RCCX Theory and Giftedness: A Promising New Line of Research

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We write today with urgency to share a relatively new theory and how we believe it relates to the physiology of gifted individuals. We share today, rather than wait for research testing the theory because clinicians associated with Gifted Research and Outreach (GRO) believe gifted individuals under their care are already benefiting from insights derived from the theory.

The RCCX theory is not our own. Credit goes to internist and psychiatrist Dr. Sharon Meglathery, who developed RCCX theory without giftedness in mind, but rather as a way to understand her own puzzling medical conditions. Much gratitude goes to Dr. Meglathery for being in conversation with GRO about the theory and its application to gifted individuals. The mission of GRO involves seeking a comprehensive understanding of the physiology of giftedness, and how giftedness affects a person both physically and psychologically; Dr. Meglathery's work has accelerated our drive to accomplish that mission.

Before we discuss the RCCX theory and its relationship to gifted individuals, we will provide some important cautionary notes. We will also list some health issues that clinicians associated with GRO have observed in their gifted patients in

greater frequency than in the general population. Lastly, we will explain why the Columbus Group definition of giftedness best suits the mission of GRO, particularly in light of RCCX theory.

CAUTIONARY NOTES

First, we need to stress that correlation is not causation. Scientists study correlations not because they prove causation, but rather because correlations spur them to further research. Clinicians and others associated with GRO have found correlations between gifted individuals and certain aspects of physiology. We hope that research examining whether any causation exists with regard to those correlations will help us learn more about gifted individuals.

We also need to stress that giftedness itself, as well as all characteristics associated with giftedness, exist on a continuum. Whenever we discuss characteristics of people in our research, we need to think in terms of a continuum, and refrain from an "either you have it or you don't have it" mindset.

Remember the parable of the elephant? Where blind people touch various parts of the elephant and reach different conclusions about what they think it is? The person touching the trunk thinks the elephant is a snake; the person touching the tusk thinks the elephant is a spear; and the person touching the leg thinks that it's a tree trunk?

Similarly, there are many groups of advocates each of whom view gifted individuals from distinct points of view. Educators often look at giftedness in terms of academics. Clinicians might look at giftedness in terms of their own version of Dabrowski's overexcitabilities. Neuropsychologists look at giftedness in terms of the brain.

GRO, as an organization, is dedicated to looking at the whole of gifted individuals, thus connecting the dots among education, emotions, neurobiology, and more. GRO seeks to use a holistic lens with which to view giftedness, including all aspects of gifted individuals mentioned so far as well as microbiomes, nutrition, and more. As our mission states, we seek a comprehensive and accurate understanding of giftedness.

PHYSIOLOGICAL CORRELATIONS WITH GIFTEDNESS

Especially when we focus on the highly and profoundly gifted population, we see a higher incidence of anxiety, depression, introversion, as well as a higher incidence of certain medical conditions than is found among the general population. For instance, clinicians associated with GRO have seen higher incidence of the following among highly and profoundly gifted individuals in their practice:

Pediatric Acute-onset Neuropsychiatric Syndrome (PANS)

Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (PANDAS)

Ehlers-Danlos Syndrome (EDS)

Polycystic Ovarian Syndrome (PCOS)

Postural Orthostatic Tachycardia Syndrome (POTS)

Chronic Fatigue Syndrome (CFS)

Epstein Barr Syndrome (EBS)

gastrointestinal problems

Small Intestinal Bacterial Overgrowth

Parkinson's Disease

Hormonal Disorders

Celiac Disease

Asthma

Allergies

Other autoimmune diseases

Additionally, more than a few individuals in the highly and profoundly gifted community report responding to medications in an off-pattern way. People will say, "I'm not allergic to X medication, but I have this bad reaction to it and thus can't take it."

We have also seen asynchronous development and overexcitabilities in gifted individuals. The overexcitabilities we have observed accord with those theorized by the Polish psychologist Kazimierz Dabrowski (1902-1980) and translated into English by Michael Piechowski, who holds doctorates in both molecular biology and counseling psychology. Researchers are reminded that the concept of overexcitabilities is nested in the Theory of Positive Disintegration, and understanding that nesting is essential for

understanding the complexity and nuances of overexcitabilities.

GRO regards Dabrowski's overexcitabilities not as excuses for bad behavior, but rather as characteristics common among gifted individuals, particularly those in the highly and profoundly gifted ranges. Dabrowski's five overexcitabilities are: intellectual, psychomotor, emotional, sensory, and imaginational. You can learn more about the overexcitabilities in the article "Experiencing in a Higher Key" written by Michael Piechowski.

COLUMBUS GROUP DEFINITION

At GRO, we join many other organizations in favoring the Columbus Group definition of giftedness:

Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally.

The Columbus Group definition allows GRO to focus on the idea that the lives of gifted individuals are qualitatively different from the norm. Most importantly, that definition provides us motivation to research whether there is a physiological basis for those perceived differences.

The RCCX theory provides us with both the motivation to continue research and, more importantly, a plausible explanation of why some syndromes and other physiological oddities may be more prevalent among gifted individuals.

INTRODUCTION TO RCCX THEORY

GRO founding board member and psychotherapist Dr. Joanna Haase, who has decades of experience working with highly and profoundly gifted individuals, reports that RCCX theory, even though it was not formulated with giftedness in mind, "better explains what's going on in gifted individual's bodies than anything else I've ever read." She notes that the brain studies and psychological studies discussed in recent GRO articles, as well as Dabrowski's work, all support the RCCX theory in terms of physiology.

Internist and psychiatrist Dr. Sharon Meglathery developed RCCX theory from both an illness model and a psychiatric model. She delved into genetics to try to determine why people come down with autoimmune illnesses. Her theory focuses on the RCCX group of genes. For information about her theory, see her website.

The RCCX group of four genes resides in the Major Histocompatibility Complex (MHC) region of chromosome 6, which region contains genes related to our immune system. For at least two decades, scientists have known that "variations in the number and genes of the RCCX modules may lead to genetic and/or autoimmune diseases." Quote

from the abstract of this article by Rupert, K.L., et al., (1999), published in Experimental and Clinical Immunogenetics.

One of the RCCX genes, CYP21A2, includes many mutations. Dr. Meglathery estimates that upwards of 20% of people have CYP21A2 mutations. That gene and its mutations may account for psychological and emotional conditions that seem to be similar to what we see in higher than expected prevalence in highly and profoundly gifted individuals. The CYP21A2 gene is associated with brilliance, with high levels of empathy, and huge emotional responses similar to those discussed by Dabrowski.

Dr. Meglathery explains the far-reaching aspects of her RCCX theory. Readers familiar with the increased prevalence of certain conditions within the gifted population will immediately see why clinicians associated with GRO want to alert the gifted community to RCCX theory. From Dr. Meglathery's website:

I believe that the RCCX Theory solves some of medicine and psychiatry's greatest mysteries. The RCCX Theory explains the co-inheritance of a wide range of overlapping chronic medical conditions in individuals and families (EDS/hypermobility, autoimmune diseases, chronic fatiguing illness, psychiatric conditions, autism, etc.). It explains the underlying pathophysiology of chronic fatiguing illnesses with so many overlapping features (EDS-HT, CFS, Chronic Lyme Disease, Fibromyalgia, toxic mold, Epstein Barr Infection, MCAS, POTS, etc.). And finally, it reveals the gene which I believe confers a predisposition toward brilliance, gender fluidity, autistic features, and stress vulnerability, as well as

the entire spectrum of psychiatric conditions (other than schizophrenia which can be co-inherited).

As many people who are familiar with the highly and profoundly gifted community probably will notice, Dr. Meglathery's list of chronic medical conditions overlaps significantly with conditions we believe to be more prevalent in the gifted community than in the general population.

CAPS

Dr. Meglathery defines a psychological profile she calls CAPS (CYP21A2 Mutation Associated Neuropsychiatric Syndrome). The CAPS profile is part of RCCX theory because CAPS involves the CYP21A2 gene, which is part of the RCCX group of genes. She believes CAPS results from the hormone milieu associated with CYP21A2 mutations, which hormone milieu surrounds the developing brain in utero and during infancy.

According to Dr. Meglathery, those with the CAPS profile are at higher risk of chronic illness, especially when an individual has inherited two copies of CYP21A2 mutations, one from each parent. The crux of the CAPS profile is a brain wired for survival—the ability to move fast, the ability to get into flow, the ability to really push oneself, all of which are what we in the gifted community view as overexcitabilities.

Dr. Meglathery's description of a brain with CAPS echoes familiar refrains from the gifted literature: "[The CAPS brain] is characterized by an exaggerated stress response, sensory sensitivities, hyper-focus, strong special interests, often

mental gifts paired with learning disabilities/Asperger's, an androgenized brain." She theorizes that "people with CAPS are attracted preferentially to other people with CAPS." The fact that those with CAPS are attracted to others with CAPS likely results in more children with one or two copies of the CYP21A2 mutation.

MAST CELL ACTIVATION SYNDROME

Mast Cell Activation Syndrome (MCAS) is another syndrome associated with RCCX theory. In general, mast cell activation syndrome is easiest to think about as a disease of inflammation. We know that inflammation in the body over time has a negative effect. Mast cell diseases can affect any system of the body to any degree in a multitude of ways. More importantly, mast cell disease symptoms can vary over time, making diagnosis much like playing whack-a-mole.

Mast cells are a type of white blood cell that reside in all parts of your body. They originate in your bone marrow, travel through your bloodstream in an immature form, and mature after landing in various places in your body in order to keep you healthy. Mast cells are responsible for everything from helping to regulate menstrual cycles to fighting bacteria and viruses, to healing wounds. They are involved in allergic and anaphylactic reactions and they communicate with other cells in our body to support immune responses. For more information about mast cells, see "Mast Cell: A Multi-

Functional Master Cell" by Krystel-Whittemore, M., et al. published in Frontiers in Immunology in 2016.

Basically, we can think of mast cells as triage doctors in an emergency room who assess, prioritize, sometimes treat and sometimes call in specialists for help. Mast cell diseases are a continuum of disorders where the mast cells start to act like an overzealous emergency room doctor who calls in the trauma team for each patient who comes in, even if that patient only has a small cut that needs a bandaid.

Mast cell diseases–especially MCAS–are involved with many of the immune issues associated with RCCX/CAPS disorders. Because mast cells are involved with every system in the body, MCAS symptoms can vary widely as can the severity of the syndrome. Although many physicians were trained to find systemic mastocytosis, which is the most severe form of mast cell disease, they were not trained to find less severe forms of mast cell disease. Symptoms of mast cell disease can be wide-ranging. For that reason, physicians and patients are often unable to pin down what caused a particular symptom. Additionally, tests traditionally used for some of the symptoms of mast cell disease do not test for mast cell disease itself, but rather test for other causes of those symptoms.

Because MCAS is difficult to diagnose, patients sometimes walk away with the feeling that they cannot be helped. Even worse, sometimes patients are told that their symptoms are all in their head.

If we are looking at gastrointestinal illnesses, for example, we see that a person can have traditional gastrointestinal issues or a person can have gastrointestinal issues caused by a mast cell response. A patient might spend years going from doctor to doctor complaining of severe diarrhea, gas, and bloating. The patient will be given the standard tests, standard protocols of acid reducers, high fiber diets, and lifestyle changes. If those protocols have little to no effect, the patient may be seen as difficult or noncompliant. In some cases, the patient might undergo unnecessary or harmful medical procedures in an attempt to cure the gastrointestinal issues. Dr. Haase reports that if a person has gastrointestinal issues caused by a mast cell response, and those issues have not responded to medications used for traditional gastrointestinal issues, a doctor might prescribe chromones such as cromolyn to stabilize the mast cell response by preventing the release of histamines.

Note that mast cell stabilizers are not the same thing as antihistamines. Antihistamines block the action of histamines that have already been released. Mast cell stabilizers, by contrast, prevent the release of histamines in the first place.

Important: Some drugs generally do not work well with health issues stemming from mast cell activation problems: adenosines, muscle relaxants, opioids, taxanes, and vancomycin. Additionally, although some people with mast cell activation problems benefit quite well from NSAIDS, others do not benefit at all from NSAIDS. Because it appears that mast cell activation problems exist in the gifted population in greater frequency than in the general population, we urge those in the gifted populations with health issues not solved by drugs in those categories to

discuss the possibility of mast cell activation problems with their doctors.

TRAUMA TRIGGERS

Mast cell activation syndrome problems usually happen as the result of a trauma, whether the trauma is a broken arm or long-term stress. Stress activates mast cell response. Most people associate the beginning of their mast cell activation problems with trauma in their lives. In this regard, we must remember that whether someone has experienced trauma depends not on what they experienced, but whether the experience was traumatic for that particular person. In other words, trauma lies in the eye of the beholder.

Trauma/stress can be caused by both happy events and sad events. For gifted individuals, stress often comes from difficult interactions such as trying to fit themselves into general educational settings or workplaces. Gifted individuals are also often perfectionistic and driven, and those traits–especially when combined with a learning disability such as ADHD or dysgraphia–can cause additional stress at work or school. That added stress might explain why mast cell responses appear to be more prevalent in the gifted population than in the general population. All individuals with MCAS should incorporate stress and anxiety management into their lives.

If you take away nothing else from this article, please take away these two points:

#1 It is possible that many individuals in the gifted community are suffering from some degree of mast cell disease and thus would benefit from talking to a physician about how their symptoms might be better explained by mast cell problems.

#2 We must take very seriously the potential harm we are causing gifted children by not acknowledging their psychological, social, and physiological differences in and out of school. Although nearly everyone realizes that excessive stress is harmful to health, if RCCX theory proves true, there is even more reason to stop current educational practices of trying to squeeze square peg children into round hole educational practices and curricula.

SUDDEN ONSET SUICIDE IDEATION – "BRAIN FARTS"

Dr. Meglathery suspects that much of what she has seen in her psychiatric population in terms of anxiety disorders and depression is caused by inflammation, and that by bringing down inflammation, she can better treat psychiatric issues. Some clinicians associated with GRO have likewise noticed that after inflammation issues are addressed, it is easier to address mental health issues.

Dr. Meglathery describes a phenomenon that she thinks of as a "brain fart." The phenomenon, which she has seen in people suffering from mast cell activation syndrome, is akin to a sudden onset suicide ideation without any other major depressive symptoms. That sudden feeling of suicide, that

wish to die, is sometimes followed by a burn-out or freeze response.

Dr. Haase, when working with gifted individuals, has likewise observed this phenomenon of sudden suicide ideation followed by a burn-out or freeze response. In some of these patients, they will still be able to experience joy, hope for the future, and life satisfaction while simultaneously having intense feelings of despair and suicidal thoughts.

Important: If you are experiencing one of these intense suicidal moments, burn-out/freeze responses, you should seek professional help. Make sure you report and work closely with your doctor regarding your medication response. Also, make sure you also talk with your doctor about possible inflammation from mast cell activation syndrome, and about possible vitamin deficiencies including vitamin B deficiencies that can affect neurotransmitter levels.

About her approach to treating patients with sudden suicide ideation, Dr. Meglathery explains she looks at inflammation and possible vitamin deficiencies first, and "Then I teach mindfulness/grounding so that calmly the person is able to address the sense of helplessness which is leading to freeze and intrusive thoughts by finding a way forward which involves completed action. By approaching patients in this way, I am also often able to avoid traditional psychiatric medication which can contribute to stealing agency by not addressing or perhaps contributing to a sense of helplessness and not addressing the underlying inflammation and vitamin deficiencies if present."

EHLERS-DANLOS SYNDROME (EDS)

Another medical condition that we have seen occurring with greater frequency in the gifted population than in the general population is Ehlers-Danlos Syndrome (EDS). EDS is a connective tissue disorder, that exists on a continuum of severity. A simple way to think of EDS is to think of someone with loose joints, or someone who is double jointed. EDS, however, is a severe disease that causes great suffering in many people.

The question here is not whether a person has a bad case of Ehlers-Danlos Syndrome; the question is whether the genetic version of Ehlers-Danlos syndrome exists at all in the person's body. The Ehlers-Danlos gene can be inherited from one parent, or from both parents. People who have that gene are more likely to have one or more additional illness associated with RCCX theory and associated with giftedness.

Important: Researchers associated with GRO believe that families with members who have EDS should be aware that other members of their family might also be at higher risk for diseases and syndromes associated with RCCX theory.

GENDER FLUIDITY

Important: We mention gender fluidity here not as an illness or disease, but rather as a state of being that plays a part in RCCX theory and appears more prevalent in the gifted population than in the general population.

The RCCX complex of genes is associated with gender fluidity, perhaps because of the way our bodies respond to hormones. Dr. Meglathery's thoughts on gender fluidity match the fact that those in the gifted community have long observed a higher than expected level of gender fluidity in gifted populations. Those involved with highly and profoundly gifted populations, in particular, have noticed a higher than expected number of young adults transitioning in recent years from male to female or from female to male.

GIFTED COMMUNITY FAMILIES WITH MULTIPLE ILLNESSES

Clinicians associated with GRO have encountered families with children exhibiting not one, but multiple illnesses associated with the RCCX theory and giftedness. "It seems like these families are always putting out fires," observes psychotherapist Dr. Haase.

The fact of the matter is that these families are not crazy; their children really do suffer from a multitude of extreme responses to their environments. And even though RCCX theory is still a theory, wisdom gleaned from the theory is already offering clinicians possible explanations and treatment options for their patients, as well as hope for more research.

COMBINING RCCX THEORY AND BRAIN RESEARCH

Although Dr. Meglathery was not looking at her RCCX theory through a gifted lens, a high number of her clients are employed in professions typically associated with high levels of education. That fact, combined with the fact that everything she has seen in terms of her RCCX theory matches well with what clinicians association with GRO have observed in the gifted population. The match between RCCX theory and giftedness is part of the reason why we at GRO are writing this article to alert the gifted community to RCCX theory.

GRO is in the process of taking the RCCX theory and combining it with brain research cited in recent articles published by GRO. A preliminary analysis, to be expanded upon later in more science-oriented publications, suggests a congruence between not only RCCX theory and chronic medical conditions more prevalent in the gifted community than in the general population, but also a congruence between RCCX theory and what recent brain research has taught us about the brains of gifted individuals.

GRO is grateful for the recent work of Ruth Issa Karpinski, a new member of the GRO Advisory Panel. In 2018, Karpinski, et al, published a paper entitled "High intelligence: A risk factor for psychological and physiological overexcitabilities." This groundbreaking study surveyed 3,715 members of American Mensa and concluded that high intelligence puts people at an increased risk of a variety of psychological and physiological disorders including food allergies, asthma, autoimmune disease, autism spectrum disorder, and anxiety disorders. The findings of that study are well explained by the RCCX theory, and all are also well explained by overexcitabilities.

True, correlation is not causation. However, there are enough correlations to justify research into why the correlations exist. And there are enough correlations to suggest that there is a likelihood that people with high intelligence suffer illnesses described in RCCX theory at higher rates than people in the general population suffer from those illnesses.

FINAL NOTES

GRO's mission to discover more about the physiology of gifted individuals does not, in any way, presuppose that those associated with GRO hope for specific research results. GRO fully understands that scientific theories are just that: theories. GRO hopes for results, whether those results confirm or disconfirm theories widely held by those in the gifted community.

GRO welcomes new research results. GRO welcomes repetition of research already conducted. GRO welcome critiques of existing research. GRO welcomes new theories. Above all, GRO welcomes your participation in our responsible search for a comprehensive and accurate understanding of giftedness.

We hope this article has succeeded in calling your attention to RCCX theory and related matters. Thank you for reading.