The Venus Fly Trap and the Land Mine: Novel Tools for Eating Disorder Treatment

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The Venus Fly Trap and the Land Mine: Novel Tools for Eating Disorder Treatment

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INTRODUCTION

In the last decade, genetic and neurobiological research has increased our understanding of eating disorders (ED), allowing us to view these illnesses from the inside out, and pointing toward a new paradigm for treatment (Frank, 2015). We now know that there are altered brain responses which fire differently in persons with eating disorders compared to those who do not have eating disorders (Kaye, Fudge, & Paulus, 2009).

Genetic research helps explain why some people have a higher vulnerability in developing ED over others, while neurobiological studies indicate how the gene expression plays out in brain response (Steiger, Labonté, Groleau, Turecki, & Israel, 2013). As we increase our understanding of ED through the lenses of functional magnetic resonance imagery (fMRI) and positron emission tomography (PET) studies, a new model emerges that describes nature/nurture influences on ED, and lays a foundation and framework for new ED treatment tools.

Neurobiological research describes where and how ED symptoms occur in the brain. At our ED Center, nearly every patient and family member report that upon learning these neurobiological findings, they feel less guilt and increased relief that there is a biological explanation to this illness. It is as important for families to learn this as it is ED patients, because whenever possible the family plays a central role in supporting their loved ones and can be a vital part of the solution, instead of the problem.

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Metaphors are a wonderful tool to simplify complex topics, while simultaneously having the capacity to introduce novelty and hope to a painful experience. Consider the Venus flytrap. It is a carnivorous flower that has teeth-like projections on the top and bottom petals. When a fly is drawn to the flower and walks into the depths of its petals, the flower closes and devours the fly.

**NATURE/NURTURE MODEL**

The Venus flytrap is a metaphor for the nature/nurture influences on ED. The “teeth” on the bottom petal represent genetic traits that trigger neurobiological alterations, increasing one’s vulnerability to develop an ED. Each tooth is a different trait such as: perfectionism, avoidance or inhibition anxiety, obsessionality, impulsivity, and competiveness (Kaye, Wierenga, Bailer, Simmons, & Bischoff-Grethe, 2013).

Each tooth on the top petal is an environmental/social influence such as: “be thin,” “eat only ‘healthy’ foods,” “be the thinnest,” “eat less than everyone else,” or “exercise more than others.” The diet is the fly. As the fly lands on a petal of the Venus flytrap and walks into the flower, the flytrap closes, thus capturing the fly and consuming it. So too, as a diet becomes more restrictive, the body becomes increasingly strained from too little energy intake, causing self-destructive behavioral responses.

If there are several ED genetic traits or “teeth” in place, dietary restriction triggers identified genes to “turn on,” creating a new level of brain and hormonal responses, “entrapping” thoughts and behaviors, and devouring the body (Klump et al., 2010). As the Venus flytrap closes, a diagnosable eating disorder has developed. The person is “locked” into destructive perceptions of body image, feelings, and actions that confine daily life.

On the other hand, if the Venus flytrap had missing genetic or environmental “teeth,” the fly could maneuver its way out. In like manner, for those who have fewer genetic precursors, or are not exposed to as many environmental triggers that encourage the diet to increase, the person is freer to step away from the diet. The question becomes: how can those who have been caught in the flytrap and held by a wall of genetic and environmental teeth, get out? How does this metaphoric nature/nurture model inform new treatment?

Psychotropic medications could “soften” the inside tissue of flytrap petals, just as they impact neurochemical receptors allowing the person with ED to have more cognitive and emotional strength to push harder from the inside to lift the petal and fly away (Peterson & Mitchell, 1999). While some medications may hold promise, they are not currently effective as stand-alone treatments for most patients. The patient pushing alone with medication is usually not enough to force the flytrap to release the fly. The environmental
and genetic teeth hold too much power without equal or increased force countering the teeth-like hold. Since there is no proven device or mechanism to open the flytrap currently, it must be opened manually. “We” need to push and pull from the outside of the flytrap to “pry open the petals,” while the patient pushes from the “inside.”

The “we” is key in ED treatment. The ED treatment team needs to actively broaden its forces. It is usually not enough for a clinician to treat ED patients solo and assume the Venus flytrap will open with ease. Even a multidisciplinary treatment team is sometimes not enough. Whenever possible, the “we” needs to include the family, so as to have the team pushing from the outside while the medication and patient with a detailed meal plan push from the inside in a combined effort to pry open the flower together.

In order to keep the patient from becoming exhausted or wanting to give up, we need to be more specific, directed, and detailed. The patient cannot see the larger picture when entrapped, nor identify where to push, how much, and when. The family and treatment team can do for their loved one what the patient cannot do for him/herself. We need to push, pull, and maneuver in coordination with the patient to help him/her squeeze through or bend the “teeth” or pry open the petal to crawl out. Otherwise, the patient becomes discouraged or upset and the family steps back. In most cases, the family members appreciate detailed ED information and desire neurobiological tools to help inform their actions.

THE LAND MINE ACTIVITY: NEUROBIOLOGICALLY INFORMED TREATMENT TOOL

New neurobiological treatment tools are needed for clinicians, families, and patients to use in the process of recovery. The tools should help the family and patient more fully understand how the brain responds when one develops an ED and when one is trying to escape its entrapment. Brain circuitry responses have been identified and inform us of pathways that are under- and over-firing compared to those without ED (Wagner et al., 2010), providing the team (clinical, dietary, medical, family, patient) with opportunities to develop creative methods to pry open the Venus flytrap and maneuver out together.

Hunger and fullness signals in the insula appear to be under-firing or not firing at all as the illness progresses (Kaye et al., 2013). The person with an ED comes to the table with low to no insular signals which provide interoceptive awareness of hunger and fullness, and at times taste. There appear to be reduced signals of pleasure from eating for those with anorexia nervosa (AN), and the same after the first few bites for those who binge eat (Stice, Yokum, Blum, Bohon, 2010; Wagner et al., 2010). It could be said
that a person with ED is “blind” to eating due to reduced activity in these specified brain areas.

How can a person approach a meal if these basic sensations are not firing well enough to know what, how much, and when to eat? In addition, it appears that thoughts become a loud, noisy, chaotic cacophony of indecision: “Should I eat this?” “What do I do?” “Eat it all?” “Vomit later!” The metaphor rises again to serve as a heuristic tool for action to help patients and their families explore ways to compensate for areas of brain “blindness” in ED. Our group has developed a new tool with input from ED patients, families, and other support people called the “Land Mine Activity.”

This tool can be administered with a group of ED patients and is best experienced with both patients and their families or other support people. The families experience what it is like to move through and complete a meal, while blindly walking through a field of eating disorder “land mines.” To begin, the patient is asked to stand on one side of the room. The opposite side is identified as the completion of an unplanned meal. The patient is then asked to share with the group the thoughts, feelings, and ED urges that typically get in the way of completing the meal. Peers and family members in the group are assigned to be the voices of the identified thoughts and feelings.

The patient is told to close her/his eyes, to mimic areas of brain blindness while walking through the field. The patient is informed that all the “noise” or thoughts/feelings about the meal and body size are going to be yelled continuously as s/he walks forward. After the patient’s eyes are closed, but before s/he begins to walk, objects are placed on the floor randomly (books, balls, any object in the room that could be stepped on). If the patient steps on, or touches, one of these land mines, all noise ceases and the patient steps back five steps. The reversal in steps represents acting on an ED behavior; and the quiet represents the relief from the mental noise. As the patient begins walking forward through the field of land mines again, the mental noise begins again. The goal is to get through the field of land mines while ED noise is being shouted. Patients win the game if and when they navigate through the field of land mines, meaning they complete the meal.

Experimentation is necessary in this game, as in life. At first the “blind” ED patient usually tries to walk through the field of land mines alone, only to realize it is nearly impossible to get through the field or unplanned meal unaided. After several tries, when the patient realizes s/he cannot do it alone, s/he is asked, “What do you need to get through the land mine field?” S/he almost unanimously chooses to seek support. This validates the central role of the family in maneuvering around the land mines. The therapist instructs the patient to specifically identify who s/he wants for support to get through the field.

Once support is identified, the patient is asked to instruct the family members, “What I need from you is . . .” ED patients report a range of needs,
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from asking for words of encouragement as they walk, to asking family members to guide them with clear instructions around the land mines. Families have responded by offering the requested methods of support, relieved to know what their loved one wants and needs. Some family members have tested additional creative responses such as holding their loved one’s arm or stepping in front of the land mines themselves. One mother and father actually picked their adult loved one up and carried her over the first few mines.

After getting through the land mine field, reaching the goal of completing the meal, the patients and family members are asked to describe their feelings and experience. The therapists draw upon their answers to identify individualized actions that can be applied during meals at home that were playfully experimented and acted out. The patients often realize that the key is to keep going, to move forward, as awkward and difficult as it may be, in order for them to push through the “teeth” of the illness.

It is recognized early in the game that stepping on land mines is inevitable, just as an ED behavior is expressed when challenged with many unknowns. In many ED cases, there appears to be no easy way out through the hold by the genetic and environmental teeth alone. If possible, having a united force with the family and clinical team results in greater power to maneuver WITH the patient through the ED urges.

SUMMARY

In summary, a new paradigm is emerging that explores the nature/nurture model of eating disorders. It acknowledges and actively applies new neurobiological findings to transform treatment into individualized actions that involve the patient, family, and the multidimensional treatment team. Traits are constant throughout life, as are the teeth of the Venus flytrap. Traits that have contributed to ED are not eliminated but transformed by pushing and pulling them to bend and shift from self-destructive traits to “teeth that bite into life activities,” in order to eventually engage in work and a life with purpose beyond the ED.

Currently, it appears nothing less than active involvement of the family along with the patient and the treatment team, together pushing and pulling through the teeth, will lead to eating disorder recovery. The Land Mine Activity is an example of an experiential treatment tool founded on concepts from neurobiological ED research. It provides an opportunity for the patient to identify what is needed while the family can walk beside their loved one in a playful game and explore how to maneuver around cognitive and emotionally painful reactions to food, eating, and body shape. On a larger scale, it is not just the patient and family that are transforming their responses in this new treatment approach; the entire eating disorder field is
transforming its overall paradigm as it integrates new neurobiological and genetic findings into a more comprehensive and balanced approach to this illness.

REFERENCES


