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## Dance as a Remedy of Lifestyle Medicine, a Cultural-psychophysiological Approach

### A tánc, mint életmód-orvoslás gyógyszere, kulturális-pszichofiziológiai megközelítés

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#### Abstract

Dance is a traditional element of cultural-psychophysiological homeostasis. The chapter approves the role of dance in maintaining mental and bodily health. As dance is deeply cultural by its nature, it is worth to extend its framework of healing from social-psychophysiological towards the cultural. The chapter explores the cultural, social, the psychological, and bodily benefits and homeostatic functions of dance in an age of sedentary lifestyle. Sedentarism proved to be a silent killer responsible for increased cardiovascular, oncological morbidity and mortality; therefore, one should explore the lifestyle medical gains of dance along the whole life course. We explore the PNI-related and neurological aspects of endocrine functions of active muscle and its role in the prevention of chronic diseases and aging. Dance also proved to be beneficial in mental health problems. We pay special attention to Hungarian folk dance revival, the so-called Táncház (Dance House) movement, and its practical potential in physical and psychological health protection, social skill development, gender socialization, and personal development.

**Keywords:** sedentarism, lifestyle medicine, dance and motion therapies, medical anthropology of dance, Dancing House movement,

**Kulcsszavak:** szedentarizmus, életmód orvoslás, tánc- és mozgásterápiák, a tánc orvosi antropológiája, Táncház és mozgás

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#### 1. Introduction

Sedentarism is a severe risk factor, which must be balanced by proper daily physical exertions. Lifestyle medicine helps to control risk factors of cardiovascular disease, diabetes mellitus, oncological diseases, and mental disorders occurring in older age. In the forthcoming chapter, we search the place of the dance in the world of biomedicine and the role of dance in supporting and recreating mental and bodily health, especially in risky and disabled groups. Medical anthropology of dance helps to uncover hidden and overt healing functions of dance in different socio-cultural contexts. Physiological and psychological explanatory models of dance therapy are discussed in different settings and different dance and motion therapies. Beyond the obvious somatic benefits, dance might be applied in health care as a complementary psychotherapeutic method, not only in mental diseases, and disabilities, but in social suffering and in growing circle of somatic diseases, too. Finally we examine the cultural and historical roots of lifestyle medicine and the role of the dance in it.

### 1.1. Homo Sedens and his/her fate

Sedentarism became a silent killer in our society. Our artificial, technological environment enables us to reach our aims with a minimal physical effort, cars, elevators and escalators keep us away from the minimal bodily exertion. People spent 55-75 percent of the daily wakefulness in a sitting position. An average of six hours of continuous sitting per day shortens even the lives of otherwise active and seemingly fit people by five years. Continuous sitting, inactivity is harmful even if someone exercises regularly. In 2010, a research team from the American Cancer Society processed 14-year follow up study including 123,000 middle-aged adults led by Patel et al. [1<sup>1</sup>] Researchers compared the mortality rate of those who sat six hours or more a day to those who spent less than three hours in a sitting position. Extra time spent in the armchair increased the mortality rate of women by 37 percent and 17 percent for men. The WHO estimations connect 3,2 million death to sedentarism annually. Type 2 diabetes 2, cardiovascular disease, colon cancer, postmenopausal breast cancer, dementia, and depression are a group of diseases in which physical inactivity is involved.

In the near future, the internet of things, artificial intelligence robotize and destroy physical work activity of hundreds of millions. In this dystopia of coming brave new world of volatility, uncertainty, complexity, and ambiguity (VUCA world) high cognitive strain, the challenge of high and permanent psychosocial-cultural adaptation load create strains, and this expanding sedentarism diminish the personal stress resilience weakening the bodily resources. Sport, growing leisure time offer proper balance and resistance. The health industry reficated sense of health and translated it to the daily number of steps, kilometers, calories, summed on the micro screen of smartwatches and smartphones, which help us to correct the consequences of our laziness and sedentary lifestyle. This inevitable progress can be a blessing and curse, bringing solutions and challenges at the same time, as always. However, the rational insights do not help or do not change human nature, pure on their rational offers. Intensive health promotion the Millennial turn in the

US did not change health behavior of the US citizens at all, King and colleagues [2<sup>2</sup>] showed how lifestyle choices and adherence to healthy lifestyle habits associated with cardiovascular disease and mortality were changing between 1988 and 2006. The sad conclusion proved the fact that despite the intense health promotions in the American society, the adherence to a healthy lifestyle pattern has decreased during the analyzed 18 years. At least 3 of 5 healthy lifestyle habits were also decreased. In numbers, the obesity measured by BMI (25kg/m<sup>2</sup>) grew from 28% to 36%, the average sufficient physical activity (150 minutes /week) fell from 53% to 43%., fruit and vegetable consumption (5x daily) fell from 42% to 26%, smoking rates have not changed (26.9% to 26.1%); while moderate drinking behavior elevated from 40% to 51% and adherence for the five health habits diminished from 15.8% to 8.2%. These sad tendencies were particularly proper to the patients suffering from ischaemic heart disease, hypertension, diabetes, and hypercholesterolemia. The most important of these health factors, is the physical inactivity, which is the key problem of the above described sedentary lifestyle turn. Staying attached to the screens of virtual reality, locked to cyberized social withdrawal minimizes the spontaneous physical activity creating another dimension of health deficits especially in the overpopulated world, where artificial intelligence, (humanized) robotics free people of the traditional professions and traditional lifestyle.

<sup>1</sup> PATEL A.V. et al. 2010 419–429.

<sup>2</sup> KING DE, et al. 2009, 528-34

## 1.2. The „muscle pump” of health

Regular exercise and this way, the dance enhances the performance of the heart and lungs, helps them function more efficiently. Blood fat levels are dropping; blood pressure tends to normalize even at beginning essential hypertension disease. Muscle work lowers blood sugar levels, helps to maintain body weight, and thus has a particularly beneficial effect, for example, for people with diabetes mellitus who are at increased risk of cardiovascular disease. Regularly moved joints retain their strength and agility. Those who exercise regularly can sleep better, wake up fresher, be lively, and concentrate more permanently. It helps to increase endurance in working capacity and perseverance, and, greater burden improves both physical and mental performance.

Recent research has shown that regular physical exertion may also play a role in preventing and attenuating minor depressions. It has also been demonstrated that regular exercise in women can delay osteoporosis, osteoporosis, which often occurs after menopause. The active muscles are part of the neuroendocrine-immune network of the human organism, they exert significant influence on the metabolic system, the immune system, the brain, and the abdominal fat, which also part of the complex information network. Exercise induces endorphin secretion and anandamide crossing the blood-brain barrier during physical efforts.

The skeletal muscle communicates with other organs such as adipose tissue, liver, pancreas, bone, immune system, or brain. The action of myokines is mediated by the presence of receptors on muscle cells, fat cells, liver and pancreatic cells, bone, heart, immune, and brain cells. Myokines like myostatin, IL-6, IL-8, IL-15, FGF21, Follistatin-like 1, BDNF, hepatocyte growth factor, fibroblast growth factor, insulin-like growth factor play a role in metabolism, tissue regeneration, IL-15 reduces abdominal adipose tissue, while in heavy physical exercise the secreted IL-6 as myokine rises to 100 fold of resting level, and increases IL-1, IL-10 as anti-inflammatory mediator. Brain-derived neurotrophic factor (BDNF) might be secreted as a myokine, and muscle-derived BDNF enhances fat oxidation. Physical training of skeletal muscle enhances cerebral BDNF secretion. The irisin is another neuroactive mediator secreted by active muscle cells, which helps maintain a healthy weight, improves cognitive processes, and increases brain-derived neurotrophic factor (BDNF) production.

Dance might modulate the dopamine/serotonergic balance, dance, and motion therapy increased plasma serotonin and decreased level of dopamine in young girls suffering mild depression.<sup>3</sup> Oncological diseases are also targets of dance therapy. Walking 3-4 hours a week reduces the risk of someone dying of breast cancer by 50 percent based on an overview of 3000 women's cases. Exercise activates the immune system through myokines, which are produced in the active muscles, inhibit the proliferation of cancer cells in the breast. This reveals the importance why children should spend at least 60 minutes each day exercising.

## 2. Dance and life, dance and culture

Anthropology of dance rarely interprets dance as an immanent healing practice, although, from the earliest description of tribal dances, the healing role of the ritual was clear and expressed in many ways. In 1898, Russel, with the finest ethnographer authenticity, depicted the Apache Medicine Dance. A healing dance rite, conducted by Sotli an old Apache woman.<sup>4</sup> When she arrived to the village, Jicarillas, a medicine lodge and an enclosure were constructed for her and the sick person. The ceremony was ministered by the older men of the tribe chosen to assist in the lodge. The medicine used in the ritual followed the analog, homeopathic principle. As the patient, Kes-no-un-da was diagnosed with snake and bear disease, so the

<sup>3</sup> JEONG, Y. J. 2005, 1711–1720

<sup>4</sup> RUSSELL 1898, 367-372

helpers had to create sand pictures depicting snakes, while the dancer embodied a deity representing a bear. The community side of the healing ceremony offered a chance for other participants also to receive medicine for their disease. The ceremony itself took four days and the last night was the climax of the process. The healing ritual had been preceded by the women's dance, followed by the general dance.

The twelve chosen men then took up their position on the south side of the pathway from the gate to the lodge. The clowns ran about among the crowd. The actors created much amusement by their gestures, appearing four times during the night. The dance continued in the darkness until sunrise, when the helpers emptied the lodge and the participants offered cornmeal to the trees, shaking off the last of their ailments. In the morning, the patients were reported to be cured. (Russel 1898). We find a similar description of another Indian healing ritual called „Dark Dance” by Kurath<sup>5</sup>. This is also a women's medicine rite practiced by the Iroquois, which was always performed at night, in complete darkness.

Lorna Marshall<sup>6</sup> gave a fine grained description of the Kung Bushman healing rituals as a real group activity known as the "giraffe dance" or "medicine dance". According to Ken Wilson, the archeologic evidences, petroglyphic remnants show that medicine dance is at least thousands of years old. The Bushman healers was thought to occur through their access to n/um, a divine force. The medicine dance as ritual activity helps to activate the n/um within the healer. It is different from the shamans' dance-induced trance state, that here, all participants are under the physical strain of the dance. The dance goes on all night, frequently inducing an altered state of consciousness, trance state. Those unable to overcome their fear of losing everyday control of ego functions cannot become healers. Trance state enables the healer to communicate with the spirit world, whose help or support is need for the sick. The activated n/um is given to the sick to extract illness or sending it away. However, the participation in the shared ecstatic experience is also a source of healing.

What is common in the Apache, Iroquois, and King Bushman medicine dance? Probably, it is the enduring physical activity and the altered state of consciousness, both are key elements of the physiological “reprogramming” of the bodily networks. The same is true for the social group bonds, moving together brings bonding together, a shared feeling of strong social attachment. The prolonged physical activity induces physiological changes releasing endogenous opiates, and other above-listed, „myo-humoral” mediators and correlated patterns of autonomic nervous system activation might be important healing factor.<sup>7</sup> The Kung Bushmans take sweat of the exhausted body of dancers and put it on the ill person, which might be exorphin-like medicine in the healing dance. Knowing the multiple “endo-medical” role of the muscular system with its myokines, humoral factors, active neurological mediators, we might speculate the much wider healing agency of the medical dance.

Although these examples teach us about the ancient medical functions, there are not many reports, and field works about the healing functions of dance in the dance anthropological literature. Its understanding rather culturalized and not medicalized. Human dance is a cultural behavior reflecting people's values, attitudes and beliefs as well and many cultural forms result from the creative use of human bodies in time and space, and needs interdisciplinary approach as dance is physical, psychological, cultural, social, and sometimes political at the same time.<sup>8</sup>

Comprehending the anthropological understanding and contributions in dance field research, we can screen it from the beginning of anthropology. At the first steps of cultural anthropology, Spencer (1857)<sup>9</sup>

<sup>5</sup> KURATH 1964. 187

<sup>6</sup> MARSHALL, L. 1969, Africa 39:347-81.

<sup>7</sup> FRECSKA, E., KULCSAR, ZS. 1989, 70-8

<sup>8</sup> KAEPLER, AL. 1985, 92-118.

<sup>9</sup> SPENCER 1985

had already revealed the psychological importance of the dance, which “release emotional tension”, and social and psychological, cultural and religious functions became central themes in cultural anthropology, however, one can not find the words “health,” “healing” in Hanna’s comprehending overview of dance anthropological literature. Searching for the word medicine, one might find Marshalls’s writing about Kung Bushman medicine dance, and Kurath’s report about the above mentioned Iroquise “Dark Dance”. Medical anthropology, as a subfield of cultural anthropology, brought dance anthropology close to the health sciences, dealing with studies of dance in ceremonial healing. Dancing has an impact on health at the personal and at the social level that is available to medical anthropological study. The altered states of consciousness, the physiological changes accompanying the vigorous dancing, the psychosomatic phenomena of bodily expressions of emotions, the stress reduction as a consequence of dance creates a shared interest between different branches of anthropology.

Human dance has an emotional, transformative content, and its expressive function regarding personal experience contains therapeutic potential due to its psychotherapeutic effects, which may act to release psychic tension. This function of dance, with its cognitive and affective dimensions, is embedded in a social psychological context. Through dance, one can gain control over the body, may develop physical fitness, and may transform emotions and instincts into linguistically-patterned forms. This skill of expression happens at a deeper level than verbal exploration. This deeper bodily process of ‘access and reframe’ may gain psychotherapeutic meaning and importance. In a social-psychophysiological context, dance may be a sort of coping mechanism for releasing socially-induced tension and frustration. Keeping in mind that the health consequences of enduring stress as an allostatic load comes from evolutionary paradoxes. Our adaptive patterns were developed for a different environment, not for our high-tech, late modern milieu inducing sedentarism and the jungle of our complicated social environment. The dance incorporates a wide range of evolutionarily-selected skills, such as a sense of rhythm, symbolic capability, innovation and variation, and kinetic ability, which might offer an adaptive outlet of suppressed tensions and unsatisfied bodily (and psychological) needs. This creates room for a slight shift in understanding dance as health protection and restorative cultural agency. As medicalization turns implicit cultural health content into explicit institutional and instrumental forms. Cultural issues with an adaptive function regarding health-related content bring dance in the framework of lifestyle medicine.

These barriers may be overcome by the communicative function of dance, which can gain political significance via the articulation of political attitudes and values. It may offer a means of control to a submissive member of a minority group, with attendant physical and psychological impacts. It can be more important in cases when verbalization of personal or social frustration is normally muted. Anthropological analyses of narratives may help with revealing these covert functions of dance.

### **3. Healing of dancers and dance of the healers**

Mapping the connections between medicine and dance, we find different semantics. Dance medicine as a profession, and discourse is not what we were writing above. Dance medicine is an interdisciplinary subfield of medicine dealing with various dance-related medical issues, dealing with injuries, preventive, surgical, and rehabilitation interventions among the professional dancers or those who practice dance as a sport. The research field includes biomechanical, physiological, and neuromotor aspects of dance, nutrition, psychological issues, and the body therapies and somatics area.

The biology of dance is a background discipline. In Hungary, it came to the front in the early seventies when the Táncház (Dance house) movement gained wide popularity and the development of folk dance pedagogy induced public interest. Mihály Nemessuri, a pioneering expert of lifestyle medicine in Hungary, also exerted significant influence on the health support of dancers.

„Motion biology as a discipline deals with the analysis of sports, movements, physical exercises and various sport techniques and just as folk dances, modern gymnastics, ice dance. One of the tasks of biology of human motion in the study and the record the movement phenomenon by means of modern science and scientific quality. In addition, it also has the task of assisting in the learning of motion and the perfection and optimization of the motion processes Thus motion biology can serve its own development in the development of folk dance”.<sup>10</sup>

In this basic motion research, we can see how science and dance culture are hybridized for mutual development. This is the aim of health medicine, too, that keeps dancers in optimal health for optimal and maximal performance. It is based on the results of scientific analysis of dance technique and its impact on the intensity of teaching, rehearsing, and performing, just as on the results of clinical studies that examine the mechanisms and course of injury rehabilitation and movement re-education. The professional health protection is crucial, as the dancers' training itself bears imminent risks and physical and emotional strain that may result in temporary or extended disability. Acute and chronic injuries might accompany the overuse of the ligaments, joints, and muscles during a series of performances. The dance medicine is therefore might be seen as a branch of sport medicine, an interdisciplinary agency, where prevention and surgery have equal significance. Dr. Nick Keay, an expert of dance medicine, points to the multilayered tasks of health support including physical, psychical and spiritual layers of helping and healing agency,

*Traditionally, dance medicine has been somewhat the poor relation of sports medicine. Why is this the case? There is no doubt that dancers, of whatever genre, require the physical and psychological attributes of athletes. However, dance involves an additional artistic component where ultimately performance on stage is judged not according to a scorecard as in aesthetic sports, rather on the ability of the dancers to forge an emotional connection with the audience.”<sup>11</sup>*

Dance might have biomedical significance not only as an object of motion biology and biomedical expertise but as part of mental health during biomedical training. The medical curriculum is a stressful project with high intellectual burden and emotional strain. A medical student has extreme learning strain to incorporate the huge mass of preclinical data, lexical knowledge, the series of serious exams generate prolonged distress with a significant psychophysiological load. Finkelstein<sup>12</sup> reveals the message of this kind of biomedical enculturation: ”study hard and learn a lot; learn to be objective; there is a little place in the practice of medicine for the subjective response.”

Burnout is frequent among medical students. A statistical metanalysis of graduate medical students' burnout included 24 studies of 18 000 students between 2010 and 2017 worldwide, and the emotional exhaustion reached the average 40,8%., cynicism 35,1 %, and decrease in efficiency 27,4%. Half of the medical students were affected by some form of burn out.<sup>13</sup>

Teaching art in medical schools might balance these deficits and psychological risks. A medical student summed her difficulties and experiences and coping the stressors by the dance with these words:

*„Medical training is, in many ways, like a disease. There are numerous pathologies in the disease of medical training—sleep deprivation, over-burdened interns, error-prone systems, social isolation, debasing hierarchy. Many of these pathologies have begun to be addressed, but I discovered that there was another that had not (yet) been the subject of a blue-ribbon commission or a well-publicized lawsuit—the absence*

<sup>10</sup> NEMESSURI, M. 1974

<sup>11</sup> KEAY 2018

<sup>12</sup> FINKELSTEIN 1990, 219–226.

<sup>13</sup> FREJERMAN 2019, 36–42

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*of beauty. Perhaps in the grand scheme of the scourges of residency, this seems like only a minor misery. But for me, it took a palpable toll, one that I wasn't even aware of until the "treatment" starting helping me. I look back now and realized that it was the continual infusion of the aesthetics of dance that helped keep me alive throughout those draining years."*<sup>14</sup>

That is why teaching art in medical schools might have a healing role and a partial solution for handling burnout. At Stanford, about half of all medical students become involved with the arts and humanities through a program titled Medicine and the Muse, integrating the arts and humanities into medical education. In this program, among several genres, dance proved to be also a powerful source of personal empowerment. Stanford medical student Amrapali Maitra gained her experience of helping homeless, mentally ill women, survivors of domestic violence with dances of several kinds, „folk movement, Bollywood dance, hip-hop, and everyone got so much joy from this. The women started clapping and laughing and dancing around. That opened me up to the worlds of these women.”. She found professional resources as well.

*“Dance is a thread that has always been there. It's a way of seeing and being in the world. I see how it shapes my approaches as a physician. It permits a different kind of expression than oral narrative.”*

*“Certain things you can express through dance — feelings of rage, sadness, protest“. In the form of Indian dance I do, we are trained to express mood or emotions with the face and hands and body to show feelings of disgust or peace or anger or love.”*<sup>15</sup>

This self support function of dance might work after completing the medical studies.

Éva Madarász, Hungarian psychiatrist emphasizes: „Folk dances are very disciplined emotionally, and rich, just the opposite of the libertine freedom of disco dances. To live out a destructive force, or cope with aggression can be a preliminary step in building up the personality. Folk dances may help with this, too. I don't know whether the women's dances do it, but the men's dances have an obvious framework for this. Sometimes the shouting of rhymes and spinning around faster and faster may be an outlet for girls, too”.<sup>16</sup>

Thus, wide and evidence-based scientific data verify the efforts to join the dance and other arts to the medical curriculum as a complementary cluster of disciplines, skills and experiences offering mental health. The University of Florida Center for Arts in Medicine offers lecture/discussion, student workshops in dance and the other arts and laboratory experiences to explore the links between the creative and the healing arts. Its practical significance is based on the clinical experience in the use of movement to enhance healing in a hospital or community setting. The Undergraduate Certificate in Dance recognizes special competency and achievement in the use of movement to enhance health.

#### **4. Dance as healing, dance as therapy**

Among the Millennial life reform movements of early Twentieth Century, the Eurythmia had anthroposophical roots, as part of Steiner's spiritual heritage. The word “Eurythmia” was proposed by Marie Steiner in 1912. Ita Wegman extended the scope of eurythmia toward healing, as a complementary way of cure, and she saw dance as a kind of panacea with diverse healing potential. This way, eurythmia became an essential part of the system of anthroposophical medicine. In several diseases, Wegman and her followers offered eurythmia as a complementary therapy. The eurythmia is thought to develop imitation skills;

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<sup>14</sup> OFRI, 2010

<sup>15</sup> Tracie White 2017

<sup>16</sup> LÁZÁR 2015

development of the body scheme. In the case of mental disabilities, eurythmia improves body image, facilitates social relationship, motor, and communication skills. Therapeutic eurythmia is recommended in private practices, clinics, sanatoriums, Waldorf schools, and social therapy institutes. It is not an extreme statement, that eurythmia was a historical precursor of the Dance and Motion Therapies.

Creative Arts and Therapy are all-adjunctive therapies utilizing different techniques with shared principles. One of these methods is the dance therapy, which is - using Chace's definition-, "a specific use of rhythmic bodily action employed as a tool in the rehabilitation of patients...". Marian Chace, as a "Founding Mother" became the first president of the American Dance Therapy Association in 1966. Her method was used in the Psychiatry at St. Elizabeth's Hospital in Washington. Dance therapy was classified as psychotherapy in the 1970-s and 1980s, as a result of research into the psychotherapeutic application of dance and movement. The dance therapists combine verbal and non-verbal communication to enable a patient to express their feeling, to participate in human relationships, to develop empathy, to increase personal self-esteem, to develop a more realistic concept of his body image, and through all these to achieve some feeling of relaxation and enjoyment.<sup>17</sup>

The American Dance Therapy Association (ADTA) defined dance and movement therapies as "*the psychotherapeutic use of movement to promote emotional, social, cognitive, and physical integration of the individual, to improve health and well-being*". This definition was extended with the "spiritual integration" content by the European Association Dance Movement.<sup>18</sup>

Family of dance and motion therapies is a diverse genre. We might fix the standard "Chacian approach" as the original technique of DMT invented by Marian Chace, but such restriction in a creative world of healing by dance is not necessary. Koch et al., in her meta-analysis, refer to this great variability, mentioning dance therapy with ethno-elements, manualized body psychotherapy conducted by dance therapists, and dance therapy with elements of creative movement play. Dance interventions apply various dance styles, mostly traditional folk dance or cultural dance forms.<sup>19</sup> In her listed dance dialects, "dance languages" one can find Irish set dancing, Greek traditional dance, Flamenco, Poco-Poco dance, Belly dance, Tango [19], and we can add Salsa, Hungarian folk dances, the samples of Dancing House revival [16] or the Cuban Psicoballet<sup>20</sup>[20], just as other contemporary dances (jazz, modern, creative dance). The therapeutic aims might also be diverse. Koch<sup>21</sup> listed five clusters, how DMT and dance might act:

hedonism pleasure and play, non- goal orientation
aesthetic experience and its authentic expression, experiencing beauty, body–mind unity, unity with a partner,
non-verbal meaning-making communication, emotion expression and regulation, social interaction
enactive transitional space experiencing activity, agency, self-efficacy, constructive resources, test-acting, enactment, rituals, and transformation
creation generativity, productivity

Table 1. Classification of dance agency (after Koch 2017)

<sup>17</sup> CHACE 1975

<sup>18</sup> EADMT 2018.

<sup>19</sup> KOCH 2019, 10: 1806

<sup>20</sup> AMADOR 2017.

<sup>21</sup> KOCH 1985 17–36



DMT can be a medium of diagnosis, treatment, and intervention that combines creative self-expression and psychological theories, and medium of interaction that allows personality to change as a result of the healing processes of dance<sup>22</sup>. Schmais pointed to several effective mechanisms influential in a group setting, such the empowerment, mutual trust, corrective emotional experiences, experiencing cohesion as part of something larger, probing social roles, and enactive interpersonal learning. It is interesting when the embodied experience is interpreted during dance therapy as a state of flow, including high concentration, absorption, focus on the here-and-now, physical presence, and joy<sup>23</sup>

Among the above-listed MDT methods, the Cuban Psicoballet dance and art therapy is one the most widely analyzed dance therapy method, which gained scientific support based on enormous, massive data of analyzed experience, as results of more than 25 000 successfully treated cases. This method combines different expressions of arts like dance and pantomime, theatre and ballet, and offered to empower people with disabilities and mental handicaps and improve their quality of life helping the rehabilitation and their integration into society. Psicoballet of Cuban historical origin had an intercontinental success, spreading over numerous countries of America, Europe, and Asia. This dance therapy was also recognized by the UNESCO. The academic acception of the Psicoballet method is proved by its adoption in the University King Juan Carlos, where it was applied as a psycho-geriatric dance therapy method to elder people enhancing their cognitive recovery.

The Association for Movement and Dance Therapies in Hungary was established in 1992 for the training and furthering of dance/movement psychotherapies and body-mind oriented methods in general. In the Association different approaches of Dance/Movement Therapy and other body-mind oriented methods are also represented, such as Group-analytic Movement and Dance Therapy, Integral Dance and Expression Therapy, Body-Mind Centering, Feldenkrais). These methods help a lot to reintegrate the motion/emotion unity help to reflect on the unconscious process and the psychodynamic abyss.

The Integral Expression and Dance Therapy was developed by Wilfried Gürtler (1950-2003), a psychologist and dance therapist in Munich in the 1980s. Training groups have been established in several locations in Europe in the nineties, and it entered the Hungarian world of psychotherapies. Since 1997 this method had been introduced in Hungary as well, by the Association of Integral Dance and Expression Therapy. IDET (Integral Dance and Expression Therapy) is based on self-expression by drawing, painting, claying, musical instruments, own sound, fairy tales, poetry writing, therapeutic dance theatre. In this respect, it belongs to the international trend of expressive arts therapy, with a particular emphasis on movement, dance, and physical experiences. The potential for healing resides in the wound and its authentic expression. So IED-therapists compassionately come along with the patient's expressive movements, "life dance" as participants of the process themselves. Every symptom is part of a constructive, and in some way, biographically necessary and understandable coping strategy. (From the IEDT point of view, illness is a path struck by someone in order to keep wholesome /i.e., not separated from themselves/ and to integrate a broader concept of health into one's own life.

Izabella Varga sums up the comprehensive therapeutic content of this healing method:

*"Integral in this case means that dance therapy alloys with dance and movement other therapeutic techniques and theories as well in a way that the whole is more than the sum total of the parts. Some*

<sup>22</sup> SCHMAIS 1985 17–36

<sup>23</sup> CSIKSZENTMIHALYI 1975

*examples, our approach draws form: deep psychology, expressive art therapies, prenatal and perinatal therapies, verbal therapy, cognitive behavior therapy, social therapy, hypnotherapy, trance-states, NLP, Gestalt, systemic approaches (such as Hellinger's, etc.). In the late '90s, kinesiology (study of the flow of energy in the body) and trance dances (the cathartic and "trance-formative" effect of altered states of consciousness) were of greater impact."*(Varga 2013 in Lázár 2015)

Psychodynamic movement and dance therapy (PDMTT) is a kind of "kinesic psychoanalysis. PDMTT is based on the unconscious contents brought to the surface by physical sensations, differentiation, correction. It is a real body consciousness work. Our physical feelings are the oldest layer of our own, generated at a predominantly pre-speech age. The "core" of the personality develops in the physical-sensual mood and rhythm upon which the later "layers" are built on. Fractures, anxieties, and desires entrenched in body experiences are sometimes difficult to achieve through words. PDMTT makes these elementary body experiences accessible by means of detection and movement. The key to this therapy is that personality is reflected in movement. The larger one's movement repertoire, the more options the individual will have for coping with her own needs and the demands of the environment.<sup>24</sup> By shaping these bodily experiences, the unconscious feelings and relationship patterns associated with them can become conscious and changed. Individual and relationship work is essential in the PDMTT. Simple exercises sensitize our own bodily senses and feeling about others. The sole or group movement improvisation is based on body-conscious work. Due to the self-perception, motion improvisation becomes a deeply personal creative work during the group process. In a secure therapeutic relationship, the healer can enhance the patients' self-perception through the kinesic, gestural experience, in a multimodal way. Every 'kinema': bending the body, laying down, standing up, keeping the balance, steps, and jumps, help to reintegrate the connection of the self and the body. It is called 'body-consciousness work', completed by the interpersonal 'connection work', integration the perception of the Other's movements in a couple, or by triplet frames. One moves the other listens, and vice versa, a frame of persistent experience of the connected and related movements of the couple with feedback, establishing kinesic attunements, which develop the essential social skill of empathy. This kinesic dialogue is also about the embodied mutual understanding. The third stage of the therapy includes the collective improvisations and kinesic creativity through movements of the pair or triplet. This way, the patients may 're-conquer' their body, and the space and time in a creative process. This leads to enhanced concentration, reality testing, self-trust, and diminishes anxiety. Discussion of movement experiences helps to develop deeper self-awareness. Although not all body sensations can be verbalized, it is essential to connect the bodily and verbal personality parts in the group process.

<b>Integral Dance and Expression Therapy</b>	<b>Dance and Movement Therapy</b>
The body system and its sanity	Reintegration
The emotional self-awareness	Enhancement of bodily self perception
The emotional self-awareness	Enhancement of bodily self perception
The personal creativity	Improvisation,
The kinesic creativity in the Third phase	The cognitive program of the network of relationships
The kinesic empathy,	Listening to the Other's movement
The game of time and space	Reconquering time and space

<sup>24</sup> LEWIS 1972

The personal truth and life, structure the emptiness	Self-perception through the kinesic, gestural experience
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Table 2. Comparison of IDET and DMT dance therapies (Koch 2017)

The potential for healing resides in the wound and its authentic expression. (So IDE-therapists compassionately come along with the patient's expressive movements, "life dance" as participants of the process themselves. Every symptom is part of a constructive, and in some way, biographically necessary and understandable coping strategy.

Other more specific therapeutic mechanisms are connected to techniques of DMT, such as mirroring, movement analysis, non-verbal metaphors, imaginative techniques, meditative techniques, introspection, and focusing <sup>25</sup>.

In a recent meta-analysis of 42 dance therapy research, Koch et al. (1985) verified that DMT decreases depression and anxiety and increases the quality of life and interpersonal and cognitive skills, whereas dance interventions increase psycho- motor skills.

#### 4.1. Dance as a hidden remedy

As lifestyle medicine has a strong focus on stress and adaptation dysbalances, the above evidence-based pillars show, while dance must be integrated into everyday health practice. The dance itself is a proper remedy for the unhealthy consequences of a sedentary lifestyle. Preventive efforts to diminish risks of Type 2 diabetes 2, cardiovascular disease, colon cancer, postmenopausal breast cancer, dementia, and depression might urge us to take dance as regular exercise into consideration. In this sense, dance might be a significant „medical” element of lifestyle medicine. Beyond the physiological beneficiaries of the physical exertion, one might be grateful for the cultural, social, behavioral, emotional, and cognitive gifts of dancing as a source of well being. In an age of alienation, social isolation, and workaholism, this holistic socio-cultural practice might be a mental health panacea. Dance may be a crucial health-promoting agent for socially isolated, physically, or mentally ill<sup>26, 27</sup>.

Posttraumatic stress is a common problem. Studies of adverse childhood experiences (ACE) uncovered a silent epidemic of anomic family circumstances causing enduring mental and somatic consequences. Dance-related movement reintegrates traumatized patients with their bodies, the physical exertion through elevated endorphins, irisin, and BDNF might influence their mood, cognitive, emotional, and other psychical functions. As these mental and somatic difficulties are covert, and the victims can not manage psychotherapy because of institutional and financial reasons, dance integrated in the everyday school practice might be a useful mental health solution.

Refugees, traumatized post-war victims are also offered unsolved challenges for mental health because of their massive number, and the destructed and anomic social milieu, they live in. Uneducated, illiterate youth (as high as 25% in the developing world), itself might be a source of anomy, conflict, migration.

The dance project named MindLeaps in Kigali, Rwanda proves the success of dance as a means of social healing. Researchers and students from Carnegie Mellon University Rwanda and Drexel University guided the standardized dance program organized among victims of civil war, and their children to develop the cognitive skills and social-emotional learning: The results prove that they can succeed in school, enter the workplace and leap forward in life. Their missions statement shows how dance becomes a „social

<sup>25</sup> BRÄUNINGER 2014, 445–457

<sup>26</sup> HOUSTON 2005, pp.15

<sup>27</sup> JENKINS 2003, 21–24.

medicine”, as the staff, dance instructors, educators, social workers, counselors, and administrators, are dedicated to building a bridge to education and positive livelihoods through dance.

They develop the critical cognitive and social-emotional skills of the disabled children, which are necessary for school and work achievements. This agency aims to change the mindset of these „at-risk children” and opening the door to education and employment, which can change their future, who otherwise are left to be abandoned to hopelessness or radicalization.

Migration generates crucial challenges in our age, the complex trauma, refugees suffering from generates deep psychological and somatic consequences of traumatic experiences persecution, flight and severe, anomic acculturation strain. Dance/movement therapy offers a remedy for the treatment of complex psychological trauma (torture, rape, war experiences. Koch reports experiences at the treatment center REFUGIO in Munich, Germany, experts of which apply for a multifaceted therapeutic program as an interface of dance and verbal psychotherapy.

Results of applying Psicoballet in the intervention with children and teenagers who have been victims of sexual abuse, might be good sample, too <sup>28</sup>. The method reached significant improvement of the 32 children and teenagers suffering from the consequences of sexual abuse. Complaining anxiety decreased from pretreatment 77% and to the posttreatment 41.3%; the depressive symptoms turned to diminish from 83% to 51.03%, .and 47 % were clinically recovered. As Cernuda summarized the benefits of Psicoballet, which offered a „way of approaching the memories and painful recollections with dynamics and body techniques that are less challenging for the patient, promoting a therapeutic work embodied, focused on the emotional objection through the corporality that could offer well-being in the current and future life of the patient<sup>29</sup>.

Dance is a powerful help not only for those living in an anomic milieu, but dance is a source for empowerment and developmental aid for the children having developmental, mental problems, too. Salus and Schanber <sup>30</sup> deal with dance therapy or with a more exact title, Body movement, and creative expression training of language-handicapped children. As dance itself has a linguistic structure, way of self-expression, this way of helping the development of problematic children proved to be useful.

The Hungarian Folk dance revival movement, the so-called Táncház (Dancing House), also became a source of dance pedagogy methods applicable for the development of mentally disabled children. Dance House method was inscribed on UNESCO's List of Intangible Heritage of Urgent Safeguarding in November 2011 in recognition of its revitalization and safeguarding nature (UNESCO 2011) <sup>31</sup>. The inherent values of the Dance House method were recognized as a movement of openness, flexibility, global availability bridging geographical and generational distances, the inclusive power regarding the youth, the inclusion of broader audience, and viability in the contemporary modern or late modern society. The method is comprehensive in several manners, comprehending cultural heritage (music, dance, customs, handicrafts, poetry) and expertise of science, pedagogy, cultural mediation.<sup>32</sup> One thing was not mentioned, that the Dance House practice is also suited to the criteria of DMT methods. Koch mentions various dance interventions applying traditional folk dance or cultural dance forms, and we can add our experiences regarding the Dance House movement to the list.

Summer Dance House Camp in Bodajk I could get personal insights, how deep impact folk dances exert on mentally-disabled children. Their “emancipated” participation in the healthy dancing community,

<sup>28</sup> CERNUDA 2016

<sup>29</sup> KOCH 2009.

<sup>30</sup> SALUS 1971 38-49

<sup>31</sup> UNESCOPRESS. Retrieved 26 November 2011.

<sup>32</sup> CSONKA-TAKÁCS, E. 2012, 116-224.

itself showed significant therapeutic gains bridging the borders built up by verbal incongruence and helping social integration. In the Bodajk camp, most of the attendants return from year to year. Jánosi dance house ensemble manages this summer camp. When the visitor arrives, at first glance, it is evident: a third of the participants are mentally disabled. Autistic children and sick children also take their part in the joyful common dances. Healthy families and the returning disabled children from the Institute for mentally Disabled Children at Martonvásár were greeting each other like old friends. They dance with their non-disabled friends, and healthy and mentally disabled children were bound with compassion, empathy, and shared joy.

Behind the dance experience, the disabled children undertook craft activities, learning elementary forms of working and usually enjoy working with natural materials.

#### 4.3.Dance of the Autists

The therapeutic value of dance for the autistic has been proven. Koch et al.<sup>33</sup> explored the results of dance movement therapy intervention based on mirroring movement in a population of 31 young adults with autism spectrum disorder (mainly high-functioning and Asperger's syndrome) to increase body awareness, social skills, self–other distinction, empathy, and well-being.

The authors claimed that autistic participants in the intervention group reported improved well-being, improved body awareness, improved self–other distinction, and increased social skills, and these outcomes seemed to address more of the primary developmental aspects of autism than the presently-prevailing theory-of-mind approach. These therapeutic impacts may help to repair deterioration in social functioning and may help to extend social contact as only about 8% of people with autism report to having reciprocal friendships<sup>34</sup>. Dance may impact cognition, emotion, and motor functions to improve the social skills of those with autism. The sociability-enhancing effects of dance derived from the communicative function of the dance. The synchrony inbuilt into the collective circle that is formed during a couple dance facilitates cooperation and empathy among the interaction partners as motoric mimicry, and synchrony itself develop empathy<sup>35</sup>. We may see the postural and motoric mimicry are part of developing empathy<sup>36</sup>, and sharing the dispositions of mood is also proper to the dance experience.<sup>37</sup> The imitation which occurs during the learning of dance may foster better interaction and liking between partners<sup>38</sup>. Dance offers a chance for interpersonal closeness, which facilitates mimicry. Learning and practicing folk dances can be thought of as a form of embodiment. The neural circuits that are activated and are responsible for this imitative, online form of online embodiment promote work as a part of social contagion and induce congruent emotional states in others<sup>39</sup>. This is why the experience of 'online embodiment' may be a component of empathy and social cooperation, which is undoubtedly one of the behavioral benefits of collective dance learning and part of its therapeutic value

#### 4.3.Corrective development by Dance

Early developmental problems also can be corrected by movement and dance. Hatcher and Mullin, dance therapist and special educator authors deal with the development and implementation of movement in early

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<sup>33</sup> KOCH 2014

<sup>34</sup> KLINGER 2009

<sup>35</sup> HATFIELD 1993, 96–99

<sup>36</sup> LA FRANCE 1985, 207-217.

<sup>37</sup> NEUMANN 2000, 211-223.

<sup>38</sup> BARGH 1999, 893-910

<sup>39</sup> DECETY 2003, 577-596

childhood, as pre-requisite for the mastery of later complex movements<sup>40</sup>. The "hierarchy of movement level" creates a guide for the correction of "development lags." The develop those motion experiences which are weak, under-experienced, or missing in the first two years of existence; therefore, the educator's task to help the children to re-experience the previously omitted movements. Specific activities are provided to strengthen the development of the total body, accentuation on hands and feet, multi-sensory awareness, and body-image concepts.

#### 4.4. Aging and dancing

Aging is also a growing epidemiological issue with several health problems. The ever-increasing importance of health psychology in improving the quality of life of older people lends great significance to dance for this age cohort. According to Paulson (2009): "*Older dancers positioned the dance as beneficial for their health in terms of physical, psychological and social factors.*"<sup>41</sup>. Recreational folk dance provides social, physical, creative, cultural, and mental benefits for older people supporting their wellbeing or helping their rehabilitation<sup>42</sup>. Aerobic exercise reverses the loss of hippocampal volume in old age, which improves memory. Physical exertion itself might reduce the risk of Alzheimer's disease 60 %, improve cognitive processes, and increase brain-derived neurotrophic factor (BDNF) production. Dance-like exercise can also improve the quality of life of older people if they become more dependent within a nursing home context<sup>43</sup>. Some disease is typically associated with senium, like Alzheimer's and Parkinson disease.

Social dance, with its lively atmosphere, can be a health-enhancing physical activity among older people without risk of medicalization. The weekly scheduling gives a secure framework, and the regular social dance event recalls a positive reconnection and continuation with one's memory, youth, and history<sup>44</sup>. In the Dancing House Movement, in the last years, Ferenc, Sebő and his musician and dancer friends established a Dance House of the Elders („öregek táncháza") for those participated in creating the „Táncház" movement „once upon a time", and now they are at the age of seventies, sixties.

Sometimes it is enough to see the dance itself, which might also exert beneficial effects in old age. A folk dance group from Calgary, the Vadrózsa group, reported their experiences of performing in a hospital setting and several old folks' homes. They had danced in the Alberta children's hospitals and such places. "*In an old folk home, sometimes this is the only excitement they get. This is sad to say. When we come, they are so happy, the excitement and the joy they can experience. Sometimes someone comes up to us, saying - being Hungarian - he used to dance these dances when he was young and he is so happy that we keep the tradition alive*".

#### 4.5. Dance and Alzheimer's disease

Aerobic exercise reverses the loss of hippocampal volume in old age, which improves memory. Impaired mobility in older people is associated with an increased risk of Alzheimer's disease, Parkinson's disease, and depression. In a study of 1500 men and women, moderate physical exertion twice a week reduced the risk of Alzheimer's disease by 60 %. Irisin induced by physical exertion might also be an essential therapeutic factor, slowing down aging by increasing the length of telomeres and enhancing BDNF production in the brain.

<sup>40</sup> HATCHER 1967, 61 pp.

<sup>41</sup> PAULSON 2009

<sup>42</sup> CONNOR 2000, 69–76.

<sup>43</sup> SHIGEMATSU 2002 261-6.

<sup>44</sup> ROBERSON 2013

#### 4.6. Dance and Parkinson's disease

Parkinson's disease is also a severe neurodegenerative syndrome in which the lack of dopamine and the tremor and rigidity of muscles interferes with the intentional movements, the everyday activities. The emotional expressions are also limited, as gestures and pantomimes are distorted by limited facial expression, slowing of the personal motions. Parkinson's disease frequently leads to social isolation. Although Parkinsonism as a chronic disease might be tempered, it is not curable like the infective diseases. The quality of life of these patients has crucial importance. Results of evidence offered by dance practitioners giving dance hours to patients show that temporary relief of some symptoms is observable, and these patients cope better with everyday actions.

One of the first studies of dance therapy on groups of outpatients with Parkinson's was led by Beth Kaplan Westbrook and Helen McKibben<sup>45</sup>. The healing effect of the Dance Movement Therapy was reflected by diminishing the neurological and emotional symptoms. Tango also proved to be effective in promoting increased functional mobility, balance, and stability in Parkinson's patients.

Similar results are mentioned by Cerruda, who reported Psicoballet as an effective therapeutic instrument in the cure of neurodegenerative disorders (Parkinson's and Alzheimer's), which might reduce the speed of the degeneracy and helps to recover cognitive plots.

Overviewing dance therapies with patients suffering Parkinson's, Hackney, and Earhart<sup>46</sup> have found dancing the Tango showing the most robust results in fall risk, gait, and balance confidence, and facilitate positive social interaction in comparison to other non-dance exercises. The kinesic world of the Classic ballet language as the Department of Learning of the English National Ballet piloted twelve dance sessions for people with Parkinson's based on Nureyev's Romeo and Juliet. Here dance gains new content, as Houston<sup>47</sup> writes:

*„Dance is also given a new presence, a new ontological status, one which aligns with conceiving of the form as a therapy, or even as a biomechanical phenomenon, rather than as art or entertainment.”*

The results of the dance therapy needs a multidimensional analysis in a frame of a 'methodologically aware eclecticism', where the quality of life, motivation to continue dancing, and physical and social responses in a dynamic, natural environment of a dance as complex behavioral medical scope of the disease and the healing process. The kinesic reality of the patient is distorted and changing step by step, through various „corporeal shifts of being,” often with negative consequences for perceptions of self-identity. Dancing offers a way of reintegration of self and body, by the embodiment of the regained integrity through the movement.

#### 5. Conclusion

Dance as part of Lifestyle Medicine

Looking at the aims of lifestyle medicine, we can soon realize that we meet – at least a given degree- a renaissance of the old tradition of "Dietetica." Lifestyle Medicine aims to create the optimal dietary lifestyle, regular physical activity, restorative sleep, stress management, avoidance of risky substances, and positive social connection as a primary therapeutic modality for prevention, treatment, and reversal of the chronic disease.

The medieval books of hygiene, ad dietetics included motions and dance as a remedy for an emotional upset. The dance was mentioned as rather part of an integrated regime that helped to avoid health problems. The medieval medicine was based on the Corpus Hippocraticum, and the balance of the four humours (blood,

<sup>45</sup> KAPLAN WESTBROOK, 1989, 27–38

<sup>46</sup> HACKNEY 2009, 475-481

<sup>47</sup> HOUSTON 2011 329-351

phlegm, yellow bile, and black bile) was the key to health. Avicenna's Canon also had a great impact. This medical "encyclopedia" emphasized the importance of the so-called 'six non-naturals,' namely: air, food and drink, sleep and waking, exercise and rest, evacuation and repletion, and the passions for health maintenance. Comparing this list with the above mentioned five health habits playing role in risk reductive lifestyle aims, proves the value of the traditional health intuition. Equilibrium and maintenance of the health were offered by appropriate use of the listed "six non-naturals."

The inclusion of dance as part of a health plan had not been unknown in the Middle Ages as one of the non-naturals. According to Roderigo de Fonseca, an Italian physician of Portuguese origin regarded the dancing of galliards as a form of exercise and as a source of balance. Another influential medieval text was written by Taqwim al-Sihha, the famous "Tacuinum sanitatis" in which dance is presented together with music<sup>48</sup>. The medieval medical tradition saw the happy mood, enjoying the harmony of music and dance as sources of health. Exercise and dance cause "*the increase in body heat;*" "*the limbering up of muscles,*" "*the opening of the pores*"; and "*improvements in transpiration*" and the "*expulsion of harmful substances.*" Girolamo Cardano (1501-1576), in his work, "De sanitate tuenda", argued that physical exercise can benefit health, but it does not prolong life.<sup>49</sup> Arcangeli also cites John Jones, an English physician, who saw only one musical mode, the doric tonality stimulating prudence, modesty and sobriety, while other modes excited the passions beyond measure. Similarly, there were medically preferable dances: "Bargenets, Pavions, Galiardes, Sturgions."

Disorders of emotions were thought to be curable by music and dance, too.

Another English physician Robert Burton' offered several genres of the treatment of melancholy like hunting, horse riding, walking, playing games, and dance, while Richard Browne even favored natural dance more than horse riding, recommending dancing for several diseases like amenorrhoea, cachexies, and jaundice. The beneficial role of dance as a social activity and physical exercise were also appreciated.

Arcangeli mentioned an Italian physician, Giulio Alessandrini, living in the XVIth Century, who served at the Hapsburgs emperors, and met Hungarian dance traditions, describing Hungarians' dances this way, "*If someone sees a Hungarian dancing in the fashion which is customary in their dances, he will perform any sort of bodily movements: now he is laid out still on the ground, then he gets up with his legs at times bent, at times stretched, at times opened wide, he stoops and rises again, and even gathers the whole body in minimal space, and then springs by launching his hands here and there, and bursting with shouts.*"

Alessandrini, in his work "Salubrium sive sanitate tuenda," quotes an unnamed physician after the description, cited above, that this dance as an exercise may strengthen 'all muscles and tendons in one's hands, arms, chest, back.'

István Mátyus, a Hungarian physician, in his book "Old and New Dietetics" wrote about dances, too:

*"The powerful dance involves the harms of speedy gait, running and escape, which are raised by the violent twisting of the whole body here and in the flesh. But when it is slow and without any effort, there is no gender that's better than our nature. For it takes away both the hardships of the body and the boredom of the mind"*

*"The more careful, gentle the dance and quieter than the song, the more beautiful and useful it is. It is ugly, as in other things...the effort over others and the lack of knowledge to moderate itself."*

*"There are countless examples of blood spitting, pneumonia, hot ailments, cruel main pain, dry disease, and other dangerous whines from the unreasonable dance."*

<sup>48</sup> ARCANGELI 2000, 3-30.

<sup>49</sup> MÁTYUS 1989.



Those who have the strong passions of the mind have gotten hot. They harmonize it with melodies and chants.

Lifestyle medicine, as written above, has strong efforts in prevention and restoration of consequences of nowadays' stressful and sedentary lifestyle, which includes lack of physical exercise, relative muscular inactivity, metabolic and cardiovascular consequences, obesity and problems caused by coping distortion (alcohol, smoking, chemical comforters, drugs).

Dance as a health support agency, be it preventive, or curative, is a phenomenon of cultural embodiment, a unique cultural-psychophysiological phenomenon. Dance has linguistic content not only between the actors but between the deeper, unconscious internal layers of one's psychological structure and its conscious rational, self-reflected part of the mind. Gender and identity, habitus, and sociocultural roles are shaped and shared through learning dances. This multi-layered expressive function of dance has a profound bodily impact, exerting bi-directional feedback sometimes with regulative effects. Hatch (cites Hanna 1979)<sup>50, 51</sup> interprets dance itself in a frame of a "behavioral cybernetic approach" of systems concept to understand the relations and interactions between dance performance and psychological, sociocultural, and evolutionary processes. In this human ecological approach, dance is sociocultural agency is to control and organize social interactions. From the lifestyle medicine point, this organizing function is deeply embodied. It supports healing on somatic, psychic, and social levels at the same time.-The metanalysis regarding the effectiveness of dance movement therapy (DMT) and dance interventions for psychological health outcomes based on results of 41 controlled intervention studies proved the efficiency of the dance therapies. Koch et al. investigated results of 21 DMT, and 20 dance therapy research, including clusters of quality of life, interpersonal skills, cognitive skills, and psychomotor skills and clinical outcomes (with sub-analyses of depression and anxiety). The clinical significance of dance therapies proved by several dance intervention studies, Koch et al. (2019) have analyzed. These methods conquered clinical terrains like depression, anxiety, schizophrenia, autism, elderly patients, oncology, neurology, chronic heart failure, and cardiovascular disease. Some aspects of the therapeutic success are shared, like improving anxiety levels, quality of life, and body image. These health gains reflect the "lifestyle medicine" significance of dance. One is common in these efforts, to reinvent the dance as part of the "non-naturals" of the medical history, to help the patient cope with his/her troubles, be they casual, or consequential, somatic or psychic, social and cultural. Healing one's life rests upon healing one's lifestyle.

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<sup>50</sup> HANNA 1979, 313-339

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