

Study of Social Hierarchy in Weanling Mice

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Social hierarchy is an important aspect of social structures in various animal species. Despite similarity in concept, the frameworks of hierarchical relationships in humans and other animal species have seldom been investigated in parallel. Moreover, although previous studies focused mostly on dominance behaviors, the role of subordinates in hierarchical formation is largely understudied. Here we determined hierarchical rankings among preschool-aged children and weanling mice. Temperament Assessments suggested that while dominant children were generally aggressive, children with withdrawal personality were more likely to be subordinate in a new competitive scenario. Correspondingly, in a tube test with untrained mice, conflicts between two weanling mice were typically resolved by loser withdrawal behavior, which was also determined by their intrinsic subordinate status regardless of opponent identity. Our study showed an evolutionarily conserved social hierarchy at an early age and critical decisions by subordinate individuals for hierarchical formation. These findings provide a new perspective on social interactions involving the young and have potential implications for preschool education.

Keywords: Social hierarchy, Weanling mice, Preschool-aged children, Subordinate

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