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Foraging 'enrichment' as treatment for pterotillomania

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Abstract

This study was performed to determine whether foraging 'enrichment' reduces self-directed psychogenic feather picking (pterotillomania) in parrots. A positive correlation between increased foraging time and improvement of feather score was hypothesised.

Eighteen pterotillomanic African grey parrots (*Psittacus erithacus*) were randomly assigned to experimental and control groups in a crossover design for two 1-month-periods. The experimental group received food in pipe feeders, while the controls received food in a bowl in the presence of two empty pipe feeders.

The 10-point plumage scoring system from Meehan was used as an indirect measurement of feather picking behaviour (better plumage results in higher score). Scoring took place before the study; after 4 weeks, just before the crossover; and 4 weeks after the crossover. Foraging time was calculated with a time-lapse recorder.

A pipe feeder significantly increased foraging time and feather score. The logistic model of the influence of foraging time on improvement of feather score was significant (Chi-square 7.1; d.f. = 1; $P = 0.0076$). Each hour extra spent on foraging multiplies the odds of improvement of feather score with a factor 2.9 (95% CI 1.2–7.0).

The results suggest that the redirected foraging hypothesis might be an explanation for pterotillomania in African grey parrots and provide an effective treatment strategy for this common behavioural disorder. The findings may have implications for the treatment of trichotillomania in humans.

Keywords: Psychogenic feather picking; Feather pecking; Impulse control disorder; Animal model; Trichotillomania; Redirected foraging behaviour; African grey parrot

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1. Introduction

Psychogenic feather picking is one of the most challenging behavioural problems of captive parrots. It has been estimated that 10% of captive parrots perform this feather picking behaviour (Grindlinger, 1991). Feather picking generally applies to all mutilation of the feathers by the beak and includes chewing or plucking (Harrison, 1986). Psychogenic feather picking develops or persists in the absence of medical causes, and observational evidence suggests that it may be associated with a number of management factors, such as inadequate diet, social isolation and lack of environmental stimulation (Mertens, 1997). A compelling case has been made by Bordnick et al. (1994), that trichotillomania in humans and feather picking disorder in birds are similar behavioural disorders. Here a new term 'pterotillomania' (PTM) is proposed instead of 'feather picking' to emphasize the similarity with the human condition 'trichotillomania' (TTM). This term enables use of the Greek term for this disease in all languages (trichos = hair; pteron = feather or wing; tillein = to pluck; mania = excessively intense desire). A well-recognised animal model for a human disease has the advantage that animal and human research can be mutually beneficial.

In chickens many studies are in support of the redirected ground peck hypothesis which explains the feather pecking from lack of appropriate foraging material (Huber-Eicher and Wechsler, 1997; Blokhuis, 1986; Aerni et al., 2000). In one study in Amazon parrots it was shown that combined environmental and foraging enrichment improved the feather score over a 1-year-period (Meehan et al., 2003). The experimental set-up in that study, however, did not allow to differentiate between environmental enrichment and foraging enrichment.

The term 'enrichment' needs some explanation. Some have argued that 'providing environmental requirements' should be used in situations were the basic needs of the animal are provided in order to avoid states of suffering, such as pain, discomfort, frustration and fear, and that 'environmental enrichment', should be reserved for environmental manipulations which enhance quality of life even further by leading to states of pleasure (Duncan and Olsson, 2001). However, the term enrichment is used in many studies in animal welfare science to describe a situation which contrasts with the barren environment in the control group. In the present study the term 'enrichment' indicates 'to improve the environment', without implying that the original situation was already satisfactory.

Based on the assumption that psychogenic feather picking in captive parrots, like in laying hens, can be regarded as a form of redirected foraging behaviour, we hypothesised that providing only foraging 'enrichment' devices would reduce psychogenic feather picking in these animals. Since it is known that feathers redevelop in about 3 weeks after plucking we also hypothesised that improvement within 1 month should be possible. This study was performed to test this hypothesis in a prospective crossover experiment.

2. Methods

2.1. Birds

The parrots used for this study were 18 feather picking African Grey parrots (*Psittacus erithacus erithacus*), which had been donated to a parrot shelter (Nederlandse Opvang Papegaaien [NOP], Veldhoven, The Netherlands) by there previous owners. The birds showed the typical pattern of feather picking, with well-formed feathers on the head and random areas of feather loss or feather damage in body areas accessible to the birds' beak (Westerhof and Lumeij, 1987. They were divided, at random, in two groups of