Activity and enrichment use in disabled Asiatic black bears (*Ursus thibetanus*) rescued from bile farms

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Abstract

Physical disability has the potential to impede the use of environmental enrichments in rehabilitation programmes. We therefore compared the behaviour of 63 disabled and non-disabled socially housed adult Asiatic black bears rescued from bile farms for 103 observation hours. Amputees were less active than non-amputees, spent less time standing, travelled less between different areas of their outdoor enclosure, and showed less frequent stereotypic behaviour. Blind bears also showed low levels of activity and stereotypic behaviour. Blind bears and male amputees spent less time than non-disabled bears eating food dispersed throughout the enclosure as a foraging enrichment. It is unclear whether their infrequent eating is due to impaired foraging, or to lower energy demands arising from lower activity levels. Blind bears tended to manipulate feeders and other enrichment objects less than sighted bears. Disabled bears did not show any signs of impaired social interactions, and were not competitively displaced from resources by other bears more often than non-disabled bears. Thus, disabled bears rescued from bile farms show deficits in overall activity, with amputees also travelling less around their enclosures and blind bears potentially compromised in some forms of enrichment use. However, it is apparent that they adapt well to the presence of social companions. Several disabled bears also showed a degree of novel behaviour, seemingly compensating for disabilities, suggesting possible avenues for enrichments targeted specifically at these bears. The data also suggest specific hypotheses to test in longitudinal studies of rehabilitation.

Keywords: animal welfare, Asiatic black bear, blindness, environmental enrichment, limb amputation, physical disability

Introduction

Over 10,000 captive Asiatic black bears (*Ursus thibetanus*) are farmed for bile, used in traditional Chinese medicine, in China, Vietnam, and Korea. They typically experience solitary confinement, extreme physical restriction, and malnutrition in addition to bile extraction, every one to three days, through a catheter or fistula (reviewed by Li 2004; Loeffler et al 2007, 2009). These animals’ poor welfare is manifest in physical health problems (eg chronic infection) and behavioural changes (eg excessive fear of keepers, abnormal repetitive behaviours, such as self-sucking or head rolling). Bears born in captivity (circa 80% of rescued bears) are usually also maternally deprived, being weaned at age three months, rather than the 1.5 years common in the wild (Loeffler et al 2007). The Animals Asia Foundation (AAF) is rescuing bears from closed bile farms and taking them to sanctuaries in Vietnam’s Tam Dao National Park and in Sichuan Province, China. There, efforts are made to rehabilitate them progressively, eventually culminating in bears being group-housed in large, environmentally enriched enclosures.

While most bears show remarkable recovery, others make slower progress and exhibit behaviour indicative of anxiety or fear, as well as stereotypic behaviour. One possible reason for poor recovery could be little use of the provided environmental enrichments. Environmental enrichment, widely used by animal keepers to improve welfare (eg in zoos), can be defined as the identification and provision of “environmental stimuli necessary for optimal psychological and physiological wellbeing” (Swaisgood & Shepherdson 2005; see Young 2003, for examples of treatments considered to be enriching). In various species, enrichments have been shown, for example, to decrease anxiety and stress-related corticosterone reactivity (eg Benaroya-Milshtein et al 2004) and to reduce time spent performing stereotypic behaviour (reviewed in Shyne 2006; Swaisgood & Shepherdson 2006). However, individuals clearly differ in the degree to which they benefit, and stereotypic behaviour reduction can be correlated to strength of motivation to use enrichments (Tilly et al 2010). In the case of the Asiatic black bears at Animals Asia’s sanctuaries, an extensive environmental enrichment and management programme is in place, designed to meet