The University of Iowa
College of Dentistry and Dental Clinics

IOWA FLUORIDE and BONE DEVELOPMENT STUDY NEWS

JANUARY 2018

26 Years and Still Going Strong – *Thanks to all of You!*

For more than a quarter-century, the Iowa Fluoride Study team has had the honor of working with all of you great participants and your families, making the studies' successes possible, including many important scientific publications relevant to health policy.
We continue to be one of the longest-running studies ever funded by the National Institute of Dental and Craniofacial Research. We have been encouraged to apply for additional funding in 2018 to continue the study until 2022 to allow for a wave of age 27 dental and bone examinations, so we'll keep our fingers crossed!

A LOOK BEHIND THE SCENES – THE IOWA FLUORIDE STUDY

"What takes place with the water samples that are mailed into the study? What happens with the saliva and bacteria samples? What occurs with all the questionnaires?"

The Numbers Say It All!

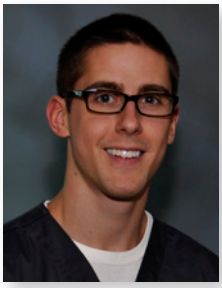
698	Five-year dental exams
630	Eight-year dental exams
552	Thirteen-year dental exams
465	Seventeen-year dental exams
251	Twenty-three-year dental exams (in progress)
29,611	Completed and returned IFS questionnaires
4,294	Activity monitor studies
979	Parent bone exams
471	Five-year bone exams
539	Eight-year bone exams
483	Eleven-year bone exams
489	Thirteen-year bone exams
419	Fifteen-year bone exams
381	Seventeen-year bone exams
329	Nineteen-year bone exams
244	Twenty-three-year bone exams (in progress)

Let's take a brief look at some of the important details that are happening behind the scenes of the Iowa Fluoride Study. The first stop is the lab where our research assistants send out water testing kits and analyze water samples and beverages for fluoride content. Over the past year, we have tested 312 water samples to determine the amount of fluoride present in them. In addition, this past year we have tested over 400 beverages to find out the fluoride levels in the drinks that you are consuming. Beverages vary in fluoride content from negligible amounts of fluoride in drinks produced with water from reverse osmosis filtration systems to some teas containing above 3.00 parts per million (ppm) fluoride. In 2015, the United States Public Health Service recommended the optimal level of fluoride in community water systems should be 0.7 ppm. The recommended amount was determined by looking at years of scientific data, including data from the Iowa Fluoride Study, and analyzing the amount of fluoride people receive from all sources. The fluoride questionnaires that you receive every 6 months collect information specifically about your sources of fluoride.

Next stop is the laboratory where our research assistants prepare vials for all the plaque/bacteria samples we collect from your mouths. Currently, we have processed over 2,000 vials just for the age 23-year-old examinations. Each vial is filled with a special transport media to maintain the bacteria collected from your mouths. After collection, the plaque samples are returned to the lab for processing and storage. Plaque samples are diluted and plated in order to count the amounts of specific types of bacteria in your mouths.

Over the past year, the Iowa Fluoride Study research assistants processed over 10,000 pages of data from the questionnaires you have completed for the study. Once entered, our statisticians perform analyses to determine what the data mean. Alex Curtis, one of our statisticians, commented, "When I am comparing the Iowa Fluoride Study to other dental longitudinal studies, there is only one other study in the whole world that has the longevity that the Iowa Fluoride Study does. The Iowa Fluoride Study data are pretty impressive." On that note, a big thank you goes out to all of our participants who have supported the study over the past 26 years!

Meet the Staff



Jarron Atha

Jarron graduated from the University of Iowa with a BS in Radiation Sciences and is also board-certified in computed tomography (CT). He worked in clinical CT in the Radiology Department at the University of Iowa Hospitals and Clinics for two and a half years before joining the research team. He was born and raised in Des Moines and his hobbies include playing hockey, racquetball, and music.

Piroska Boros

Piroska is a PhD student in the Department of Health and Human Physiology. She earned her BA in Recreation and Health Promotion Management from the University of West Hungary and her MA in Kinesiology – Exercise Science from the University of Northern Iowa. She works with the Physical Activity and Health Outcomes Laboratory on both the Iowa Bone Development Study and the Living Well Together Study. Piroska likes outdoor activities and has a passion for horses. She spends most of her free time training horses.

Minsuk Oh

Minsuk is a PhD student in the Department of Health and Human Physiology, and a research assistant with the Physical Activity and Health Outcome Laboratory. He earned his bachelor's and master's degrees in Sport and Leisure Study at Yonsei Univeristy, South Korea. Minsuk likes playing soccer, swimming and golfing. He enjoys his life in Iowa.

Kyra Sorenson

Kyra is a senior majoring in Health Promotion at the University of Iowa. She also is working towards her MPH degree at College of Public Health through the University of Iowa Undergrad to Grad program. She also is a research assistant with the Iowa Bone Development Study. Kyra enjoys traveling and has interest in global health which inspired her to travel this past summer to Ometepe, Nicaragua to practice health promotion in remote clinics providing health care to rural populations.

UPDATES

- ★ Our participants now range from 22.9 to 25.9 years old. We continue to be successful with all aspects of the study because of your continued great participation and assistance.
- ★ We are on the final stretch of 23-year-old exams and have begun sending out the 25-year-old electronic and paper questionnaires.
- ★ Please remember to keep us updated with your current address, email, and phone numbers.
- ★ You can reach us at our main office number of 319-335-7026 or can send us a text at 319-499-8010.

Featured Study Findings for the Year 2017

Original Research Article

Physical Activity, Not Sedentary Time, Predicts DXA-Measured Adiposity Age 5-19 Years

Janz K, Boros P, Letuchy E, Kwon S, Burns T, Levy S

Findings suggest that moderate and vigorous intensity physical activity and TV viewing, but not total sedentary time, predict fatness throughout childhood and adolescence. Given that TV viewing, but not total sedentary time, was important suggests that TV viewing represents more than just a low energy expenditure activity, it also could be linked to uncontrolled snacking, extended eating patterns, unhealthy food preferences, or sleep disturbances.

Original Research Article

Beverage Consumption Patterns at Age 13 to 17 Years Are Associated with Weight, Height, and Body Mass Index at Age 17 Years

Marshall T, Van Buren J, Warren J, Cavanaugh J, Levy S

Plain language summary:

Researchers looked at the relationships between beverage patterns during adolescence and measures of growth at 17 years of age. Teens in the milk cluster (where milk intake was higher than in the other clusters) were slighter taller than teens in the neutral cluster (no distinguishing beverage). Teens in the juice cluster (higher juice intake) had lower body mass indices than teens in other clusters. The results suggest that beverage patterns might reflect overall food choices and dietary habits to influence growth.

Original Research Articles

Novel Caries Loci in Children and Adults by Genome-Wide Analysis of Families

Govil M, Mukhopadhyay N, Weeks D, Feingold E, Shaffer J, Levy S, Vieira A, Slayton R, McNiel D, Weyant R, Crout FR, Marazita M

Genetic association of MMP10, MMP14, and MMP16 with Dental Caries

Lewis D, Shaffer J, Feingold E, Cooper M, Vanyukov M, Maher B, Slayton R, Willing M, Reis S, McNeil D, Crout R, Weyant R, Levy S, Vieira A, Marazita M

Variants on Chromosome 4q21 near PKD2 and SIBLINGS are Associated with Dental Caries

Eckert S, Feingold E, Cooper M, Vanyukov M, Maher B, Slayton R, Willing M, Reis S, McNeil D, Crout R, Weyant R, Levy S, Vieira A, Marazita M, Shaffer J

Plain language summary:

Genetics (heredity) plays a role in susceptibility to tooth decay. Studies are identifying genes based on their known functions in oral health, such as involvement in early tooth development, biological processes of cells, mineralization of the tooth layers, and composition of saliva. Further investigation is needed to draw conclusions about specific genes and their roles in tooth decay.

Original Research Article

Dental Caries Clusters Among Adolescents

Warren J, Van Buren J, Levy S, Marashall T, Cavanaugh J, Curtis A, Kolker J, Weber-Gasparoni K

Plain language summary:

Longitudinal Iowa Fluoride Study data allowed researchers a chance to look at patterns of tooth decay over time. This research identified 3 distinct tooth decay patterns – one group who never experienced tooth decay in their permanent teeth through age 17-18 years, a group that had relatively high levels of tooth decay and an intermediate group. The high tooth decay group had a higher percentage of girls than either of the other two groups. Being in the high tooth decay group also was associated with lower levels of education among mothers, higher 100% juice consumption and less frequent tooth brushing from age 9 to 17 by the children.

Please visit the Iowa Fluoride and Iowa Bone Development Study website to find out more about the publications and news articles related to the study. All of this would not be possible without your participation over the last 25 years!

www.dentistry.uiowa.edu/preventive-fluoride-study

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Thank you for all of your great efforts this past year for the Iowa Fluoride and Bone Development Study. We look forward to another successful year!

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