

Undergraduate Research Symposium May 18, 2012 Mary Gates Hall

Online Proceedings

POSTER SESSION 2

MGH 241, Easel 138

2:00 PM to 3:30 PM

Cadmium Adsorption to Bacterial Spores

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(Comprehensive)*

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Mentor: Drew Gorman-Lewis, Earth And Space Sciences

Mentor: Zoe Harrold, Earth And Space Sciences

The transport of heavy metals in the environment poses serious threats to ecological and human health. One major factor that influences the transport of heavy metals in the environment is interactions with microbial surfaces. To better understand the influence that endospores, a ubiquitous microbial surface in the environment, have on metal transport, we studied cadmium and uranium adsorption onto endospore surfaces. We focused on three main experiments: how fast metal adsorbs to spore surfaces (kinetics), the extent of metal adsorption, and the reversibility of metal-spore adsorption. These data are essential to deriving thermodynamic parameters that may quantify the interactions under conditions not directly studied in the laboratory. The ultimate goal of this research is to give environmental engineers the ability to incorporate microbe-metal interactions into geochemical models of contaminant transport and possibly aid in optimizing bioremediation strategies using endospores.

POSTER SESSION 2

Balcony, Easel 116

2:00 PM to 3:30 PM

Alcohol-Use Behavior and Attitudes: The Influence of Perceived Injunctive Norms of Proximal Reference Groups

Nick Lawrence, Senior, Philosophy, Psychology

Mentor: Melissa Lewis, Psychiatry & Behavioral Sciences

Social identity theory posits that the closer one identifies with a referent group the more their behavior will conform to the perceived norms of that group. Previous research suggests that in-group identification is positively associated with one's attitude towards acceptable alcohol use. Furthermore, research has indicated that the association between

perceived drinking norms (an individual's perception of the drinking behaviors of others) and one's own drinking behavior is strengthened by strong identification with a referent group. To further examine these relationships, the primary goal of the present study is to expand the understanding of how injunctive normative perceptions (what we believe others approve or disapprove of), attitudes, and identity relate to personal drinking behavior and negative consequences. A random sample of 1,002 of college students from a major Pacific Northwest University ages 18-30 participated in a one time only survey that assessed drinking and risky sexual behaviors. Analyses for the present study will be conducted using measures of daily drinking frequency, alcohol related negative consequences, injunctive norms, and in-group identification. It is hypothesized that injunctive norms will be positively associated with the amount of alcohol consumed and negative consequences experienced. It is further expected that this relationship will be mediated by attitudes, especially among those who strongly identify with the normative referent. Results will help to inform preventative intervention for high-risk drinking among college students.

POSTER SESSION 2

Balcony, Easel 117

2:00 PM to 3:30 PM

The Moderating Role of Alcohol on Protective Behavioral Strategies and Negative Consequences

Caroline M Pappas, Senior, Psychology

Mentor: Melissa Lewis, Psychiatry & Behavioral Sciences

In order to assess protective behavioral strategies (PBS) employed while drinking and their relationship to drinking behavior, Martens et al. (2005) developed a PBS survey. Findings indicated that PBS were associated with lower alcohol consumption and fewer alcohol-related problems. Furthermore, Wechsler et al. (2007) found that both frequent and occasional heavy-episodic drinkers were more likely to engage in alcohol-related consequences compared to lighter drinkers. Thus, due to the fact that heavy drinkers are at a higher risk for alcohol-related consequences, it is fitting to investigate whether heavier drinkers benefit more from PBS compared to lighter drinkers. It is hypothesized that among college age drinkers, the negative relationship between PBS and negative consequences will be moderated by alcohol consumption, such that this relationship will be stronger for heavier

drinkers. Undergraduate students (N = 1,002; 56.9% female) participated in a web-based survey and received \$20 for survey completion. The mean age of the sample was 20.61 (SD = 2.07). Participants (n = 666) in the final analysis will include those students who reported consuming at least one drink per typical week in the past three months. Measures to be included in the data analysis are the Daily Drinking Questionnaire (Collins & Marlatt, 1985), the Protective Behavioral Strategies Survey (Martens et al., 2005), and the Young Adult Alcohol Problems Screening Test (Hurlbut & Sher, 1992). Results from the study will help researchers further understand the effectiveness of protective behavioral strategies when taking into account different levels of college drinking.

this study will help to inform interventions aimed at reducing risky sexual behavior and thus the spread of STI among the young adult population.

POSTER SESSION 2

Balcony, Easel 115

2:00 PM to 3:30 PM

Exploring Gender as a Moderator of the Relationship between the Optimistic Bias and Risky Sexual Behaviors

Fiona Beckner Kurtz, Senior, Psychology

Mentor: Melissa Lewis, Psychiatry & Behavioral Sciences

Due to the prevalence of risky sexual behaviors among young adults, research focusing on the prevention of sexually transmitted infections (STI) is crucial. Risky sexual behavior (RSB), reflected by low condom use and high number of sexual partners, is a likely precursor of STI contraction. One factor that may be associated with RSB is optimistic bias, the difference between one's ratings of self risk and risk to others, reflecting a lower risk to oneself. Research has demonstrated that young adults exhibit the optimistic bias in perception of STI risk. It was found that those who expressed lower RSB did not tend to show optimistic bias, demonstrating that there may be a relationship between perceived invulnerability and sexual behaviors. Research has found mixed results about how gender may play a role in optimistic bias towards sex risks. Some research has found no gender difference in optimistic bias of risk, whereas one study discovered a negative correlation between optimistic bias and condom use amongst sexually inexperienced females. Using measures of sexual and alcohol-related sexual behaviors and perceived sex-related risks to self and risk to others, the present study will examine how one's ratings of STI risk will play a role in sexual behavior. Participants, consisting of 958 randomly sampled undergraduate students ages 18-30, completed an online survey comprised of RSB measures. It is hypothesized that the discrepancy between perceived STI risk for oneself versus perceived STI risk for the average same-sex college student will be positively associated with RSB (i.e. increased number of sex partners and decreased condom use). Furthermore, it is expected that this association will be stronger among female than male students. Results from