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## **A survey of foot problems, stereotypic behaviour and floor type in Asian elephants (*Elephas maximus*) in European zoos**

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### **Abstract**

*This study investigates whether foot problems in captive Asian elephants (*Elephas maximus*) can be linked to: i) enclosure floor type; and ii) the occurrence of repetitive behaviour. Using a questionnaire, we collected information about floor type(s) in the enclosure, occurrence of repetitive behaviour and occurrence of foot problems for 87 Asian elephants ( $\geq 12$  years) in 32 European zoos. The majority of elephants were housed on sand or concrete. A substantial proportion of the study population displayed repetitive behaviour. Respondents observed foot problems in 59 elephants, of which 53 displayed repetitive behaviour. Data analysis showed that elephants with access to sand flooring had a significantly greater chance of displaying stereotypic behaviour. Displaying this behaviour was also age-dependent with older elephants being more likely to do so. Furthermore, elephants that displayed stereotypic behaviour or that were being kept in an environment with sand or concrete flooring were more likely to have foot problems than others. Further research is required to determine whether the relationships between substrate, stereotypic behaviour and foot problems are of a causal nature.*

**Keywords:** animal welfare, elephant, floor type, foot problems, stereotypic behaviour, zoo