**LITHUANIAN ACADEMY OF MUSIC AND THEATRE**

**Vytenis Gurstis**

**SOMATIKOS TEORIJOS IR PRAKTIKOS BEI JŲ TAIKYMAS GROJANTIEMS FLEITA**

**SOMATIC THEORIES AND PRACTICES AND THEIR APPLICATION TO FLUTE PLAYING**

Meno doktorantūros projekto tiriamosios dalies santrauka

Summary of the artistic research paper

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**INTRODUCTION**

 The principles of body functioning have been of interest to mankind for a long period of time. In their treatises, philosophers, clergy, and medical practitioners of the past always emphasised the duality of human existence – the connections between the inner and the outer, the soul and the body, therefore, the term *somatics* was most often met in the compound word *psycho*somatics (Greek *psukhḗ* 'breath', 'soul' + *soma* 'body'). The concept of soul in philosophy, psychology, and theology was commonly used to describe the uniqueness of the immaterial human origin, the inner world, thoughts, emotions, and feelings. In the age of scientific revolution and education, all those attributes were assigned to human mind; however, its influence on the body and movement remained mystified.

 Oriental philosophy gave rise to a number of different body control practices, starting with yoga, martial arts, and meditation that predated our era. On their basis, new conceptions began to emerge in the 19th through the 20th centuries, such as the Alexander technique, the Feldenkrais and Hanna methods, Pilates, Body Mapping, Ideokinesis, and many more. The purpose of those methods was both to make people aware of the optimal functioning of their body and of the influence of thinking on physiology and also to help prevent physical discomfort, traumas, and illnesses. In order to achieve better results, the practices were soon employed by professionals in various fields: medical people, psychologists, athletes, dancers, and musicians. The latter are often referred to as "athletes of small muscles"; when singing or playing wind instruments, body control not only increases in importance but also becomes one of the key factors in achieving a high artistic result.

 Somatics explores the senses that we discover and perceive within ourselves: it is to be defined not as a treatment but as a process of self-education. During it, through a variety of methods, one finds the optimal way for oneself to purposefully move without stress. Comprehensive knowledge and consistent application of somatic theories and practices can positively influence the process of music performance, help to detect inaccuracies in movements and habits on time, analyse them, and make the right decisions. Awareness of performer's body control enables musicians to understand, sense, and maximally exploit the individual capabilities of their body and mind as well as to avoid false, ineffective habits. The analysis of, and research into, body control processes is **relevant** not only to music performers, but also to educators who want to develop students' professional skills in a correct way from the very beginning.

 The application of somatic knowledge is of exceptional importance to those performing contemporary music. Due to the spread of new compositional techniques in the 20th through the 21st centuries, extended performance techniques have been introduced in contemporary compositions that require non-standard, and sometimes even extreme, body use. A risk is faced that those physiologically inconvenient and non-standard expression elements in a composition may unbalance the skills developed for classical playing. The knowledge and application of somatic principles help to prevent those problems and to form new movements of different body parts best serving the purpose.

 During his professional career, the author of the current paper got acquainted with quite a few somatic techniques and practices, which provided him with an impetus to explore not only the already formed body control models, but also **most recent** discoveries in the field of somatics and its broader links with neuroplasticity, physiotherapy, biomechanics, and performance psychology. During the doctoral studies, regular consultations were held with professionals of medicine, sports medicine, and somatics; the author's knowledge was deepened by orthopedists-podiatrists, surgeons, physiotherapists, massage therapists, and teachers of movement and breathing techniques; moreover, regular personal meetings with physiotherapist David Katz and the experts of the Feldenkrais Method, flutists Patricia Morris and Niall O'Riordan, took place. The acquired knowledge encouraged the author to analyse and compare the principles used by different somatic practitioners and prompted the aim to apply the somatic concepts and the most relevant somatic nuances, examined in the research paper, to flute playing. No scientific works analysing and summarising various somatic techniques and practices exist in Lithuania. At the theoretical and practical levels – various articles, books, masterclasses, conferences, and congresses – individual fragments of conceptions have been presented, however, no comparative analysis of those theories and practical methods has been carried out and no general overview of them has been presented.

 This artistic research paper focuses on the connection of mind and thinking with the performer’s physiology. **The object of the research** is somatic theories and practices. **The aim of the research** is to develop a flute playing methodology based on the latest somatic theories and practices, which would provide performers with a wide range of means to improve and to find the most suitable individual way to move, to efficiently acquire new skills, and to achieve maximum artistic results.

**Research objectives:**

* to define a variety of nuances of the concept of somatics and its meaning in theory and practice;
* to analyse and compare the fundamental principles of the main somatic theories, practices, and methods;
* to investigate the somatic specificity of the body part control when playing the flute;
* to examine the most common somatic problems and difficulties encountered by flutists;
* to explore somatic differences between classical and contemporary / extended performance techniques;
* to formulate a methodology based on somatic theories and practices: mental, self-analysis, and body control awareness recommendations and guidelines for effective practicing and flute playing.

**The methods** used in the research paper include descriptive, analytical, and comparative ones, complex theoretical and empirical analysis, and case study.

**Literature and sources:**

 The author paid the greatest attention to major books of somaticists such as Moshé Feldenkrais, Thomas Hanna, Frederick Matthias Alexander, and Lea Pearson. He also referred to Niall O'Riordan's research articles in *Pan,* the journal of the British Flute Association (BFA), and his own personal experience. Moreover, relevant to the research was the latest knowledge gained by the author during flute conventions and scientific conferences and accumulated in trainings, courses and private lessons in consultation with physiotherapists and medical professionals, somatic theorists and practitioners, and specialty teachers.

 The research paper consists of an introduction, four chapters, conclusions, and an appendix. Chapter 1 overviews the evolution and genesis of somatics, the characteristics of different somatic practices and theories, their most important principles, and the individual aspects of the approach of somatic practitioners. That provides a basis for investigating the application of somatic principles to flute playing (Chapter 2). Chapter 3 deals with the somatic problems most often encountered by flutists and Chapter 4, upon combining somatic theories and practices, presents the author's somatic flute playing methodology, which is further clarified in the web links in the appendix that contain videos of exercises and concepts demonstrated by the author.

# 1. THE DIVERSITY AND EVOLUTION OF SOMATICS

## 1.1. The meaning and genesis of somatics

 At the turn of the 20th century, quite a few body control theories gained currency. The works of psychoanalysts, neurologists, and other scientists as well as the increasing availability of information made it possible for professionals in various fields to become acquainted with the discoveries of physiology, medicine, and psychology and to apply them to their professional activities. Various methods, techniques, and therapies were developed seeking to relate body and mind. Psychoanalysts' research papers of the early 20th century mainly made use of the term *psychosomatics.* The term **somatics** was first independently used merely in the 1970s. Philosopher Thomas Hanna (1928–1990, USA) coined the term from the Greek word *soma*, which, although directly translated as 'body', was reinterpreted in Hanna's book *Bodies in Revolt: A Primer in Somatic Thinking* as describing "our sensing of our bodies from the inside" (1970: 35). Hanna sought to create a definition with broad connotations, incorporating all the nuances of pre-existing theories and practices related to the physical and mental body experiences and their interrelationships.

 Somatics encompasses a wide range of disciplines, often overlapping with medicine, behavioural psychology, physiology, biomechanics, and other sciences as well as consciousness-based practices, such as yoga, meditation, and martial arts. The practice of "diagnosis and treatment", met in modern psychology and medicine, is extended in somatics by the encouragement to recognise and to "listen" to one's movement and behavioural habits. That is where the benefits of its application lie: upon learning how to correctly interpret the signals sent by one's body, one can improve the quality of movement and to achieve the desired result easily and without tension.

**1.2. Formation and principles of the Alexander technique**

 One of the first contemporary theories of body control in accordance to somatic principles was the Alexander technique. It was developed by the Australian actor Frederick Matthias Alexander (1869–1955). In an effort to create a more effective, convenient, and more natural technique for stage performance, Alexander turned his attention to the conscious development of new habits and skills which he called the "manner of doing". Upon realising what he was doing and how, and the fact that integrating "new manners of doing" into old habits did not work, Alexander began to explore what he might not do. One of his first key ideas – to oppose doing to not doing – became the basis of Alexander's technique and mindset.

After long experiments with several mirrors, observation and analysis of his body position and movements from all angles, and looking for commonalities, Alexander came to his most important conclusion: the importance of the head/neck/back relationship. The idea became the basis of his technique and thinking direction and also helped to solve the problems that hindered the art of acting. Alexander called the relationship of the said body parts "primary control". Their balance and harmonious coexistence without tension was the main (primary) chain that coordinated the control of all the other physiological systems – body parts, posture, poses, etc.

When playing wind instruments, the balanced head/neck/back relationship is very closely related to the position of holding the instrument, freedom of breathing, and an overall comfort when playing. A proper posture is not fixed or immobile: the balance is achieved by the understanding that the skeletal-muscle interaction, rather than chronically tense muscles, predetermines the stability of the posture in terms of gravity and prevents one from collapsing. The coordination of parts of the human body through the removal of inappropriate, unproductive components by means of the Alexander's technique allows one to feel one's body as a whole and to give up bad habits that interfere with the body's proper functioning. That is crucial for stage people.

**1.3. The Feldenkrais method**

In the early 20th century, even neurologists did not believe in neuroplasticity. They thought that the skills acquired in childhood and adolescence could not be changed. Moshé Pinchas Feldenkrais (1904–1984), who expanded and reinterpreted the principles of Alexander technique, was one of the first to understand that the brain, its function, and the learning of new abilities was a continuous process that did not stop in childhood. He argued that the quality of movement and motion can be improved, harmonised, and made more productive. To this end, he developed his own exercise system, "awareness through movement". The essence of the training is the understanding of the individual elements of movement: conscious somatic control of thought (impulse) and movement (result) and slowing down of processes in order to "listen" to them. During group training, Feldenkrais asked the people to intentionally "scan" every part of their body from the top of the head to the toes and release them completely, thus forming the standard beginning of the Feldenkrais method training, called the "soma scan".

Representatives of various professions, often including musicians that are familiar with the teachings of the Feldenkrais method, emphasise new sensations related to better coordination of body and mind. Correct habits, like magnetic tape in cassettes, are "re-recorded" into the neuromuscular system, creating new neural pathways in the cortex and spinal nerve canals. That both creates a sense of spontaneity, freedom, and comfort and also improves posture and an overall psychosomatic state. In his teachings, Feldenkrais himself advised to keep in mind that fine-tuned and correctly-controlled small details in the process of movement would automatically be put in the right places, allowing the body and movement to self-regulate and be felt as a whole (Feldenkrais 1984: 11). For flutists, whose posture is asymmetrical and consists of complex connections between various parts of the body, the development of such a feeling is of paramount importance.

**1.4. Characteristics of Thomas Hanna's clinical somatic education**

Philosopher and writer Thomas Hanna (1928–1990) in his teaching (called *Hanna somatic education*) devoted particular attention to the study of the activity of the motor cortex in the central nervous system and concluded that most of the problems associated with tissue and tendon tension, chronic muscle pain, discomfort, and motion inefficiency stemmed from poor body control. Muscles, tissues and tendons can be softened and relaxed by affecting the structure of the body through physiotherapy, massage, or healing procedures, however, the effect of free movement acquired due to external factors is often transient and brings no benefit unless its function is reprogrammed in the brain. Hanna described the lack of movement functionality as sensory motor amnesia (Hanna 1979: 145).

Although not directly intended for musicians, Hanna somatic education stands out for its universal approach to the prevention of somatic problems, which is very important to those who play musical instruments. Pain and discomfort are the fastest felt signals of an impaired muscle function. The muscle itself has no control centre: muscles respond to signals from the brain controlled by the central nervous system, therefore, somatic education has an inherent premise that any attempt to prevent muscle, joint, and tendon pain must begin with the "reprogramming" of the brain.

**1.5. Prerequisites for universal application of somatic theories and practices**

In the findings of meta-analyses, the methods of Alexander, Feldenkrais, and Hanna have not been discredited by scientists or classified as pseudoscience, and they have already gained recognition among professional athletes, performers, medical practitioners and have been widely applied with the aim of acquiring optimal body control. The basic principles of the methods are taught and promoted in many music, dance, and theatre academies. The search for universality in the application of somatic practices inevitably explores their differences and similarities. Differences in somatic practices are discovered comparing the means and techniques used to achieve the desired result, and the fundamental and universally accepted principles of the functioning of various somatic practices include: conscious association of the source of the movement (brain impulses) with the movement; slowing down the movement; in-depth exploration of its quality; interpretation of senses; and the change in the habit/movement and its reprogramming.

The prevailing somatic theories are not finite. The work of Alexander, Feldenkrais, and Hanna has been continued by their students, while medical professionals, scientists, neuropsychologists, athletes, and artists have been discovering ever new ways to deepen their understanding of the human self and to highlight the importance of the brain, neuro-impulses, and emotions to body control and the formation of new skills and habits.

**1.6. The** **"musical nature" of Body mapping**

Only at the turn of the 21st century, professionals emerged who started to apply somatic theories to the solution of music performance problems. At the musicians’ initiative, the global association *Andover Educators* was established, and due to its activity, a new concept of a systematised body model – *Body mapping* – was developed, representing the body image in the brain. That means a somatic sense of different parts of the body (their size, weight, and function) and the mechanical and physiological principles of their functioning. Body mapping suggests looking at one's own body as if through an X-ray machine. Only when the body map is accurately represented in the brain's sensory cortex can we move correctly and freely. When the movement conforms to the physiologically natural, innate principles of the functioning of body parts and of the body as a whole, it will be easy, convenient, and will not cause traumas in the long run.

A closer acquaintanceship with Body mapping principles reveals its fundamental overlapping similarities with the Alexander and Feldenkrais systems. They all promote cognition of the functioning of the body from inside through awareness, in-depth studies of the somatic senses of the body and mind, and the representation of body parts in the brain. Musicians who study those theories and make use of the exercises, proposed with the aim of helping one sense the subtle systems responsible for controlling body parts, quickly realise that "the right/correct posture" and "a good balance" are not some fixed positions that one needs to prepare for and to purposefully get into. It is an individually discovered, natural and balanced state of the body, based on the biomechanical principles of body functioning.

**2. APPLICATION OF SOMATIC PRINCIPLES TO FLUTE PLAYING**

**2.1. Breathing as the basis of playing**

The sound of wind instruments, its *vibrato*, dynamics, phrasing, articulation, and finally the overall musical expression are preconditioned by a changing airflow. For wind players, the meaning of breathing itself is different from "everyday" breathing (which is usually unconscious inhalation and exhalation). There are many different views on how to best match the naturalness of the breath with functionality. Frequent abstract recommendations in the methodological guides for beginners to "inhale deeply" or "inhale in the belly" may be understood, interpreted, and executed differently. Flute playing actually uses the same mechanisms as talking or singing – starting with the lips and with the vowels and consonants formed in the mouth and ending with the big muscles around the abdomen and chest. In order to make sure that the techniques needed to produce the sound of the flute are correctly used and that the body's natural balance is maintained, the flutist must be able to stop, to evaluate his position, and to check whether it is good for natural speaking and/or singing. If the voice falters or cracks, that may be due to excessive effort when the neutral state of the speech mechanisms is too different from the position of playing.

The only intentionally initiated process of blowing into the instrument can be described as the conscious, voluntarily controlled relaxation of inspiratory muscles leading to air release or the conscious, voluntarily controlled balance (the so-called "support") between active blowing and the relaxation of the diaphragm (which is passive during exhalation) and external intercostal muscles. When blowing a controlled air stream into the instrument, the musician allows the intercostal muscles to relax, while the diaphragm, in turn, relaxes, curves, and gradually rises. In exhaling, the diaphragm muscle cannot do anything more than relax, therefore such instructions as "blow from the diaphragm" are also useless. Lung contraction is regulated through the "support", a resistance created by the interaction of striated abdominal muscles and intercostal muscles. It is those muscle groups that play a major role in conscious exhalation (blowing) when playing a wind instrument. We also feel them when coughing or sneezing.

**2.2. The head and eyes as the centres of body control**

 The eyes are not only an organ of vision, but also a source of orientation in space, as well as of curiosity, attention and concentration, and sometimes also of tension. Often a metaphorically used phrase "a fixed gaze" also has a somatic quality: ocular tension, "hardening" of the gaze, fixing the eyes on something results in the stiffness not only of the head and neck but of the whole body (Shafarman 1997: 163). Various forms of stress, stage fright, excessive effort, and a high level of concentration often cause what is known as a startle-fear reflex, characterised by excessive muscle, eye, and neck tension. The shoulders rise, the neck muscles contract bringing the head down, and the back becomes tense. Quite a few musicians perform in the mild stages of that reflex without even realising it (Pearson 2006: 15–16).

 The balance of the head is predetermined by the balance of the cervical vertebrae. The more the balance of the head is maintained by the skeletal structure of the spine, the less tense the muscles in the occipital and neck regions can be. Although called "transverse", the flute is actually held obliquely, with the head slightly turned to the left, all without twisting the shoulders or hips or tilting the head (Wye 2009: 19). That ensures optimum (unobstructed) airflow from the lungs, allowing for the freedom of the gaze and neck.

**2.3. The relationship between holding the flute and the finger technique**

 Optimal and balanced holding of the flute is the state of the body (not just of the hands) where the flute is brought to the playing position with minimal changes in the physiologically natural structure and functionality of the body parts. Such holding should allow the performer to control the instrument in a comprehensive manner – conveniently, efficiently, and steadily. The flute is a relatively small instrument that, when played, is attached to the chin/lips, and balanced by the hands of the player. The flute does not have any anchorage point on the ground or gravity stabiliser – it would fall down if the performer lost his hold of the instrument. At first glance, a flutist may seem to hold his instrument in his hands only, but, as with many parts of the body, the case is characterised by multiple links between muscles, bones, and joints. Thus, the optimum body weight balance also includes the flute – it extends the arms as if it were another body part.

 Technical playing is a coordinated movement of the fingers, which is the result of a nerve signal, purposefully transmitted from the motor cortex. When playing the flute, finger movement is most functional when a finger moves as an integral whole and the first two phalanges of the fingers are not too curved. Then the balance between the muscular and the skeletal structures of the finger is achieved. The movement of the finger when playing the flute (down/up on the keys) requires the work of flexors and extensor muscles, respectively. The nature of the movement is antagonistic – when lowering the finger, the extensors relax and allow the flexors to work, and vice versa. If an improperly directed effort or muscle tension activates also the antagonistic muscle, then the speed and ease of the movement of the finger will be restricted.

**2.4. The waist and hip areas as the centre of gravity of the body**

 By bending over at the waist, a person divides his body into two parts; the centre of the mass of the human body is around the bend. Taking and placing the flute in the playing position changes two balance indicators: the total mass (the mass of the flute added to that of the body) and the position of the centre of gravity (changed by the raised hands and the flute held in front of the body). The pelvic area is the one that most strongly influences the distribution of the body weight (the division) and the balance of the body, both when sitting and standing. The major problem lies in the potentially harmful habits of standing and sitting. Often, when we think that we stand in a neutral position and keep our balance, we are, in fact, bending or leaning, and through artificial straightening up we tend to exacerbate the situation. The discovery of a neutral, anatomically correct pelvic rotation and optimal weight distribution in the playing position must be based on the possibility of (self) diagnosis. Diagnosis can be made by experts – a physician, a physiotherapist, or a professional of somatics, biomechanics, or kinesthesiology. Self-diagnosis is also possible when the principles applied allow for effective finding of the most appropriate pelvic position.

**2.5. Search for the balance of the leg and feet and that of the posture**

 In the position of playing, physiological changes from the anatomically neutral position take place: the arms holding the flute are raised, which slightly elevates the place of the weight centre as, when playing, both the hands and the flute are located at the top of the body, above the waist. However, that does not diminish the links of the balance with the lower part of the body and the floor support; on the contrary, the importance of proper counterbalance when playing the flute is only increased. The balance points in the legs – the knees and ankles – play an important role in organising and coordinating the balance of the whole body, and the feet, like the foundations of a house, determine the "grounding" and stability of the body. This is important when seeking to improve sound quality, enhance musical expression, or accelerate a trill.

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 The complexity of balance lies in the totality of its constituent factors. There is no single factor that uniquely influences postural comfort; therefore, in the search for balance it is important to consider all its constituent elements, including the distribution of attention, the intension of movement, and its amplitude. Their individual combinations will influence the result, i.e. the characteristics of the body position.

 All somatic theories and practices refer to balance and the optimal dynamics of the body activity, and practitioners emphasise the importance of finding balance when playing the flute. The posture can be viewed and analysed externally by third party observation; however, achieving balance is most effective from the first person's perspective (the inner "I"). Therefore, the development of a kinaesthetic sensation and of all-inclusive attention is one of the most important skills a musician should develop.

**3. SOMATIC PROBLEMS OF FLUTISTS**

**3.1. Specificity of somatic problems**

 The basis of every musician's expression is brain-driven movement, and the body performing those movements is a living, breathing organism. Its structure and functionality are constantly affected by a number of factors, including the aging and wearing down of the body's tissues and joints and the strain on the tendons and muscles during movement. Long hours of playing in a fixed position, various stressful situations, and playing on stage tend to wear one out both physically and mentally. The quality of playing is predetermined by internal and external factors, therefore, a range of solutions for the problems most frequently encountered by flutists can be developed with a thorough etiological (Greek *aitía* 'cause', 'condition' + *logía* 'science') analysis. It is necessary to take a comprehensive look at even the smallest phenomena that make up performance, from abstract internal to specific external aspects. They are not subject to change in the same way: some of them are preconditioned by nature, environment, and external factors and conditions, while some can be changed in the process of playing.

**3.2. Somatic challenges in performing extended techniques**

 Somatic body control challenges become even more evident in the performance of the 20th through the 21st century compositions that include extended performance techniques. One aspect of performing the extended techniques, mainly overlooked and under-researched, is body use, often non-standard, and sometimes even extreme. Performers need to become familiar with the somatic traits of those techniques and be able to fluently combine their performance with classical playing techniques without risk or discomfort. The performance of traditional and contemporary techniques differs, however the principles of optimal body control remain valid even in cases of increased input and effort.

 Through in-depth exploration of the somatic features and challenges of the extended performance techniques, new ways of controlling the body and expanding physiological capabilities are being discovered. When combining the performance of the contemporary techniques with the classical methods of playing, the intertwining with the somatic principles promoting optimal body use is observed. Extended techniques test the performer's physiological systems to the extreme, and their combination with classical performance techniques increases conscious body use. That is particularly useful for the performer: on returning to the traditional repertoire, more subtle and accurate control of sound, intonation, timbre, resonance, and dynamics, widening of the variety of articulation, as well as strengthening of the respiratory system can be noticed.

**3.3. Application of somatic theories and practices to problem solving**

 Two types of muscle activity take place when playing: dynamic (motion) and static (posture). The large muscles of the legs, back, shoulders, and arms perform a static function, maintaining the position of the player during performance, while the smaller muscles of the mimicry, fingers, and forearms are mostly responsible for the dynamic function. The risk of dysfunctions and traumas arises from the static overload of dynamic muscles. That usually occurs when trying too strongly to stabilise parts of the body by tensing: immobilising the neck and head in a fixed, immobile position or holding the flute with rigid ("hard") hands, fingers, and wrists.

. It is important to pay attention to the "doing" and "non-doing" aspects of an action (Alexander’s terms). One may confuse *non-doing* with mere relaxing, intentional conscious relaxation of a muscle or an active body part. In reality, however, it is an active, conscious action that requires interrupting a habitual movement. That enables conscious control over the body. The question to ask is: Can a more optimal and easier way of moving be achieved through not doing something? For example, when holding the flute in the playing position, one of the shoulders is spontaneously pushed forward and becomes tense. In dealing with this tension, an active action can be undertaken, i.e. the shoulder in the playing position can be oriented backwards, or a passive action, i.e. not pushing the shoulder forward. Non-doing in such a case provides optimal possibilities for the self-adjustment of the shoulder girdle, while an attempt to correct the wrong shoulder position through "doing" may create tension in the new, artificial position.

 The benefits of somatic theories and practices are discovered through proper interpretation and integration of their principles. By focusing on the movement process rather than the end result, conditions are created for the self-regulation of the body to an individual and optimal playing position and to moving effectively and freely. The goal is most easily achieved by asking neutral, open-ended questions with no semantic implications during playing, such as "Where does most of the effort go in the process of playing?", or "What and in what way changes from the neutral body posture until the beginning of flute playing?"

**4. THE AUTHOR'S SOMATIC METHOD FOR FLUTISTS**

 Active improvement in flute playing can be underpinned by virtually endless amount of information through the Internet, books, and masterclasses. Therefore, this chapter seeks to highlight the somatic principles most useful for flute playing through refining them into a set of recommendations and exercises, using the theoretical and practical knowledge gained. The findings of the author's research and the effectiveness of the proposed methodology in practice are defined by objective indicators, such as the effectiveness of the technique of performing compositions for flute and the development of opportunities, focusing on, or covering, the most important aspects of expression: acoustics and sound, finger technique, and articulation. The benefits of the concepts presented in the methodology can only be empirically evaluated by performers themselves, since the findings of somatic research are too vague.

**4.1. The aspects of acoustics and sound**

 Sound is the primary means of musical expression that connects the performer with the audience. Sound formation on the flute is a highly individual and personal process; however, it is defined by, and limited to, three basic phenomena: the flutist's somatic characteristics, the flute itself and its acoustics, and the expectations of the audience and professionals established in the music industry. All of them are directly interrelated and determine the musical result. The following exercises and experiments are proposed:

 1) Play any note with as neutral airflow parameters as possible: comfortably inhale (as much as necessary for uttering a simple and short sentence) and exhale air into the flute through fairly relaxed lips, without trying to meet any special requirements for the timbre, dynamics, or quality of tone. That can be difficult at the beginning as flutists rarely start without any sound parameters-related purpose. The key to that experiment is to start from zero – to hear the natural, "biological" sound of the flute without prejudice, effort, or routine action. The exercise will help one understand and explore all the (un)intentional micro-movements that are involved in inhaling and in the air transfer from the performer's body to the flute.

 2) Artificially stretch the abdominal muscles, as if you want to avoid being punched in the abdomen, or try to artificially expel all the air from the lungs. When the air is completely expelled or when the stomach is artificially stretched, the throat becomes automatically "locked", thus preventing a free airflow to the flute. That kind of experiment allows you to practically feel how tightly bound the air flow over its entire length is (like an anchor underwater and a ship above water). The main reason for that is anatomical: the phrenic nerve connects the diaphragm to the cervical plexus, so that when one part is tensed, the other automatically tenses, too.

 3) When simply blowing through an embouchure without the instrument, move the flute into playing position. It is important not to be frightened by a potentially "dirty" beginning of the note when the flute comes in contact with the chin and lips. By repeating that blowing technique several times and more precisely directing the airflow into the flute mouthpiece, it is possible to achieve a rather full, resonant sound without much extra body tension and effort. Moreover, a performer may discover useful sensations for standard sound formation because he no longer responds to the flute, puts less effort in adjusting to it, any impulsive action or tension during placing the flute in the playing position is prevented, and the performer makes sure that the airflow is truly free and only then "blown into the flute".

 4) Inhale through an already formed embouchure. It is natural to shape the lips in the process of playing, however one seldom thinks of doing the same when inhaling. An exercise of inhaling through a narrow gap between the lips is useful in three aspects: for training the muscles around the lips, for the development of inspiratory muscles contributing to deeper inhalation (creating resistance), and for checking the freedom of the mouth and throat muscles. The benefits for the sound and the air column release manifest themselves when, during the exercise, the performer with the flute at his mouth can immediately compare the air passage to the instrument and, without removing the lips from the instrument, inhale through the same slit. If you feel obstruction in your throat, you will find it easier to identify the muscles that may be useless for an open, free sound.

**4.2. Characteristics of articulation**

 In musical expression, like in language, articulation (Lat. *articulatio* 'expression', 'pronunciation') combines phonetic and syntactic elements and defines the flow of sounds in time and the "shape" in space. Ideally, articulation is clear, pure, varied, and controlled. The sophisticated and versatile articulation of flute playing contributes to the shaping of the qualities of sound into an acoustic, musical narrative, when musical sounds become more understandable and communicative to both the audience and potential co-performers. The "pronunciation" of a musical text composed of notes is not merely a mechanical, technical, but also a creative process. The flute’s open acoustic system offers a lot of opportunities of starting the note in various ways, while the character of the performed composition and other performance-related requirements, different instruments playing alongside the flute and seeking to get in tune (each with its own unique articulation characteristics), the performer's individual interpretation, and the acoustics of the premises have an influence on the diversity in articulation.

 Some major ways of search for good articulation to be proposed include:

1) finding "reaction" in the sound;

2) optimisation of air transfer from the lungs to the flute;

3) finding the most appropriate contact point between the tip of the tongue and the articulation site;

4) adaptation of pronunciation of different vowels and consonants.

 Finding the most accurate and optimal articulation is a very individual process. The ability of the performer to control the phonetics of speech is very important, yet even more important is the control of the air and its proper transfer to the flute. Then articulation becomes the air-shaping factor, and the energy of the airflow turns into the basis of the musical expression.

**4.3. Finger technique and coordination**

 The virtuosity of the flute repertoire and high requirements result in a large part of a flutist’s practice being devoted to technical passages. The effectiveness of finger technique can be derived from two different poles: body control and memory. Body control incorporates coordination, speed, and the freedom of movement, while memory is a variety of mental techniques used by the performer to remember and perform the passages played.

 Mastering complex fingerings is the basis of a good finger technique. That requires the autonomy of the fingers, i.e. free movement of the relevant finger without affecting others. When one or more fingers are intentionally moved, excessive movement of the fingers around can reduce the effectiveness of the technique. Performers are recommended to place their hands, palms up, on the table and examine the movement of each finger individually. It is important to observe not only the sensations during the movement of the finger but also the softness of the whole palm and the "non-involvement" of the adjacent fingers. It is a common mistake for flutists, especially in trills and repetitive passages, to "lean" on the valves with the fingers next to the moving finger(s), possibly to create a sense of stability.

 The author's recommendations and **exercises** for a smooth and effective finger technique:

* 1) Modification of the holding position. "Play" technical passages with the flute in the off-play position, only using fingerings: hold it on the left shoulder, with the head joint under the nose (by holding the flute straight in front like an oboe or clarinet), raised above the head, or lowered with the keys down. All the different positions can give the performer new somatic sensations of a different weight balance or of holding the flute in a freer way. As soon as the flute is placed in the playing position, reduced effort and less tension are possible.
* 2) Modification of the finger position on the keys. Play not with finger tips, but with "fingerprints", i.e. straight fingers, maybe even bending over the last phalange near the nail (the feeling of "turned outside" fingers). That can help to prevent grabbing as well as high strain on fingers and palm muscles during technical passages.
* 3) A thumb positions experiment. Hold the flute in the standard playing position but do not use your thumb – take the left thumb away from the key and keep the right one under the flute without touching it. You can then "play" mute passages without using thumbs whilst striving for their freedom. The exercise will allow you to check that there is not a lot of pressure and muscle tension between your thumb and the remaining four fingers. Excessive movement of the flute can mean too much effort and too "hard" fingers. The ultimate goal is to press the keys quickly and precisely only by overcoming the tension of the spring, and to lift the finger accurately and easily, without removing it too high from the key.

 Good finger technique and coordination are the result of a complex set of skills, including optimal body control and a balanced playing position, comfortable flute holding, and a variety of mental abilities resulting from memory and the activity of the motor centre in the brain. It is very important to develop both the physical and mental aspects of the technique in parallel so that they complement each other and reinforce the learning process. As soon as the exercise or a sequence of exercises becomes too familiar and common, it is time to modify or replace it, as the brain and the muscles it controls develop best in response to change and to new and increasingly difficult tasks rather than to entering a comfort zone and routine.

**4.4. Integration of somatic principles into a holistic somatic state**

 Just as a flutist listens to the sound they produce, somatics teaches one to "listen" to their body – not only to focus on the desired result but also to observe the process. The union of mind and body occurs when the body signals are "heard" through monitoring the body's position, the level of tension, and the sense of movement and are interpreted correctly. The two-way communication provides the basis for improving the functioning of the body, facilitating the playing process, and preventing problems, dysfunctions, and occupational diseases.

 The inside and outside are closely interrelated and influence each other, however, sometimes it is difficult to find a balance between them and combine analysis with automation. The brain controls all the processes of the human body and predetermines both optimal body use as well as tension, stress, and dysfunction. The property of the brain – constant change and plasticity – enables performers to reprogram their brains into new habits that are more suitable for good playing, which eventually become the norm and reach an unconscious level of productivity. However, the performer can consciously focus only on several components while playing, therefore it is important that they strive for a single somatic state in producing the desired result. Consistent somatic analysis of the playing process will provide flutists with a wide range of tools that can improve the body-mind relationship and help discover optimal paths. Then, by virtue of its innate qualities, comprehensive improvement will become more easily attained.

**CONCLUSIONS**

 Upon studying the main somatic theories and practices and their application, upon analysing the primary somatic challenges of playing the flute and their possible solutions as well as using personal experience, the author concludes:

 1) Somatics ought to be regarded not as a cure, but as a process of self-education in which, through various methods, a person finds the most optimal way to purposefully move without stress. Through in-depth study of the body's biomechanical principles of action and the practicing of somatic techniques, performers understand that a "correct posture" and a "good stance" are not some fixed positions they need to prepare for and get into. It is an individual, natural, flexible, and balanced body condition that is to be discovered personally by everyone. When interpreting and applying somatic principles, the most important question to ask is why a particular exercise, technique, or way of thinking works, helps, improves function, etc. That leads to the discovery of universal criteria, based on which the most functional techniques and practices suited to an individual's needs or to a specific situation can be selected. A deep analysis of somatic theories and practices reveals the intertwining similarity of ideas: through awareness and in-depth study of physical and mental senses, the knowledge of the inner workings of the body is encouraged.

 2) The benefits of somatic theories and practices are discovered through proper interpretation and integration of their principles. By focusing on the movement process rather than the end result, the body is provided with conditions for self-regulation to an individual and optimal playing position and for moving effectively and freely. When a movement during playing conforms to the physiologically natural, innate principles of functioning of the body parts and their totality, it will be easy, comfortable, and will not cause traumas in the long run. That is especially relevant to flutists due to their asymmetrical playing position. The most important thing to keep in mind is the dynamic state of the posture: any inflexible, static posture, even if balanced, can cause fatigue and discomfort over time. Avoiding a fixed position provides the body with the conditions for self-balance: even a static position ought to be flexible and mobile; "it is not necessary to move, but it is necessary to be able to move" (Prof. Winn's maxim).

 3) The body that makes movements is a living, breathing organism. Its structures and functions are constantly affected by many factors, including the aging and wearing down of the tissues and joints and the strain on the tendons and muscles during movement. Long hours of playing in a fixed position, repetitive movements, various stressful situations, and playing on stage tire one out physically and psychologically. The main causes of tension during play are excessive effort and inaccurate body maps.

 The application and use of somatic theories and practices in daily work greatly increases the likelihood of maintaining good physiological functions. Key recommendations for artists include:

* getting to know the somatic characteristics and specificities of one's own instrument, both on theoretical and practical levels;
* paying conscious attention to one's own music making habits, actions, the quality of movement, and the balance of posture;
* collaboration with physiotherapists, kinaesiotherapists, and other professionals and their introduction to the specificity of fluteplaying. In case of problems, professionals should be consulted: medical people, neurologists, or massage therapists.

 4) An in-depth study of the somatic features and challenges of extended performance techniques reveals overlaps of somatic principles that promote optimal body use when combining contemporary and classical playing techniques. Extended techniques test the performer's physiological systems to the extreme, which increases the conscious use of the body and the stamina for playing. The somatic body functioning principles are felt more strongly, becoming visible as if through a magnifying glass, and new ways of body control as well as the expansion of physiological capabilities are discovered. That is particularly useful for the performer: upon returning to the traditional repertoire, a more subtle and accurate control of sound, intonation, timbre, resonance, and dynamics can be noticed, variety of articulation expanded, and the respiratory system strengthened.

 5) Every somatic challenge and problem must be solved not only locally but also holistically. Such a line of thinking forms the basis of the author's methodology. The effectiveness of the methodology in practice is defined by objective indicators: the effectiveness of flute playing technique and the development of expressive possibilities, focusing on the most important aspects: acoustics and sound, finger technique, articulation, and breathing. Daily challenges of flute practice are recommended to be approached in various ways:

* to give priority to a comprehensive understanding of the context, and not merely to the pursuit of the result through repetitive practicing of a passage or an exercise (Alexander's end-gaining);
* to feel the holistic links between all bodily systems;
* to seek the balance of the body parts that maintain the static and dynamic playing positions.

 The proposed methodology works through the proper balancing of the physiological systems of the body and effort optimisation. The daily workloads of musicians then do not destabilise the body's functional and structural sense. The state of the optimal physiological balance when somatic techniques and practices are properly applied ensures body balance and self-regulation. The author hopes that the research into the importance of somatic techniques and practices to the musician and the proposed methodology for flutists will be useful to the students of the Lithuanian Academy of Music and Theatre.