

Coasting News Spring 2005



COAST
Childhood
Origins of
ASTHMA

SAVE THE DATE ... We hope to see you all for a fun day!!!


The COAST summer gathering will be held on SUNDAY, JULY 31st from 1 to 3pm at the Waisman Center. Gymfinity will be hosting the party. We had so much fun in February that we would like to invite them to another party. We are guaranteed to have a good time!!!





COAST in SAN ANTONIO, TEXAS!!




A total of 11 presentations from COAST (8 poster and 3 oral presentations) were given at the American Association for Allergy, Asthma, and Immunology (AAAAI) from March 17-22, 2005. Here is a summary of some of the exciting results you and your family have given us through nasal samples, blood tests, the breathing tests..... and all that you do for COAST.....


 Tressa Pappas - Patterns of Respiratory Viral Infections Correspond Closely with Early Childhood Wheezing Phenotypes. Viruses found in nasal samples during the first three years of life were examined for type, frequency, and severity and whether there was any relationship between first year virus and third year wheezing. Rhinovirus (the virus that causes the "common cold") was the most frequent virus to be found in COAST samples, with RSV in second place. If a child wheezed (or was really sick) during the first year - with any virus - there was an increased chance of wheezing in the third year. However, if the child was wheezing with a Rhinovirus illness the child was 10 times more likely to continue to wheeze when they were three years of age.


 Beth Anderson - Children Who Wheeze with Respiratory Syncytial Virus (RSV) in the First Year of Life are More Likely to Have Food Sensitization. Our data suggest that children who wheeze with viral infections, specifically RSV, are more likely to be sensitized to foods in early life and to have a family history of maternal asthma. This could mean that there is a linkage between immune response to allergens and viruses in early childhood.


 Kathy Roberg - Respiratory syncytial virus and rhinovirus in early life and risk of wheeze and atopy at age 3. Examined the typical predictors of allergy and asthma at age 3. Although much has been written about early allergic or wheezing symptoms being predictive of continuing wheeze, the only consistent pattern in the COAST children was that those children who wheezed early with Rhinovirus were likely to wheeze at age 3.


 Chris Tisler - Allergic Sensitization as a predictor of wheezing. We compared the relationship of allergic sensitization (through blood testing) and wheezing at the age of


3 years. We found that if the child had a sensitization to foods or aeroallergens in the 1st year of life, they were more likely to develop wheezing by the age of 3. In contrast, in these same children who wheezed at age 3, sensitization to aeroallergens, but not to foods persists into early childhood.


 Douglas DaSilva - Differences in Th1/Th2 cytokine response profiles during early childhood and their relationship to wheezing phenotypes. Cytokines (IL-5, IL-13, and IL-10) during the first year of life were lowest in those children who wheezed during year 3 compared to children who did not wheeze during year 3. This suggests that cytokine may be important in regulating virus-induced inflammation and corresponding wheezing.


 Sam Friedlander (Allergy Fellow) - Developmental cytokine response profiles from birth to age three high risk for atopy cohort (COAST). We evaluated the overall levels of certain cytokines, or proteins that regulate the immune system response. Interferon-gamma, one of the specific cytokines associated with asthma and allergy development, exhibited low levels early in life and increased levels later in life. This may help to reveal some of the complex interplay between genetic and environmental influences.

 Sara Uekert (Allergy Fellow) - Gender differences in cytokine immune response profiles and wheezing phenotypes during the first three years of life. We have known that boys tend to wheeze more than girls during infancy and childhood, and that boys tend to outgrow their asthma more than girls. The COAST data is demonstrating that boys and girls respond differently to viral infections and that inflammatory markers in their blood are also different. These two factors may be significant in explaining the wheezing differences between the sexes.

 Lisa Pleiss - Viral induced wheezing during early childhood is associated with abnormal spirometry at age 5. Children, who wheezed at any point in the first three years of life, had lower lung function tests (Spirometry, only) at age 5. Specifically, those children who wheezed had lower Forced Expiratory Volume in one and half second than children who hadn't wheezed.

 Kat Sullivan-Dillie (MD - Ph.D student) - Acceptability of pulmonary function testing maneuvers in a pre-school cohort. Despite adequate effort, acceptability of the tests are limited, especially at age 3 and 4. The two main reasons for not having a good test were not being able to blow for long enough and not being able to blow in the same way multiple times. Fortunately, there is an increase in the acceptability with an increase in age.

 Zhumin Zhang - Occurrence of wheezing and being overweight in the first three years of life in a birth cohort at high risk for the development of asthma/allergies. Analysis of COAST data has shown that wheezing during the first year of life increased the risk of being overweight at age 3 years.

 Jeremy Bufford (Allergy Fellow)- Dog exposure in early childhood reduces atopic dermatitis and wheezing at age 3. The COAST data demonstrate that dog exposure at birth influences the development of the immune system in the first three years of life and reduces the risk of wheezing and atopic dermatitis at age 3. The mechanism for these observations remains unclear, but we will continue to analyze the COAST data for answers.

COAST Website <http://coast.medicine.wisc.edu>



To read more about the abstracts, please visit our website. The new and improved website will have all the information that one might be looking for. For example, the Nutrition Study, Energy Expenditure Study, T-Regulatory and Home Sampling Study, and the Environmental Subset Study will now be included.



FOCUS ON NUTRITION

At the age of 5, our COAST families were introduced to the Nutrition study in conjunction with COAST. There are two parts to this study: the questionnaire that asks about foods eaten over the past year (food frequency questionnaire or FFQ), and the 4-day food and activity diary (FD). There is also a subset of Coast children, who complete the FFQ and FD that will participate in the Energy Expenditure (EE) study.

Nutrition Study FFQ and FD

The FFQ measures the intake of food groups, vitamins, and minerals eaten over the past year. Analyzing the FFQ, we found it typical for the COAST families to overestimate foods eaten. For example, the FFQ, on average reports a daily calorie intake of 2239. (This usually relates to how excited we are about thinking about eating watermelon when you are actually filling out the form in December and it is snowing). BUT the average daily calorie intake from the completed food diary is 1484. This is a difference of 755 calories!!

Thus, the advantage of the food diary is that it is a more accurate picture of the daily calorie intake. But, the disadvantage of the food diary is the lack of representation of seasonal foods, for example, corn-on-the-cob or strawberries. The FFQ can account for the missed seasonal foods in the diary.

Energy Expenditure Study

This "sub-study" is recruiting only a portion of the COAST families and involves drinking a "labeled" water to see how fast it is cleared by the body. It is a precise way of measuring how fast our body uses "up" energy. The EE study has shown that the food diaries have been accurate to within 83 calories. Activity diaries appear to be accurate, too. However, for children who spend lots of time in vigorous "play", the calorie intake reported in the food diary was much less than the calories burned, measured by the EE study. This simply tells us that some of the foods eaten by the very active kids were not recorded in the food diary.

The point is... there are some advantages and disadvantages to all these procedures as individual tests. When all parts are combined into one study they can serve to give us a significant picture of the nutrition and energy use of the COAST children. Each of these tests plays a significant role in finding the relationship between having asthma and being overweight.

Congratulations on a job well done!!!! Due to the exceptional work completed by all families: **The FOOD DIARY will now be ONCE EACH YEAR and for a THREE DAY PERIOD.** The food diary reports were so consistent, that, twice a year, and the fourth day did not increase the validity of the information.

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