



# OUR 21st YEAR

It's been almost a year since we last updated you and it's been quite a busy year for us here at the Iowa Fluoride Study! We would like to thank all of our families for their ongoing commitment to the Study. This year, the lowa Fluoride Study is in its 21st year since recruitment started and we would like to take an opportunity to look back at how much we have been able to accomplish, thanks to you! Without the time and energy you and your families have committed to completing questionnaires and attending dental and bone exams, we would not be here today. Thanks again!

# The numbers say it all! To date, this is what we have accomplished:

Five-year dental exams
Eight-year dental exams
Thirteen-year dental exams
Seventeen-year dental exams
Completed and returned
questionnaires
Activity monitor studies
Five-year bone exams
Eight-year bone exams
Eleven-year bone exams
Thirteen-year bone exams
Fifteen-year bone exams
Seventeen-year bone exams
Nineteen-year exams
Parent bone exams

### MDCT: OUR NEW BONE DENSITOMETRY TECHNIQUE

Adult bone diseases, like osteoporosis, increase the risk of fractures, including hip fractures, which can lead to loss of independence and even premature death. One lowa Bone Development Study investigator, Dr. Punam Saha, is using a new technology called high-resolution multidetector computerized tomography, MDCT, and special mathematical computations to improve our understanding of bone health, especially the spongy (trabecular) bone of the lower leg. This spongy bone is important in reducing fractures because of its role in absorbing mechanical shocks during unexpected falls.

We recently finished a pilot study with seven patients (18-23 years old) who were taking a medication that can affect bones and seven matched participants from the Iowa Bone Development Study. The figure compares images of the color-coded spongy bone for a healthy Iowa Bone Development Study female (on the left) and one of the patients on the medication (on the right). The healthy female has fuller and less porous bone, which is shown in green.

We are excited to be using Dr. Saha's new technology with our lowa Bone Development Study age 19 exams. We believe that this technique eventually will help physicians detect early breakdown of bone and allow interventions before the occurrence of osteoporotic fractures.



TB plate/rod classification for a healthy female IBDS control (a) and the sex- and Body Mass Index (BMI)matched patient on a medication affecting bone (b). The healthy control has more TB plates (green).

## MEET the STAFF



#### Lauren Pinkerton

Lauren Pinkerton joined the study in June of 2012 and completes the reliability project for the study as well as assisting with data collection at the CRU on Saturdays. She is originally from Naperville, Illinois and graduated from the University of Iowa with a B.A. in Health Promotion. Since graduation, Lauren has been working at the U of I as a Teaching Assistant in the Health and Human Physiology Department and has been completing graduate class work. In her free time she enjoys cooking, reading, and visiting with friends and family.

### MDCT Staff------



#### **Liz Allard**

Liz Allard joined the IBDS study in November 2011 as a CT imaging technologist and is currently working as a Research Assistant in Dr. Eric Hoffman's lab at the University. She is originally from Burlington, lowa and graduated from the University of Iowa with a B.S. in Radiation Sciences. In her free time, she enjoys being with her friends and family, shopping, attending Iowa football games and reading.



#### Luke Askland

Luke Askland joined the IBDS study in September 2012 as a CT Imaging Technologist. He is originally from Chariton, Iowa and graduated from Mercy College of Health Sciences with an A.S. in Radiologic Technology. He is currently working at the University of Iowa in Dr. Hoffman's lab and attending The University of Iowa to obtain his B.S. in Radiation Sciences. Luke's future goals are to attend medical school at either the U of I, Des Moines University, or Ohio State University (GO BUCKEYES!)



### **Jered Sieren**

Jered Sieren is a Research Specialist and Operational Supervisor of the Iowa Comprehensive Lung Imaging Center (I-Clic) and Division of Physiological Imaging. Jered is the lead radiology technologist in the group and oversees the overall operation of the CT suite. Jered has over 10 years of experience in the lab, operating the latest devices related to research studies and clinical projects.

Jered, Liz, and Luke assist the study by obtaining the MDCT scans for the age 19/Wave 7 visits.

### Activity Monitor Staff ------



#### **Mary Burmeister**

Mary Burmeister (left in picture) joined the study this fall, when she began the Doctoral program in Health and Human Physiology. Originally from Sherburn, Minnesota, she obtained a B.S. in Exercise Science and Nutrition from St. Catherine University in Saint Paul, Minnesota, in 2010, followed by an M.S. in Clinical Exercise Physiology from Springfield College in Springfield, Massachusetts, in 2012.

### **Shelby Francis**

Shelby Francis (middle) began working with the study during the fall of 2010 when she began the Doctoral program in Health and Human Physiology. She is originally from Waverly, Iowa. She obtained a B.A. (2009) and M.A. (2011) in Health Promotion, both from the University of Iowa. In 2011, Shelby had an article published in the International Journal of Behavioral Nutrition and Physical Activity using data from the study. In 2012, she received a Young Investigator Award from the American Society for Bone and Mineral Research for another project using study data.

### **Kristen Metcalf**

Kristen Metcalf (right) joined the study during the fall of 2011 when she began the Master's program in Health and Human Physiology. She is originally from Iowa City, Iowa. In 2008, she obtained a B.A. in Health Promotion from the University of Iowa.

Shelby, Kristen, and Mary are responsible for coordinating the collection of physical activity data using activity monitors. They contact eligible participants and schedule dates for wearing the monitors, mail them, provide support and trouble-shooting during wear, download data once monitors are returned, and make sure participants receive compensation!

### UPDATE

We continue to be very successful with all aspects of the studies because of your great participation! Study participants' ages now range from 17<sup>3</sup>/<sub>4</sub> to 20<sup>3</sup>/<sub>4</sub> years, so we are conducting two study phases simultaneously. Specifically, we are finishing up the age 17 bone and dental exams on the younger study participants, while we are continuing with age 19 bone assessments on the older participants. The accelerometer staff have just finished working with participants for this fall, and will start with it again next September. We're also continuing to collect questionnaire data by mail every 6 months and we use that information to identify water sources and track fluoride exposures.

# **GRANT STATUS**

Because the Iowa Fluoride Study and Iowa Bone Development Study are such unique studies and you have all continued to participate so well, we are continuing the studies. This also means that we are always working very hard to continue to apply for grant funds to keep things going.

We are working under our current National Institutes of Health (NIH) "Bone Study Grant" to complete the age 17 bone assessments. Also, we received a major NIH grant supplement in September 2011 to keep the Bone Study going to conduct the age 19 exams, including the new advanced densitometry technologies and analytical approaches. We are also working to complete age 17 dental examinations with support from our grants from the Roy J. Carver Charitable Trust and the Delta Dental of Iowa Foundation.

Now we are beginning work on a major grant application to be submitted in June to hopefully support age 22 examinations starting in 2014.

Thank you for your continued participation making the studies' successes possible!

# IOWA BONE DEVELOPMENT STUDY FINDINGS FEATURED IN REPORT

The President's Council on Fitness, Sports and Nutrition advises President Obama on physical activity and diet issues through the Secretary of Health and Human Services. The President's Council dedicated a recent issue of their journal to the importance of physical activity to bone health. Findings from the Iowa Bone Development study were featured. To read the report, link to: www.presidentschallenge.org/informed/digest/ docs/201112digest.pdf.

## RELIABILITY

When you return the 6-month study questionnaires to our office, you may be selected to answer some additional questions by our staff member, Lauren Pinkerton. If you receive a message from her, please feel free to call us back during the weekdays, between 8 and 5, and another staff member will assist you. For those whom we have contacted or will contact, we appreciate your help with this aspect of the study!



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We have recently set up a website to provide more information to our participants and their families. On the website, you can find background information about the study, a list of publications, and several news articles related to this study. Please check it out to see what your participation over these 21 years has produced!

www.dentistry.uiowa.edu/preventive/research/fluoride\_study.shtml

The study team wishes you a happy holiday season!

Thank you for your continued participation in our studies. We hope to keep receiving grant funding to continue working with you over the next few years! As always, we will keep you informed.



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