

OSU College of Health Sciences ö FY 2004 Research Abstracts

Biomedical

Allosteric Modulation of AMPA Receptors

The ionotropic glutamate receptors that mediate fast excitatory synaptic transmission are critical for the normal development and function of the nervous system and for the processes underlying learning and memory.Ê These receptors have also been implicated in the etiology of neurological disorders, including Alzheimerâs, Huntingtonâs and Parkinsonâs diseases, ALS, epilepsy, and brain damage following stroke.Ê Effective new therapies for treatment of the disorders may result from development of drugs that bind to allosteric sites on the AMPA subtype of glutamate receptor.

Sponsor: Ê OCAST

PI: Doris Patneau

Alterations in Glutamate Metabolism in Sensory Neurons during Chronic Inflammation

In chronic inflammation, elevated release of glutamate from sensory nerves augments pain signals sent to the brain.Ê This is due to an increase in glutaminase, the enzyme for glutamate synthesis, in sensory neurons.Ê Two mechanisms are being explored for increased production of glutaminase: nerve growth factor from the inflamed field and stabilization of glutaminase mRNA.

Sponsor: National Institutes of Health

PI: Kenneth E. Miller

AMPA Receptor Expression and Selective Neuronal Death

This project examines why certain types of neurons, including motor neurons and cerebellar Purkinje cells, are particularly vulnerable to excitotoxicity mediated by AMPA receptors. Experiments will determine whether these cells possess AMPA receptors with unique functional properties and/or molecular compositions that make them selectively vulnerable.

Sponsor: National Institutes of Health

PI: University of Chicago: Dr. James Brorson

Collaborating Investigator: Doris K. Patneau

Analgesia Research Laboratory (ARL)

The overall mission of the ARL is to understand the detailed molecular mechanism that leads from the administration of an opioid analgesic like morphine to the end result of analgesia. Currently, studies are centered on the cloning of opioid receptors from different vertebrate species in order to investigate the molecular evolution of opioid receptor proteins. Using comparative bioinformatics, opioid receptor datasets are investigated with respect to particular receptor domains that confer opioid-type selectivity. The overall goal is to better understand how opioid analgesics produce their pain-killing actions with the hope of designing better and

safer opioid drugs.

Sponsors: NIH-NIDA, OCAST, ACLAM Foundation, Whitehall Foundation

PI: Craig W. Stevens

Anatomical Route of CNS Amebic Infections

Light and electron microscopy are being utilized to confirm the path taken by aspirated pathogenic free-living amebae to the brain of infected animals.

Sponsor: Intramural Funding

PIs: Kirby Jarolim, David T. John

Cell Transplantation

The application of cellular transplantation to a variety of disease states (diabetes mellitus, muscular dystrophy, Parkinson's disease, etc.) may allow the development of therapeutic paradigms which ameliorate and/or circumvent symptomatic disease expression. My research interests lie in the development of transplantation strategies that make possible cellular or whole organ transplantation without the need for chronic immunosuppression of the recipient. Our work employs an animal model of autoimmune diabetes mellitus, and our efforts focus on modifying the host immune response, either systemically or locally, to achieve successful, long-term survival of transplants of insulin-producing pancreatic islets.

Sponsor: Intramural Funding

PI: Robert Ketchum

Developing Diagnostic Assays to Baboon Cytomegalovirus

Baboons represent an invaluable source of xenogeneic organ donors for human patients and are needed to relieve the great lack of human donor organs. However, the risk of transmitting or allowing the establishment of a zoonotic virus in humans is a real, and frightening, consideration. This proposed study will focus on cytomegalovirus (CMV) since this is the most commonly transmitted virus in human transplantation procedures and is a major cause of many problems in immunosuppressed transplant recipients. This project will identify the indigenous CMV of baboons (BaCMV) and develop sensitive diagnostic assays. These tests will be capable of detecting BaCMV-infected potential organ donors and will be useful in screening baboons for the establishment of specific pathogen free (SPF) breeding colonies.

Sponsor: Intramural Funding

PI: Earl Blewett

Effect of Dexmedetomidine and Epinephrine on Water and Urea Permeability in the Rat Inner Medullary Collecting Duct

This study will investigate the cellular mechanism involved with the known inhibitory effects of dexmedetomidine and epinephrine on arginine vasopressin-stimulated water and urea permeability in the isolated inner medullary collecting duct of the rat kidney. The study will provide information on how the kidney controls water balance and excretes the metabolic waste product, urea.

Sponsor: Intramural Funding

PIs: Alexander Rouch, Lucia Kudo

Effects of Dietary Protein Content on Kidney Structure and Function

Consuming either a high protein or low protein diet will cause significant changes to the kidney. We use the

mouse as a model. Mice consume diets in high (40%), normal (20%), or low (6%) protein content and the kidneys are studied with three methods. Anatomical studies such as histology and electron microscopy are designed to examine morphological changes to the kidney induced by the protein content. Physiological studies are designed to determine how the protein diet affects urea and water transport in the nephron. Molecular studies are designed to determine the differential gene expression caused by the three dietary protein conditions.

Sponsor: Intramural Funding

PI: Alexander Rouch

Effects of Trace Heavy Metal Exposure on CNS Activity

These studies examine the effects of low-level manganese and mercury exposure on the dopaminergic function in cell culture and whole animal. Low-level exposure to heavy metals may not cause overt CNS effects until much later. These studies have implications in Forensic analysis and determining the potential cause of CNS damage.

Sponsor: Intramural Funding

PI: David R. Wallace

Gene Targeting in Cattle

The purpose of this study is to assess site-specific integration of a foreign gene on the X-chromosome in cattle. This will be accomplished by inserting a single-copy gene within a previously determined DNA sequence located on the X-chromosome via homologous recombination. Long-term applications of this knowledge will be to produce cattle with increased economic importance.

Sponsor: ??????????????????

PIs: Lee Rickords

College of Agriculture: Rodney Geisert

Induced Apoptosis of Infiltrating Ductal Carcinoma Cells via Telomerase Repression

Telomerase activity has been detected in 80-90% of malignancies and is a potential target for developing cell division inhibitors or apoptotic agents. This project involves utilizing the telomerase repressor protein (E2F-1) coupled with a novel cell-membrane protein transduction technique to repress telomerase and subsequently induce cell senescence and/or apoptosis.

Sponsor: Susan G. Komen Foundation

PIs: Lee F. Rickords and Kim Urich (D.O./Ph.D. Candidate)

Genetic Analysis of IVF Oocytes and Embryos

This project uses the bovine model for assessing chromosomal abnormalities of in vitro produced oocytes and embryos. Experiments will provide critical insight into the relationship of *in vitro* fertilization (IVF) and chromosomal abnormalities and its correlation to decreased birth rates among individuals attempting assisted reproductive technologies. Data will provide greater insight for improving the success rates of IVF-produced embryos transferred to the uterus for subsequent development to term.

Sponsor: OCAST

PI: Lee F. Rickords

HIV/Cocaine Neurotoxicity in Females

This program examines the interaction between gp120/Tat (HIV proteins associated with neurotoxicity), estrogen, and cocaine in female rats. Ultimately, the goal of this research is to provide insight into gender-related differences in AIDS-related central nervous system disorders leading to potential gender-specific treatment strategies for HIV and cocaine addiction.

Sponsor: National Institutes of Health

PI: David R. Wallace

Intermediate Filaments in Mitosis

The role of intermediate filaments in mitosis is currently being investigated. Immunoelectronmicroscopy, immunohistochemistry, immunofluorescence, mammalian cell culture, and high voltage electron microscopy are used to study cells as they progress through mitosis. The interaction of the intermediate filament system with other cytoskeletal components (microtubules and microfilaments) is also being explored. The status of the cytoskeleton in transformed or cancerous cells is a topic of interest with emphasis on the transfer of information between the cell membrane and the nuclear membrane. The function of cyclic AMP in this mechanism is being studied.

Sponsor: Intramural Funding

PI: William D. Meek

Interaction of Antibodies with Toxins

This project studies the interaction of monoclonal and polyclonal antibodies with various toxins using high performance liquid chromatography (HPLC). Methods are being developed to determine binding constants in complex mixtures.

Sponsor: Intramural Funding

PI: Charles G. Sanny

Isolation and Characterization of Novel CNS-Acting Compounds from Natural Sources

This program investigates the use of naturally occurring compounds as centrally acting agents. One series of studies has been examining the effects of Native American plants indigenous to Oklahoma and their potential analgesic effects. A second series is investigating the estrogenic effects of flavonoids found in soy and flaxseed.

Sponsor: Intramural Funding

PI: David R. Wallace

Pathogenic Free-living Amebae

Occurring in the environment, pathogenic, free-living amoeba cause serious human disease, including infections of the eye and the central nervous system. The goal of this research is to isolate, identify, and determine the environmental distribution of pathogenic, free-living amoeba. Additionally, we are involved in studies aimed at determining the factors responsible for pathogenicity and resistance.

Sponsor: Intramural Funding

PI: David T. John

Propriospinal Pathways Involved in Sensory-Motor Integration

The purpose of our studies is to examine how neurons of propriospinal pathway(s) originating in the upper cervical spinal cord process information to modulate sensory motor integration in the spinal cord. Stimulation of upper cervical neurons modulates the activity of neurons at lower segments and visceral, motor, pulmonary, and cardiac function. Our current attention is toward determining how cervical propriospinal neurons process information from brainstem nuclei.

Sponsor: Intramural Funding

PI: Kenneth E. Miller

Renal Control of Sodium Excretion

This research program is currently focused on two areas: renal vascular and epithelial actions of gastrointestinal hormones and mechanism of regulation of transepithelial NaCl transport. Experiments are conducted in the following areas: (1) cellular techniques to study renal tubular function (isolated perfused tubules, primary cultures, and renal cell lines); (2) *in vivo* preparations (rat) to study renal vascular and epithelial function; and (3) advanced simulation experiments to study the cellular mechanisms of transepithelial NaCl transport and how it is regulated in epithelial cells.

Sponsor: Intramural Funding

PI: Bruce Benjamin

Sequencing the Genome of Drill Cytomegalovirus

A project to sequence the genome of this virus which resides in monkeys and is similar to human viruses allowing comparative studies.

Sponsor: Niblack Scholar Program, Intramural Funding

PIs: Earl Blewett,

Kristen Ketchum (Undergraduate Niblack Scholarship recipient)

Sequence & Pharmacology of Novel Opioid Receptors

This study takes a comparative approach to understanding the mechanisms of opioid receptor selectivity and opioid analgesia. To date, the type of opioid receptor mediating analgesia in non-mammalian species is not known. Much data exists on the analgesic effects of mu, kappa, and delta opioids and on the radioligand binding of selective opioids in an amphibian model. This study complements previous data by cloning and sequencing *Rana pipiens* opioid-like receptors, expressing the opioid-like receptors in cell lines, and performing

receptor antisense experiments in whole animals.

The expected results will contribute to the understanding of opioid analgesic action and highlight specific domains on opioid receptors responsible for ligand recognition. This data will be needed for the development of better analgesics and for more effective treatment of pain syndromes in humans.

Sponsor: OCAST

PI: Craig Stevens

Trafficking and Targeting of Muscarinic Receptors

The primary aim of the research proposed in this study is to learn more about muscarinic acetylcholine receptor localization, trafficking, and targeting in the central nervous system (CNS). The data obtained from this investigation will contribute to our current understanding of the pharmacology and cell biology of muscarinic receptors expressed in the CNS. It will also provide the impetus for future research by identifying subtype-specific differences in the cell biology of muscarinic receptors and using these differences to identify the mechanisms responsible for them.

Sponsor: OCAST

PI: Gregory W. Sawyer

Vision Research Program

The Vision Research Program at OSU-COM conducts interdisciplinary investigations into the neurobiology of vision and methods to restore sight to the diseased eye. The goal of our research is to develop, fabricate, and implant a neuro-prosthetic device to restore or improve vision in an eye with a damaged or diseased retina. An artificial vision system is under development in a collaborative effort of neuroscientists, electrical engineers, medical geneticists, and retinal surgeons. Several animal models and computer simulations are used to develop the components of the retinal implant and its micro-technology. Electrophysiological, neuronal tissue culture, retinal blood flow, and semiconductor and laser technology are utilized. The Electrical Engineering Department at the University of Tulsa provides engineering collaboration. Current studies concern the design of an implantable retinal prosthesis with the capability of detecting motion in the visual field.

Sponsor: Intramural Funding

PI: Warren E. Finn

Clinical

Endocrine Factors of Post-Partum Depression

This study is looking for a correlation between multiple hormones that change at the time of birth and possibly correlate with the onset of depression. Answers to questions such as, "Is it possible to predict those at high risk?" and "Can hormone therapy be proposed to mitigate symptoms or avert onset?" are studied.

Sponsor: Intramural Funding

PIs: Sarah McCoy, Marty Beal, Gary Watson

Area Prevention Resource Centers

The Department of Psychiatry administers three Area Prevention Resource Centers (APRCs). These centers organize individuals into task forces that assess the mental health needs within their community and, with the assistance of APRC staff members, develop and implement programming to reduce the incidence of high-risk behaviors. APRC community-based programs provide information and education, increase community awareness and citizen involvement, present life skills development training, organize alternative activities, examine social policy, and refer individuals for intervention services as needed.

Sponsor: Oklahoma Department of Mental Health and Substance Abuse Services

PI: Bruce A. Singer

African American Specialty Center

The goal of the Center is the development of healthy, responsible, productive citizens who will be unlikely to experience alcohol or drug-related problems in their lives. This is accomplished through the delivery of culturally-specific prevention services that identify individual and environmental factors that place African Americans at increased risk and address these conditions.

Sponsor: Oklahoma Department of Mental Health and Substance Abuse Services

PI: Bruce A. Singer

Cognitive Rehabilitation Following Brain Injury

Injury of brain tissue occurs in many diseases and traumatic incidents. Impaired cognitive and perceptual abilities secondary to these injuries often prevent patients from returning to productive work and family life. Rehabilitation therapies have been widely available for only the past twenty years; research into their effectiveness is in its infancy. Current investigation involves examining the efficacy, clinical utility, and cost effectiveness of an in-home computerized cognitive and perceptual rehabilitation system. This research involves collaboration among faculty from OSU-COM and NSU College of Optometry.

Sponsor: Intramural Funding

PI: Richard H. Bost

Comparative Evaluation of Denture Decontamination Using the MicroWave™ Dental Sanitizing and Cleaning System; Polident™ with PoliShield™; and Tap Water: An *In vivo* Study

A wide range of microorganisms must be considered when treating either oral or systemic diseases in denture wearers. Denture hygiene and decontamination are critical to prevent both oral and systemic disease transmission. The dentures in ill patients must be considered as possible sources of pathogenic microorganisms. Previous studies (*in vitro*) have demonstrated that methyl-methacrylate can be contaminated with microorganisms and that a variety of decontamination methods have been ineffective. The purpose of this complete denture study was to test the effectiveness of decontamination methods against a wide range of microorganisms. Comparative studies were completed on three decontamination methods: MicroWave™ Dental Sanitizing and Cleaning System; Polident™ with PoliShield™; and tap water. The study showed that MicroWave™ Dental Sanitizing and Cleaning System was the only modality found consistently to decontaminate or to sanitize dentures worn by patients when compared to Polident™ with PoliShield™ and tap water.

Sponsor: Intramural Funding

PIs: R. Thomas Glass

Adjunct: Leigh B. Goodson

Microbiology: James W. Bullard, Robert S. Conrad

Competency Modeling in the Family Medicine Residency Program

A comprehensive, well-organized model of competencies relevant to Family Medicine residents is essential to guide program and resident development. This study employs rigorous competency modeling methods to evaluate 1) the seven core competencies of the American Osteopathic Association Council on Postdoctoral Training, and 2) the taxonomic organization of the competency model.

Sponsor: Intramural Funding

PIs: JooHee Kim, Charles Henley, Frances Wen, Stephen Eddy, Ray Stowers, Stanley Sherman

DNA Typing Laboratory, Forensic Sciences Program

DNA typing has revolutionized the investigation and prosecution of crime as well as the exoneration of convicted individuals who were falsely accused and incarcerated. However, often evidence is recovered from crime scenes containing DNA that is either too badly decomposed or present only in trace amounts. In both cases a DNA profile cannot be produced. Research underway in the laboratory focuses upon investigating new methods, or refinements, to existing technology that will allow a greater proportion of such forensic samples to be useful for identification of individuals involved in criminal or terrorist acts.

Sponsors: Intramural Funding, Mary K. and H.A. Chapman Foundation

PI: Robert W. Allen

Graduate Student: Melisa Gulick

Effects of Aircraft Cabin Altitude on Passengers

Decreased ambient air pressure at high altitude limits the oxygen available for breathing. The interiors (ācabinsā) of commercial aircraft are pressurized to the equivalent of an altitude of 8,000 feet or less during flight. The effects of decreased oxygen were studied in over 550 volunteer āpassengersā during 20-hour flights in an altitude chamber at air pressures equivalent to altitudes between 4,000 and 8,000 feet. The results are expected to be important for air travel regulations and future commercial aircraft design.

Sponsor: Boeing Company

PI: Paul Rock

Efficacy of MCAT Scores in Predicting Medical School Achievement

The study will look at the relationship of academic achievement scores and MCAT scores of OSU-COM medical students from the Classes of 1998-2003. Comparisons will include, but not be limited to, undergraduate pre-admission scores (college GPA, basic science GPA), and medical school grades and scores [individual

grades in MSI courses (anatomy, biochemistry, neuroanatomy, physiology) and MSII courses (pathology, pharmacology), COMLEX Level 1 and 2 scores, total COM GPA, and class ranking].

Sponsor: Intramural Funding

PIs: Paul Evans and Fran Wen

Evaluation of Competency-based Assessment Tools

It is important to document technical properties of assessment measures used in education. Moreover, the competing demands of a medical education setting compel efficiency in assessment systems. This study evaluates the variability in scores, reliability, validity, and ease-of-use of the competency-based assessment measures used by the Department of Family Medicine.

Sponsor: Intramural Funding

PIs: JooHee Kim, Charles Henley, Frances Wen, Stephen Eddy, Thomas Pickard, Ray Stowers, Stanley Sherman

Evaluation of the Sanitization Effectiveness of Medical Tabs on Dentures Contaminated with Known Microbial Flora, an *In vitro* Study

Dentures contaminated with *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Bacillus cereus*, *Candida albicans*, and *herpes simplex* virus I were tested to see if they could be decontaminated by using Medical Tabs for Dentures. Viral analyses found that dentures retain large amounts of virus when washed with water, but no virus was recovered from any of the 40 samples treated with Medical Tabs for five minutes. It was determined that a single use of Medical Tabs for Dentures is effective in eliminating certain species of microorganisms, including selected viruses, *in vitro*.

Sponsor: Intramural Funding

PIs: R. Thomas Glass

Microbiology: James W. Bullard, Robert S. Conrad, Earl L. Blewett

Fidgeting During Daily Life

An imbalance between energy intake and expenditure may lead to weight change that results in obesity. Energy expenditure related to physical activity is an important determinant of such an imbalance. This research focuses on one component of non-exercise daily physical activity (i.e., fidgeting) that may contribute to this energy imbalance. This research attempts to demonstrate that individuals differ characteristically in fidgeting in ways that can be measured during daily life using unobtrusive body-worn monitors.

Sponsor: Intramural Funding

PI: Michael H. Pollack

Microbial Contamination of Protective Mouth Guards in Hockey Players ö An *In Vivo* Study

Removable dentures harbor a wide range of pathogenic and opportunistic microorganisms that can produce disease in the wearer. Protective mouth guards are of similar construction and have been used in a variety of sports for years. Review of medical/dental literature reveals no studies that investigate whether mouth guards can act as reservoirs of pathogenic and opportunistic microorganisms and be, therefore, potentially harmful to the wearers. A wide array of pathogenic and opportunistic Gram-negative and Gram-positive cocci and rods and were found in the mouth guards worn by semi-professional hockey players, including one mouth guard yielding *Candida dublinensis*, a yeast commonly found in HIV positive patients. Protective athletic mouth guards do contain pathogenic and opportunistic microorganisms that might be potentially harmful to the wearer. The findings of this study would support the idea of limiting the length of wear of protective athletic mouth guards and the possibility of single-use protective athletic mouth guards.

Sponsor: Intramural Funding

PIs: R. Thomas Glass

Medical Student II: Sarah E. Martin

Microbiology: James W. Bullard, Robert S. Conrad

Microbial Retention in Dentures That Have Been Stored for 1.5 Years and Exposed to Harsh Treatments

Dentures have long been associated with a concurrent stomatitis. The purpose of this study was to evaluate the effects of an extended period of drying, freezing, and boiling on the microorganisms found in dentures that have been worn from 12 days to 48+ years. Portions of polymethyl-methacrylate dentures that had been used in previous studies were frozen and thawed a minimum of two times and ultimately frozen for approximately 1.5 years. The results of these experiments revealed that subjecting dentures to such harsh treatment does substantially reduce the numbers of microorganisms, but that sufficient numbers of disease-producing microorganisms remain and a more effective means of denture sanitization needs to be found.

Sponsor: Intramural Funding

PIs: R. Thomas Glass

Microbiology: James W. Bullard, Robert S. Conrad

Oklahoma Area Health Education Center Program

The Oklahoma Area Health Education Center Program (OkAHEC) is a sponsored program of OSU-COM that is conducted through regional AHECs located in Enid, Poteau, Lawton, and Pryor, and a training/health care facility in the Osage Hills Complex in Tulsa. The program combines academic and community resources to improve the supply and distribution of primary care professionals and to increase the accessibility of quality health care services in rural and medically underserved areas. The OkAHEC mission is accomplished through community-based training for health professional students and medical residents with rural and underserved populations; educational interventions that promote disease prevention and improved health through access to primary health care services; continuing education for health practitioners in rural communities; health careers recruitment with a special focus on minority and underserved populations; locally-based initiatives that respond

to emerging health care needs; and coordination with other state and federal primary care initiatives.

Sponsor: Oklahoma Department of Health, U.S. Department of Health and Human Services

PIs: Ray Stowers, Richard Perry

Physician Prescription of Mammography and Patient Follow-Through in Eligible Oklahoma Women

Annual mammograms are recommended for women meeting particular age and health criteria, but many factors can affect mammography utilization. This study examines mammography utilization among eligible women in rural and urban areas of Oklahoma, focusing on the influence of a) physicians' prescriptions for mammograms, and b) socioeconomic factors on utilization rates.

Sponsor: Intramural Funding

PIs: Ray Stowers, Charles Henley, Shannon Daleiden, JooHee Kim, Richard Perry, Mary Williams, Frances Wen

Prevention Resource and Evaluation Center

The Prevention Resource and Evaluation Center (PREC) provides consultation, material resource support, and a wide range of program evaluation services for the Oklahoma Department of Mental Health and Substance Abuse Services (DMHSAS), the Oklahoma Area Health Education Centers (OKAHEC), and other agencies throughout the state. Originally developed exclusively for drug and alcohol prevention programs, PREC has expanded its scope to include the evaluation of other health-related topics and provides services, (i.e., evaluation design, instrument development, and the production of formal evaluation reports) to many other agencies. The collection, input, analysis, and services offered by PREC staff are: survey development and implementation, evaluation site visits, conducting informational or training presentations on evaluation or related topics, and providing consultation or technical assistance.

Sponsor: Oklahoma Department of Mental Health and Substance Abuse Services

PI: Bruce A. Singer

Roles of a Multidrug Efflux System and Lipopolysaccharide in Antimicrobial Resistance of *Pasteurella haemolytica*

Pasteurella haemolytica is a primary etiological agent of bovine respiratory disease (BRD) in cattle resulting in significant economic losses in the cattle industry. The development of antibiotic resistance among feedlot cattle fed prophylactic doses of various antibiotics to prevent BRD is a matter of particular concern. This project begins by determining the minimal inhibitory concentration (MIC) of thirteen commonly-used antibiotics among twenty-two clinical isolates of *P. haemolytica*. Strains with unusual resistance patterns will be grown up in sufficient biomass to allow the extraction of lipopolysaccharides (LPS), which are major components of the bacterial cell wall that determines antimicrobial accessibility. Chemical characterizations of these LPS will be used to determine if antibiotic resistance can be correlated to the specific chemical composition of the outer membrane.

Sponsor: Targeted Research Initiative Program

PIs: R. Thomas Glass

Adjunct: Leigh B. Goodson

Microbiology: James W. Bullard, Robert S. Conrad

Rotavirus Vaccine Study

The Department of Pediatrics is evaluating the safety of a bovine viral vaccine for infants for the prevention of acute gastroenteritis due to Rotavirus. This virus is the most common cause of dehydration, with hospitalization in children less than three years of age. Over 60,000 children will be involved in the study worldwide.

Sponsor: Merck

PI: Stanley E. Gross

Stress and Human Motor Activity

Restlessness and psychomotor agitation, (i.e., excessive nonproductive or nongoal-oriented motor activity) are symptoms of anxiety. This research examines the use of a body-borne, motor activity measurement device to detect changes in motor activity associated with anxiety-provoking life events. This research may help improve diagnosis and treatment of anxiety disorders by aiding in the development of quantitative methods for reliable, unobtrusive assessment of nonproductive motor activity during daily life and in response to stressful life events.

Sponsor: Intramural Funding

PI: Michael H. Pollak

Suicide among American Indians in New Mexico

Analysis of quantitative and qualitative data is continuing with Philip May of the University of New Mexico to update epidemiological information regarding completed suicides among the Apache, Navajo, and Pueblo Indians in New Mexico from 1957-1998. Age and gender differences, behavioral interactions prior to the event, and trends in suicide rates are being explored in these populations.

Sponsor: Indian Health Service

PI: Nancy Van Winkle

The Effect of Osteopathic Manipulative Treatment, as Newborns, on the Health of Children in the First Six Months of Life

The study was an outpatient chart review of children's first six months, matching 58 who had received OMT as newborns with 58 who had not. Comparison of the clinical variables yielded a few differences between the cohorts in the direction of less of the following symptoms in the intervention patients for at least one month: food intolerance, colic mentioned, chaliasia-associated symptoms, antibiotic usage, spitting, diarrhea, and otitis media.

Sponsors: American Osteopathic Association, American Academy of Osteopathy (Robuck Fund)

PI: Miriam V. Mills

The Use of Osteopathic Manipulative Treatment and Adjuvant Therapy in Children with Recurrent Acute Otitis Media

Patients with recurrent earaches (otitis) were followed for six months with 32 patients receiving routine pediatric care and 25 receiving routine care plus adjuvant manipulation. Clinical status was monitored by review of medical records, audiograms, parent behavior rating, and tympanograms. The treatment group experienced a greater decrease in average monthly episodes of average monthly antibiotics prescribed, fewer surgical interventions, and more normal tympanograms.

Sponsors: American Osteopathic Association, American Academy of Osteopathy (Robuck Fund)

PIs: Miriam V. Mills

Family Medicine: Charles E. Henley

Educational Studies: Laura L.B. Barnes

University of New England College of Osteopathic Medicine: Jane E. Carreiro

Kirksville Osteopathic College: Brian F. Degenhardt

Clinical Drug Trials

Several faculty contract with different pharmaceutical companies to test new drugs. Ongoing trials are testing drugs for the treatment of HIV/AIDS, cardiovascular disease, asthma, and other diseases.

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