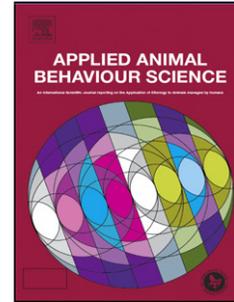


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Title: Why pace? The influence of social, housing, management, life history, and demographic characteristics on locomotor stereotypy in zoo elephants

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## Why pace? The influence of social, housing, management, life history, and demographic characteristics on locomotor stereotypy in zoo elephants

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### Highlights:

- We described and analyzed zoo elephant stereotypic behavior (SB) forms
- We assessed risks of elephants having locomotion present (LP) in their SB repertoire.
- Spending time housed separately and indoors both increased the odds of LP.
- Being a member of several social groups also increased the odds of LP
- This is first formal analysis of SB elephant forms

### Abstract:

Stereotypic behaviors (SB) are common in zoo-housed elephants, and these behaviors can be performed at high rates. Elephants perform different SB forms (*e.g.*, weaving, pacing), but no published studies have evaluated the factors contributing to the development or performance of these different forms. Instead, as with most SB studies across species, elephant studies have relied on analyses that aggregate all SB forms, which limits the development and testing of form-specific hypotheses or abatement practices. Our objectives were to characterize the SB forms of North American zoo elephants and use multivariable epidemiological models to test form-specific hypotheses. We videotaped 77 elephants (African: N = 5 males, 31 females; Asian N = 8 males, 33 females) at 39 zoos who performed SBs and used a novel classification scheme and 5-minute instantaneous samples to characterize their SB forms. Locomotor and

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