

MECHANISMS UNDERLYING THE EFFECT OF FEEDING SUBGROUP SIZE ON FEEDING RATE IN JAPANESE MACAQUES (*Macaca fuscata*)

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Various effects of feeding subgroup size on feeding rate have been reported. Generally, the presence of other individuals can benefit foraging success when inter-group competition is severe or when predation pressure is high. However, a positive effect of feeding subgroup size on feeding rate was detected in the absence of predation pressure and severe inter-group competition. We examined the effects of social monitoring and feeding subgroup size on the feeding rate of Japanese macaques (*Macaca fuscata*) living in Kinkazan Island. Social monitoring is a form of within-group vigilance that assists individuals in following the activities of other individuals in their own group. Social monitoring may also restrict feeding rate, because vigilance and feeding are thought to be incompatible. We obtained following results; (1) individuals abandon food patches to follow group members when feeding in smaller subgroups, (2) social monitoring decreases with feeding subgroup size, (3) social monitoring negatively affects feeding rate, and (4) lower ranking females decrease feeding rate in larger feeding groups, and (5) feeding rate initially increases with feeding subgroup size because of the increase in social monitoring and moderate level of feeding competition, but at a certain subgroup size, feeding rate declines due to the high level of feeding competition. Thus, the effect of feeding subgroup size on feeding rate can be positive, neutral, or negative, depending on both of social monitoring frequency and the level of feeding competition experienced by these individuals.

Keywords: feeding rate, food patch use, social monitoring, feeding competition