

HAND PREFERENCES IN 94 BONOBOS (*PAN PANISCUS*) FOR: SPONTANEOUS DAILY ACTIONS, BIMANUAL COORDINATION (“TUBE TASK”), TOOL-USE (PROBE), INDUCED GESTURES (BEGGING).

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The database on hand preference in non-human primates provides inconsistent and inconclusive findings; and is plagued by gaps and methodological issues. To investigate evolutionary theories on human right-handedness, we studied hand preference in bonobos. There are few data on bonobos and only from small samples. We studied 94 bonobos from three zoos and one sanctuary. Five studies were performed to record: 1. hand use for spontaneous daily activities (non-social). 2. hand use for the “tube task”, a task that requires a precise, bimanual coordinated manipulation. 3. hand use for using a stick as a probe (similar to “termite fishing”). 4. hand use for spontaneous social actions and gestures, recorded during their social interactions (intra-specific). 5. hand use for induced begging gestures (begging for food from the observer). The results show significant manual laterality in almost all behaviours studied. Laterality was particularly marked in studies 2, 3 and 5. The preferences were present on an individual basis, with similar numbers of right-handed and left-handed individuals (no group-level bias). There were no significant effects of the settings, rearing history, sex and age (except in study 2 where adults were more right-handed than younger subjects). We considered different factors that have been proposed as selective pressures for the emergence of handedness. Laterality was influenced by: postural demands (posture, activity of the other hand), precision (grip type), manipulation or bimanual coordination, tool-use and communication, which suggests that those could be important factors for eliciting laterality.

Keywords: Brain lateralization. Handedness, Evolution of manual laterality, Bonobos.