

Stereotypic Behavior Study Findings

Dr. David Shepherdson, a research scientist at the Oregon Zoo in Portland and a well-known animal behaviorist, conducted this study for PBI.

Of the polar bears in Shepherdson's study population, some exhibited high rates of stereotypical behavior while others had almost none. There is some evidence linking stereotypical behavior to stress, but results are not conclusive.

- Of the bears that did exhibit stereotypical behavior, there seemed to be a seasonal effect that was sex-dependent: Males engaged in stereotypical behavior more in the first two quarters of the year, while females engaged in stereotypical behavior more in the first and fourth quarters of the year.
- The study found no correlation between stereotypical behaviors and environmental factors such as den access, exhibit complexity, or wild-caught versus captive—except that larger pool surface area (not volume) has a significant positive effect.
- The more bears in a social group, the less stereotypic behavior. The more females in a group, the less average time spent stereotyping.
- When bears were rated on behavior and interaction, the more-dominant males and more-dominated females were found to have higher corticoid levels.
- The addition of numerous daily enrichment activities decreased stereotypical behavior in females. A formal training program based on positive reinforcement also reduced stereotypical behavior in females. These same trends were seen in males, but they were not statistically significant.
- Increased enrichment seems to decrease inactivity and increase diversity of behaviors such as biting, licking, carrying, and manipulation.
- Most-effective types of enrichment (in order of greatest effectiveness): food-related enrichment, discs, bone, bucket, browse, and ice block. Balls came out fairly low, although they are one of the most popular enrichment items in use.
- Husbandry is the key to decreasing stereotypical behaviors.

Future recommendations:

- Perform further experimentation on husbandry factors.
- Focus on improving the effectiveness of husbandry.
- Give more attention to bears' social grouping and interaction.