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# DMT for T1D: Using Dance/Movement Therapy to Facilitate Coping, Self-Awareness, and Positive Body Image in Adolescents with Type I Diabetes

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DMT for T1D: Using Dance/Movement Therapy to Facilitate Coping, Self-Awareness, and  
Positive Body Image in Adolescents with Type I Diabetes

Nicole L. Williams-Mulet

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To my mother for her infinite support,  
To my daughter for her daily motivation, and  
To my nephews for their unknown inspiration.

## Abstract

This paper explores type 1 diabetes (T1D) and the risk factors associated from its diagnosis. In particular, this paper addresses the onset of T1D in adolescence, which is a developmental period riddled with its own challenges. T1D is a chronic, autoimmune disease that affects the body's ability to produce insulin. Unregulated, T1D affects the body in numerous ways and can ultimately lead to death. Research has suggested that children diagnosed with T1D should employ an integrated treatment team to account for the physical and emotional struggles that come from living with the disease. Dance/movement therapy (DMT) is a form of psychotherapy that can help adolescents with T1D address their physical, emotional, social, and cognitive needs outside of insulin regulation. Dance/movement therapists are trained to provide their clients with embodied explorations, allowing them to express themselves creatively, deepen their understanding of their diagnoses, become more adaptable to change, improve mind-body connection and self-awareness, and improve their body image. DMT is a body-based approach and T1D is a disease that heavily affects the body (amongst other aspects of life); therefore, DMT is an ideal treatment modality for the diabetic, multidisciplinary team.

*Keywords:* diabetes, dance movement therapy, insulin, creative expression, adolescence

Type 1 diabetes mellitus (T1D) is a chronic, and potentially life-threatening, autoimmune disease affecting the body's insulin production. It is one of the most common chronic illnesses diagnosed in children and adolescents and its incidence is increasing globally at approximately three percent each year (Shulman et al., 2010). With type 1 diabetes, lymphocytes infiltrate the pancreas and attack the cells that produce insulin, causing hyperglycemia, which is an unusually high level of glucose in the blood (Phillips, 2016). Insulin moves glucose from the blood throughout the body and into the cells for energy. Without insulin, the body is forced to burn fat as an alternate energy source and this produces elevated levels of toxic ketones (Pietrangelo, 2014). When excess ketones and ketoacids are not removed from the blood by the kidneys, diabetic ketoacidosis occurs (Peyrot et al., 1999). Diabetic ketoacidosis is dangerous and can lead to coma or death. The body attempts to make adjustments for diabetic ketoacidosis by expelling this overproduction through urination (Peyrot et al., 1999; Shulman et al., 2010). Prior to diagnosis, common symptoms of T1D and diabetic ketoacidosis include significant weight loss, extreme fatigue, dehydration, frequent urination, excessive thirst, weakness, confusion, mood swings, and hyperglycemia (Shulman et al., 2010).

The successful management of type 1 diabetes is a matter of life and death. While death is clearly the most extreme result, failure to maintain healthy blood glucose levels can have permanent, debilitating effects. Significantly elevated blood glucose levels can lead to strokes, heart attacks, and gangrene in the legs and feet (Peyrot et al., 1999). When overcompensating for glucose levels by eating too little, exercising too much, or injecting too much insulin, patients will negatively impact their glucose levels by bringing them

undesirably low. Unhealthy low levels of blood glucose often result in diminished cognitive functioning, brain damage, delirium, and unconsciousness (Peyrot et al., 1999). There is also an increased risk of other autoimmune diseases and cardiovascular conditions that result from or with T1D, including celiac disease, hypertension, thyroid disease, and dyslipidemia. T1D can also cause microvascular complications, such as kidney, retina, and nervous system diseases (American Diabetes Association, 2015).

Individuals will likely discover they have T1D in their youth due to seeking emergency care regarding one of the symptoms of ketoacidosis, from visiting their primary care physician for an annual appointment, or because they are not feeling well. Once diagnosed, immediate care is needed to avoid severe complications. For children admitted to the hospital without diabetic ketoacidosis, they can be cared for on an ambulatory basis (Shulman et al., 2010). For those with diabetic ketoacidosis, comparatively longer-term hospitalization is required until the insulin insufficiency is stabilized. Unregulated, this malfunction progresses from dehydration, to ketoacidotic coma, and then death (Peyrot et al., 1999). This is troublesome because often individuals will not realize they are sick until the symptoms become extreme. It is also scary because death is a likely result of not recognizing the presence of T1D and of mismanaging one's diabetic health regimen. Patient education about T1D is critical. Successfully managing their illness includes knowing how it will affect their bodies, how to care for themselves, and how these things will change over time. While not always achievable, every child with T1D should have a treatment team encompassing a pediatric endocrinologist, a dietician, a nurse educator, and a mental health counselor trained in pediatric, diabetic education and care in order to help them overcome the many challenges they will encounter upon diagnosis (Silverstein et al., 2005). Psychological factors,

environmental factors, stress, and physiology need to be taken into consideration when treating T1D because they will affect metabolic control, the disease's course, and its management complexities (Dantzer et al., 2003).

Unlike type 2 diabetes, type 1 is genetic and is typically diagnosed in childhood (Peyrot et al., 1999). Due to certain similarities between type 1 and type 2 diabetes, the two often get used interchangeably, despite being very different. The result of this leads to further confusion, shame, and frustration experienced by those who are diagnosed with T1D because it is assumed they have poor eating habits and neglect their health, which are behaviors typically associated with type 2 diabetes. The shame surrounding being stigmatized in this way becomes internalized and causes a disconnection from the body (Roberts, 2016). One's identity is held separately from concepts surrounding his/her body, so that the body is seen as "other" and the source of the problem, even though one's mind, body, and self-concept are all intertwined. When properly managed, T1D is an invisible disease in that there will not be any noticeable symptoms. Scars from insulin injections sites will likely be covered with clothing and it is rare that insulin injections will be done publicly. As an invisible disease, T1D also causes emotional and psychological complications that may be unrecognizable to others. A sick person will also have varied feelings about his/her body: including, but not limited to, a lack of self-acceptance, the desire to hide his/her identity, not feeling safe in one's body, and being disconnected from the body (Roberts, 2016). Worrying about other people's responses to one's health status can compound and expand those feelings (Grey, 2011). Anxiety, stress, depression, and psychiatric morbidity can impact one's metabolic control due to feelings of hopelessness, an inability to adapt to

one's diagnosis, and an inability to adhere to the regimen requirements (Dantzer et al., 2003).

People can choose to reveal their health status, but in doing so, risk exposing themselves to undesirable responses from others. There is a need amongst people to feel accepted. "Abnormalities," like diseases, are undesirable and looked at condescendingly. Judgements and values get assigned to the people who have diseases, causing those individuals to feel stigmatized and excluded. Social exclusion can be especially detrimental in adolescent years as peers become a central source of support (Cohen et al., 1999). The fear of not being accepted often leads to intentionally ignoring blood glucose levels, skipping insulin injections, and eating food without accounting for it in their diabetic regimen (Grey, 2011). Should a person choose to reveal his/her illness, he/she could also experience ridicule, social isolation, social devaluation, disapproval, discrimination, and loss of safety (Roberts, 2016). Living with a concealable illness has cognitive, emotional, social, and physical ramifications. These effects will not be addressed when caring for T1D strictly from a medical model (Silverstein et al., 2005; Roberts, 2016).

Treating T1D involves multiple daily insulin injections, blood glucose monitoring, regulating food consumption, physical activity, regular visits to the doctor, and crisis management (Shulman et al., 2010; Dantzer et al., 2003). Because their bodies are not producing insulin, individuals with T1D have to inject it at one of three locations on the body: the stomach, arms, and legs. In order to determine the appropriate amount of medicine needed, they have to prick their fingers with a needle to test their blood sugar levels. This causes pain in the fingertips and other injection sites. Because of the necessity and nature of

the injections, this pain is unavoidable and never-ending. Caution also has to be taken so as not to expose themselves to any surrounding germs or contagious diseases/illnesses.

There is not one particular formula for determining a child's insulin requirement. Insulin requirements are typically reliant on age, body weight, and pubertal status (Silverstein et al., 2005). Maintaining a state of homeostasis, or as close to it as possible, requires puncturing the body repeatedly every day for life and living a stable lifestyle. However, it is particularly difficult for children and adolescents to achieve near-normal levels of blood glucose (Silverstein et al., 2005) because it requires in-the-moment calculations and making predictions about future results from those calculations. Physical activity increases circulation and makes the use of insulin more efficient, however, it also requires more frequent glucose monitoring and necessary adjustments to account for the improved efficiency (Shulman et al., 2010). Maintaining an insulin regimen can be daunting. Healthcare professionals are urged to recognize when diabetic regimens are distressing their clients and make adjustments to their care accordingly (Phillips, 2016). However, challenges may not always be noticeable, which means healthcare provisions will not be altered to account for those difficulties and their clients will suffer. Insulin infusion pumps provide much needed support, by absorbing a lot of the responsibility and stress of metabolic control. However, individuals interested in using an insulin pump must receive education prior to being considered for a trial. They are also quite expensive and are not always covered by healthcare providers (Shulman et al., 2010). Despite medical advances, T1D continues to be associated with significant death and morbidity (Dantzer et al., 2003).

Adolescence is a time of rapid developmental changes, including sexual maturity, identity formation, increased independence, and feelings of invincibility. Any unusual

complications, such as diagnosis of an illness, can compound the frustration and confusion experienced in response to new responsibilities, information, and abilities. Adolescents have an increased ability to self-reflect, self-correct, and self-regulate (Wagner, 2006). This improved self-knowledge can help them navigate abstract concepts, however, it can also leave them feeling overwhelmed by all of the changes they are experiencing. As a result, they are more likely to engage in poor decision-making and risky behavior (Wagner, 2006). Self-esteem and body image are other factors affecting adolescents. When an illness causes physical discomfort, disfigurement, disability, or delayed development, it will often disrupt and inhibit the healthy formation of an adolescent's body image, self-image, and self-esteem (Cohen et al., 1999). Female teenagers with T1D commonly experience depression, higher BMI percentiles, body image concerns, and eating disorders and disturbances (Shulman et al., 2010; Kakleas et al., 2009). Children and adolescents with T1D are often referred to psychiatrists or psychologists for behavior management in relation to treatment compliance, diabetes-related stress and anxiety, diabetic control, and social and coping skills (Kakleas et al., 2009). However, there is also a prevalence of psychological disorders amongst children with T1D including anxiety disorders, eating disorders, major depressive or dysthymic disorder, behavior disorders, adjustment disorder, and adjustment disorder with depressed mood. Individuals with T1D are more likely to have longer bouts of depression, and girls with T1D are more likely to have recurrent episodes of depression. Children with T1D tend to have psychological symptoms for at least 12 months after diagnosis. Not every child with T1D will have a psychological disorder, however, physical and somatic effects may still occur even if an individual has not sought mental health counseling (Dantzer et al., 2003). Therefore, an optimal diabetes regimen, including mental health management, is

extremely important across one's lifespan, which could prevent suicidal ideation and suicide attempts caused by depression, anxiety, and other emotional disorders (Kakleas et al., 2009), thereby extending life expectancy and quality of life (Kaplan, 1990).

Forming an identity is an important milestone in adolescence, which is dependent upon social and emotional experiences (Wagner et al., 2006). Adolescent identity-formation sets the foundation for future endeavors and relationships. Finding a balance between familial and peer relationships is an important process in adolescents discovering who they are and who they can rely on. School, extracurricular activities, and social engagements become increasingly important as they continue to shift between parental conflicts and stronger peer relationships. Having an illness can be especially frustrating and challenging because people tend to take their frustrations out on loved ones and/or those closest to them (i.e. family members). As one's health declines, the family dynamic may change as well. If familial relationships become compromised, one's family will no longer be a source of support. Having a chronic illness can also interfere with one's social ties, which are an integral part of survival. Sick children are often absent from school, fall behind in schoolwork, and drop out of extracurricular activities as a result of their illness, which causes them to feel isolated, overwhelmed, inadequate, and alienated (Cohen et al., 1999). Because school is also a social environment, being absent from school can cause further social decline. Unfortunately, strained relationships, substance abuse, smoking, promiscuity, and psychiatric and behavioral disorders are also common amongst adolescents with T1D (Kakleas et al., 2009).

Like many things in life, difficult experiences can be overcome with resilience and protective factors. Protective factors fostering resilience often include familial and peer

relationships, which is why it is so important to repair strained relationships as early as possible. Resiliency factors can help adolescents successfully move through adolescence into adulthood (Wagner, 2006). The successful navigation between adolescence and adulthood can be interfered by the emergence of trauma. If the trauma isn't being resolved adequately and appropriately, the could lead to maladaptive behaviors and an inability to adjust to new hurdles that occur over time. Being able to adapt to life's changes after diagnosis is extremely important for medication adherence and longevity of life (Dantzer et al., 2003).

Seventy-five percent of all individuals with T1D are diagnosed before the age of 18 (American Diabetes Association, 2015). Adolescents with type 1 diabetes often endure psychologically and physiologically chaotic lives while trying to manage an ever-changing care plan, family guidance, and autonomy. Compared to teenagers without T1D, those with T1D report feeling less satisfied with life and less healthy (Faulkner, 2003). They also perceive declines in self-worth, physical appearance, sociability, and humor (Dantzer et al., 2003). Newly developing formal thought processing provides adolescents with the ability to consider issues regarding quality of life and premature death, which healthy adolescents do not usually consider. They want to be involved in making decisions regarding their treatment plans, however, they commonly neglect their therapeutic regimens despite the health risks (Cohen et al., 1999; Wagner et al., 2006; Silverstein et al., 2005). Feelings of incompetence affect how closely one's diabetic regimen is adhered to, thereby causing further impaired metabolic control (Dantzer et al., 2003). Furthermore, if children's parents are managing the details of their insulin regimen, then they may not have the desire or need to take control of it themselves. Ideally, children and adolescents are expected to achieve and maintain complex,

glycemic controls, but are oftentimes not equipped with the skills to manage their illness based on their developmental level (Grey, 2011) and because of their physical and hormonal changes (Silverstein et al., 2005). Adolescents and younger children may also be unable to sense and articulate the hypoglycemic changes occurring within their bodies, therefore diabetic care plans need to account for this “hypoglycemic unawareness” (American Diabetes Association, 2015). In order to properly and effectively recognize and manage glycemic fluctuations, youths with T1D and their caregivers should receive diabetes self-management education and support that caters to their cultures and developmental stages (American Diabetes Association, 2015). These activities should be reevaluated and altered over time and as the children transition to adulthood.

Knowing about and caring for one’s diabetes should be done with more than just a cognitive-behavioral perspective. Biomedical and psychosocial treatments need to be integrated in order to achieve the highest success in diabetes management (Kakleas et al., 2009; Peyrot et al., 1999; Grey, 2011) because adolescents with diabetes have been shown to suffer from internalizing symptoms, somatic symptoms, compulsions, depressed mood, and sleep disturbances (Dantzer et al., 2003). These factors interact with each other and account for significant variance in the glycemic control of patients with type 1 diabetes (Peyrot et al., 1999). Education is not the only approach that needs to be provided to youths with diabetes. Coping skills and behaviors fostering self-management are crucial for children and adolescents hoping to achieve glycemic control and autonomy (Grey, 2011). The use of creative expression allows those with diabetes to make meaning out of their diagnoses and express a range of emotional states (Stuckey, 2009). One’s management of diabetes should incorporate the psychological, emotional, and spiritual components as well, not only the

medical aspects. Being diagnosed with a chronic illness incites anger, frustration, shame, and sadness. These feelings get entangled into their self-identity, which cannot be fully diagnosed or understood solely from a medical perspective. Creative expression provides new insight into their diagnoses and into how their diagnoses affect their physical, mental, social, and emotional well-being (Stuckey, 2009; Anderson et al., 2014; Cohen et al., 1999). Because multiple variables affect metabolic control, a biopsychosocial clinical model is the best approach to address the numerous factors involved in treating T1D (Dantzer et al., 2003).

Young people with T1D are encouraged to have familial assistance and a multidisciplinary team fostering a supportive and healthy physical, psychological, and social environment that assists in achieving metabolic targets (Shulman et al., 2010). Individuals with T1D should be at the center of diabetic decision-making and goal-setting while working with their families, the specialist, and the primary healthcare team (Phillips, 2016). This is especially true when taking adolescents' developmental and social needs into consideration. By imparting healthy habits in their children, supportive families can extend healthy functioning to the future, because one's concept of health includes current functioning, the likelihood of future changes, and the probability of death (Kaplan, 1990). Adult support and supervision will continue to be important factors in managing their children's diabetes because adolescents will still need assistance making decisions about insulin adjustments and may engage in risky behaviors and experimentation (Silverstein et al., 2005). Therefore, the transition to independent diabetes management should occur gradually, until children are able to make better decisions about their needs and until they become more reliable. Once the successful transition of diabetic control has been made, hopefully the youths' quality of life

will improve. Quality of life has less to do with physical well-being, but is more of a psychological construct, which includes body image, self-efficacy, and social, emotional, mental, and physical functioning (Goodill, 2005). Children with chronic illnesses, like cancer, asthma, and Turner's Syndrome, have dealt with similar issues and have improved their quality of life through the use of dance/movement therapy (DMT) (Goodill, 2005).

DMT is a psychotherapy that uses dance and movement to help clients address their needs and challenges in a way that fosters self-awareness, social integration, self-discovery, and personal growth. With other populations, DMT has improved body image, psychosocial functioning, stress management, self-awareness, problem-solving skills, coping mechanisms, and quality of life (Bräuninger, 2014). DMT can certainly do the same for individuals with T1D, and yet, this population has been overlooked from DMT practice and research. Individuals with T1D must experience increased feelings of neglect, isolation, hopelessness, and alienation due to not having all of the therapeutic options available to them. Support groups and therapeutic interventions (other than seeing a psychiatrist) are either nonexistent or difficult to join. Individuals recently diagnosed with T1D can immensely benefit from socializing with other people who are similarly diagnosed. Getting to know and learn from others must be an invaluable resource in providing education and hope. By addressing and improving mental health and perceptions, dance/movement therapists can improve the perceptions of adolescents with T1D about their overall health and its manageability.

Diabetes management needs an expansive treatment team to help address the physical, emotional, behavioral, and psychological issues that arise after diagnosis (Silverstein et al., 2005); and that integrated team should include dance/movement therapists. From diagnosis and throughout life, person-centered care for individuals with T1D is

essential because it promotes education, self-managed glucose levels, decision making about diabetic care, and minimizes the likelihood of complications (Phillips, 2016). While dance/movement therapy cannot replace insulin monitoring or injections, it can help children and adolescents cope with their illness and manage the resulting aspects of having T1D. It is common practice for adolescents with T1D to be referred to a psychiatrist or psychologist (Kakleas et al., 2009), which can be an embarrassing and shameful experience. If children are having a difficult time adjusting to living with a chronic illness, they might feel as if they are a failure or doing something wrong because they need help. A psychiatrist or psychologist, in turn, becomes another authoritarian figure who makes one-dimensional judgements about their lives. Adolescents do not need to experience any added shame in their lives, therefore therapeutic interventions should be supportive and encouraging. DMT uses a strengths-based approach to client care: therapists see beyond their clients' illnesses, recognizing the whole person. They acknowledge the clients' changes, challenges, and limitations, but also support and encourage their strengths, abilities, and individuality. Having a client-centered and strengths-based approach is especially important when dealing with clients who feel like they are "wrong" for being unable to comply with treatment, for being different, or for being undervalued as a person in comparison to their diabetes regimen (Stuckey, 2009). In particular, groups with adolescents need to be strengths-based in order to be successful because it provides them with the opportunity to recognize that they have resources to improve their own lives (Malekoff, 2014). DMT brings the attention back to the clients as individuals, rather than the label placed upon them, and provides them with the opportunity to make decisions, be creative, and have fun in sessions. The use of play provides clients with a sense of freedom, fun, a desire to return to sessions, an escape from

their everyday lives, and an appreciation for life and others. This is all done while addressing and uncovering issues that initially lay out of the clients' reach. Play, distraction, and breathing techniques are all elements of relaxation used in DMT sessions to reduce tension, anxiety, and judgment (Levy, 2005). When they are less guarded, adolescents with T1D will have an increased ability to acknowledge their thoughts, recognize their feelings, and sense their bodies. This inner insight will eventually lead to the exploration of stimuli, both internally and externally. Once this occurs, they can begin to make revelations about what they just experienced, which will help provide them with an understanding of their relationship to their diagnoses on the road to healing (Stuckey, 2009).

On a developmental level, physical activity helps people acquire and integrate experiences (Goodill, 2005), so that by moving in DMT sessions, adolescents can learn how having T1D affects their bodies and lives beyond insulin regulation. They can begin to understand their relationship to the disease and integrate it into who they are on a body-level, thereby coming to terms with their diagnosis and gaining acceptance of it. Once they have begun to accept who they are as individuals with T1D, they will be more likely to adhere to their medical regimens and have a positive outlook on life. Individuals with diabetes have benefited greatly from creative expression because it allows them to express their unique experiences, share deeply felt issues, as well as construct and deconstruct the meaning of what it is like to live with diabetes (Stuckey, 2009). DMT allows clients to express themselves freely and creatively, without fear of confrontation, judgment, or feelings of inadequacy. This creates an environment for clients to openly share their personal truths that they may not have admitted ordinarily and may not even be aware of themselves. Therefore, there is an inherent liberation of physical and emotional responses, thereby fostering

spontaneity, joy, hopefulness, inner determination, cardiovascular and neuromuscular stimulation, and improved breathing (Espenak, 1981). The physical aspect of DMT provides a revitalization, which restores a sense of pulsating life for its clients. When adolescents with T1D move within a DMT session, they will be able to improve glucose utilization (Schulman et al., 2010) and reclaim a zest for life that may have been lost when they were diagnosed. Utilization of DMT also provides these clients with an opportunity to alter their mood, develop verbal expression of experiences, and find a sense of safety, thereby leading to a more successful meeting of treatment goals (Anderson et al., 2014).

Adolescents are a notoriously challenging group to work with because of their rollercoaster-like emotional states and paradoxical wants and needs, all the while demanding to be treated as a whole person (Malekoff, 2014). They need to be treated in a way that is not patronizing but will acknowledge their capabilities and individuality. Individuals working with adolescents need to be open, flexible, humble, humorous, hopeful, determined, realistic, and grounded in order to reap the most benefits from their work together (Malekoff, 2014). When working with adolescents, dance/movement therapists must provide a supportive environment which will allow them to navigate their shifting desire to be both independent and dependent (Cohen et al., 1999). DMT sessions often incorporate the Chacian circle, conceptualized by DMT founder Marian Chace, by positioning the clients and therapist in a circle, because it minimizes the hierarchical levels amongst group members and between member and facilitator (Bräuninger, 2014). All participants are co-creators in the therapeutic process within a DMT group session. This even playing field supports the adolescents' uniqueness, desire to shift between being in control and relinquishing it to others, desire to be seen while being able to blend into the group, and spontaneity. DMT creates a container for

clients to explore life's challenges, to identify reality more clearly, and to find tools that will better serve them in the world.

Along with shirking and embracing responsibilities in this developmental stage, there is also the oscillation between wanting to be seen and wanting to hide, especially when an adolescent is dealing with a chronic illness. The presentation of self can become a major priority. One's body image and self-concept may become distorted. The properties of body-image are based upon the way a person perceives his or her body, so that when things are going well, the body acts in kind and appears well, too (Pylvänäinen, 2003). One could only imagine how a teenager going through hormonal changes must view his or her body once diagnosed with T1D. It is not likely regarded in a positive light. Visual and somatic experiences also inform self-perceptions, which are likely to include T1D. So, if teenagers with T1D are unhappy, ashamed of their bodies, and feel unhealthy because of their diagnoses, then their bodies will surely reflect it. Body image and unpleasant bodily experiences (i.e. insulin injections, rapid weight loss, and mood swings) will likely be visible to others in the form or structure of their bodies. When a person's body appears narrower and more contracted than it did previously, there is an implication that this person is distrustful of the environment, deprived, and closed off from others (Kestenberg-Amighi et al., 1999). It is also likely that he or she will display a compression of the body, appearing shorter, and a shrinking inward, appearing hollow. Shortening is associated with feeling ashamed, depressed, and withdrawn; while hollowing suggests a longing to rid oneself of something (Kestenberg-Amighi et al., 1999). By moving in a DMT session, clients are physically able to recognize and acknowledge their concerns regarding body image and how it has affected the way they carry themselves. Body image no longer remains a challenging,

abstract concept, and therefore can be explored and improved within a DMT session (Cohen et al., 1999). Moving, listening to bodily messages, and breathing are good practice for generating bodily well-being (Aposhyan, 2007).

Mind-body connection, or mindfulness, is one of the cornerstones of DMT. It can help adolescents gain self-awareness, achieve self-acceptance, repair self-image, and improve decision-making skills. In addition, mindfulness/mind-body connectedness supports the exploration and identification of different emotions, which will help adolescents more easily regulate their emotions. Mindfulness can foster the successful attainment of one's goals and strengthen one's resilience (Wagner, 2006). In dance/movement therapy, one of the ways to facilitate mind-body connection is through the use of breath, which provides a sense of self-awareness and awareness of others in a group (Callahan, 2011). Because adolescents with diabetes often have their attention primarily focused on their diagnosis, they may be unaware of their own thoughts, feelings, and moods. By focusing on their breath, they can expand awareness and send energy to parts of the body that may be restricted or neglected (Hartley, 1995). Directed breathing revitalizes those areas and improves their functioning.

Invigorating the cells of the body, or the insulin injection sites specifically, would give adolescents with T1D a new somatic experience post-diagnosis, inspiring feelings of potential body vitality and capability. A somatic experience, such as this, could in turn improve their body-image by replacing conceptions like failure and impairment with energy and renewal.

DMT provides adolescents with the forum to use movement as a means of expressing what they cannot verbalize, which is important because restricting emotional energy has debilitating effects on the body (Hartley, 1995). DMT focuses on the functional,

interpersonal, and symbolic aspects of movement (Goodill, 2005). DMT's use of imagery and creative themes provide a foundation for self-expression, diagnosis, and individual insight (Levy, 2005). Moving authentically under the directive of a theme, fantasy, word, or phrase, clients may elicit different emotions, which can be explored, drawn out further, and discussed. DMT can help individuals avoid the other negative experiences and comorbid diagnoses resulting from T1D and its mismanagement. Using imagery while breathing can be a useful intervention aimed at improving self- and body-image. One example would be to allow the clients to focus on their breathing, noticing the different sensations they feel and which body parts move in response. Once enough time has been offered, they can be encouraged to imagine their breath spreading throughout their entire bodies with every inhale. They should allow themselves to feel what it is like for each body part to be filled up, especially the places that are harder to feel or are seemingly too dark to make contact with. Once the clients are able to perceive these different areas breathing, they will be provided with a sense of peace and inner stillness (Hartley, 1995). Going further, they would be encouraged to imagine themselves getting longer, wider, and fuller with each inhalation. In time, their bodily structures will begin to manifest these directives. As their bodies get longer, they can begin to associate themselves and their bodies with a sense of pride and capability. As they get wider, they will project openness, acceptance, positivity, and trust. Finally, as they begin to become fuller, or bulge, they will exude a sense of gratification and self-satisfaction (Kestenberg-Amighi et al., 1999). Because the mind and body have a mutual effect on each other, these new postures can help improve these adolescents' body image and self-esteem by focusing on their breath using guided imagery.

DMT focuses on the bi-directionality of the relationship between one's mind and body: what happens to one affects the other (Goodill, 2005). Medicine and insulin can treat the disease, but individuals with T1D also need to treat their minds, which affect their bodies, moods, medication adherence, and social engagement. DMT does not only address one aspect of the individual, it revitalizes the whole system. Furthermore, because DMT helps bring self-awareness to clients, adolescents with T1D will be less likely to fall victim to "hypoglycemic unawareness." They will be more in tune with their bodies and more capable of recognizing glucose changes in their bodies. DMT employs different movement techniques and methods of assessment to help diagnose and treat clients. The Kestenberg Movement Profile (KMP) is a tool that looks at an individual's movement preferences, developmental level, ways of engaging with others, and psychological synchrony and struggle (Kestenberg-Amighi et al., 1999). Therapists working with adolescents need to recognize the duality of adolescent existence as not quite an adult, but more than a young child; these polarities in identity and development need to be worked with and honored (Malekoff, 2014). Dance/movement therapists are inherently observant about polarities and paradoxes as they are expressed verbally, emotionally, physically, and socially. They are trained to notice these differences and develop interventions through movement and verbalizations in order to help the clients recognize, process, and, when necessary, improve them. Using the KMP, dance/movement therapists can explore movement polarities and the clients' strengths and weaknesses as a means of achieving adaptability and acceptance. Ultimately, clients will learn to cope with their T1D on a body level, and, due to the connection between mind and body, coping can be achieved on the mental, emotional, and social levels as well.

Dance/movement therapists are trained to recognize body positioning, muscle tension, and body shape. Paying attention to nonverbal cues provides valuable information about emotional state, physical needs, resistance, metaphors, and social roles (Goodill, 2005; Bräuninger, 2014). By assessing clients' movement patterns, rigidity, limpness, body shape, and shape flow, dance/movement therapists are able to develop interventions that provide relaxation and creative expression, which provide body comfort and improved movement flow (Goodill, 2005). Increased body comfort leads to body acceptance and improved body image. Improved movement flow allows for an adaptability in movement and life, which is especially important for adolescents with T1D because living with a chronic illness is a major adjustment and their metabolic regimens are constantly in flux. Movement analysis tools, like the KMP, assess clients' movement patterns and use them to develop interventions in order to help children cope with medical interventions, their diseases' progression, intensive care, stressed families, and recovery from surgery, among other aspects of their experience (Goodill, 2005). These interventions are effective and usually simple enough to be used outside of a DMT session, so that clients are able to feel relaxed and move freely in any situation or environment. This will be extremely useful during times of stress and frustration not uncommon to most adolescents, but especially to adolescents with T1D. When looking at body attitude, dance/movement therapists can infer meaning about the ways in which their clients approach others and navigate through life. These inferences can be explored and expanded within the context of a DMT session, so that clients can become more comfortable in their own bodies, while engaging with others, and while expressing themselves. Because identity formation is an important developing factor in adolescence (Wagner et al., 2006), it becomes increasingly important to help them navigate their self-concepts and interpersonal

roles because this sets the foundation for who they will become and how they will live their lives in the future.

Children with type 1 diabetes need to have their social needs met in order to combat exclusion, shame, stigmatization, and absenteeism. Adolescents with T1D are especially sensitive to and dependent on social ties because their peer relationships help mold their developing personalities. When DMT incorporates the use of working in duos, non-verbal communication is used to explore movement qualities in interaction, role play, and "try on" other people's experiences (Levy, 2005). Contrasting movement dynamics and abstract role relations lead to emotional and social understanding about their interpersonal relationships with others. The structure of DMT in the group setting can provide individuals with social support and a social network, especially when they are feeling abandoned or isolated (Callahan, 2011; Akunna, 2015). It fosters communication and openness with others in the group, equipping adolescents with an increased ability to communicate fully with others, especially with their family members who may or may not be involved in the therapeutic process. Being able to turn one's attention inward can be scary and threatening, therefore it is important that adolescents feel a sense of trust and safety established by the dance/movement therapist. Being amongst similarly diagnosed and like-minded individuals is also conducive to internal exploration and social acceptance. Integrating rhythmic movement can be a unifying experience for the group. Although there are many ways to incorporate rhythmic activity into a group session, one way this could be done is by having everyone listen to a song with a strong rhythm and allowing them to move to the music in their own way or by having everyone find the rhythm together with a specific, shared movement (e.g. clapping their hands or tapping a pool noodle on their legs to the beat of the

music). Symbolism, body action, and kinesthetic empathy are other DMT interventions that promote connectivity, communication, and expression (Bräuninger, 2014).

While adolescents with T1D can certainly be cared for successfully with individual DMT sessions, the most progress and healing would be done by receiving DMT treatment in a group setting. That is not to say that the individual is lost in a DMT group setting because individual goals are still being worked on and dance/movement therapists recognize and encourage the individual's unique importance to the group. In a DMT group geared towards adolescents with T1D, the larger, overarching goals for the group could be mastery of new skills, the ability to adapt to changes, positive regard for their bodies, and improved self-expression. By using mutual support, the adolescent group process provides hope, perseverance, persistence, team-building, and self-sustenance (Malekoff, 2014). Sharing a movement group together, these children can begin to see that they are not alone, that there are others dealing with similar issues, and that they have the capacity to deal with their issues in a safe and healthy manner. Rather than feeling isolated and reverting to maladaptive behaviors (e.g. drinking alcohol or eating without taking the necessary precautions), DMT group members can learn appropriate coping measures in a space where they are respected, valued, and supported by their peers and therapist. The group's process needs to be learned from the inside out and the outside in, factoring in the therapist, the client, and the context of the situation in order to have a fully functional, innovative, improvisational, and collaborative group (Malekoff, 2014). Dance/movement therapists often run groups with felt information gained on a body level and learn from the clients with which they work. In this way, dance/movement therapists run groups so that spontaneous development can arise with input and contributions from their clients. Without group development and theme

progression, sessions become stagnant and ineffective, therefore, it is of great benefit that dance/movement therapists are able to shift between verbal, non-verbal, directive, and empathic leadership styles to control the pacing of the group (Bräuninger, 2014).

For adolescents with T1D who may feel like others could not possibly understand what they are going through, mirroring is a powerful technique used by dance/movement therapists. Mirroring is the imitation or mimicking of another person's physical movement or body posture. It can also involve an imitation of an emotional quality supporting the movement. A representation of another person's physical and emotional actions needs to be created not only on a physical level, but in the brain as well (McGarry et al., 2011). Therefore, dance/movement therapists can connect to their clients physically and mentally by recognizing which intentions underlie their clients' actions. Because mirroring creates an empathic connection and encourages empathic reflection (Bräuninger, 2014), dance/movement therapists can build strong therapeutic relationships with their clients. When mirroring is shared amongst members of the group, everyone involved can begin to experience self-awareness, awareness of others, a shared connection, and empathy. Empathy is used by dance/movement therapists in a way that creates a comfortable environment for clients to explore difficult feelings. The shared experience of togetherness establishes a relationship between the client and the therapist, thereby fostering an opportunity to process and express a range of complicated emotions (Philpott, 2013). This is crucial in dealing with resistant clients, because a therapist's empathy will help avoid a standoff, by acknowledging their resistance while simultaneously finding a way to be sensitive to their needs and overcoming their grief over loss (Bernstein et al., 1989) of a “normal” life. Rather than pushing clients away or colluding with their reluctance or

inability to address their feelings, dance/movement therapists have the tools to help clients work through challenging areas and provide the safety for them to do so.

Dance/movement therapists work directly with the body, and so, touch is more likely to occur, intentionally or unintentionally (Willis, 1987), as a means of interpersonal connection and as a therapeutic intervention. As a body-based approach, DMT is structured around recognizing and processing what is felt and understood on a body level. While not incorporated into DMT sessions universally, touch is used to facilitate movement, expand movement potential, reorient clients to the present, offer social engagement and connection, and lend emotional support. People tend to shut down a part of themselves in order to receive touch (Aposhyan, 2007), which can be seen when receiving a massage or being looked at by a physician. To be touched in this way means people will shut down or suppress a natural reaction to physical contact regardless of whether or not the experience is pleasurable. Similarly, a person injecting himself must momentarily shut down as well, in order to prepare for the injection and muffle the reaction to it. Whether in response to the pain or something else, there is a disconnect that occurs, further breaking down the connection between body and mind. This desensitization, while seemingly good, could cause disconnects in other areas of their lives. They could compartmentalize their illness to certain times of day or to just the body and not the self. The full effects of the disease would not be addressed, they may start think that shutting down is a useful, social tool, and they could begin placing limitations on themselves without realizing it. T1D is a part of who these adolescents are and it needs to be monitored consistently; therefore, it is not healthy to separate themselves from their illnesses. Self-acceptance can only come as a result of fully integrating perceptions and realities about T1D into their mind-bodies. Enduring

uncomfortable, physical contact runs counter to the body's natural instincts (Aposhyan, 2007), which is why it is important to come to terms with one's diagnosis by finding ways to address the negative response to touch and alleviate the pain associated with injections without shutting down or disconnecting from the body or reality.

Adolescents can ground, or stabilize, their hormonal changes through the use of touch (Aposhyan, 2007). Similarly, they can use touch to yield and acclimate to the changes they have experienced from being diagnosed with T1D. In DMT, touch is an integral part of the healing process because it provides cohesion (Willis, 1987). When clients touch themselves within a DMT session, they become more aware of who they are and what it is like to touch and be touched. Self-touch is informative, nurturing, and safe. Clients can explore self-touch by using their hands to massage, stroke, or tap their skin covering different body parts. In the group setting, touching others becomes an experiment in connection and relation to others. If being touched by others is uncomfortable, group members can use props, such as scarves and feathers, to experience touching and being touched by others. With a dance/movement therapist, touch can help establish a therapeutic alliance. Embodied and therapeutic touch helps clients explore being nurtured, relationships, pleasure, sexuality issues, and boundaries in a safe context (Aposhyan, 2007).

The skin is a sensory organ that covers our entire bodies. Unlike other sensory organs, the skin is continually sensing its environment. The continual, sensory perception of touch is vital in developing a continuity of self, so that one can develop an adaptable and stable ego (Hartley, 1995). Therefore, if the continuity of perception is shut down or muted, it could have similar effect on one's identity and sense of self, thereby interfering with the healthy development of one's ego. The skin is also the organ responsible for our appearance,

affecting the way in which we present ourselves to and are perceived by the world (Hartley, 1995). If something happens to damage or impair the skin, or if there is a negative association with the skin, then that will affect the way we present ourselves to and are seen by others. With adolescents, it becomes crucial to differentiate between their own thoughts, feelings, and experiences from the way they are viewed and labeled by others (Malekoff, 2014). Although the scars from most needle injections are covered up by clothing, adolescents with T1D can still have negative thoughts and painful associations with their skin. They could even feel ashamed during times when they have to remove their clothing in social situations (e.g. going to the beach and changing in locker rooms). They could be more likely to separate themselves from others, refrain from participating in activities, and avoid touch altogether. Infants thrive from human contact; it is a biological and social need for humans to be held and touched (Hartley, 1995). If adolescents with T1D are cutting themselves off from human contact, then they are robbing themselves of a biological and social need, one that ultimately helps establish who they are. It is the body's primary boundary and container, separating others from the self and holding everything in. Given the elastic, permeable, and sensitive nature of the skin, it acts as both a boundary and a bridge between our inner world and the outside world, allowing us to sense and learn about both at the same time (Hartley, 1995). Bringing awareness to the skin helps clients establish their physical boundaries, boundaries with others, and boundaries in life. In this way, therapeutic touch in a DMT session supports identity formation, independence, and provides self-awareness. It can help adolescents with T1D come to terms with their diagnoses, remain present, and feel safe, which will facilitate regimen adherence.

As discussed earlier, when touch is used as a therapeutic tool, it can help adolescents with T1D reorganize sensations in response to physical contact, especially as it relates to being poked and prodded by injections and physicians. In a DMT session, adolescents with T1D can rub their hands together, generating warmth, and place them on their injections sites and other parts of their bodies. They would be encouraged to send physical warmth and kind, loving thoughts to those areas. They can begin to have familiar and pleasurable associations with their bodies, thereby offsetting the negative perceptions that they have begun to develop. Adolescents with T1D can also explore support using touch in a DMT session. The amount of physical support can be titrated in the session to account for feeling uneasy or overwhelmed. Either by holding a body part or leaning against one another, they can take turns feeling what it is like to be supported and to support someone else. These exchanges will have real-life, interpersonal implications. This can be explored in a DMT group of adolescents with T1D or with family members to help maintain and strengthen familial roles as they develop over time and with shifting levels of responsibility. Using supportive touch can help adolescents with T1D recognize that they are not alone, that they can rely on others, and that they can support themselves and others, thereby addressing feelings of incompetence (Dantzer et al., 2003), isolation (Roberts, 2016; Cohen et al., 1999), and shifting desires to be dependent and independent (Cohen et al., 1999).

In summary, Type 1 diabetes is a chronic disease that requires daily monitoring and lifestyle changes. T1D is usually diagnosed in early adolescence, when many developmental changes are beginning to occur. Adolescence, in and of itself, can be challenging enough without the added burden of a scary and lifelong diagnosis. While living with T1D has become more manageable with medical advancements, there are concerns outside of insulin

regulation that may be less noticeable and are not being managed. These include low self-esteem, impaired body image, risks of psychological disorders, and an inability to adapt to life's challenges. Dance/movement therapy can help address and improve the physical, social, emotional, and cognitive effects that come from being diagnosed with T1D in adolescence. The support of a dance/movement therapist can help adolescents with T1D begin to feel safe in their bodies, express themselves more efficiently, become more flexible with life changes, cope with their illness, adhere to their medical regimen, and gain acceptance of their diagnosis, their bodies, and themselves.

In the group setting, DMT offers social awareness, inclusivity, peers with the same diagnosis and of similar age, acknowledgement, and acceptance. At a time when adolescents thrive from being seen as an individual while being part of a group, DMT provides the forum for adolescents with T1D to be supported while navigating between shifting roles. As a strengths-based and individually focused approach, DMT sessions highlight the clients' abilities and unique contributions to the group, so that adolescents with T1D can begin to recognize their own capabilities, strengths, and worth. This therapeutic modality ultimately lays the foundation for its clients to be and feel capable of effectively managing their own care.

Specific DMT interventions are well-suited to caring for the multifaceted needs of adolescent life, especially as it relates to having T1D. Breathing exercises promote awareness of others, positive body image, mind-body connection, and self-awareness. DMT encourages self-awareness in order to help adolescents differentiate side effects from uncontrolled diabetes as opposed to other physical causes. Working with the skin and touch in a DMT session provides adolescents with T1D an opportunity to feel supported, reclaim

positive associations with their bodies, and explore physical contact with others. There is also an opportunity for these adolescents to take the time to show appreciation and thanks for their bodies, even though they may be different or sick. Integrating DMT as part of the treatment team for adolescents with T1D can support better control of their illness and promote a healthier transition through adolescent challenges and diabetic health risks, thereby allowing them to become competent, secure, independent, and healthy adults.

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