The WVU Sleep Research Team is interested in **developmental and behavioral neuroscience aspects of sleep and sleep disorders**. We are currently accepting applications from potential graduate students for the 2009 academic year.

**Graduate Training Opportunities**

Graduate students accepted into the Life-Span Developmental Program in Psychology may conduct their thesis and dissertation research in the Sleep Laboratory. *Please note that plans are underway to transition the lab into a newly forming Behavioral Neuroscience Program in Psychology – students accepted will have the opportunity to join the new Program.*

Opportunities for collaboration are also available to graduate students who have a primary appointment in one of the other three department training areas (Clinical, Clinical Child, Behavioral Analysis). Applicants who are planning to pursue a clinical degree but have sleep research aspirations should include this in their application personal statement and contact Dr. Montgomery-Downs.

Applicants interested in the Sleep Lab should contact Dr. Montgomery-Downs before applying. Collaboration and supplemental training opportunities are also available through Dr. Montgomery-Downs’ affiliation with the Center for Neuroscience, Behavioral Neuroscience Group.

Graduate students in the Sleep Lab gain both laboratory and field research experience:

- Survey collection at the Pediatric and Adolescent clinic at the Physician Office Center
- Actigraphy, reaction time assessment, and survey collection at participant’s homes
- Assessments at the Neonatal Follow-up Clinic
- Shadowing at the Ruby Memorial Hospital Sleep Clinics
- Overnight polysomnography in the Lab
- Multiple Sleep Latency Tests in the Lab
- Pediatric hair sample collection for secondhand smoke exposure assay
Current Research Studies

“Postpartum Sleep Deprivation and Fragmentation: Effects on Maternal Functioning”  
(Funded by National Institutes of Health Grant R21HD053836)  
This study explores the effects of sleep disruption on new mothers. If you are pregnant with your first baby and live in the Morgantown area you may be eligible to participate. The study begins when your baby is approximately one week old and continues for 12 weeks. Participation includes weekly visits to your home by a member of the team. You complete surveys and daily entries about your sleep quality in a hand-held computer. Your sleep patterns are continuously monitored using a tiny motion sensor called an 'actigraph’ that you wear like a wristwatch. No travel is required, and compensation is provided. Please call (304) 216-6667 for more information.

“Environmental Tobacco Smoke Exposure and Pediatric Sleep-Disordered Breathing”  
(National Institute of Health grant under review)  
This study explores the relation between exposure to second-hand smoke and symptoms of sleep disordered breathing among children ages 6 and younger. Parents who previously completed our screening survey at their child’s checkup have follow-up appointments during which team members travel to the home to collect a small sample of the child’s hair. These cut (not pulled!) samples are sent to New Zealand for analysis.

“Effects of White Noise on Sleep Behaviors”  
(Funded by a grant from Innovative Sleep Technologies, Inc.)  
The purpose of this study is to learn more about whether use of white noise during sleep has an effect on sleep and/or daytime functioning. This study is currently closed to new participants.

“Neonatal Follow-up Sleep Schedule and Symptoms Survey”  
Children born prematurely are considered to be at increased risk for sleep disordered breathing, however the developmental trajectory of snoring and risk symptoms for sleep disordered breathing in the premature population is unknown. The purpose of this study is to learn more about sleep schedules and symptoms among infants who are born prematurely.

In addition, Sleep Lab graduate students conduct individual studies. Their mentored work is described below.

Small Sample of the Lab’s photo collection of sleep deprived undergraduates in public places. These were taken within a 5-minute period in on two floors of the Life Sciences Building.
Technical Capabilities of the Sleep Lab

Each of two bedrooms are furnished with a bed for the study participant and for a parent/attendant, television, state-of-the-art sound attenuation and independent climate controls. The bedrooms share a full bathroom.

We use Embla’s N7000 multichannel polysomnography recording system with high resolution audio and video monitoring routed to an adjacent control area. The laboratory has an assessment room with one-way mirrors for observation. The laboratory’s laundry room, storage area, meeting rooms and kitchen facilities are adjacent.

During an overnight sleep study, a team member prepares each study participant by measuring their head to determine the precise site for sticky sensors that measure brain activity (electroencephalogram, EEG). Other sensors are placed on the face, chest, finger and legs to measure eye movements (electrooculogram or EOG), heart activity (electrocardiogram or EKG), body movements (electromyogram or EMG), breathing movements, oxygenation, and snoring.

Study participants go to sleep at their normal bedtime and are never sedated. The research team remains awake throughout the night in an adjacent room where they monitor the equipment and are available at all times if the participant needs anything.

For field studies we use:
- Mini Mitter Actigraphs
- PDA-based sleep diary
- Psychomotor vigilance test (PVT)
- Subjective fatigue and sleep quality
- TeleForm scanning for large-scale surveys
- SONA online survey processing
- Hair sample collection

Self-report surveys include:
- Louisville Pediatric Sleep Disorders Survey
- Beck Anxiety Inventory
- Beck Depression Inventory
- Edinburgh Postnatal Depression Scale
- Perceived Stress Scale
- Profile of Mood States
- Locus of Control Scale
- Morningness-Eveningness Scale
- Depression/Anxiety/Stress Scale
- Stanford Sleepiness Scale
- Epworth Sleepiness Scale
- Pittsburgh Sleep Quality Index
Dr. Montgomery-Downs earned her B.A. in Experimental Psychology from Humboldt State University in 1994. She earned her Ph.D. in Developmental Psychobiology in 2001 under the mentorship of Evelyn Thoman, Ph.D. in the Biobehavioral Sciences Graduate Degree Program at the University of Connecticut. She received funding through a National Research Service Award (F32HL07459) and Loan Repayment Program in Pediatric Research from the National Institutes of Health (NHLBI) for her postdoctoral fellowship in Pediatric Sleep Medicine at the University of Louisville under the mentorship of David Gozal, M.D. She joined the faculty at West Virginia University in 2005. Dr. Montgomery-Downs is also an Adjunct Assistant Professor of Pediatrics and a member of the Behavioral Neuroscience Group at the WVU Center for Neuroscience.

Current Graduate students assist with funded projects in addition to developing their own thesis and dissertation projects:

Salvatore Insana, M.S. (4th year) is working on his dissertation project, an investigation of maternal and paternal sleep disturbance. [http://community.wvu.edu/~spi000/index.pdf](http://community.wvu.edu/~spi000/index.pdf)

Megan Clegg-Kraynok, M.S. (3rd year) examines non-medical psychostimulant abuse and their effects on sleep among undergraduates. [http://community.wvu.edu/~mmc025/vita.pdf](http://community.wvu.edu/~mmc025/vita.pdf)

Christine Gould, B.A. (3rd year) has a primary appointment in the clinical psychology program (Dr. Edelstein’s lab) where she studies the relation between worry/anxiety and sleep among older adults.

Marion Young, M.S. (4th year) has a primary appointment in the developmental laboratory of Dr. Katherine Karraker. She is developing her dissertation project focusing on sleep among prematurely born infants.
Montgomery-Downs - Published Papers


[2005]

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[2007]

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