Virginia Commonwealth University
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Twin Matters

A Family Newsletter from the Mid-Atlantic Twin Registry — Fall 2013; Volume XXVI

MATR
MID-ATLANTIC TWIN REGISTRY
VCU

We Value You.

The Mid-Atlantic Twin Registry (MATR) values its participants. If you have feedback regarding your experiences with MATR staff or research staff for any study, please do not hesitate to send us an email to ***matr@vcu.edu***, call 1-800-URA-TWIN (1-800-872-8946) or call our Participant Coordinator, Carol Williams, at 804-828-8116.

Do you know multiples who would like to register with us?

If so, please ask them to visit the Register with MATR section of our website at www.matr.vcu.edu, or call us at 1-800-URA-TWIN (800-872-8946). We would love for them to join the thousands of multiples who are willing to consider participating in health-related research.

Email Address

Are you finishing school, changing schools, changing jobs, getting a new internet carrier or just opening a new email account? Please remember to visit our website to notify the MATR that your email address has changed.

Moving?

Remember to contact the MATR if your name, address, e-mail address or telephone number changes by visiting the Update Your Contact Info section of our website at *www.matr.vcu.edu* or calling our toll free number 1-800-URA-TWIN.

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In This Issue

Greetings MATR Community,

As we move into the Fall/Winter months, the MATR is gearing up for three new studies as well as continuing with those already underway. This newsletter is packed with information about the studies MATR twins are a part of and we invite you to take a moment to read all about them and learn how you can participate. As always, we want to send a big, sincere "Thank You!" to all of our twins and their families who take part in our studies- you make our research possible!

Warm Regards,

Judy L. Silberg

Judy Silberg, PhD
MATR Scientific Director

Female Microbiome Study - Winding Down:

The Female Microbiome Study is in the process of wrapping up twin involvement over the next few months. If you have agreed to participate in this study and have not had an opportunity to schedule your appointment yet, please contact the study to let them know you'd like to do so ASAP. If you no longer have the study's contact information, feel free to contact the MATR by calling us at (1-800-URA-TWIN) or by emailing us at matr@vcu.edu. As always, we send a big thank you to all of our twins that contributed to this effort to better understand female reproductive health! Keep an eye on our website and for future newsletters with information about study findings!

The Not So Identical Part of Identical Twins

Generally speaking we think of identical twins as being 100% the same. While it is true that their basic genes are the same, there is another layer of biology that controls whether certain genes get turned on or off. This part of our biology is called gene regulation or epigenetics. Epigenetics is one reason that researchers see health and/or behavior differences in identical twins even for traits that they know are influenced by a person's genes. The MATR has collaborated on quite a few studies that hope to better understand the influence of epigenetics on the development of certain traits.

One of our current studies, the *Genetics and Epigenetics of Healthy Aging in Twins* (mentioned in this newsletter), is an example of this type of study. If you want to know more about epigenetics, we recommend PBS's *NOVA Science Now* episode on the topic - **http://video.pbs.org/video/1525107473/** (the video clips can also be found on YouTube by searching *Nova Science Now* and *Epigenetics*). Though this video does not cover research conducted with MATR twins, it does reference a twin study, based out of Madrid, Spain, that investigates epigenetic changes in identical twins.

Study opportunity for Identical, Adult Twin Pairs!

Researchers at VCU's Department of Family Medicine & Population Health have received funding from the National Institutes of Health (NIH) in hopes of learning more about the relationship between certain moods, like feeling depressed, immune system functions, and diabetes risk. The researchers also hope to investigate how genetic and environmental factors work together to influence health as we get older.

Participants the study needs include:

- Full pairs of generally healthy, identical (monozygotic) twins 40 to 70 years old that are registered in the MATR and live within approximately 100 miles of Richmond, VA (or plan on being in the near future).

Study participation involves:

- Traveling to the VCU Clinical Research Services Unit in Richmond, VA for two appointments within six months of each other. During each study appointment, participants will be asked to:
  - Complete a health questionnaire interview.
  - Provide blood samples through venipuncture ("a needle stick").
- Participants receive compensation for their time.

If interested in learning more:

Contact the Mid-Atlantic Twin Registry (MATR) and let us know that you want to learn more about the Mood & Immune Regulation in Twins (MIRT) Study. Please let us know your full name, your date of birth, and the best phone number and general timeframes to reach you. You can reach us at:

- 1-800-URA-TWIN (1-800-872-8946) toll-free,
- ***matr@vcu.edu***,
- ***www.matr.vcu.edu***; click "Contact MATR,"
- Or scan the QR code to the right

This study has been approved by the Institutional Review Board at Virginia Commonwealth University (HM15108)

Juvenile Anxiety Study (JAS) Update

For the past year or so, the MATR has partnered with VCU researchers, Drs. John Hettema and Roxann Roberson-Nay, to help understand the development of internalizing disorders, such as depression and anxiety. Internalizing disorders (IDs) can greatly reduce the quality of life of the individuals that are affected by them as well as their family and friends. Little is known about why some individuals develop IDs and others do not. The MATR is currently inviting families with twins ages 9 through 13 years old to participate. Studying twins in this age range is helpful because it allows the researchers to observe behaviors and collect basic data during a time of significant adolescent development, but before internalizing disorders are likely to be fully developed. The researchers are inviting twin pairs both with and without signs of behaviors related to IDs to participate so they can learn more about the potential causes of these disorders. Once a deeper understanding of the causes is obtained, this pioneers new ways in which doctors can potentially treat and prevent conditions like depression and anxiety.

We are pleased with the willingness of families who have agreed to participate—over 100 families have signed up so far! Thank you so much to those who are a part of this study and have completed their study appointments!! We are looking forward to more families taking part, because if a large number of families participate in this study, the researchers can make stronger conclusions about what influences the development of IDs. And, it's these strong conclusions that allow the medical community to start new treatments and interventions to help improve the quality of life for those with depression and anxiety. If you're interested in learning more about participating in this study, be sure to review the *Juvenile Anxiety Study* advertisement in this newsletter. For those of you with twin pairs a bit further along in their teenage years, please check our announcement about the *Adolescent and Young Adult Twin Study* (AYATS).

Note: The JAS study is funded by the National Institutes of Health (NIH) as part of their Research Diagnostic Criteria (RDoC) Initiative.

Study opportunity for juvenile twins…

Researchers at VCU's Department of Psychiatry are working with the National Institutes of Health in hopes of learning more about how certain conditions, such as anxiety and depression develop.

Participants the study will need include:

- Generally healthy juvenile, Caucasian MATR twin pairs (9 through 13 years old)
- One or both parents (or legal guardians) of the twin pair

Study participation involves:

- Parent/Guardian completing a phone call (approximately 20 minutes) with a MATR Research Interviewer. This phone call will include some questions to collect basic study data and ask permission for the study to contact the parent/guardian directly.
- Both members of the twin pair and at least one of the parents/guardians completing an appointment at one of the Study Research Centers (at VCU in Richmond, VA or the National Institutes of Health (NIH) in Bethesda, MD) to complete study tasks and questionnaires.
- Optional online survey to be completed by parents.
- Financial compensation will be provided by the study.

If interested:

Contact the *Mid-Atlantic Twin Registry* (MATR) and let us know that you want to learn more about the **Juvenile Anxiety Study (JAS)**. Please let us know your full name, your twins' full names, their date of birth, and the best phone number to reach you. You can reach us at:

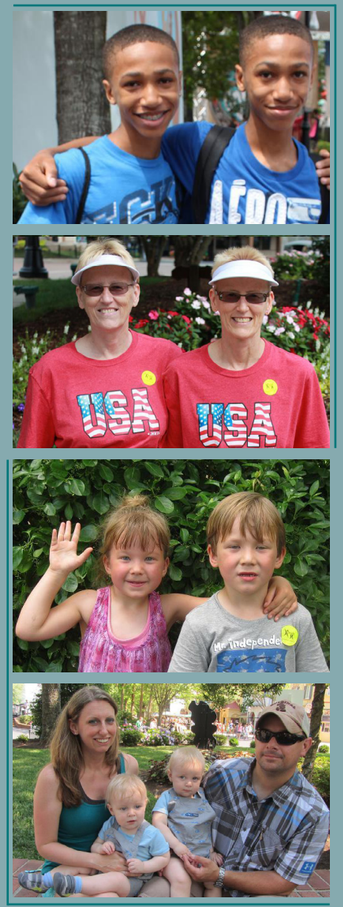
- 1-800-URA-TWIN (1-800-872-8946) toll-free,
- ***matr@vcu.edu***,
- ***www.matr.vcu.edu***; click "Contact MATR."
- Or scan the QR code to the right

MATR Events

The past year has been filled with opportunities for the MATR to connect with and say thank you to long time participants as well as welcome new families and twins into the registry!

It looks like 2014 will also be filled with opportunities to meet our participants! Look for us at the *MAPOM* (Mid-Atlantic Parents of Multiples) Convention April 25th & 26th, to be hosted by The Loudon-Fairfax Parents of Multiples, *Multiples Family Day* at Kings Dominion on June 21st and at Carowinds in Charlotte, NC (date TBA). You will also find us at other events in and around Richmond, VA. We hope you and your family will be able to join the fun with the MATR staff at these great events!

For more information on these and other future events watch the MATR website, www.matr.vcu.edu, for updates!



The Genetics and Epigenetics of Healthy Aging in Twins (GHA Study)

Have you ever wondered why some individuals seem to feel and show the impact of aging more than others? Dr. Sangkyu Kim, a researcher at Tulane University in New Orleans, LA who studies aging, asked this same question and thinks that MATR twins might be able to help shed some light on the answer. Twin participants are often best for helping researchers to unravel the roles that genes and environment play in traits like how we age. Dr. Kim is particularly interested in studying the epigenetic differences between twins. Epigenetic factors regulate how our genes are expressed as traits and very likely play a role in our quality of aging. For example, some of the choices we make throughout life, regarding exercise, diet, substance use, etc, may play a role in turning on and off certain genes. Some of these genes may be "aging genes" or ones that influence age-related health conditions. If these types of genes are turned on or off too soon or too late by an epigenetic factor, then our quality of aging may be impacted. If you are interested in learning more about epigenetics, we recommend checking out the video referenced in the "Not So Identical…" article.

We are currently contacting MATR twins about this study, so if you are part of a same-sex twin pair age 65 or older, we may be contacting you soon! We are thrilled thus far at the level of response and commitment we've seen from MATR twins enrolled in this study. Thank you very much to all those who are already part of the GHA study!

Implicit Substance Use Attitudes Online Survey for Adolescent Twins and Non-Twin Siblings

VCU Researchers, Drs. Neale and Verhulst have developed an innovative online survey to help understand what influences adolescents in their decisions regarding substance use. The MATR is contacting parents of juvenile twins that are between the ages of 12 and 17 years to invite their twins as well as any non-twin siblings of the same age range to participate in this online survey. This study is ongoing and we've already had quite a few twins and their siblings participate. If you already spoke with us on the phone and received an email invitation, there is still time to complete the survey. Just click the survey link that was in your emailed invitation and you should be able to access any uncompleted portions of the survey. Feel free to contact us if there is a problem launching the survey link. Thanks to all who have taken part in this innovative research study!

Childhood Adversity and Chromosomal Changes

Chromosomes are rod-shaped structures in our cells that serve to package our genetic material, or DNA. There is a recently recognized phenomenon in which some of our cells have chromosomes that gain or lose whole parts. Furthermore, it looks as though certain individuals show more of these chromosome abnormalities than others. This discovery is exciting to researchers because it likely helps explain some of the mysteries surrounding the biological process of aging. VCU researchers, Drs. York and Jackson-Cook, are now examining what might cause these remarkable changes in chromosome structure and what might cause some individuals to display more dramatic chromosome changes. Their research team is particularly interested in studying the effect(s) that childhood adversity–like sexual, emotional, and physical abuse – may have on the likelihood that one might develop such chromosomal changes many years later. Particularly, they are focused on assessing whether an individual's childhood environment may be influencing the *type* of chromosomal changes that arise with age and how *frequent* these changes occur. To help them answer this question, the MATR has been actively recruiting adult female twin pairs who have been exposed to varying levels and types of childhood adversities. Interestingly, the data collected so far suggests that there is an association between the experience of childhood abuse and the amount of chromosomal abnormalities that arise in adulthood. For example, they have found that *twins who were exposed to childhood adversity display more frequent chromosomal changes with age*. This can even be seen in identical twins (who have nearly the same DNA) when one member of the twin pair was exposed to childhood abuse while the other twin was not, or if one twin was exposed to the abuse more heavily than her co-twin. There is also evidence to suggest that an individual's childhood experiences may influence the types of chromosomal abnormalities that occur as a consequence of age. This is a very exciting line of research and it is their hope that the work being done for this study will help them to better understand why some individuals appear to age more quickly than others and why some develop more age-related health conditions such as cancer, heart problems, stroke, chronic lung disease, autoimmune disorders, and diabetes. It is also hoped that the successful completion of this study will demonstrate the impact of early-life environments on overall health many years down the road.

Acknowledgement: This article was contributed by Kate Dochelli, PhD Candidate and Master's of Genetic Counseling Student at VCU

Adolescent and Young Adult Twin Study (AYATS)

For those families interested in the Juvenile Anxiety Study (JAS) but have twin pairs a bit too old to participate, the MATR is excited to announce that Dr. Roberson-Nay, one of the JAS researchers, just received funding from the National Institutes of Health (NIH) to complete a similar study with twin pairs in their later teenage years (16 through 19 years old). We are working with Dr. Roberson-Nay to finalize her plans so be sure to check out our website for details.