

affected by human grooming. An enhanced understanding of equine grooming behavior will benefit animal behaviorists, private owners, and all other horse enthusiasts.

THE EFFECT OF ETHANOL ON BLOW FLY LARVAE AND PUPAE. Jessica Sterling & Deborah Waller, Dept. Biology, Old Dominion Univ., Norfolk, VA 23529. Insects are frequently used in forensic investigations to determine postmortem interval (PMI) and circumstances surrounding death. Entomotoxicology includes the investigation of the effects of drugs and toxins on arthropod development. Use of various drugs and toxins prior to death can affect maggot development rates on the corpse, resulting in inaccurate estimations of PMI. The objective of this study was to determine how ethanol affects larval and pupal stages of blow flies (Diptera: Calliphoridae). Cat food baits, which attract carrion feeding insects, were placed in wooded areas to collect blow fly eggs. No insects visited baits during the winter trials, but during the spring baits were colonized by carrion flies and also predators such as spiders. Blow fly larval developmental rates will be related to whether larvae were reared on control baits or baits with different concentrations of ethanol.

Psychology

Posters

FAMILY RESOURCES, ADHERENCE, AND GLYCEMIC CONTROL IN ADOLESCENTS WITH TYPE 1 DIABETES. Patrick J. Weaver¹, Elizabeth M. Robinson¹, Laura J. Caccavale¹, Zachary Radcliff¹, Rusan Chen², Randi Streisand^{3,4}, & Clarissa S. Holmes¹, ¹Virginia Commonwealth University, ²Georgetown University, ³Children's National Medical Center, & ⁴George Washington University. Objective: To examine the relations among family resources (family organization and marital status), adherence, and glycemic control in adolescents with type 1 diabetes. Methods: 257 parent-child dyads were recruited from two pediatric endocrinology clinics. Youth were 11 to 14 years of age (mean age = 12.8, SD = 1.2), primarily Caucasian (69.6%), 22.7% lived in single-parent households, and 77.5% in middle/upper-middle class homes (mean SES = 46.6, SD = 11.7). Results: Structural Equation Modeling revealed an indirect path among family resources, regimen adherence, and glycemic control ($\beta = -0.21$, $p = .004$). A direct relation between family resources and glycemic control was nonsignificant ($\beta = -0.21$, $p = .071$) and demonstrated full mediation of the effect of family resources on glycemic control through regimen adherence. Conclusions: Lower family resources are associated with poorer glycemic control through poorer adherence. Family organization is a modifiable component of family resources that could be the focus of interventions designed to enhance better adherence behaviors and glycemic control.

THE EFFECTS OF DOLL PLAY ON THE FEELINGS OF EFFICACY FOR FUTURE FAMILY AND OCCUPATIONAL ROLES. E. T. Parrott, K. M. Schroeder, & R. B. Dent, Department of Psychology, Washington and Lee University, Lexington, VA. 24450. The present study investigates how playing with dolls that have an amplified focus on a gendered body affect a child's gender typicality of play and a

child's feelings of efficacy for gendered skills and tasks. Children first acted out a story which they had been told by the researcher. They then had two free play sessions, one with the assigned doll and the other without. Lastly, participants answered questionnaires about their future occupation and family role. Though the current data was analyzed using hierarchical regression and no relationship was found between ratio scores of play types and future occupation or future family roles, data collection is still in progress. This study was funded in part by Washington and Lee University and the Virginia Academy of Science.

Statistics

SYNCHRONY OF HETEROGENEOUS SPIKING NEURON MODELS. Cheng Ly, Department of Statistical Sciences and Operations Research, Virginia Commonwealth University, Richmond, Virginia 23298. Heterogeneity is a realistic physiological attribute neglected in many mean-field models in Neuroscience. To this end, we consider a coupled stochastic neural network model where each neuron has distinct or heterogeneous intrinsic properties. A proper description of this system is large dimensional and unwieldy, requiring reduced descriptions for tractability. We present some results of reduction methods to capture various statistical quantities of interest (i.e, level of synchrony).

STATISTICAL PATTERN RECOGNITION USING GAUSSIAN COPULA. Sumen Sen & Norou Diawara, Department of Mathematics and Statistics, Old Dominion University, Norfolk, Va 23529. Statistical pattern recognition is a field of study interested in classification accuracy and feature selection. Much significant research effort has been done because such problems have a vast area of applications in automatic character recognition, medical diagnostic. Classical discrimination theory assumes normality when calculating joint and conditional distribution and estimation of parameter models. However, such normality assumption is often questionable and quite restrictive. In some situations, the pattern vector is a mixture of discrete and continuous random variables. In this talk, we use copula densities to model class conditional distribution. These types of model structures are useful for a mixed pattern vector. We use simulation to compare the performance of the copula based classifier with classical normal distribution based model.

ESTIMATING SURVIVAL FUNCTIONS THROUGH MODEL COMBINING. Lihua Chen¹ & Panayotis Giannakouros², ¹Department of Mathematics and Statistics, James Madison University, Harrisonburg, VA 22801, ²Center for Computational Mathematics and Modeling, James Madison University, Harrisonburg, VA 22801. A model combining method is developed to estimate survival functions to account for model selection uncertainty. The weighting of models is based on the predictive performance of models. This weighting method has a connection with information theory which guarantees that up to an additive penalty term of order $1/n$, the combined estimator performs as well as the best estimator in the model list. Empirical studies