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I INTRODUCTION

Aerobics programs include activities which are performed as exercises for body shaping and movements to a particular rhythm. These movements are predominantly cyclic and acyclic, and they imply synchronized movements of hands, legs and the whole body, usually with musical accompaniment. Aerobics and step aerobics have been the groundwork for group programs for many years. Aerobic classes offer various types of training and equipment. The fitness industry does not spare money when it comes to innovations. The manufacturers obtain a patent for various exercise equipment and movements in hopes of starting a new world trend.

Sport has a great potential as a means for promoting social inclusion and cohesion in the European society. It provides the citizens with the opportunity to interact and join social networks and helps people with special needs to establish relations with other members of the society. This is a device against segregation and discrimination in the society. Therefore, it is ever more important to promote the inclusive approach to sport. Everyone should have access to sport ACTIVITIES.

Sport should play a certain role in promoting the integration of people with special needs. Considerable efforts should be made to ensure people with special needs access to sport facilities, infrastructure and activities. Their specific needs should also be taken into account, especially in schools.

The reason for the support of sport sector is to ensure public good for better health, welfare, education, social integration and democracy. Equality and open approach to sport activities are guaranteed by public inclusion. Whereas some sport organizations are economically independent, most of them still depend on public financing.

Aerobics program can increase the quality of life of all persons with special needs and contribute to their socialization by spending quality time with them. Aerobics exercise programs can be applied for preventive and remedial purposes. The movement therapy is used for persons of various ages and physical readiness. It establishes the person’s psychomotor integrity undermined by the acquired or congenital impairment. This type of exercise enables the performance of movements and motoric exercises in a unique way.

The disabled persons who have missed early rehabilitation are redirected from the aspect of certain features that have an impact on their age, lifestyle, self-struggle and social integration in the sense of performing daily tasks and activities. They have various degrees of impairments in psychophysical development. Thus, their individual abilities differ according to the type of daily activities and movement tasks, hand movement control, cognitive disorders, perception, speech or sensory impairments. A special program is designed for each child individually.

The aerobic exercise program increases the sense of measure, the possibility to perform complex motor tasks, observation, the understanding of tasks, visual-motor imitations, space orientation, and self-consciousness.
The application areas of psychomotor therapies: from minimal cerebral dysfunction to attention deficit syndrome or hyperkinetic syndrome.

The principles of social group work, the models of social group work and group processes are preserving physical and mental health, maintaining vitality, taking a break, refreshing, enjoying the pastime and promoting sport and recreational activities in the society.

Active exercises improve heart work and blood circulation, develop all motoric skills and general physical fitness, which in turn contribute to health preservation and improvement.

Aerobics programs are carried out continually with music accompaniment to avoid the monotony of exercises as well as under- or overactivity of the muscles. Particular emphasis is laid on music whose artistic value has relaxing effects and which enables the coordinated practice with the instructor’s movements. Music motivates and provides the dynamics.

Step aerobics uses step benches for training. It encompasses the learning of basic body shaping steps and exercises. It also includes the gradual rise of functional skills levels and shaping and tightening of the musculature.

There are various characteristics of step aerobics. Some choreographies are more demanding than the others and they are motivated by music, which makes step aerobics so popular. Step aerobics is a type of intensive conditional training which uses choreography and is based on many recurrences.

The aim of the program is to alleviate or overcome additional difficulties that children with LMR have (emotional, volitional, learning and behavioral problems, speech impairments, motor disorders, social difficulties, etc.). Various forms of communication, such as visual, auditory, scenic, musical, etc., are carried out through correction programs.

Of course, aerobics should not be viewed upon as an independent form of working with disabled people, but as a method of therapy and a means for achieving global working goals with a person defined by the individual program. It should also be considered as a mode of work which will operate both as a strictly defined and directed therapeutic procedure and as a part of the overall work which would be interesting to a person and in which he/she could enjoy.
II AEROBIC TRAINING

Aerobics is a routine activity, rhythmic in nature, which involves using a large number of muscle groups for a certain period of time. Regular aerobic training improves the level of physical fitness and strengthens the heart so that it can function more efficiently. The result is more blood being pumped into the heart with each heartbeat, allowing the increase of oxygen to the tissues. Aerobic exercise is the basis for several types of exercises. Thus, the increase of aerobic fitness allows a person to exercise longer and more intensely, and the revival period is reduced. Aerobic training can be performed through many activities, such as bicycling, jogging, running, swimming, cross-country skiing, skipping rope, roller skating, dancing, etc. One of the most popular means of providing aerobics training is running specialized aerobics programs in halls and fitness centers.

Group programs are taking hold around the world and are becoming part of everyday lifestyle. New trends are being developed every season, from classical high-low aerobics to programs including various equipment and accessories. Furthermore, new instructors for new programs are educated and trained.

Aerobics exercises in groups and with music is time well spent. According to Webster’s vocabulary, the word “aerobics” is defined as “living, working or happening only in the presence of oxygen”. We are all aerobic beings, which means that we need to breathe air to survive. Cooper (1973) extends the term “aerobic” to include exercises for “better air supply and oxygen usage”. The term can be explained as the activity of any kind which requires energy consumption. Our bodies receive this energy by “burning” the food we eat. Oxygen is the burning catalyst, while food is the fuel. Our bodies are able to generate depots of food but cannot store the oxygen.

According to Cooper (1973), the point is that some breathe better than the others. Some individuals breathe so efficiently that they supply with oxygen every part of their body where the food is stored and produce energy abundantly. With other individuals, the oxygen is not supplied sufficiently to all places. They are easily fatigued and cannot endure for a long time. In simple terms, they are physically incapable in comparison to aerobically capable individuals. During aerobic training, the cardiovascular system (the heart, lungs and blood vessels) reacts on the increased level of physical activity by the increased intake and usage of the oxygen for the purpose of releasing the energy.

2.1 How Much Should You Exercise?

To achieve optimal results, spend at least 30-45 minutes of moderate physical activity per day, few times per week. Remember that no matter how hard you exercise, it is better to exercise a little than not exercise at all.
2.2 Who Can Participate?

Aerobic programs are adjusted for everyone. Each type of aerobic exercise can vary depending on the intensity, persons’ different aims, various physical readiness and past injuries and illnesses. Persons older than 40 or with heart or blood pressure problems or some other cardiovascular issues should consult their physicians before indulging in exercises. It has been documented that aerobic training has a beneficial effect on human organism for the prevention and treatment of many diseases, such as heart disorders, diabetes, arthritis, anxiety and premenstrual syndrome.

2.3 Additional Benefits of Aerobic Training

- helps to regulate and reduce subcutaneous adipose tissue
- increases fatigue threshold and gives organism more energy
- improves mood, relieves the depression
- improves the quality of sleep
- increases the level of “good” (HDL) cholesterol
- decreases the risk of some types of cancer.

2.4 How Much Is Too Much?

How much cardio exercise should you take? A general recommendation is 90-120 minutes per week, in 3-4 half-hour long sessions of moderate to intensive cardio exercise. Since some experts advice 90 minutes max, it is also possible to take only one training per week at a lower intensity, at approximately 60% of the maximum heart rate.

For the runners, more is not always better. In comparison to fast walking or jogging, running can be one of the catabolic forms of aerobic exercise. Running is not always recommended as the part of physical training program because of the high amount of stress to which the body is exposed and because of the calories consumption.

2.5 Various Possibilities with Cardio Training

Don’t be afraid of different cardio trainings because the diversity can accelerate fat loss. For example, exercising on a stepper or rowing machine can serve as a substitute for stationary bicycle.

For best results, change the cardiovascular modes of exercise instead of increasing the duration of the training. Simply switch between stepper, elliptical bicycle, rowing machine, etc. You will achieve better results in the sense of weight loss.
III GROUP PROGRAM

Year after year, recreational sport is ever more developing and entering our lifestyle. Each year, sport enthusiasts invent new ways of affiliating sport and entertainment. The same can be applied to group trainings which are mostly carried out in fitness centers or in other environments. Various training types and equipment can be obtained and tested in fairs and conventions. While some programs come to life, others remain exhibits in the corners of fitness centers. Fitness industry invests heavily in innovations, and manufacturers obtain patents for various devices and moves, in hopes of initiating a new world trend.

Several types of exercises have come to life in the last several years, some of which became the world’s greatest success. The WORKOUT programs from the late 90s became very popular. Workout program is group training in which dumbbells, barbells and other equipment (rubber, core board, ball, etc.) are used. Exercises in the gym are adjusted for group training. General population accepted this program because of its simplicity and quickly noticeable results. Workout programs are commonly carried out in aerobic mode (without a pause or with a short pause), so exercisers can burn fat and concurrently strengthen and shape the muscles. It might be physically demanding, but the training effects actually sound alluring. The programs have several names: Lift, REP, Pump, Sculpt, but they are all similar and they all use dumbbells and barbells capable of adjusting the weight.

3.1 Step Aerobics

Manufacturers of fitness equipment constantly invent new training equipment, but the most popular one is the aerobic bench (110 cm in length, the height can be adjusted to 15, 20 or 25 cm). Stepping up, down and over the bench combined into logical and interesting sets accompanied by music are appropriate to all exercisers, regardless of their sex, age or physical readiness. Although the training is mostly performed by walking, its effects are the same as in jogging. The experts in this sport claim that it is very important for a trainer to know how to put together an interesting and useful set of exercises, to present them well and to pay close attention that each exerciser learns to master the technique. If used correctly, step aerobics cannot cause joint injury. The trainer has to teach the exercisers how to coordinate the intensity of practice within their capabilities. Step aerobics is performed with fast, rhythmic music. The pronounced formation and muscle endurance are achieved by the
so-called “new body” step which burdens both hands and legs. Apart from benches, good sneakers with air cushion which soften the falls of the legs to the ground. Each training is designed to begin with warm-up and stretching, followed by fitness-gaining exercises. Finally, the training also finishes with stretching.

3.2 Pilates

When Josef Pilates, a German emigrant, gymnast, boxer and dancer invented stretching exercises for ballet dancers (whose muscles suffer due to complex and repeated ballet movements), he enthused not only New York ballet dancers, but many others. Not much time has passed when Pilates became popular across the world as the system of exercises for strengthening and shaping the muscles, better posture and more flexible joints, applicable for recreational purposes. Today, many famous stars, such as Madonna, Julia Roberts, Sharon Stone and others, engage in Pilates. These unique exercises are suited for everyone, regardless of their age and fitness. Even convalescents and women in the last stage of pregnancy can practice it. Pilates exercises do not increase muscle mass; rather, they help to shape the muscles, they make joints significantly more flexible due to slow, mild and controlled moves that do not require significant effort. The moves resemble the style found with Asian dance. The exercises do not concentrate only on the body work but also on breathing, by which the balance between body and spirit is achieved. Pilates functions as the in-depth massage because the smallest muscle fibers are activated and fed, and the accumulated toxins, stress and fatigue are removed from the body. The results are quickly visible: already after 15 to 20 days of exercising the posture and the appearance of the body change and the circulation is improved. In the long run, the Pilates exercises reduce the risk of injuries, slow the aging process and prevent or alleviate the arthritis pain and osteoporosis. To engage in this sport, it is enough to have good will and comfortable clothes.
3.3 Zumba

The creative genius behind the Zumba Fitness formula – Alberto “Beto” Perez – started practicing dancing as a boy in his hometown Cali, located in the southern part of Columbia (South America). Interestingly, Zumba arose quite accidentally, during Beto’s arrival at one of his aerobic classes. When he realized he left his aerobic music at home, he improvised by taking his favorite latino CD from the backpack and putting it into the stereo. This was the first Zumba class. A few months later, his classes became so popular in Cali that the famous pop star Shakira hired Beto as a choreographer for her “Pies Descalzos” album.

Armed only with his charisma and the unstoppable power of will, Beto moved to Miami to try to popularize Zumba in the USA. As always, he struggled at first. Soon, however, two businessmen – Alberto Perlman and Alberto Aghion – noticed his innovative style. The three of them joined forces in 2001 to create Zumba Fitness, LLC – a large company based on Beto’s fitness philosophy.

Because of Beto’s passion towards latino music, exotic dance rhythms and fitness, Zumba program was created as a unique combination of dance and exercise. Realizing that fitness group programs need to be primarily fun with “no thinking” elements so that they could be accessible to large masses and not only coordinated beginners, he wanted to make Zumba classes available for everyone, regardless of their fitness level. As he created Zumba, Beto knew he had created a fitness phenomenon, but he couldn’t even dream that it would become a world-wide phenomenon so quickly. By the year 2007, Zumba program has qualified 10,000 trainers in over 30 countries, sold around 3 million DVDs, while 1.5 million people took Zumba classes. Today, Beto travels the world and presents Zumba philosophy, which is discussed in numerous TV shows and magazines: The Today Show, Fox News, CNN, Time Magazine, Woman’s World, Oxygen Magazine, People, Deco Drive, etc. Beto’s dreams came true by helping millions to feel good and get fit.

Zumba frenzy which took over the entire world is entering the world’s fitness centers with a lightning speed. It is enthusing masses with its hypnotizing rhythms and unique, yet interesting dance movements. Music, steps and choreography are the three elements that together make Zumba program unique and revolutionary in the fitness world, thus distinguishing itself from the aerobic programs. All three elements independently are not unique, but their combination makes a special, new and dynamic fitness experience.

Music

Music is the guiding star and the most important element that makes Zumba program different from Aerobics programs. It needs to be energetic, create the sense of “partying” in the class and awake the passion from the attendants. Latino and international music in Zumba program should constitute at least 70% of the overall music genres on CDs. This includes 4 basic latino rhythms: salsa, merengue, cumbia and reggaeton, as well as samba, rumba, flamenco, quebratida, etc. The remaining 30% is comprised of the music genres.
chosen by the trainers themselves (for example, oriental, rock music, etc.). This way, the trainers’ creativity and conduction style comes to expression. Zumba class must not comprise mostly salsa or reggaeton songs, but a variety of rhythms and fusion of various music genres.

International music hits are the most common type of music used with aerobics, although some other genres (such as r’n’b for dancing types of aerobics, or latino for latino aerobics) may also be used.

Zumba combines fast and slow rhythms which dictate the tempo. The transitions from one song to another are separated by pauses, while in aerobics every song is “mixed in” without pauses. They move from slow towards fast tempo and the transitions follow the structure of a large musical phrase (32 measures).

Classes

Zumba classes usually last around an hour and they are predominantly held by licensed instructors. The exercises include music with fast and slow rhythms as fitness training. The music is of the following genres: cumbia, salsa, merengue, mambo, flamenco, chachacha, reggaeton, lepene, samba, belly dance, bhangra, hip hop, axe music and tango. There are 8 types of Zumba for different age groups and levels of effort. The groups are:
- Zumba
- Zumba Gold
- Zumba Toning
- Aqua Zumba
- Zumbatomic
- Zumba in the circle
- Zumba Gold-Toning
- Zumba Sentao

Zumba Gold mainly targets the older population. It is specifically designed to satisfy the needs of the elderly and includes the same type of music as Zumba. Zumba Toning is designed for people who do their workouts with toning sticks. It targets the abs, thighs, arms and other body parts. Aqua Zumba is Zumba in swimming pools and includes challenging water exercises. Zumba in the circle is a combination of dancing and circuit training.

Zumba program is safe for all ages. Some classes are specifically aimed at elderly people; it can help them to gain strength, improve motion and posture and socialize. A typical Zumba session burns between 500 and 1000 calories.

Steps

Each of the four basic rhythms has four basic steps. Therefore, in Merengue the specific steps are: arch, beto, shuffle…; in salsa: salsa right&left, rock back…, in cumbia: sleepy
leg, sugar cane; in reggaeton: destroza, bounce… Each of the four basic steps has hand, rhythm, direction and fitness variations. The use of these variations allows the endless number of moves.

The moves in aerobics are mostly classified according to the intensity, program type and dance steps. Thus, we distinguish low impact steps: step touch, march V-step; moderate impact steps: skipping, lounge…; high impact steps: jumping jack, squat jack…; non-impact steps: squat…; according to the program type: step aerobic steps: basic step, straddle…, hi/lo aerobic: grapevine, skipping…; dance steps: mambo, chachacha…

The emphasis in Zumba program is on interesting but simple steps that are easily followed and are dictated by the anatomy of song, while in aerobics the steps can vary from simple to highly demanding (i.e. they use a lot of turns), and their length is determined by musical measures.

**Choreography**

The formula for achieving the choreography of Zumba classes is unique in the fitness world, and it is based on the song which dictates the steps. Each song is divided into certain parts: introduction, verse, chorus, pause, bridge…Each part uses different steps (i.e. the introduction is performed by the march, verse is performed by beto shuffle), and the same step is always used when a part of the song is repeated (for example, the chorus always uses the sleepy leg step). Each song consists of different parts, and different steps are performed in every song.

The choreography in aerobics program is a set of various steps composed into a whole. In other words, it assorts into one, two or three blocks (musical phrases of 32 measures), and repeats several times in a row, depending on the type of the aerobic program.

**IV AEROBICS MUSIC**

Music is the indispensable part of life. It improves the mood, motivates and intertwines with all aspects of our lives. Aerobics can hardly be imagined without music, which makes rhythm to the moves, serves as motivator, makes exercises interesting and determines the choreographic sets.

Modern market is flooded with albums for all types of aerobic and group trainings. Each type of aerobics requires special music. It is not enough to simply record the musical themes which sound interesting and appropriate to get the aerobics music.

Aerobics cannot be practiced with any kind of music because there are rules which should be complied with when making a compilation. The rules apply to the structure, speed, and the type of music.
Small sets can be found in every composition for aerobics. They last for a certain number of measures (drum or bass beats). The smallest such set is measure, which lasts for four beats, and two such measures comprise a musical phrase of eight beats. Small musical phrase, also called little block or a sixteen consists of 16 beats, while a large musical phrase or block consists of 32 beats. The most important thing for a trainer and the exercisers is to recognize the beginning of a block because at that point the new choreographic set begins, or a new methodological approach is introduced. Each aerobic step is performed for a period of a certain number of measures. Therefore, one block can comprise:

- **4 x LEG CURL (8 counts)**
- **2 x V STEP (8 counts)**
- **4 x STEP TOUCH (8 counts)**
- **REPEATER’4’ (8 counts)**

CDs are usually professionally mixed in such way that there are no pauses between songs and that it contains mostly blocks of 32 measures. Attention should be paid to the speed of the music in order to achieve the desired effects of aerobics trainings and to spend the class in a safe and fun manner. Too rapid pace can be risky for the exercisers and can cause injuries and frustration, while too slow pace can become boring and unattractive. The pace of the music is a measure which determines the number of beats per minute (BPM). Each aerobics type, as well as every part of the class, requires the pace of music that will enable safe and correct performance of movement structures. Tempo should be adjusted according to the type of exercise. The pace of music for certain types of aerobics, with some exceptions, are:

- **HI - LO IMPACT** 135 - 155 BPM
- **WARM UP** 125 - 140 BPM
- **STEP** 125 - 132 BPM or faster
- **SLIDE** 125 - 140 BPM
- **AQUA** 110 - 135 BPM
- **FUNKY** 95 - 120 BPM
- **WORKOUT/** 100 - 128 BPM
- **SCULPT**

Loudness of the music motivates to some extent, but it must not obstruct the communication between the instructor and the group. Music helps the exercisers to enjoy the training and should be adjusted to them. Experienced instructors have a large collection of aerobics music which is supplemented regularly. This way, they enrich their programs and improve the quality of their profession.

A good instructor is familiar with aerobic music perfectly and is able to give classes without interruption. The choreographies are drawn in accordance with 32-beats music, regardless of the type and style of the aerobics training. The instructor has music as a guideline, and the exercisers follow the choreography more easily. A rich musical
collection should be found with every instructor because music is one of the best motivators in aerobics and often even in life.

- In order to perform the aerobics, it’s important that the trainer knows how to move to the rhythm of the music (to make leg and arm moves according to the measure).
- The measures in aerobics are expressed by the so-called INITIAL UNIT in the so-called MUSICAL BLOCK.
- A musical block has 32 so-called beats, 32 beats have 8 measures or 4 phrases.
- Aerobics music is specially produced or mixed for the tempo of the music. It is also very important in aerobics and depends on beats per minute (BPM). For example, 130 BPM means that music has 130 beats in one minute.

4.1 The Choice of Music

Music for aerobics must have tempo from 130 to 160 BPM. Over 160 BPM is not recommended due to the control of hand and leg movements. It is very important to pay attention to the choice of music for the training attendants because the music listened by the youth is not very popular with members older than 40. Original aerobics CDs are expensive, but they are recorded originally with a specific BPM and pace. Most of them are recorded to begin with a warming-up, followed by the initial choreography with easy steps and gradually increase in rhythm. It is important to pay attention to the music, its pace as well as the processing of the choreography. Choreography is presented to first demonstrate the simple steps and continue towards complicated moves with or without the turns. Pay attention not to engage your hands at first, but only after the basic moves have been mastered.

There are several types of MUSIC PACE:
- Low Impact (130-145 BPM)
- High Impact (145-160 BPM)
- Step Aerobics (135-132 BPM)
You tried practicing the aerobics, but it just didn’t work. You went to the aerobics hall with new practicing equipment and you are proud that you have finally decided to do something for your health and appearance. At first, everything looks good, you warm-up using the basic aerobics steps, you stretch up to prepare for the main, conditional part of the class. Then comes the show program. The instructor spins out twice, legs go their separate ways and you almost fall. You are unable to keep the pace with the rest of the group, and you give up after 30 minutes. The conclusion: aerobics is not for me! This is a wrong conclusion; the real reason for your withdrawing is either the advanced group or the lack of aerobics methodic.

Methodic is the key knowledge of the instructor which enables him/her to carry out the class in a sensible, interesting and continuing manner. The methodic is a gradual and rational way of explaining and presenting the choreography or its parts. It is having this knowledge that separates the qualified and skilled instructors from those that are not.

Good teaching experts present their choreography gradually and abide to the “from simple towards complex” rule. This can also mean that a complex choreography can be performed in a simple and logical way. The exercisers sometimes wonder at the end of the class how they were able to do it. If the instructor makes several simple changes while explaining, the final product can be beyond expected.

The methodic for each class should be elaborated on and prepared in more details. There are several methodic principles, and only by combining them can the choreography be
elaborated on. One choreography can be presented in several ways, each of which being equally good and correct.

Some types of methodic most widely used are: linear progression, block method, repetition reduction, add-on method and substitution method.

**Linear progression** is made of a sequence of steps and moves without returning to the step already performed. This is a simple method to follow and it is used in warm-up and cooldown.

**Block method** consists of groups of several moves later joined together. Some moves are easier to learn if repeated several times.

**Repetition reduction** is the method by which we repeat the steps for several times in a sequence. Then we cut the number of repeated steps in half. In the same manner, we reduce the number of repeats of some steps until we come to the final ambition.

**Add on method** consists of a sequence of steps and moves and their eventual merging into a whole. The method of substitution is also used very often.

**Substitution**: we put together a simple “frame” of the choreography equal in duration to final choreography. After that, we substitute or change the simple moves with the complex ones.

The aim of the methodic is to secure the fluency of the class in which the exercisers do not have to stop exercising as the instructor shows a new combination. The exercisers can follow the class without having to put a great mental effort. Timely methodic makes the aerobics class more interesting, and the desired effects of the training can be achieved in a best possible way.

**BLOCK METHOD**
Comb 1
Comb 2
Comb 3
Comb 4
Comb 1 + comb 2 + comb 3 + comb 4

**REPETITION REDUCTION**
4 x V step, 8 x knee up, 8 x leg curl, 4 x grapevine
2 x V step, 4 x knee up, 4 x leg curl, 2 x grapevine
1 x V step, 2 x knee up, 2 x leg curl, 1 x grapevine
ADD ON METHOD
Step 1
Step 2
Step 3 step 4
Step 1 + step 2 + step 3 + step 4

SUBSTITUTION METHOD
8 x step touch,
4 x step touch, 4 x leg curl
2 x step touch, 2 x knee up, 2 x double leg curl

CUEING

CUEING can be:

Verbal = Speech
Non-verbal = Mime, Hand gesticulation

Cueing is used for easier operation and giving commands to the program members, but mostly for preparing the members for the next step or move as well as practice or change. In verbal cueing, the trainers must be loud and clear so that all members can hear them, even the ones from the last row. All signs must be short and clear. Also, the announcements for the next step, exercise or switch must be told in advance so that the members can begin with the next step or exercise simultaneously with the trainer (unless the trainer wants to show the step or exercise in advance).

The time to switch the exercise can be shown with a counting of the measure

| | | | | | | | |

4 more 3 more 2 more 1 and

Due to loud music and atmosphere in the program, the trainer must also use the non-verbal cueing by using hands, body, mime and gesticulation. This is used not only because of the loud music but also because of the number of members that can understand and master the non-verbal cueing faster than verbal. Hand gesticulation must always be visible (above the head of the trainer).

It is recommended that all trainers that perform the aerobics in a club agree about the unidirectional cueing because it is simpler when all trainers have the same system for holding classes.
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Double

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Forward and Backward

To Left and Right

Diagonal Forward and Backward

Square Type

Triangle Type

Four

Three

Two

One

To the Left

To the Right

Forward

Backward
“HITTING ON THE HEAD” TYPE OF BEGINNING

- Block - method

\[ A \]  i.e. side-to-side with arms crossing
\[ B \]  i.e. hopscotch with rowing
\[ A+B \]
\[ C \]
\[ A+B+C \]
\[ D \]
\[ A+B+C+D \]

- Left

\[ A \]
\[ B \]
\[ A+B \]
\[ C \]
\[ D \]
\[ C+D \]
\[ A+B+C+D \]

- Head and tail

\[ A \]
\[ B \]
\[ A+B+A+B+A+B+… \]
\[ C \]
\[ B+C+B+C+B+C+… \]
\[ D \]
\[ C+D+C+D+C+D+… \]
### Jump

1. Feet together
2. Left leg jump with lunge
3. Jump on both legs
4. The same with another leg - landing
5. Both legs with both feet

### Side-jumps

1. Posture
2. Feet apart

### Touch with jump

1. Feet apart posture
2. Tip with a leg
3. Hop
4. Side lunge - landing
**Pony**

1. Posture
2. Tip forward
3. Tip sideways
4. Left leg to the left side, right leg to the right side

**Jogging**

1. Jumping from right to left side with legs aback as much as possible

**Running with stretched-out legs**

1. Run fast, lift your legs slightly forward, bend your legs in the knee, alternating between right and left leg
**Running with knee lifting**

1. the knee of the working leg to the front as much as possible, upper part of the body stands still

**Running with feet backward**

1. Hard running steps with lifting of one leg to the buttocks on only one side

**Two-leg hops with feet together**

1. Bend your knees to the square, jump and place back to the square
**Twist**

1. Jump with left and right leg, feet rotate to the side to which we make the jump – hands on the hips, looking straight, upper part of the body in a fixed position

**Hop with feet apart**

*Jump with feet apart and landing with feet apart*

1. parallel posture, then we jump with legs opened and closed, hands on the hips

**Feet apart jump with leg shifting**

*Leg shifting with feet apart*

1. lunge forward, alternating jumps with left and right leg
Double jump

1. Jump, then put the legs together, alternate left and right leg, or only left or only right

Double hop with bent knees

1. Tap with the leg twice
2. Knee firmly upwards then jump

Double jump with feet backwards

1. Two times with knee on one side with the move crossed with the jumping foot
<table>
<thead>
<tr>
<th>Double jump with jerk forward</th>
<th>Double jump with stretched-out leg sideways</th>
<th>Double jump with stretched-out leg raised backward</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The leg is bent in the knee, then spring, jump and then backward</td>
<td>1. Posture</td>
<td>1. Jump to the right leg, the left leg is stretched back as much as possible</td>
</tr>
<tr>
<td>2. We move the right leg to the right side</td>
<td>2. We move the right leg to the right side</td>
<td></td>
</tr>
<tr>
<td>3. The left leg is bent, then we jump</td>
<td>3. The left leg is bent, then we jump</td>
<td></td>
</tr>
<tr>
<td>4. One leg manages to touch another leg</td>
<td>4. One leg manages to touch another leg</td>
<td></td>
</tr>
</tbody>
</table>

**Double jump with stretched-out leg sideways**

1. Posture
2. We move the right leg to the right side
3. The left leg is bent, then we jump
4. One leg manages to touch another leg

**Double jump with stretched-out leg raised backward**

1. Jump to the right leg, the left leg is stretched back as much as possible
**Double jump with a tip**

1. Posture

2. Tip to the side, i.e. tip to the right, left leg mildly bent in the knee

3. Right-left, right-left or right to right

**Tip to the side**

1. Posture

2. Lunge with the leg sideways without jumping

**Tip backwards**

1. Lunge diagonally then back
**Tip to the side**

1. Posture
2. Right leg to right side
3. Step with amortization

**Pivot move**

1. Right leg forward
2. Semi-turn to the left (behind both legs)
3. The same on the left

**Sideways leg raising**

1. Posture
2. Leg is placed sideways without jumping, then we bend it and we bring it close to the hamstring
<table>
<thead>
<tr>
<th><strong>Stretched-out raising of the leg backwards</strong></th>
<th><img src="image1.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Posture</td>
<td></td>
</tr>
<tr>
<td>2. Forward lunge with the right leg</td>
<td></td>
</tr>
<tr>
<td>3. left leg to the side one step backwards</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tip forward</strong></th>
<th><img src="image2.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Posture</td>
<td></td>
</tr>
<tr>
<td>2. Semi-squat position</td>
<td></td>
</tr>
<tr>
<td>3. From left to right or only to left</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Hop backwards</strong></th>
<th><img src="image3.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lunge with left and then right leg, then left leg and right leg to the hamstring, then back</td>
<td></td>
</tr>
<tr>
<td><strong>Knee raising</strong></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>--</td>
</tr>
<tr>
<td>1. Posture</td>
<td></td>
</tr>
<tr>
<td>2. Raise the knee closer to the chests</td>
<td></td>
</tr>
<tr>
<td>3. Return to the initial position</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Weight transfer from one leg to the one with jerk forward position</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The weight is on the knee, then swing forward and back</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Landing</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Posture</td>
<td></td>
</tr>
<tr>
<td>2. Landing on toes</td>
<td></td>
</tr>
<tr>
<td>3. Amortization of landing</td>
<td></td>
</tr>
</tbody>
</table>
**Jump – knees bent**

1. Posture
2. Hop, legs are held together
3. Two-leg jump landing, knees are bent

**Side tip with a foot**

1. Posture
2. Left foot lunge between two beats
3. Posture, right foot lunge

**Lunge – shift sideways with feet touching**

1. Posture
2. Right leg apart, left leg lunge
3. Posture
4. Left leg lunge, right leg shift sideways
5. Posture
6. Both legs
### Double step

1. Posture  
2. Left leg lunge, then right leg  
3. Posture  
4. Left lunge then right  
5. Posture  
6. Two step tips to the right side

### Cross step

1. Right leg to the right (open)  
2. Left leg to the right (cross)  
3. Right leg to the right (open the feet)  
4. Left leg to the right (place)  
5. Then to the left

### Step - march
### V-step
1. Posture
2. left leg to the left, right leg to the right
3. The leg moving forward is also used to return back

### Mambo
1. Forward lunge with right leg
2. Left leg over the right
3. Right leg forward

After every training there is a cooldown. All active muscles must return to the initial position and relax. After all, the last 10-15 minutes of the training is cooldown. After the aerobics class, we initially begin with mild steps or moves until the pulse decreases, and only then we stretch our muscles out. After the exercises, the muscles expand immediately (it is important with some exercises that muscles are stretched out immediately after the practice).

The cooldown music is a free choice, but slow or classical music is recommended for relaxation.
6.1 Basic Aerobic Choreography

Basic aerobic choreography will serve the beginners well for training and fitness building as well as the advanced exercisers to warm-up.

Although simple, the addition of several moves and substitution of some steps can make it a fairly complex combination. Instructors, use your knowledge and imagination and add spice to this basic combination with your own add-ons.

I BLOCK

4 x ST hands clapping (8)  
4 x PETA hands biceps (8)  
2 x GRAPEVINE (8)  
SIDEWALKING (2) REPEATER ‘3’ (8)

II BLOCK

CHASSE MAMBO fw (4)  
CHASSE MAMBO leg behind bw (4)  
WALKING fw, KICK clapping (4)  
WALKING bw, KNEE (4)  
4 x KNEE (8)  
DUBLE HEEL (4)  
2 x HEEL (4)

ST – Step Touch  
REPEATER – more knee with the same leg  
FW – forward movement  
FB – backward movement

6.2 Tae Bo

Tae Bo and similar programs combine marital arts and aerobics training with musical background. They acquired world-wide popularity because of their simplicity, dynamism and the possibility to raise the intensity. The program is designed as training with very simple combinations and very little choreography. The combination of aerobic steps and martial arts moves can take on the characteristics of aerobic choreography, in which the exercisers can enjoy not only good cardio training, but also the game of creating and performing the unit.
The following is an example of a simple Tae Bo training which can be easily applied to the beginners and the advanced groups. The methodical development is reduced to simple substitution and repetition reduction.

**BLOCK**

- 2 x SIDE CROSS dl (4)
- 2 x SIDE CROSS dl (4)
- 2 x SIDE HOOK dl (4)
- 2 x SIDE GET DOWN stance (4)
- S x SIDE UP dl (4)

Fw FRONT KICK 1, KNEE KICK d (4)
Bw JUMP ROPE back (4)

REPEATER ’4’ alternating kick and knee (8)

**BLOCK**

- DOUBLE ST while jumping + UP (4)
- DOUBLE ST while jumping GET DOWN (4)
- DOUBLE ST + CROSS (4)
- SIDE KICK d, KNEE UP 1 (4)
- 4 x / V step + 2 x DIRECT (16)

The choreography in the final version varies, although the frame is very simple. The basis of the first block is: 8 x side, 4 X alternating knee repeater ‘4’
The basis of the second block is: 3 x double ST, 2 knees, 4 x V step
CROSS – direct, jab through the axis of the body (left hand on the right side)
HOOK – semi-circular hand punch
UP – upwards hand punch, uppercut

**VII FEATURES OF AEROBICS FOR PERSONS WITH SPECIAL NEEDS**

We sometimes cannot choose our health condition, but we can choose to live healthy. We all know that healthy lifestyle includes motion, sport activities and diet. For people with special needs, aerobics can be a constituent part of rehabilitation program, but also a way to mentally adapt to various situations and to socialize. Group work in the form of games and physical activity provides the children with the chance to actively spend their time. It helps them to develop both physically and mentally. Sports (and physical activity in general) can play an important role in helping people with disability, both those with acquired disability and the ones caused by the lack of physical activity. Overweight and obesity, as well as various problems that arise out of them (cardio-vascular and respiratory diseases, diabetes, cholesterol, etc.), have become a serious problem in
European countries. They reduce the quality of life and become a health and social burden.

Work with disabled people and the process of learning respects the principles and general norms applicable to the non-disabled people, but there is a demand to make some modifications in the approach towards the disabled person, as well as learning and working with them.

Some necessary specific approaches are:

- It is important to get an insight into person’s anamnestic records.
- Conduct interviews with persons and their close relatives who know their interests and possibilities.
- Make an estimate of a person which would determine the type and mode of work that suits the person best (if a person shows great interest in music then the priority should be given to Zumba or step aerobics).
- After making an estimate, develop an individual work program which will define the type of work with a person and the aims of the work, as well as the approximate period for the completion of these goals.
- Be more communicative and ready to use all kinds of communication with a person (give advantage to the non-verbal communication).
- Devote sufficient amount of time to motivating and preparing a person for the beginning of the training.
- Adjust the general mode to every person individually without disturbing the basic concept of work which is based on group work.
- Monitor the reaction of persons during the training and plan the continuation of activities accordingly.
- Adjust the tempo of the training to the working group so that each individual plan could be successfully realized.
- Monitor the progress of an individual and his/her success in accomplishing the goals.
- Keep the necessary register of every person involved in the program and determine the mode of recording their progress.
- It is important to examine the interests of a person after some time. Based on their interests, include the person into practicing programs (although the person might not show interest for a type of exercise, he/she might find it interesting later).
- Based on the accomplished goals and the advancement of the person, include them into further forms of work program and, based on their current capabilities and interests, develop new individual work programs for that person.

Aerobics for persons with disability has an impact on:

- Improvement of some health issues, such as diabetes, arthritis and asthma.
- Elimination of deformity and alleviation of the current condition.
- Aerobics program training increases the endurance of cardiovascular system.
- Regular exercises lead to positive changes in the organism: weight loss and fat reduction.
- Exercises help to improve bone density, which is important for the prevention of osteoporosis.
- Aerobic exercises lower high blood pressure, body fat and emotional stress, they increase flexibility of the organism, improve the quality of life, promote correct posture and muscle balance.
- Exercising stimulates weight loss. It also increases the strength, reduces depression and relieves the symptoms. The more we exercise the more calories (energy) we burn.
- We create the habit for the continued physical activity, acquire knowledge, create healthy hygiene habits and learn about healthy diet.

Aerobics has influence on all motoric skills:
- strength
- speed
- endurance
- flexibility
- coordination
- balance
- precision

7.1 Needs and Uses of Aerobics for Persons with Special Needs

Persons with special needs have the same need to move as all others. Aerobics is the ideal training which enables the continuity of exercises to satisfy the need to move. As a program, it helps the persons with special needs to improve their health and stay in shape.

Every aspect of exercise, including aerobics, has a positive effect on the function of the organs and organic systems as well as the psychological integrity of a person.

Numerous investigations showed that this group of population gains numerous psychological, health, functional and economic benefits from their involvement in physical activities. The psychological aspects of physical activities are mood improvement, creation of the positive image of oneself, the sense of usefulness and capability, and release from anxiety.

The hardships of everyday life, the difference between the actual and the desired state, the uncertain future – these are the major elements that cause anxiety, depression and low self-esteem. Regular exercise can reduce anxiety and depression, improve the understanding and accepting of our condition and enhance the process of adaptation and functioning in everyday life. Of course, we must pay attention that the exercise regime is not too demanding, but motivating and adjusted to the participant’s abilities to avoid the negative implications on physical state and mood.
It has been certified that regular activities in terms of time and intensity lead to direct health improvement. On the long run, they reduce the rate of ischemic diseases, high blood pressure, adiposity, diabetes, osteoporosis and immune systems disorder. Active persons have smaller number of cardiac risk factors, lower percentage of body fat and smaller number of pulmonary diseases.

Regular physical activity is also important for the control of obesity (adiposity) as it establishes a permanent stimulation of metabolism. Higher intensity exercises can cause short-term increase in blood sugar level and consequently the loss of appetite.

Intensive exercises can have favorable impact on the functioning of the immune system, but overexercising programs may cause the opposite effect. This especially refers to acute infections and autoimmune diseases such as rheumatoid arthritis and neoplasia. Occasional participants of wheelchair marathon can achieve the level of physical activity that may bring their immunological function into question, especially if their functional muscle mass is small.

Most people want to exercise in the same period of the day, enjoy their free time and live independently. Over 50% of adults with special needs are currently unemployed and many depend on others to help. Therefore, education, sport and fitness programs are the investments in the sense of lowering the health care expenses and the increase of productivity of the individual.

Stigmatization of people with special needs can only bring about the isolation. Sport and regular physical activity open new possibilities to the persons with reduced physical or mental abilities, they encourage them to make new friends and expand the network of their social support.

7.2 Rules and Methods of Teaching Aerobics for Persons with Special Needs

Teaching and practicing aerobics for persons with special needs is not different from the one with non-disabled persons. However, working with persons with special needs requires certain adjustments, more frequent repetitions and additional demands.

Before engaging in the aerobics, we need to determine the following:
- the type of disability, based on which we determine the consequences of the state and the limiting elements
- the degree of disability, based on which we determine the number of a person’s disabilities that impede or enable the participation in the activities
- the level of person’s motivation to learn the aerobics
- the level of social functioning in group activities
- the level of attainable verbal and non-verbal communication with a person.

Based on these elements, the trainer can determine which exercises can a person adopt, to what extent they can participate in work, the type of communication that can be achieved and the mode of communication that would be given while educating, and assume how a
To obtain these information, it is necessary to have some knowledge regarding the basic characteristics of each individual’s disability.

When it comes to aerobics, special characteristics regarding the work with disabled people include particulars in the approach towards the disabled person.

It is important to know how to meet a person and find the mode of work that suits him/her. This mode must be in accordance with the aerobics group, and it must comply with the rules of learning and continued aerobics practice.

All this requires individual approach in working with the disabled persons, a favorable social and emotional working atmosphere, creation of individual exercises that are to be performed and flexibility regarding the relation between the trainer and the person included in the aerobics.

**Special features of physical training and work approach to people with particular disabilities:**

- Exhaustion in muscular dystrophy can occur suddenly. Other disabilities (sight, hearing, speech, coordination) aggravate the exercise.
- Persons with cerebral paralysis have poor coordination which affects exercise performance. Clear and understandable instructions should be given when exercising. About 30% of persons with cerebral paralysis have additional problems. Spasm can increase in some exercises, and as such it is not dangerous. Negative implications can be avoided by using the correct technique and avoiding the provocative elements.
- Various physical activities which maintain joint flexibility are the efficient way to prevent joint diseases (ankylosis). Because of the risk of joints cracking, the ligaments should not be loaded. The physical exercises in early stage of rheumatism must be reduced and replaced by isometric exercises. Joints movements should be carried out in a passive manner during the day. If a person had joint rheumatism, there is a possibility for atlantoaxial subluxation in cervical spine (first cervical vertebra), especially when experiencing neck pain.
- Spasm and osteoporosis are additional risks for persons with damaged spinal cord, skin insensitivity, infections (especially urinary system and respiratory organs). Also, spine injury and other neurological disorders (i.e. multiple sclerosis) may cause bladder disorders, causing the possibility of urinary tract inflection. We therefore must avoid situations which may lead to flu.
Help for children with special needs to stay active

Children with special needs, as other persons, should be as active as possible. Unfortunately, they are physically less active. The inactive lifestyle of this group of children leads to other problems including:

- lack of fitness
- muscle loss
- lack of self-confidence
- greater dependence on others in everyday life
- less normal social interactions

The advantages of aerobics exercise

Studies for children with various types of disorders and conditions show that routine activity gives the children:

- stronger muscles
- better endurance
- better health condition
- increased self-confidence
- better social skills
- greater independence

The limits of physical activity

Regardless of the degree of a child’s impairment, it is possible to find the best way to help them. If a disabled child is not physically active, it is important to examine the limiting elements that lead to the state of inactivity.

These limits can include one or more of the following points:

- personal physical or mental impairment
- recreation and sport programs expenses
- lack of recreational and sports initiators
- lack of time
- lack of self-confidence of children with special needs (they feel unable to actively perform anything)
- lack of support from school, neighborhood or family
- lack of role model – if one parent is inactive, the child has less need for activity
- Fear of injuries

It is important to examine these limits and seek out possible solutions. Advices from the experts can help in determining the exercises that best match each child independently, and make the program of continued exercise accordingly.
How to motivate children with disabilities?

Some children with disability simply do not wish to be physically active. If this is the case with your child, try the following tips:

- Encourage your child to try various activities until he/she finds the most enjoyable one.
- Set short-term goals which your child will quickly achieve.
- Consider the program such as Special Olympics, with the accent on participating with skills and competition.
- Let your child see his/her improvement by regularly measuring the achievements or making progress chart.
- Give praise to your child for each small achievement.

VIII  CHARACTERISTICS OF INDIVIDUAL IMPAIRMENTS

8.1 Cerebral Paralysis

Cerebral paralysis is defined as a group of non-progressive, but often changing, motor impairment syndromes caused by lesion of central nervous system in early stages of development (Kuban and Leviton, 1994). Although lesion remains non-progressive, the resulting impairment, disability and handicap can be progressive.

The cause of many cases of cerebral paralysis is unknown. The most common risk element is low birth weight, asphyxia, neonatal convulsions, neonatal jaundice, neonatal infection, instrumental delivery and antepartum haemorrhage.

Generally, the cause of cerebral paralysis can be divided into two groups:

1. developmental brain malformations
2. brain damage in development

The primary impairments are the ones which are a direct or indirect result of lesia. Secondary impairments develop over time in systems or organisms because of the influence of one or more primary impairments and can become as difficult as primary impairments.

Neurological problems associated with cerebral paralysis are:

- convulsions and epilepsy
- behavior problems
- mental retardation
- visual impairment
- learning difficulties
- hearing loss
- attention deficit hyperactivity disorder
- speech impairment
- hydrocephalus
Secondary impacts of cerebral paralysis include:
- growth disorders
- sleep disorder
- eating disorders
- obstruction of the upper airways
- aspiration pneumonia
- communication disorder
- gastroesophageal reflux disorder
- tooth decay and gum diseases
- frequent fractures
- hernia
- constipation
- urination control problems
- drooling

Orthopedic problems are:
- scoliosis
- dislocation of the hip
- joint contractures
- discrepancy in leg length

The types of cerebral paralysis:

Simple division of cerebral paralysis which differentiates three basic types of cerebral paralysis is appropriate for clinical practice:
- spastic
- dyskinetic (extrapyramidal)
- mixed

More than 2/3 of children have spastic cerebral paralysis, and a quarter of them show mixed pyramidal and extrapyramidal symptoms.

Spastic type of cerebral paralysis includes:

**Spastic quadriplegia** (involves all four extremities) is a type of cerebral paralysis usually followed by microcephaly, mental retardation and epilepsy. Strong spasticity is noticeable. Upper extremities have flexion-adductor-pronation spastic type, while internal rotation with increased extensor and adductor tone prevail in lower extremities.

**Spastic diplegia** is a form of cerebral paralysis with more pronounced spasticity in lower extremities, while in upper extremities the spasticity can be discrete. Mental deficit and convulsions are not rare, but they are less common than in the case of spastic quadriplegia.
Spastic hemiplegia is the most common form of cerebral paralysis. Unilateral spastic paralysis is present. Only one side of the body is affected. Half of the children with this form of paralysis have epileptic crises.

There are also terms such as spastic paraplegia (only lower extremities), monoplegia (only one extremity) and triplegia (three extremities affected).

With spastic cerebral paralysis we have resistance to passive movements (resistance to stretching). Normal muscles work in pairs: when one group of muscles contracts, the other relaxes in order to perform a desired move. Spastic muscles are active together and block normal moves. This is called contraction.

Extrapyramidal forms of cerebral paralysis

They are characterized by the occurrence of various involuntary movements which are the consequence of extrapyramidal motoric system impairment (basal ganglia or cerebellum). These impairments are manifested as athetosis, choreoathetosis, dystonic forms or congenital cerebral ataxia. Clinical features of extrapyramidal cerebral paralysis develop slowly and gradually. Mixed forms of cerebral paralysis have a combination of spasticity and extrapyramidal phenomenology.

Physical activities for persons with cerebral paralysis

Cerebral paralysis is a group of impairment that causes abnormalities in the brain and influences a person’s ability to control the muscles. There are three types of cerebral paralysis with symptoms moving from mild to strong levels. This is usually diagnosed by the age of three. According to March of Dimes, around 800,000 children and adults of all ages in the USA suffer from cerebral paralysis. Persons with cerebral paralysis can, and should, participate in physical activities and exercises in order to increase the motoric abilities as well as muscle strength and flexibility.

Exercises and fitness

Children with cerebral paralysis should continue to participate in regular physical exercises in order to reduce health problems and risks from chronic diseases, and maintain healthy physical weight. Physical therapist can recommend appropriate exercises to satisfy the children’s special needs. Yoga can help to relieve the stress and increase muscle flexibility and mobility. Bathing and aqua therapy are perfect for maintaining the shape by building muscle tone and increasing the durability. Besides, any exercise or activity that involves using balls can help to increase the coordination.

Team sports

Disabled persons can play several sports adjusted specifically for them, such as wheelchair basketball, football and table tennis. The United Cerebral Paralysis (UCP) maintains a comprehensive list of team sports for disabled persons. UCP also provides detailed information regarding sports organizations for disabled persons, sports rules and information about sports equipment. Those who would like to compete on a professional
level can participate in the Paralympics, which are held in the same year and in the same city as the Olympics.

**8.2 Pervasive Developmental Disorders (PDD)**

PDD includes:
- Autistic disorder
- Asperger’s disorder
- PDD – undetermined
- Rett’s disorder
- Childhood disintegrative disorder

The main characteristics of PDD are:
- Impairment of social reciprocity
- Communication impairment
- Deviations in behavior

1. **Impairment of social reciprocity**

Social development includes development of:
- Social perception (reading non-verbal elements of communication)
- Social knowledge (knowledge about emotions, intentions and beliefs of others)
- Social functioning (the capacity to connect with others, other people’s emotions awareness, enjoying other people’s company, using the language and non-verbal skills in communication)
- Social abilities include understanding of your own emotions, interests, wishes and experiences and “reading” and understanding of feelings, experiences and motifs of other people

Early definitions represented the idea that persons with PDD do not have social reciprocity. Modern approach – persons with PDD show bold inability to initiate, react and maintain social contact, but they can be very responsive to some individuals or situations:
- They display unusual causes for connecting
- Impairments of non-verbal communication (eye contact, gesticulations, tone of voice)
- Significant impairments of integrity of verbal and non-verbal aspects of communication
- Range of skills differs from one individual to another

2. **Communication impairments**

The level of impairment helps to differentiate various syndromes.
Expressive language: late in the first word, pragmatics, echolalia, you instead of me, prosody abnormalities.
Receptive language: they can hardly understand complex statements.

3. Deviations in behavior

- Limited capacity for playing and converting
- Restrictive, preservative and stereotypical patterns of interest and activity
- Routine
- Agitation due to deviations from the routine
- Stereotypical moves and self-stimulating behavior
- Sleep problems
- Unusual reactions to sensory stimuli

Treatment

Treatment has to be intensive, continuous and multidisciplinary.
The aims of autism treatment:
- Encouragement of development
- Promotion of learning
- Reduction of rigidity and stereotypy
- Elimination of adaptive behavior
- Reduction of family stress

Results

The results for children with PDD are closely related to their language skills. The intelligence of 20-50% of children with autistic disorder show regression of skills at the age 1-3, followed by a period of plateau and eventual improvement. Half of the children with autistic disorder adopt the language and manages to communicate with it. The usual behavioral characteristics of autism alleviate over time (deterioration is possible during the adolescence). Most persons with mild autism and PDD have good outcome.

8.3 Mental Retardation

Mental retardation encompasses 1-3% of the population. There are several causes for mental retardation, but physicians have discovered true reasons in only 25% of cases. Family can suspect mental retardation when a child does not develop motoric abilities, language skills and self-assistance, or he/she develops them at slower rate than other peers. The lack of success to normally adjust (to new situations) and intellectual growth can become evident in early years. In case of mild retardation, these impairments cannot become recognizable until school age or later.

The level of impairment from mental retardation varies from mild to severe. Less emphasis is laid on the level of retardation, and more on the amount of intervention and care needed for everyday life.
Symptoms

- The continuation of child-like behavior
- Reduced learning ability
- Failure to achieve intellectual development
- Inability to meet the educational demands in school
- Lack of curiosity

Recreational and fun activities

As anyone else, persons with serious physical diseases need the sense of belonging and satisfaction in their lives. Efforts to help the people to become part of the society and to have a good quality of life are usually focused on helping to get proper accommodation, job, education and health care. However, recreational and fun activities can be the vital element in adopting the sense of belonging in the community.

Studies consistently show that physical and socially active leisure and free activities associated with better life can improve the lifestyle of general population as well as people with various developmental issues. This is especially true for the activities that help people to feel part of the neighborhood, including such simple activities, such as eating in restaurants, visiting the library or walking in the park. Studies have also indicated strong connections between physical activity and physical health, as well as physical activity and mental health. However, persons with serious mental diseases are significantly less active from general population and their inclusion in leisure activities tend to be more passive. Inclusions and initiatives should be focused more to this domain of life in the community.

Physical recreation

Participation in the set of activities in free time can help persons with serious mental disorders to live a healthy and active life. Many recreational activities require movements of large muscle groups – aerobic exercises improve cardiovascular health. Mountaineering, bicycling, swimming, horticulture and dancing are also good examples. Physical activities are useful the most when performed routinely. Recreation and involvement in free time also improve health condition by providing a buffer for stress and creating the sense of balance. For example, recreation and activities in spare time can provide people with stress relief. Indeed, physically active recreational activities can be strong proactive strategies for dealing with stress (i.e. efforts to prevent stressful events before they occur). This also includes social support, sports, exercises and various non-social activities, such as painting or writing, for example.

Social recreation

Socially active leisure is also important for health. In fact, friendships might be an element for longevity. Studies confirm the importance of social networks in maintaining the health and reduction of rehospitalization of persons with mental diseases.
Recreational exercises have the potential for increasing social inclusion and friendships in many respects. Many recreational activities, such as card games or sport club membership require the involvement of other persons.

Other recreational activities allow people with serious mental diseases to meet new friends with same interests. Talking to friends about movies or books, or taking classes or courses help the individuals with serious mental diseases to acquire social life apart from their families. It also provides them with an opportunity for new relationships. Finally, some recreational activities, such as watching movies or visiting concerts are often only reasons for socialization, making new friendships and maintaining mutual relationships.

**Physical activity for persons with mental retardation**

Persons with mental retardation often have a combination of health problems which are usually connected to physical inactivity. Recent studies have focused on the heart and lung functions of persons with mental retardation. They showed that when in their 20s, persons with mental retardation often have heart and lung function of a 20-30 year-old person. Inactivity can increase the possibility for heart and blood vessels complications. It can also decrease the person’s ability for self-care.

There are many advantages to physical activity. Active person has better self-esteem. Physical activity of persons with mental retardation can improve their health, physical function, self-respect and behavior. This can give them pleasant social life and provide support to their families and caregivers.

**The advantages of exercising**

The regular physical activity program helps people of all ages and abilities. The individual may develop a well-rounded exercise routine that includes aerobic activity, strength training and stretching exercises.

**Aerobic activity**

Aerobic activity includes any activity that involves the repeated use of large muscle groups. These activities, such as walking, running, bicycling or using the wheelchair, increase body’s durability. They improve the function of heart and lungs. Aerobic physical exercise reduces the risk of many heart and blood vessels diseases. It also helps to lose the weight. Such diseases involve arteriosclerosis (coronary heart disease) and high blood pressure (hypertension). Aerobic activity can lead to a longer and healthier life. This should be performed for at least 30 minutes, three times per week.

**8.4 Down Syndrome**

Down syndrome is a set of physical and mental characteristics caused by genetic problems that occur before birth. Children with Down syndrome tend to have certain features, such as flat face and short neck. They also have some degree of intellectual
disability which varies from person to person and which is in most cases mild to moderate.

Down syndrome is a lifelong condition, but care and support could produce healthy and productive life to most children suffering from it.

The symptoms
Most children suffering from Down syndrome have different facial features:
- flat face
- small ears
- slanted eyes
- small mouth
- short neck
- short legs and hands
- weak muscles
- loose joints
Muscle tone usually improves by the end of childhood.

Many children with Down syndrome are also born with heart, bowel, mouth and respiratory problems. These health problems usually cause further problems, such as respiratory infections or hearing loss. Fortunately, most of these problems can be treated.

Down syndrome – review of treatment

With proper guidance, your child can learn these important skills:

- **Walking and other motoric developmental milestones.** You can help your babies and children to strengthen their muscles by playing games. As the child ages, you can work with a physiotherapist and physician to design exercise program which would help your child to retain and improve muscle strength and physical ability.
- **Self-feeding.** You can help your child to learn to eat independently by sitting together during a meal. Use gradual steps to teach your child how to eat. Start by allowing him/her to use fingers while eating and offering a thick liquid to drink.
- **Dressing.** Teach your child how to dress himself/herself. Devote sufficient time to explain and train.
- **Communication.** Simple measures, such as watching the child while speaking or showing and naming the objects, can help your baby learn to speak.
- **Grooming and hygiene.** Help your child to learn the importance of hygiene. Help them establish a daily routine for bathing. As the child ages, these exercises will become increasingly more important. Gradually introduce new tasks and routines, such as using a deodorant.

Various types of therapy, such as speech therapy, can help children with Down syndrome to learn the necessary skills. These therapies are used throughout life, even during the adulthood. Data can change as the child grows and develops.
When you help a child with Down syndrome to achieve independence, it is also important to be aware of his or her vulnerability to potential social problems. Although able to overcome many challenges, your child will always need your support and guidance.
# 9. EVALUATION QUESTIONNAIRE

## EVALUATION QUESTIONNAIRE

<table>
<thead>
<tr>
<th>EXAMINEE’S ID :</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME AND SURNAME :</td>
<td></td>
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<tr>
<td>DATE OF INQUIRY :</td>
<td></td>
</tr>
<tr>
<td>NUMBER OF TESTS :</td>
<td></td>
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<tr>
<td>EXAMINER :</td>
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</table>

### SCALE 1 - BEHAVIOR

1. Understands the task

<table>
<thead>
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<th>1</th>
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<th>5</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>does not show the understanding of the task</td>
<td>5</td>
<td>understands the task</td>
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</table>

2. Establishes communication with other children

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<tbody>
<tr>
<td>1</td>
<td>refuses to communicate with other children by behaving abnormally (aggressiveness, crying)</td>
<td>2</td>
<td>avoids communication with other children</td>
<td>3</td>
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</tbody>
</table>

3. Establishes communication with the trainer

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<thead>
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<th>1</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>refuses to communicate with the trainer by behaving abnormally (aggressiveness, crying)</td>
<td>2</td>
<td>avoids communication with the trainer</td>
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</table>
4. Participates in group activities

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</thead>
<tbody>
<tr>
<td>1</td>
<td>refuses group activities by behaving abnormally (aggressiveness, crying)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>avoids group activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>shows no interest in group activities (does not react)</td>
<td></td>
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<tr>
<td>4</td>
<td>participates in group activities in an inappropriate manner (hinders or slows the group work)</td>
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<tr>
<td>5</td>
<td>participates in group activities in an appropriate manner</td>
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5. Fear of physical contact during the training – towards the trainer

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</thead>
<tbody>
<tr>
<td>1</td>
<td>shows profound fear of physical contact</td>
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<tr>
<td>5</td>
<td>shows no fear of physical contact</td>
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6. Fear of physical contact during the training – towards other children

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<td>shows profound fear of physical contact</td>
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<td></td>
<td></td>
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<tr>
<td>5</td>
<td>shows no fear of physical contact</td>
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</table>

7. Aggressiveness (towards him/herself, other children or trainer)

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<tbody>
<tr>
<td>1</td>
<td>shows aggressiveness</td>
<td></td>
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<td></td>
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<tr>
<td>5</td>
<td>does not show aggressiveness</td>
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</table>

8. Passivity (in relation to other children or the trainer)

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</thead>
<tbody>
<tr>
<td>1</td>
<td>shows profound passivity during individual and group activities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>does not show passivity during individual and group activities</td>
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</tbody>
</table>
9. Motivation / satisfaction with the training

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</thead>
<tbody>
<tr>
<td>1</td>
<td>show no motivation or satisfaction by participating in the training</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>show motivation or satisfaction by participating in the training</td>
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10. Reaction to sound - music

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<tbody>
<tr>
<td>1</td>
<td>negative reactions to the sound - music</td>
<td></td>
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<tr>
<td>5</td>
<td>positive reactions to the sound - music</td>
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**SKALA II – MOTORIKA**

1. Walking

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</thead>
<tbody>
<tr>
<td>1</td>
<td>unstable, uneven steps, on a large scale</td>
<td></td>
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<tr>
<td>5</td>
<td>stable, uniform steps, steady, straight line</td>
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2. Postural organization – pose and posture

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<tbody>
<tr>
<td>1</td>
<td>clunks, strikingly distorted posture to one side etc.</td>
<td></td>
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<tr>
<td>5</td>
<td>calm, stable, upright posture when walking, running, hopping</td>
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3. Balance – “scale” test (bending of the body forward and backward with the arms stretched)

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</thead>
<tbody>
<tr>
<td>1</td>
<td>fails to maintain balance when bending forward and backward and relies on the right leg</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>successfully bends his/her body forward and backward and stays in that position for a few seconds by relying on the right leg</td>
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</table>
4. Balance – “scale” test (bending of the body forward and backward with the arms stretched)

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</tbody>
</table>

1 – fails to maintain balance when bending forward and backward and relies on the left leg  
5 – successfully bends his/her body forward and backward and stays in that position for a few seconds by relying on the left leg

5. Control of the body’s motorics (Subiran test)

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</table>

1 – fails to stand still with his/her eyes closed for more than a few seconds /manages to stand with his/her eyes closed for a minute with noticeable movements of extremities or grimaces  
5 – stands still with his/her eyes closed for one minute without moving

6. Coordination of moves in upper extremities

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<td>5</td>
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</tbody>
</table>

1 – fails to bend one arm at the elbow while the other is stretched and vice versa  
5 – bends one arm at the elbow while the other is stretched and vice versa

7. Coordination of moves of upper extremities

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<td>5</td>
</tr>
</tbody>
</table>

1 – fails to bend one arm at the elbow, turns the head towards the hand that is bending and vice versa  
5 – bends one arm at the elbow, turns the head towards the hand that is bending and vice versa

8. Coordination of moves of lower and upper extremities

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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1 – fails to bend the arm at the elbow and the leg at the knee on the same side and vice versa  
5 – bends the arm at the elbow and the leg at the knee on the same side and vice versa
<table>
<thead>
<tr>
<th>9. Coordination of moves of lower and upper extremities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1 – fails to bend the arm at the elbow and the leg at the knee on the opposite side and vice versa</td>
</tr>
<tr>
<td>5 – bends the arm at the elbow and the leg at the knee on the opposite side and vice versa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. The experience of the body in space</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1 – fails to perform motorical activities on verbal tasks pertaining to setting the body in relation to a given object or his/her own body (forwards-backwards, on the side, above-under-on)</td>
</tr>
<tr>
<td>5 – manages to perform motorical activities on verbal tasks pertaining to setting the body in relation to a given subject or his/her own body (forwards-backwards, on the side, above-under-on)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Lateralization – on themselves</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1 – fails to perform motorical activities on verbal tasks pertaining to the showing of left and right side on him/herself</td>
</tr>
<tr>
<td>5 – performs motorical activities on verbal tasks pertaining to the showing of left and right side on him/herself</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12. Lateralization – crossed, on the other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1 – fails to perform motorical activities on verbal tasks pertaining to the showing of left and right side on another person in front of him/her</td>
</tr>
<tr>
<td>5 – performs motorical activities on verbal tasks pertaining to the showing of left and right side on another person in front of him/her</td>
</tr>
</tbody>
</table>
13. Rhythm

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – fails to carry out motorical activities that include walking, running or jumping to a set rhythm</td>
<td>2 – carries out motorical activities that include walking, running or jumping to a set rhythm</td>
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</tbody>
</table>

**SCALE III – AEROBICS**

1. Lateralization (in relation to the trainer)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – lateralization in relation to the other (the trainer) not adopted</td>
<td>2 – lateralization partly adopted, clumsy movements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 – lateralization with respect to the other adopted, but movements clumsy and slow</td>
<td>4 – lateralization adopted, movements mostly performed incorrectly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 – lateralization adopted, movements performed correctly</td>
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</tbody>
</table>

2. Rhythm

<table>
<thead>
<tr>
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<th>2</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – no sense of rhythm</td>
<td>2 – avoids performing the exercises according to the rhythm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 – suggests a sense of rhythm after several attempts</td>
<td>4 – exercises performed correctly in relation to the rhythm, but not in a completely correct manner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 – independently and properly performs the exercises in relation to the rhythm</td>
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3. Choreography – movement A

<table>
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<tr>
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<th>5</th>
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</thead>
<tbody>
<tr>
<td>1 – fails to adopt the movement correctly</td>
<td>2 – partly adopted the move</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 – adopted the move but additional help is required</td>
<td>4 – adopted the move but not always correctly performed</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5 – adopted the move and constantly performs it correctly</td>
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</table>
4. Choreography – movements A + B

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</thead>
<tbody>
<tr>
<td>1</td>
<td>no movements adopted correctly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>partly adopted one movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>adopted both movements but additional help required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>movements adopted but not always performed correctly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>movements adopted and constantly performed correctly</td>
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5. Choreography – A + B + C

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</thead>
<tbody>
<tr>
<td>1</td>
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<td></td>
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</tr>
<tr>
<td>2</td>
<td>partly adopted one movement</td>
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</tr>
<tr>
<td>3</td>
<td>adopted both movements but additional help required</td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td>movements adopted but not always performed correctly</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>movements adopted and constantly performed correctly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>