.e., the receiver of a grooming bout will return the favor to the previous groomer. Notably, in some species, grooming can not only be reciprocated with grooming but may be exchanges for other services. In the common vampire bat (*Desmodus rotundus*), for example, allogrooming is correlated with food sharing among individuals (Wilkinson 1986), and female baboons (*Papio ursinus*) can trade grooming for support during aggressive interactions and other valuable commodities (Barrett et al. 1999).

Thus, beyond hygiene, allogrooming may reflect the characteristics of the social relationship between donor and receiver and thus have important social functions. The structure and function of allogrooming relationships have mostly been studied in primates, such as in capuchin monkeys (*Cebus apella*; Bitetti 1997). Here, dominant males and females do engage more in allogrooming than subordinates, and females with infants are especially attractive grooming partners. Recently, potential social functions have been

described in nonprimate species as well, such as in the cooperatively breeding meerkat (*Suricata suricatta*), where grooming may help to maintain beneficial social relationships and indicate the value of subordinate breeding helpers (Kutsukake and Clutton-Brock 2010). Through enhancement of the social position within a group, allogrooming individuals can thus increase their fitness via other benefits such as social support.

In humans, besides during child care, mutual grooming among is mostly directed to romantic partners, being of importance for courtship, developing trust, and as a potential indicator for parental investment (Nelson and Geher 2007).

## Conclusion

Cooperative grooming is part of hygienic routine in many animals and is often reciprocated between individuals. Besides, it has important social functions, such as during courtship or by establishing and maintaining social bonds. While cooperative grooming is common in other mammals, there are only few studies on humans where grooming is mainly observed as part of child care and between romantic partners.

## Cross-References

- ▶ [Adaptation](#)
- ▶ [Adaptation and Natural Selection](#)
- ▶ [Adaptations for Benefit Provisioning](#)
- ▶ [Adaptations for Reciprocal Altruism](#)
- ▶ [Adaptations to Avoid Detection as Cheater](#)
- ▶ [Adaptations to Detect Ability to Repay](#)
- ▶ [Adaptations to Detect Genuine Altruism](#)
- ▶ [Adaptations to Detect Willingness to Repay](#)
- ▶ [Altruism](#)
- ▶ [Altruism Advertises Cooperativeness](#)
- ▶ [Altruism Advertises Generosity](#)
- ▶ [Altruism Among Non-Kin](#)
- ▶ [Altruism and Costs to Altruist](#)
- ▶ [Altruism and Watching Eyes](#)
- ▶ [Altruism Defined by Benefits Conferred](#)
- ▶ [Altruism Displays Cooperative Potential](#)

- ▶ Altruism in Kin Selection
- ▶ Altruism Norms
- ▶ Altruist Detection
- ▶ Altruistic Dispositions
- ▶ Assessing Motivation for Altruism
- ▶ Cheater-Detection Adaptations and Cooperation
- ▶ Cooperation
- ▶ Cooperation Among Birds
- ▶ Cooperation Among Fishes
- ▶ Cooperation Among Non-Chimpanzee, Non-Human Primates
- ▶ Cooperation Among Non-Human Primates
- ▶ Cooperation Among Non-Humans
- ▶ Cooperation Among Non-Primate Mammals
- ▶ Cooperation and Cheater-Detection
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- ▶ Cooperative Alliances
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- ▶ Encourages Cooperation
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- ▶ Field of Behavioral Ecology, The
- ▶ Friendship and Altruism
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- ▶ Genuine Altruism
- ▶ Good Condition Signals Cooperativeness
- ▶ Gossip and Indirect Reciprocity
- ▶ Gratitude, Sympathy, and Empathy
- ▶ Health and Reciprocal Altruism
- ▶ Heavy Altruism Requires Good Condition
- ▶ Helping Strangers
- ▶ High-Cost Altruistic Helping
- ▶ Higher Status in Group
- ▶ Human Courting
- ▶ Human Reciprocal Altruism
- ▶ Imply Future Interactions
- ▶ Indirect Benefits in Group
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- ▶ Indirect Reciprocity
- ▶ Indirect Reciprocity Theory
- ▶ Ingredients of Reciprocal Altruism
- ▶ Iterated Prisoner's Dilemma
- ▶ Iterated Prisoner's Dilemma Model
- ▶ Key Adaptive Problem of Reciprocal Altruism
- ▶ Kin Selection
- ▶ Likelihood of Reciprocation
- ▶ Living in Groups
- ▶ Martin Nowak
- ▶ Non-Human Primates
- ▶ Non-Human Reciprocal Altruism
- ▶ Peer Competition and Cooperation
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- ▶ Prisoner's Dilemma, The
- ▶ Problem of Altruism
- ▶ Psychology of Reciprocal Altruism
- ▶ Public Altruism Increased Prestige
- ▶ Puzzle of Altruism, The
- ▶ Reciprocal Altruism
- ▶ Reciprocal Altruism (Middle-Level Theory in Evolutionary Psychology)
- ▶ Reciprocal Altruism and Cheater-Detection
- ▶ Reciprocal Altruism and Cooperation for Mutual Benefit
- ▶ Reciprocal Altruism and Group Living
- ▶ Reputation and Altruism
- ▶ Robert Axelrod's (1984), The Evolution of Cooperation
- ▶ Robert Trivers
- ▶ Strategies for Successful Cooperation
- ▶ Theory of Reciprocal Altruism
- ▶ Tit-for-Tat Cooperation
- ▶ When It Matters Most, Altruism Predicted by Genetic Relatedness

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