The influence of captive rearing on social development in captive and wild chimpanzees

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Many chimpanzees (*Pan troglodytes*) kept in captivity as pets, laboratory animals and in zoos, have experienced maternal separation and social deprivation during development (Martin, 2002). Similarly, an increasing number of orphaned infant chimpanzees, rescued from threats of deforestation, disease and hunting, are being reared in sanctuaries (Goossens *et al*., 2005). Recent research has examined how captive rearing affects behaviour (Martin, 2005a), personality traits (Martin, 2005b) and social skills. Such research may improve long-term welfare assessments in captive individuals. Additionally, when examined in conjunction with reintroduction programs, such as those examined by Goossens *et al*. (2005), research could explore long-term welfare of reintroduced animals by assessing the impact of captive rearing on the development of behaviours necessary for survival in the wild. This will be important if in the future it is necessary to supplement wild populations with captive chimpanzees.

Social skills affect long-term welfare of chimpanzees because they promote integration of individuals into society (Martin, 2005a). Captive rearing of chimpanzees under restricted conditions may limit their opportunity to learn such skills.

Research by Martin (2002) demonstrated that human rearing, either alone or with conspecifics, temporarily reduces normal activity levels and increases abnormal behaviours, such as coprophagy and rocking. This study and another carried out by Pfeiffer and Koebner (1978) demonstrated that these effects were not irreversible. Recovery of ‘normal’ behaviours is possible after resocialisation in socially enriched environments.

Further studies have investigated the long-term effects of captive rearing on social skills. Martin (2005a) examined the effects of maternal and peer separation during infancy and juvenescence on the social behaviours of play and grooming in adult chimpanzees. A later study by Martin (2005b) examined the effects of early upbringing on personality traits observed in later life.

Both studies examined the same 43 adolescent and adult chimpanzees, from a variety of backgrounds, at five zoos in the UK. The chimpanzees had been subjected to different rearing conditions, including being raised by their own mother in a social group (MGR), separated from their mother during infancy and human-reared with other conspecifics, and separated from their mother and conspecifics for a period as dependent infants, and then resocialised within zoos. The study by Martin (2005a) examined play and grooming competencies. The study by Martin (2005b) compared personality traits of individuals from different rearing conditions.

Results from the study by Martin (2005b) found no traits in which non-MGR individuals differed from MGR chimpanzees, suggesting that rearing conditions may not affect personality past juvenility. These results are supported by those of Martin (2005a), which indicated that differences in rearing background had only limited effects on adult chimpanzees' social competence in social groups. Therefore, captive rearing conditions do not appear to compromise the long-term welfare of resocialised chimpanzees. Resocialisation was found to be best achieved by human rearing comparable to maternal care and through relationships with socially competent conspecifics (Martin, 2005a).

The findings of this research may extend beyond the assessment of welfare within captivity. It may also have value in assessing the success of reintroduction programs such as those studied by Goossens *et al*. (2005). These researchers examined the results of eight years of post-release monitoring of 37 wild-born, captive chimpanzees released into zones of low-density populations of wild chimpanzees in the Conkouati-Douli National Park, Republic of Congo. In this study, individuals spent between several days to five years in captivity, with young ones rehabilitated in nurseries before release.

Results demonstrated that wild-born, orphan chimpanzees can be successfully rehabilitated and released into the wild. Adolescent females showed most success at integration, reproducing and interacting with wild chimpanzees. Although most interactions between released males and wild chimpanzees were aggressive, this is 'normal' behaviour in the wild (Goossens *et al*., 2005). This study suggests that rearing in captivity is not detrimental to successful integration into wild conditions.

Differences in captive and wild environments limit our ability to directly translate the results of Martin (2005a,b) to other chimpanzee populations. The above studies assessed adaptability of animals resocialised within captive conditions, providing them with the opportunity to learn social and survival behaviours. What has not been examined is whether the *lack* of opportunity for such learning will be detrimental to long-term welfare in captivity or following reintroduction. What also remains unknown is whether the experiences learned during captive rearing will fully equip them for later life. The emphasis has been solely on the link between social development and adaptability, yet other factors may be important, such as the method of release (Goossens *et al*., 2005), and the influence of management, housing and social competition (Martin 2005a).

It is also relevant to note that because the same chimpanzees were used in studies by Martin (2005a) and Martin (2005b), the specific environmental and genetic factors may limit our ability to draw a general conclusion.

The underlying assumption of this paper is that *welfare* may be defined in terms of personality and behaviour and how well these are translated into the wild. It also assumes that *wild* behaviour is the standard by which to assess the wellbeing of animals (Hosey, 2005). However, wild animals' welfare may

also be compromised by exposure to stressors. Therefore, the welfare of *all* animals, including captive and wild, relies on their ability to cope and adapt to these stressors (Hosey, 2005).

The results of these studies demonstrate that captive rearing style does not have a permanent effect on the personalities, behaviour or social development of resocialised chimpanzees, suggesting that the long-term welfare of these animals in captivity and in the wild is unlikely to be compromised. Welfare may rely upon expression of appropriate survival behaviour and social skills, usually learned during infancy and juvenescence within social groups and with their mothers (Martin, 2005a). It seems that chimpanzees are resilient to or amenable to adapting to environmental conditions during development and can show high degrees of behavioural and emotional recovery (Martin, 2005b). If separation is unavoidable, orphaned infants may be successfully resocialised and reintroduced into the wild.

References

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