

mem  
train



**Training Manual**

[www.memtrain.eu](http://www.memtrain.eu)

## Introduction

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The Training Manual you are reading was created during the MemTrain project and is intended for sports trainers, lecturers, community workers and other adult education professionals who want to **provide a professional training course for older people aged 55+ to improve memory and to help prevent brain deterioration.**

It is aimed at equipping trainers with scientific knowledge and important background information, but mainly with a **step-by-step guide to conducting a sport and memory training course.**

During the MemTrain project, seven partners from six European countries created a set of activities, which includes physical activities (**adapted physical activity, Zumba, Nordic Walking and athletics**) and brain training activities (**brain training using both hemispheres of the brain and memory games**).

As a trainer, you can choose one of the physical activities and one of the brain training activities and combine them to meet the needs and requirements of your target group. The model programme created and tested in MemTrain consists of **10 lessons, each combining 40 minutes of physical activity and 20 minutes of brain training.**

The Training Manual is complemented by a set of additional resources (bibliography, additional moves, videos and others) which you can find using the QR codes attached. The videos created during the project are uploaded in the [MemTrain project YouTube channel](#). To read a PDF version of the Manual, just click on the QR code to download it; to read a paper version, scan the QR code with your smart phone or tablet.

More information can be found on the project website at [www.memtrain.eu](http://www.memtrain.eu) where you can also find the contacts of the MemTrain team.

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## 3. The Science behind MemTrain

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Nearly everybody knows the famous quote *“mens sana in corpore sano”* by the poet Iuvenalis, from the times of the Roman Empire. This was not the first, nor the last intellectual reference to this opinion. Before Iuvenalis, Tales of Melitus (VI century BC), Hippocrates (IV century BC), and Plato (IV century BC) also mentioned this relationship. This idea is still well known and modern science is proving that it is more than merely an idea. The mind has an impact on the body, as everybody can observe in a depressive patient. However, no less important, the body has an impact on the mind, as recent research shows.

*“While the interactions between mind, brain and body have been conjectured for centuries, only recently have we begun to understand the putative molecular mechanisms of such a relationship.”<sup>(1)</sup>*

And this body-mind relationship has recently been increasing in importance with the demographic evolution of the population.

The constant low birth rates and increased life expectancy are transforming Europe, with a high impact in the EU-28’s age pyramid. In the near future, there will be a marked transition towards an older population structure. This process already exists in some countries of the European Union.<sup>(2)</sup>

On 1<sup>st</sup> January 2015 (last data obtained by Eurostat at the time of this work), people aged 65 years or older represent 18.9 % of the EU population, with Italy (21.7 %), Germany (21 %) and Greece (20.9 %) leading the oldest countries’ ranking<sup>(2)</sup>.

The number of older people will increase in future years, rising to 28.7 % of the population. An important increase will be in the older population, with the percentage of people over 85 years rising from the current 5.3 % to 12.3 % in the near future<sup>(2)</sup>.

Associated with the ageing population, the “Healthy Life Years” concept is increasing in its importance and repercussions in the EU. Currently, 79 % and 74 % of the total lifetimes of men and women respectively represent the healthy life years. This means that people will live for about 20 % of their lives with one or other chronic disease and this will reduce the quality of life<sup>(3)</sup>.

Major chronic diseases are diabetes, cardiovascular diseases, cancer, COPD, depression and neurodegenerative diseases. In the latter group, dementia, and particularly Alzheimer’s Disease (the most common dementia) are the most prevalent neurodegenerative diseases in older adults. At present, 1.2 % of EU citizens have one type of dementia<sup>(4)</sup>, with a low prevalence in

the under-70-year-old population. This means that this disease is related to ageing, and will increase with the ageing population.

There is a lack of epidemiological information about all types of dementia, but Alzheimer's Disease, which represents 60–80 % of all dementia cases, has been well studied worldwide. The annual cost per person with dementia is estimated at almost €20 000, a higher cost than cancer or cardiovascular diseases<sup>(5)</sup>.

In the future, the proportion of AD patients with its economic and social impact will increase to 3 %, double the current figure<sup>(5)</sup>. This perspective implies an increase in importance of new programmes to extend the healthy life years and to reduce cognitive impairment in older people.

It is important to have a knowledge of the process of ageing and its impact on cognition, if we are to understand the mechanisms that underlie the exercise-cognition relationship. Ageing is an inevitable process, where a progressive dysfunction of all the systems leads to death in all living organisms<sup>(6)</sup>.

The central nervous system, like the other systems, is not immune to this process. Over the years, there is a progressive death of neural cells, implying a reduction in brain size. At the same time, a reduction in the circulation to the brain and dendritic branches leads to a decline of cognitive functions<sup>(6)</sup>.

There is a natural variability in this process, but no way of halting it. There are currently four possible scientifically supported methods of preventing cognitive decline in ageing. Diet, cognitive exercise, social engagement and physical exercise<sup>(7)</sup>. **MemTrain** is oriented to the last three strategies, recommending physical exercise combined with cognitive exercise in a positive social environment.

## **Brain Volume, Ageing and Exercise**

As a natural ageing process, the brain size is reduced with age. This brain size reduction affects the volumes of both white and grey matter. Not only large structures have been seen to suffer this volume reduction, but also white matter microstructures have been analysed during ageing and shown to suffer the same reduction process<sup>(8)</sup>.

It is apparent that brain atrophy precedes cognitive loss<sup>(9)</sup>. However, this reduction is related to Cardiorespiratory Fitness (CRF), measured by VO<sub>2</sub> peak, in grey and white matter<sup>(8)</sup>. Some studies fail to show the CRF-Brain volume relationship. However, it has been reported that not only CRF, but also physical activity seem to be related to brain volume<sup>(9)</sup>.

In fact, some studies show that physical activity programmes of six months or longer that change the physical activity level, can be effective in increasing grey matter volume<sup>(9)</sup>. Cognitive improvements seem to appear with six months or more of exercise programmes. It is therefore important to facilitate long-term participation, using psychological techniques to increase practice adherence<sup>(10)</sup>.



**MEMTRAIN TIP:** Train to increase cardiorespiratory fitness. Include aerobic training in your programmes and use techniques to increase adherence.

## Neurogenesis and Exercise

Why brain volume can change with exercise is an interesting question, and one answer to this question is Neurogenesis. Neurogenesis is the natural process to generate new neurons in the central nervous system. There is evidence of the neurogenic process in mammals and humans, and a potential relationship of neurogenesis and cognition<sup>(11)</sup>. *“Therefore, manipulation of adult neurogenesis has currently been targeted as a potential treatment for ageing-related cognitive deficits”.*<sup>(11)</sup>

In the adult brain, two specific areas – the Ventricular-Subventricular Zone (V-SVZ) and the Subgranular Zone (SGZ) – have been shown to be neurogenic niches<sup>(12)</sup>. Every day the neurogenic process produces thousands of new neurons, some of them in the hippocampus, an important brain zone for memory and learning<sup>(11)</sup>. Its impact on the human brain is not yet very well known, but we have some knowledge from mice and rats, which provides a guideline for the understanding of the relationship between neurogenesis and cognition.

Approximately half of the new neurons generated in adult neurogenesis undergo an early death, with no integration and no function. But this early death can be avoided by skill learning processes<sup>(13)</sup>. It is important to understand that training only rescues neurons if successful learning occurs. And animals that need more trials to learn produce an increased number of rescue cells. Therefore, through cognitive training, which is difficult to master, the process of successful learning will rescue neurons<sup>(13)</sup>. Moreover, motor skill learning increases synaptogenesis in motor areas, while repetitive non-learning protocols of exercise do not<sup>(1)</sup>.



**MEMTRAIN TIP:** Try to learn new challenged skills. Include motor learning in your programmes.

It is important to note that a reduction in neurogenesis implies impairment in learning and memory.<sup>(11, 13)</sup> Interestingly, exercise is the easier enhancer of neurogenesis, and its capacity to increase new neuron production is well known.<sup>(11, 13)</sup>

## **Neurotrophic Factors and Exercise**

Trophic factor signalling is related to cognition and could be an explanation for the positive effects of physical activity on cognition. Neurotrophins are polypeptides that regulate neuronal proliferation, survival, differentiation and migration<sup>(1)</sup>.

The literature mentions different neurotrophins, but the most common related to cognition and probably the most important is the Brain-Derived Neurotrophic Factor (BDNF). BDNF is related to neuronal survival, differentiation, axonal survival, dendritic growth and other processes<sup>(14)</sup>. Moreover, intrahippocampal injections of BDNF in rats increase their memory<sup>(1)</sup>. BDNF also seems to be important in learning and memory in humans, whereas low plasma BDNF correlates with impaired memory in humans. It is important to be aware that BDNF can cross the blood brain barrier and that plasma BDNF correlates with brain BDNF<sup>(14)</sup>.

Once again, after an acute exercise session, BDNF increases in plasma. Three months of an exercise training programme increases basal BDNF<sup>(1)</sup>. In animals, exercise increases BDNF and cognitive function. It is interesting that if the BDNF increase is blocked, cognitive improvement is also blocked<sup>(1)</sup>.

## **Blood Flow, Cognition and Exercise**

The brain, in relation to its weight, is the highest oxygen and glucose consumer in the body. So it is important for the correct amount of nutrients to go to the central nervous system, and cerebral blood flow must ensure this support. This blood flow is reduced with ageing, and this reduction is greater in Alzheimer's Disease patients. Therefore, an insufficient supply of nutrients caused by a reduction in cerebral blood flow could be related to neuronal death and cognitive impairment<sup>(15)</sup>.

Exercise, particularly aerobic exercise, enhances cerebral perfusion, mediated by increased capillary density and cerebral blood volume<sup>(15)</sup>. This is probably another cause of exercise cognition improvement.

## **Cognitive Training and Ageing**

Similar to physical activity, cognitive training is also established as a preventive strategy for cognitive impairment in ageing. Cognitive training is the set of techniques and strategies that seeks to optimise the effectiveness of the functioning of different cognitive capacities and functions (perception, attention, reasoning, abstraction, memory, language, orientation processes and praxis) through mental activities<sup>(16)</sup>.

## **Neurobiological Bases of Cognitive Training**

The training of cognitive function is based on neuroplasticity and brain regeneration. The brain, when trained cognitively by constant stimulation, is susceptible to modifying its structure and function under appropriate conditions. In a recent study evaluating mental activity in healthy older people, longitudinally comparing changes in the hippocampus and brain volume as a whole over 3 years, it was found that high levels of mental activity throughout life are correlated with a reduced rate of hippocampal atrophy<sup>(17)</sup>.

If such conditions occur, the number of connections between neurons increases, and this manifests itself in a greater and better adaptation of the individual to the environment. In future, it is important to realise that variations in the type and intensity of existing training interventions are needed to gain better knowledge about the efficacy of cognitive interventions<sup>(18)</sup>.

In spite of this, we want to emphasise the study called ACTIVE: Advanced Cognitive Training for Independent and Vital Elderly. The studies, conducted in the United States and published in JAMA by Ball et al.,<sup>(19)</sup> found significant improvements after cognitive training of one-hour sessions twice weekly for five weeks. However, the periodicity will depend on each particular case, since there is great variability among older people. Subsequently, the individual can maintain the achievements and broaden the horizons by daily exercises of the duration of one hour. These positive results can be seen up to 10 years after the cognitive intervention<sup>(20)</sup>.

## **Type and Intensity of Physical Exercise Programmes for Cognitive Improvement**

There is apparently consensus in the literature on aerobic exercise programmes to improve cognition. Running, cycling or fast walking are normally used to improve cognition<sup>(7)</sup>. Other



possibilities, e.g. indoor aerobics, Zumba or similar, should also be appropriated as aerobic training.

The literature has shown correlations between CRF and cognition<sup>(21)</sup>. 16–20 months may be sufficient to improve cardiorespiratory fitness in older adults<sup>(10)</sup>. However, CRF does not explain all the cognitive improvement, and many authors have shown a cognitive improvement with no CRF improvement<sup>(21)</sup>.

The duration of exercise also seems to be related to cognitive improvement. Sessions of 31–45 minutes present a better effective length than sessions of 30 minutes or less<sup>(22)</sup> for long-term programmes. The acute effect may also be reduced in long-time sessions<sup>(23)</sup>, but its relationship to the effects of long-time programmes in older people is not known. Longer sessions (30–45 minutes) are related to greater improvements<sup>(22)</sup>.

With regard to the intensity of aerobic exercise, lower intensities seem less able to prevent the probability of dementia developing. However, there is no consensus whether higher intensities are better than moderate intensities<sup>(7)</sup>. Higher intensities seem to be better for acute effects in young people<sup>(24)</sup>, but there are insufficient reasons to recommend it for older adults. As moderate intensity is safer than higher intensity for non-trained seniors, it is preferable to avoid higher intensities in older adults who are not well prepared.



**MEMTRAIN TIP: Design sessions of 30-45 minutes. Use moderate intensity in aerobic training, no more, no less.**

There are a few studies on the use of other types of exercise to improve cognition. Nevertheless, their results suggest that resistance training and coordinative training can also be useful for candidates to improve cognition.<sup>(21)</sup> This improvement may occur in different ways from aerobic exercise. In resistance training, high intensities were used (>70 % RM) and may be necessary to improve cognition.<sup>(25)</sup>

Stretching, yoga and toning exercises are commonly used in the bibliography as a “control group”. It is thus assumed that there are non-useful exercises. Some studies find that these activities result in a cognitive improvement, but smaller than the changes observed with aerobic exercise<sup>(7)</sup>.



**MEMTRAIN TIP:** If possible, combine your training with resistance or coordinative exercises. However, stretching must not be the objective of your programme.

It has been well studied in animals that exercise has an impact on cognition, and cognitive challenges can also improve cognition. Most importantly, the molecular way to explain these improvements are that different and combined strategies, exercise and cognitive challenge, seem to produce greater improvements in cognition. Some studies have replicated this combined effect in humans, with similar results<sup>(21)</sup>.



**MEMTRAIN TIP:** Include cognitive challenges in your exercise sessions.

## **Conclusion: Physical Exercise & Cognitive Training**

Cognitive intervention and physical exercise are beneficial to cognitive function in older adults. It is suggested that combined cognitive and physical intervention may induce synergistic and additive effects.

It has been proposed that combined physical and cognitive intervention may result in larger benefits in cognition than either intervention alone<sup>(13, 26)</sup>. The combination of exercise and cognitive training may induce synergistic and additive effects<sup>(27)</sup>.



**MEMTRAIN TIP:** Combined interventions have advantages in long-term maintenance

### **Bibliography**



### **Related video (ES, subtitles in EN)**



### **Related video (ES, subtitles in CZ)**



## 4. Safety Principles for Physical Activities of Seniors

Čechová, H., Cestou zdraví, z. s.

This Manual is designed for people who already have experience of working with seniors. We assume that they know some general rules regarding the safety and adequacy of the training. It is important to pay attention to the gradual increase of strain and to the regularity of exercise.

Below is a list of basic safety rules which you should adjust to the actual age of the people you are working with and to the type of activities.

### Basic Rules for Seniors

1. Consult a doctor first
2. Inform the instructor about your state of health
3. Exercise calmly according to your disposition and emphasise proper movement management and breathing
4. Be aware of the movement of the body and try to perceive your feelings
5. Exercises should be pleasant and painless for you
6. Repeat each exercise at least 4 times (6–8 times is best) and respect your subjective feelings
7. Relax when feeling discomfort or tiredness
8. Avoid exercise which is not recommended for seniors (abrupt alternation of positions, jumping, fast movements, trunk bends, etc.)

### Basic Rules for Instructors

1. Enquire about seniors' age and state of health; if necessary, request a medical certificate
2. Keep brief records of members of your group
3. You should have expertise of remedial exercises and physical activities for the handicapped (i.e. medical restrictions, possible health problems, illnesses), if working with this group
4. You should have basic knowledge of the physiological and psychological changes of the ageing organism
5. Try to incorporate exercise in the morning routine, from 09:00 to 10:00 (seniors are alert, with a taste for self-realisation, grandchildren are at school or kindergarten)
6. Try to assemble a group of seniors with similar health problems or handicaps
7. If doing training with a heterogeneous group, prepare in advance and choose a combination of exercises suitable for everyone
8. Learn about exercise modifications related to seniors' state of health and their physical abilities

9. Introduce new exercises gradually; repeat and fix rigorous ones more often
10. Teach the right technique where both exercise and breathing are consistent
11. Speak loudly and plainly enough to comment on particular exercises appropriately (explain the importance of exercise, its impact on the organism, motivate the seniors)
12. Have respect for individual abilities – everyone should exercise according to his/her abilities and skills
13. Organise training sessions, from the simple to the complicated
14. Use your knowledge from the area of psychology – about motivation, encouragement and approval, concentration
15. Be patient in explaining and showing the exercises several times
16. Select appropriate music – it is important for trainees' emotional experience
17. Be in a positive mood even if having a rough day
18. Emphasise a holistic lifestyle; motivate seniors towards the harmonious interconnection of both physical and mental activities, and to have a positive attitude to themselves, Nature and life
19. If necessary, be able to administer First Aid

## **Activities to Avoid during Seniors' Exercise**

1. Sudden changes of movement and position
2. Complicated exercises of coordination
3. Vaults, hops, jumps, drops
4. Swings
5. Head bows with rotary motion
6. Trunk bends, head-down positions
7. Strenuous movement games involving speed and prowess
8. Apparatus gymnastics
9. Isometric exercises involving holding the breath
10. Spinal exercises, when there is suspicion of a slipped disc
11. Fast pace and inappropriate rhythm of music

## 5. Mental Capacity Training using both Hemispheres of the Brain

Čechová, H., Cestou zdraví

Each person is born with a specific number of nerve cells (neurons). During a lifetime, we lose part of the neurons (about 10–15 %), synapses wane and nerve cells decrease. It has been found that ageing itself does not affect these changes crucially. Taking certain types of drugs, depression, heart diseases, alcohol, using addictive substances including nicotine, inadequate nutrition, lack of exercise, mental inactivity, etc. can have a more significant effect.

It is gratifying to know that neurons, like other cells, can develop again in the human body. The number of neurons is not the most important issue. What matters more is their mutual interconnection – the synapses. These interconnections are the basis of how memory functions. If we do not activate these interconnections, they disappear gradually, put in a simple way – we forget things.

From the point of view of how our memory functions, it is important to bear in mind that:

- we remember 10 % of what we have heard
- we remember 15 % of what we have seen
- we remember 20 % of what we have heard and seen at the same time
- we remember 40 % of what we have discussed
- we remember 80 % of what we have done
- we remember 90 % of what we have tried to learn from other people

The best thing for brain function is to make it function as a whole. Its hemispheres should cooperate mutually. As far back as the Ancient Egyptians, it was mentioned that the left hemisphere controlled the right side of the body, while the right hemisphere controlled the left side of the body. The left cerebral hemisphere is dominant in most people. However, the situation is different in left-handed people, whose speech, comprehension and reading centre is situated in the right hemisphere. Although left-handed people are not more creative than the right-handed, their hemispheres have to cooperate more because of this setting. And this situation is ideal for the brain as a whole.

The training of mental functions and exercise is necessary at any age. However, the older the person, the more necessary is exercise. Seniors doing exercises should include all the above-mentioned aspects: participation of the non-dominant side (the left arm for right-handed people, the right arm for left-handed people), connecting all the senses at the same time (sight, touch, hearing...), creativity, concentration, memory track restoration, etc. That is the reason why we combine mental activity with movement during our MemTrain programme. By means

of connecting these two parts, we achieve a synergetic effect and, at the same time, seniors can naturally join in the activities which they have tried to avoid.

The advantage of the exercises is their simplicity, memorability, variability, the possibility to communicate in a group and socialise, and to have fun. The time of games has returned with these exercises.

## **Arms – Shoulders – Knees – Legs**

The principle of the following simple exercises is the interconnection of the hemispheres, concentration improvement, motion coordination (arms, legs, and eyes), space orientation, speed of reactions, ability to remember the task.

The principles of exercises are the following:

- We always start with **our dominant arm** (the right arm for right-handed people, the left arm for left-handed people). After a short break, we repeat the exercises with our **non-dominant arm** (the left arm for the right-handed, the right arm for the left-handed). It is important to **exercise both sides**.
- The exercises are usually done in 8 phases and can be combined in various ways.
- We do exercises sitting on a chair, some of them standing, or walking
- We do exercises for a maximum of 10 minutes, followed by a short break.
- We repeat the exercises at a medium pace at first, and then we accelerate the movement gradually to the maximum.

### **Starting position:**

Sit up straight, comfortably on a chair, feet at the width of your pelvis, flat on the floor. Hands in position in front of the body at chest level, palms together.

The chair should have a solid frame, a wide seat at a medium height or a high backrest. Remove the armrests. Armrests are indispensable for elderly seniors who have problems with their balance and standing up.

Sit upright, legs at the width of your pelvis, feet parallel, body weight spread over both feet, knees bent slightly.



## ARMS – KNEES

### Exercise 1:

- R handclap on the R knee, back to the starting positions (2x)
- L handclap on the L knee, back to the starting position (2x)
- 4 handclaps in front of the body



### Exercise 2:

- R handclap on the R knee, back to the starting position (2x)
- L handclap on the L knee, back to the starting position (2x)
- Both hands on the knees, back to the starting position (2x)
- Both hands on the knees, back to the starting position (2x)



MEMTRAIN TIP: Try doing the exercise standing or walking.

**Exercise 3:**

- R handclap on the R knee, back to SP (2x)
- L handclap on the L knee, back to SP (2x)
- R handclap on the L knee, back to SP (2x)
- L handclap on the R knee, back to SP (2x)

*Note: It is possible to do exercises standing up.*

**Exercise 4:**

- R handclap on the L knee, back to SP (2x)
- L handclap on the R knee, back to SP (2x)
- Both hands straight on knees, back to SP (2x)
- Both hands crosswise on knees, R hand up, back to SP (2x)

*Note: For the second version, when we start doing exercises with the second arm, the second arm must be raised while crossing the arms (left arm for the right-handed, right arm for the left-handed)*

**Exercise 5:**

- Put the R palm on the R knee (1 x)
- Put the L palm on the L knee (1 x)
- Turn the R palm up (1 x)
- Turn the L palm up (1 x)
- Turn the R palm back to the R knee (1 x)
- Turn the L palm back to the L knee (1 x)
- Two handclaps in front of the body (2x)





## KNEES – SHOULDERS

### Exercise 1:

- a. R handclap on the R knee, back to SP (2x)
- b. L handclap on the L knee, back to SP (2x)
- c. R hand crosswise on the L shoulder, back to SP (2x)
- a. L hand crosswise on the R shoulder, back to SP (2x)

### Exercise 2:

- b. R handclap on the L knee, back to SP (2x)
- c. L handclap on the R knee, back to SP (2x)
- d. R arm straight on the R shoulder, back to SP (2x)
- e. L arm straight on the L shoulder, back to SP (2x)

### Exercise 3:

- a. R handclap on the R knee, back to SP (2x)
- b. L handclap on the L knee, back to SP (2x)
- c. Both arms on the shoulder, back to SP (2x)
- f. Both arms crosswise on the shoulders, back to SP (2x)

### Exercise 4:

- a. R handclap on the L knee, back to SP (2x)
- b. L handclap on the R knee, back to SP (2x)
- c. Both hands crosswise on the shoulders (R hand up), back to SP (2x)
- d. Both hands crosswise on the shoulders (L hand up), back to SP (2x)

*Note: It is possible to do exercises 1–4 standing up or walking. For the second version, when we start doing exercises with the second hand, the hands must be placed crosswise on the shoulders the other way round (the left hand for the right-handed, the right hand for the left-handed).*



## **Exercise 5: combination (16 repeats)**

- a. R handclap on the R knee, back to SP (2x)
- b. L handclap on the L knee, back to SP (2x)
- c. R arm straight on the R shoulder, back to SP (2x)
- d. L arm straight on the L shoulder, back to SP (2x)
- e. R handclap on the R knee, back to SP (2x)
- f. L handclap on the L knee, back to SP (2x)
- g. R arm crosswise on the L shoulder, back to SP (2x)
- h. L arm crosswise on the R shoulder, back to SP (2x)

## **Exercise 6: combination (16 repeats)**

- a. R handclap on the R knee, back to SP (2x)
- b. L handclap on the L knee, back to SP (2x)
- c. R handclap on the L shoulder, back to SP (2x)
- d. L handclap on the R shoulder, back to SP (2x)
- e. R hand crosswise on the L knee, back to SP (2x)
- f. L hand crosswise on the R knee, back to SP (2x)
- g. Both hands crosswise on the shoulders (R hand up), back to SP (2x)
- h. Both hands crosswise on the shoulders (L hand up), back to SP (2x)

*Note: It is possible to do exercises 5 and 6 standing up or in walking simulation or walking (very difficult). For the second version, when we start doing exercises with the second hand, the hands must be placed on the shoulders crosswise, the other way round (the left hand for the right-handed, the right hand for the left-handed).*

## **KNEES – SHOULDERS – LEGS**

While doing these exercises when sitting down, the legs simulate walking. These exercises are of a medium and higher level of difficulty.

### **Exercise 1:**

- a. R handclap on the R knee, R toe-stand, back to SP (2x)
- b. L handclap on the L knee, L toe-stand, back to SP (2x)
- c. R hand crosswise on the R shoulder, R toe-stand, back to SP (2x)
- d. L hand crosswise on the L shoulder, L toe-stand, back to SP (2x)



## Exercise 2:

- R handclap on the L knee, L toe-stand, back to SP (2x)
- L handclap on the R knee, R toe-stand, back to SP (2x)
- R hand straight on the R shoulder, R toe-stand, back to SP (2x)
- L hand Straight on the L shoulder, L toe-stand, back to SP (2x)



## Exercise 3:

- R handclap on the R knee, R toe-stand, back to SP (2x)
- L handclap on the L knee, L toe-stand, back to SP (2x)
- Both arms straight on the shoulders, both toe-stands, back to SP (2x)
- Both arms crosswise on the shoulders, both toe-stands, back to SP (2x)

*Note: For the second version, when we start doing exercises with the second hand, the hands must be placed on the shoulders crosswise, the other way round (the left hand for the right-handed, the right hand for the left-handed).*



## Exercise 4:

- R handclap on the L knee, R toe-stand, back to SP (2x)
- L handclap on the R knee, L toe-stand, back to SP (2x)
- Both hands crosswise on the shoulders, (R hand up, R toe-stand), back to SP (2x)
- Both hands crosswise on the shoulders, (L hand up, L toe-stand), back to SP (2x)

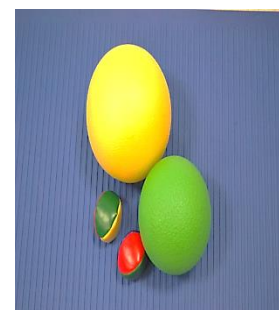
*Note: For the second version, when we start doing exercises with the second hand, the hands must be placed on the shoulders crosswise, the other way round (the left hand for the right-handed, the right hand for the left-handed) and the legs work in a similar way.*

## Exercise 5: combination (16 repeats)

- R handclap on the R knee, L toe-stand, back to SP (2x)
- L handclap on the L knee, R toe-stand, back to SP (2x)
- R hand straight on the R shoulder, L toe-stand, back to SP (2x)
- L hand straight on the L shoulder, R toe-stand, back to SP (2x)
- R handclap on the L knee, R toe-stand, back to SP (2x)
- L handclap on the R knee, L toe-stand, back to SP (2x)
- R arm crosswise on the L shoulder, R toe- stand, back to SP (2x)
- L arm crosswise on the R shoulder, L toe- stand, back to SP (2x)

## Small Ball and Ball Exercises

Ball exercises improve hand–eye coordination, peripheral vision and synergy of both hemispheres of the brain. Today we see the revival of juggling (Latin origin “jaculator” – a person who throws something in the air). During these active exercises, we use the simplest techniques with one or two small balls and later can add a third one and start doing typical juggling (it is not part of this Manual).



## Principles of exercises:

- We always start with **our dominant arm** (the right arm for right-handed people, the left arm for left-handed people). After a short break, we repeat the exercises with our **non-dominant arm** (the left arm for the right-handed, the right arm for the left-handed). It is important to **exercise both sides**.
- Starting posture: upright, feet shoulder-width, weight spread over the feet, knees bent slightly.
- Rhythmic, steady breathing.
- A lot of the exercises can be done in pairs, groups, walking or jogging.
- The exercises need synergy of a number of functions, which is why we do them for a max. of 5–10 minutes.
- We use soft, light balls (overballs) for seniors. However, it is not possible to do all the exercises with these balls.
- We should gradually introduce small balls (tennis balls, textile balls and juggling balls). They are suitable for all the exercises.

## EXERCISES WITH ONE BALL

### Exercise 1:

- a. Passing a ball from a dominant to a non-dominant hand in a straight line.
- b. Throwing a ball from a dominant to a non-dominant hand in a straight line.

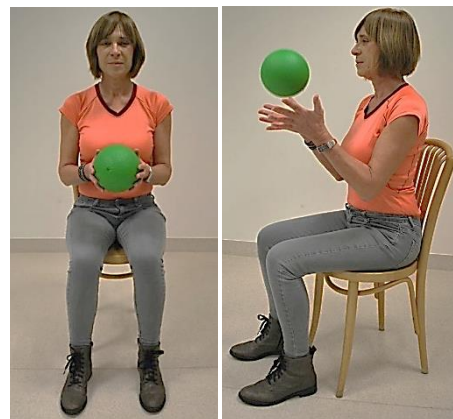
### Exercise 2:

- a. Throwing a ball with both hands.
- b. Throwing a ball with each hand in turn (dominant and non-dominant).

**Exercise 1**



**Exercise 2**



## **Exercise 3: “dribbling”**

- a. Hit a ball and catch it with the dominant hand at waist height.
- b. Hit a ball and catch it with the dominant hand at knee height.

*Note: Change hands after two, three, four, etc. bounces.*

*Modification: A sports instructor faces the group and shows them numbers (cards, fingers). Seniors have to say them aloud.*

## **Exercise 4:**

- a. Throwing a ball from a dominant to a non-dominant hand and upwards (in a vertical direction).

## **Exercise 5:**

- a. Throwing a ball from a dominant to a non-dominant hand. The top of the arc should be at nose height.

## **Exercise 6:**

- a. Hit a ball from a dominant to a non-dominant hand. The main principle is to watch every detail of the motion.

## **Exercise 7:**

- a. Throwing a ball from a dominant to a non-dominant hand against the wall, eyes follow every detail of the motion.

## **Exercise 8:**

- a. Catching a ball bounced off the wall, using both hands. The dominant hand throws the ball against the wall and the non-dominant hand catches it and passes it to the dominant hand. Eyes watch every detail of the motion.



## **Exercise 9:**

- a. Catching a ball on the chest. Throw the ball with the dominant hand against the wall, and then catch it with the non-dominant hand by pressing it against the body. Eyes watch the ball all the time.

## **Exercise 10:**

- a. Throwing a ball through the legs. The same hand throws and catches. Concentration is very important, look forwards, the ball is watched peripherally.

*Note: Very difficult exercise, suitable for younger seniors whose concentration has not weakened.*

## EXERCISES WITH TWO BALLS

Hold two balls of the same size and weight in each hand.

### Exercise 1

- Tossing balls upwards, changing the dominant and non-dominant hands.

### Exercise 2

- Tossing balls up into the air simultaneously with both hands. At the beginning, the problem might be that the weaker hand tosses the ball in a lower position.



*Note: Practise exercises 1 and 2 sitting at a table.*

**Exercise 1:** Place the balls on the table and take them back by changing hands.

**Exercise 2:** Place the balls on the table at the same time and then take them back.

### Exercise 3

- Bounce the ball on the ground, changing the dominant and the non-dominant hand. Eyes follow the ball all the time.
- Throw the ball against the wall, changing hands. (more difficult version)

### Exercise 4

- Bounce the balls with both hands on the ground at the same time. Eyes either follow the first ball and the second one peripherally or look at the centre and follow both balls peripherally.
- Throw the balls against the wall with both hands. (more difficult version)

### Exercise 5

- Tossing the ball in both hands.  
Toss one ball into the air with the dominant hand. Have the second ball ready in the other (non-dominant) hand and pass it to the dominant hand. Catch the ball with the non-dominant hand.

*Note: Practise it while sitting at a table.*

- Put one ball in front of your chest on the table, hold the second ball in the dominant hand.
- Catch the ball on the table with the non-dominant hand.
- Put the second ball on the table.
- Pass the ball from the non-dominant to the dominant hand.
- Catch the ball with your non-dominant hand.

- f. Put the ball on the table with your dominant hand.
- g. Repeat the exercises and speed them up gradually.

## Exercise 6

- a. Tossing the ball, changing hands. (juggling practice)  
Toss the ball up into the air with the dominant hand and catch it with the other hand. At the same time, have the second ball ready in the other hand. Just before catching the first ball, toss the second ball up and catch it with the dominant hand.



MEMTRAIN TIP: Do not do these exercises for a long period of time, alternate them with other physical activities.

**Related video:**  
**Arms – shoulders –  
knees – legs**



**Related video :**  
**Small ball and ball  
exercises**





## 6. Nordic Walking

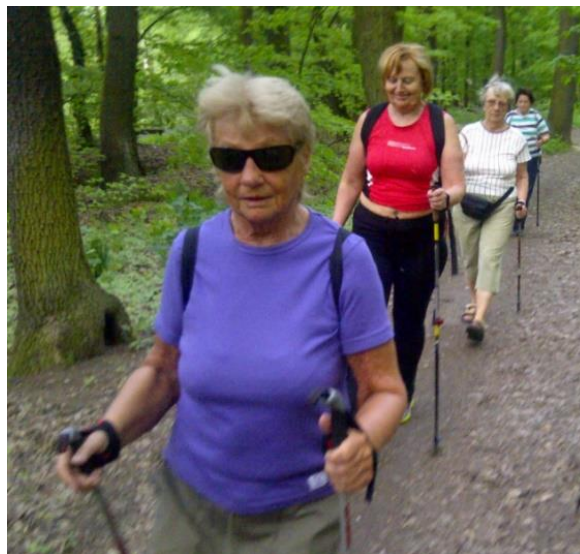
Čepová, H., Luxová, I., Právě teď! o.p.s.

**Nordic Walking** is a very pleasant type of exercise that anyone can do – a beginner or a good athlete, a young person or a person of advanced age. The heart rate during normal exercise moves into an area where one feels good, despite the fact that energy consumption is very high. The performance during the lesson is required from 600 muscles in the human body, representing nearly 90 % of all the muscles in the body.

Nordic Walking is spoken of as a **new health sport**. Walking with the sticks changes muscle tension and blood circulation. It has a positive influence on headaches caused by sedentary work. To improve overall health and fitness, 30 minutes of Nordic Walking is sufficient.

Nordic Walking is also a social sport where communication is possible (while walking) and therefore it is very popular with seniors.

Regular Nordic Walking exercise (meaning walking 1–2 times a week) significantly helps to improve fitness and health.



## Past and Present

Nordic Walking started as a separate sport discipline in the '80s and '90s in the Nordic countries, especially Finland. It is walking with special sticks/poles, which can be practised throughout the year. Nordic Walking essentially evolved from cross-country skiing. Nordic Walking was also known in the first half of the 1990s in the United States under the name of Field Walking.

At present, Nordic Walking is experiencing a huge boom, especially in German-speaking countries, as well as in the Czech Republic, where it is used not only as a sporting activity, but also as a rehabilitation activity after injuries and surgery to knee joints and muscles, hips, for obesity, etc.

In the Czech Republic, every year we observe an increase in the number of participants, especially in the senior category. Seniors appreciate the stability they gain while walking with their poles, and they also appreciate the improvement of physical fitness and the possibility of social encounters and conversations during a walk.

The **International Nordic Walking Federation – INWA** – is the global governing body promoting Nordic Walking. In 2001, NWA was founded in Finland, the motherland of Nordic Walking. The main purpose was to develop Nordic Walking education internationally and to create a global network of Nordic Walking coaches and instructors. More about INWA: [www.inwa-nordicwalking.com](http://www.inwa-nordicwalking.com).



## Health Factors of Nordic Walking

During Nordic Walking, up to 90 % of the muscles of the whole body, (including auditory and pulmonary) are involved and strengthened. Blood circulation improves, blood oxygenation and metabolism occur.

Involvement of the muscles, joints and other important organs of the human body in Nordic Walking training contributes to enhancing the physical fitness of seniors.

While walking, the following joints move:

- Shoulder joints
- Lumbosacral joints
- Hip and ankle joints

The pelvis is rotated – Lumbar spine load??

While walking, the entire skeletomuscular system moves, which is divided into muscles. Both groups of muscles are developed.

- a. postulate – muscles keeping the figure together
- b. kinetic – muscles responsible for flexion and extension (motion)

In the upper body, there is movement in the following major muscle groups:

## Upper back

- Abdominal (straight abdominal and oblique abdominal muscles)
- Trapezoid (shoulders)
- Deltoid muscles (arms)
- Biceps and triceps
- Forearm muscles

In the **lower part of the body** there is movement especially in the following muscle groups:

- Flexors
- Large calf muscles
- Training steps (load)

Training during a Nordic Walking lesson should be adjusted according to the heart rate, i.e. by the number of heart beats per minute. Depending on the heart rate, the personal training intensity is optimised without unnecessary overload symptoms.

- Resting heart rate frequency – indicates the number of heart beats per minute during total rest (e.g. in the morning after waking). Generally, the lower the frequency, the better the state of health.
- Training heart rate – counts the number of beats per minute during training. It is stated in % and is derived from the individual's maximum heart rate (see Heart Rate Zones).
- Maximum heart rate – indicates the maximum heart rate per minute that the heart is theoretically able to achieve. It is essentially used only for the training of professional athletes.



**MEMTRAIN TIP:** For Nordic Walking training, we need a **training heart rate**, which is derived from the maximum heart rate (MHR) and calculated: **220 - age = maximum heart rate.**

The ideal heart rate can be adjusted individually, according to the target of the training, the place of training, the age of the training participants and their physical condition. The heart rate is measured by a heart-rate monitor – a special device placed on the body.

## Nordic Walking Heart Rate Zones

Target of training	Heart rate zone	Heart area target	Target group
Start basic training	Beginning zone	40 – 50 % MHR	Beginners
Training for fat burning, building endurance performance	Fat burning area	50 – 60 % MHR	Beginners, overweight
Training for fat burning, stabilisation of endurance performance and improvement of performance level	Health zone	60 – 70 % MHR	Intermediate
Further increase in performance and enhancement of the circulatory system	Heart circulation	70 – 85 % MHR	Intermediate, advanced

## Exercise Unit Contents

The training unit must be divided into several basic phases:

- Warming up the body – this can be a normal walk without the need to walk with sticks (especially for beginner groups)
- Warm-up, stretching
- Walking instruction (for beginner groups)
- The walk itself, in which the load must be adapted to the current health status of participants
- Walking breaks, games, discussions
- At the end of the lesson, stretching again

## Walking Technique with Sticks

The technique of walking with poles is basically simple. The step is important and the heel goes down. The step is longer for Nordic Walking, and it should be done with the foot on the heel and the natural movement of the foot to the toes and at the same time a slight knee-bend.

The pole is held at a right angle and helps keep the body in the right position while walking.

The elbows move straight along the hull. While walking, the right leg alternates with the left hand and vice versa. The sides and shoulders are held in one plane; alternatively, the upper part of the body can be leaning slightly forwards.



The body is slightly inclined, the sight is directed towards the horizon. The shoulders are pushed down and back.

The movement of the hand begins behind the body. The elbow is propped up. After the tap, the hand is bent at a right angle and the step continues forwards. Then the hand returns again.

At the moment of stretching the hand behind the body, the palm is open.

Push dynamically off the back leg.

Stick the pole in approximately at the level of the forefoot.

## Warm-Up and Final Stretching

The importance of stretching and warm-up is indispensable; they should be performed before each exercise and for a long enough time, even if this part of the walk is not very popular with the seniors. A proper warm-up will make the body work on the load and will heat it up. Due to proper stretching of the muscles, the risk of injury (muscle stretching or tearing) is minimal.



During exercise, we activate the muscular system and let the muscles go into "operating" temperature; we prepare them for sports performance.

It is not important whether the warm-up is done from head to foot or vice versa. It is important that at least the ankles, knees, hips, and shoulders are addressed, in order to stretch the hands and cervical spine.

Individual exercises should be performed for a minimum of 5 repetitions (for each limb).

At the end of each lesson, it is advisable to perform stretching of all the muscles.

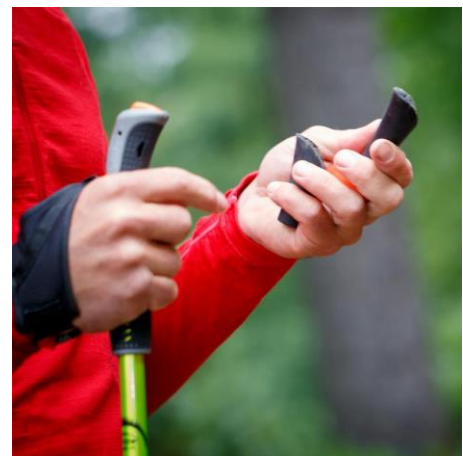
The sport load causes the muscles to be shortened, so it is necessary to stretch them after training. The muscles relax quickly and maintain their flexibility. Stretching is also important due to subsequent better regeneration.



## Equipment

Several things are important for Nordic Walking:

- **Sports shoes** – should be comfortable and good quality with a free (open) ankle. The shoe should have a slightly dropped heel and a firm tip. It is not recommended to walk in ankle boots or in high-heeled shoes.
- **Poles** – The length of the stick should be  $0.68 \times$  height of the figure, which usually corresponds to a straight-faced heel with which the arms and forearms should be at right angles to the body. The Nordic Walking Instructor should be able to help select and adjust the poles.
- Clothes should be of a sporting type (in winter, similar to cross-country skiing); you should be able to move freely in the clothes.



## Hygienic Principles



One of the important duties of instructors is to alert participants to the suitability or inappropriateness of their clothing, such as an impermeable sweater in the summer and inadequate clothing in the winter. Furthermore, it is necessary to wear clothing in which there is the ability to move naturally.

It is important to emphasise the need for adherence to the proper drinking regime and for a rest immediately after a meal.

## Nordic Walking and Seniors

In lessons for seniors, care should be taken to keep them up-to-date and to adjust the pace of lessons to their needs. In addition, seniors need to be repeatedly informed about the need to adhere to the drinking regime, the need to eat small snacks (diabetics), and the need to carry the necessary medication with them.

If respecting the principles mentioned above, Nordic Walking is clearly one of the most ideal sports for the senior generation.

As **Med. Dr. Josef Štolf**, Head of the Department of General Medicine at the Institute of Postgraduate Education in Healthcare at Charles University (Czech Rep.), states: *“With regard to seniors, exercise and adequate movement (not a day-consuming exercise at all costs) help reduce morbidity and allow seniors to remain active for a long time. Positive response to regular walking can be observed related to cardiovascular diseases, type 2 diabetes mellitus, osteoporosis, arthritis, urinary problems, cancer, obesity and others. Exercise works as an anti-depressant, extends the possibilities of social contact, improves the learning ability, especially short-term memory, affects sleep quality. For these reasons, Nordic Walking can be strongly recommended as a physical activity for the elderly.”*



## Conclusion

Nordic Walking benefits in the following ways:

- Helps control weight, prevents diabetes and some types of cancer – e.g. colon
- Reduces high blood pressure and cholesterol levels
- Reduces the risk of heart disease and heart attack
- Improves bone density and helps prevent osteoporosis
- Helps to reduce anxiety, creating a feeling of euphoria
- Contributes to better oxygenation of the brain, improves memory
- Increases creativity and ability to solve problems
- Involves 90 % of muscles in the body
- Relieves muscle tension in the back and shoulder muscles
- Significantly increases the mobility of the spine
- It saves joints and knees and reduces the burden of overweight people
- Increases body calorie consumption more by walking with a pole than normal walking by an average of 20 %





Nordic Walking is a very pleasant type of exercise that everyone can do – a beginner or a performance athlete, a young person or a person of advanced age. The heart rate is at a normal load in the area in which one feels good, even though the energy consumption is very high. Performance during the lesson is required from 600 muscles in the human body, representing nearly 90 % of all muscles in the body.

**Related video:  
Nordic Walking**



## 7. Athletics for Seniors

John Holian, Athletics Ireland



Athletics is the sport of running, jumping, throwing and race walking. The sport is undertaken in a variety of settings – outdoor 400-metre tracks in stadiums, indoor 200-metre tracks in arenas, cross-country in parks and longer distances on the road. It is an activity which is often not considered when thinking about sports for seniors; however, it has many positive effects and can be practised without great cost to seniors.

The following **safety suggestions** should be taken into consideration:

- If running in parks, check for potholes, tree roots and sharp rocks. Try to avoid bottlenecks that could cause athletes to run into each other.
- If running on roads, run towards oncoming traffic, well to the side and wear reflective vests. Be careful at intersections and if possible run with a partner if the area is isolated.
- Take into account the age, length of the run, number of athletes and expected weather (excessive heat requires fluid replacement, cold requires warm clothing e.g. hat, gloves and tights).
- A good warm-up is essential and should include loosening, stretching and light flexibility exercises.
- Develop the programme slowly and carefully. To minimise risk of overuse injury, do not increase the total distance by more than 10 % from one week to the next.
- Begin by using a run-walk and visually assess how athletes are doing – flushed faces, gasping and signs of discomfort are signals to cut back and ask questions about how the athlete is feeling that day.

### Technique

- Run with an upright body position. Allow some forward lean if accelerating
- Stride length – for a shorter distance, it should be moderate to long; shorter strides for longer distances
- Knee lift should be higher for sprints, lower for long distance
- Arm action – should always balance the motion of the legs. Swing forward and backward, not across your body. Vigorous when sprinting, minimal when not sprinting
- Try to relax as you run, in particular the shoulders and neck

- Keep your vision forward (not on the ground) and your head up. Do not roll your head or let it drop.

All work-outs start by **warming up**. Stretching does not warm you up. Performing the dynamic drills presented here will get the blood flowing, warm up the muscles, and increase your range of motion. Repeated practice of these drills prevents injuries and improves your walking/running technique.

While practising all the drills every day is ideal, it is unlikely that your schedule permits that much time to warm up. Each drill specifies a purpose, importance, and intensity. The purpose of the drill assists you in selecting the proper drill for the area of the body in which you wish to increase the range of motion or warm up.

After properly warming up using these drills, **stretch** any problem areas. Warmed up and stretched, you are ready to run/race/walk. Once you finish, then you must stretch and stretch well.

## **WARM-UP EXERCISES**

All exercises x 2 repeats – STATIC

### **1. Neck Rotation**

Stand looking straight ahead, back in neutral position, shoulders relaxed. Move your head slowly to look over the right shoulder staying relaxed, hold for a few seconds, then move back to the starting position and move your head to look over your left shoulder.

### **2. Neck Side Flexion**

Stand looking straight ahead, back in neutral position, shoulders relaxed. Tilt your head so that your right ear moves towards your right shoulder, hold for a few seconds, then flex your neck slowly towards your left shoulder.

### **3. Neck Extension**

Stand with your arms by your side. Look straight ahead, spine in a neutral position. Extend your neck back slowly looking upwards, hold for a few seconds then drop your head forwards, chin to chest and back to start position.

### **4. Shoulder Rotation**

Stand with your arms by your side. Look straight ahead, spine in a neutral position, and shoulders relaxed. Bring your shoulders forwards, then slowly upwards towards your ears, rotating backwards and around to the starting position.

## **5. Wrist Rotation**

Stand with your arms stretched out to your sides, keeping your shoulders level, back neutral. Make small circles clockwise and then anti-clockwise with your hands around your wrist joints. Continue for 20 seconds

## **6. Torso Rotation**

Stand upright with your feet shoulder-width apart, your elbows raised to the sides and your palms facing down to the floor. Slowly rotate your upper body to the right keeping your elbows and forearms in line. Rotate back to the start position and repeat on the left side.

### **WARM-UP EXERCISES**

All exercises x 6 repeats – DYNAMIC

#### **1. Leg Abduction**

Place your palms against a wall with your body leaning slightly forwards. Lift your right leg and swing across your body in a slow and controlled way, pointing your toes at the end of the swing. Then swing your leg back across your body, pointing your foot outwards. Repeat then with the left leg.

#### **2. Knee Flexion**

Stand on your left leg with your left hand against a wall. Bend your right knee up behind you so that your foot raises up towards your buttocks. Slowly return the foot to the floor. Repeat then with the right leg.

#### **3. Leg Flexion**

Stand on your left leg with your left hand against a wall, and your right leg slightly behind with toes pointing down on floor. Keep left foot flat on the floor and slowly swing your right leg forward in front of you and slowly back behind you, keeping your right knee as straight as possible. Repeat for the required repetitions, and then repeat with the left leg.

#### **4. Ankle Circles**

Stand on your left leg with your left hand against a wall. Raise your right leg slightly in front of you and make small circles clockwise with your right foot 2-3 times and then anti-clockwise 2-3 times. Repeat then for your left foot.

## **5. Lunges**

Stand upright with your feet hip-width apart. Take a long step forward with your right leg. Drop down and bend at your knees. Hold for a couple of seconds, then push off your left leg back to an upright position, keeping your head up. Repeat this 3 times on your right leg. Then step forward with your left leg and drop down again, return to the start position. Repeat 3 times with each leg.

### **COOL-DOWN EXERCISES**

Hold each stretch for 20 secs

#### **1. Upper Back Stretch**

Stand in a neutral position, feet hip-width apart. Extend your arms to chest level pushing your arms forward, interlocking your fingers and palms facing out. Lock out your elbows and push your shoulders forwards.

#### **2. Shoulder Stretch**

Stand in a neutral position, feet hip-width apart. Bring your left arm across your body with your elbow slightly bent. Hold your left arm in at the elbow with your right hand until you feel the stretch in your shoulder. Relax and repeat with your right arm.

#### **3. Quad Stretch**

Stand with your back to a firm low table. This can be close to a wall, so that you can place one hand on the wall for support. Place your left foot on the table, bending the knee and hold this position for 20 secs. Lean on the right foot with knee slightly bent for support. Hold for 20 seconds so you can feel the stretch in the front of your left thigh.

Repeat with the right leg.

#### **4. Calf Stretch**

From a standing position, press your hands against a wall and take a good step backwards, keeping your feet hip-width apart. Bend your left leg forward, ensuring to keep your knee over

your foot. Hold for 20 secs. You should feel the stretch in your left calf. Repeat with your right leg.

## SESSION 1

### WARM-UP

#### Static x 2 reps

- Neck Rotation
- Neck Side Flexion
- Neck Extension
- Shoulder Rotation
- Wrist rotation
- Torso Rotation

#### Dynamic x 6 reps

- Leg Abductions – leg swing across body
- Knee Flexion
- Leg Flexion
- Ankle circles
- Lunges (3 each side)

**20 secs Exercise – 20 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. Alternating Shoulder Press with 1kg weights or bottles
2. Bicep Curl – weights
3. Chest Flies – weights
4. Chest Push – wall
5. Reverse Crunch – mat
6. Single Arm & Leg Raise – mat
7. Chair Squats

#### Run

1. Run on spot/outside – 1 min, 30 secs rest between runs by walking slowly x 3 sets
2. Easy walking 10 mins, followed by cool-down

### COOL-DOWN

hold each stretch for 20 secs

1. Upper Back stretch
2. Shoulder Stretch
3. Quad Stretch
4. Calf Stretch – on step

## **SESSION 2**

### **WARM-UP**

As per SESSION 1

**20 secs Exercise – 20 secs Rest x 2 sets** – 2 mins rest between each set - as many repetitions as you can in each set

1. Chest Flies
2. Chest Push
3. Reverse Crunch
4. Single Arm & Leg Raise
5. Chair Squats
6. Shoulder press with both arms
7. Romanian Dead Lift to high pull

### **Run**

1. Run on spot/outside – 1 min, 30 secs rest between runs by walking slowly x 4 sets
2. Easy walking 10 mins followed by cool-down

### **COOL-DOWN**

As per SESSION 1



## **SESSION 3**

### **WARM-UP**

As per SESSION 1

**30 secs Exercise – 30 secs Rest x 2 sets** – 2 mins rest between each set - as many repetitions as you can in each set

1. Reverse Crunch
2. Single Arm & Leg Raise
3. Chair Squats
4. Shoulder press with both arms
5. Romanian Dead Lift to high pull
6. Squats without chair
7. One-arm row – use chair

### **Run**

1. Easy run outside – 2 mins, 30 secs rest between runs by easy walking x 3 sets
2. Easy walking 10 mins, followed by cool-down

### **COOL-DOWN**

As per SESSION 1

## **SESSION 4**

### **WARM-UP**

As per SESSION 1

**30 secs Exercise – 30 secs Rest x 2 sets** – 2 mins rest between each set - as many repetitions as you can in each set

1. Chair Squats
2. Shoulder press with both arms
3. Romanian Dead Lift to high pull
4. Squats without chair
5. One-arm row – use chair
6. Bicycle crunch
7. Straight Leg Raises

### **Run - outside**

1. Easy run outside – 3 mins, 1 min rest between runs by easy walking x 3 sets
2. Easy walking 5 mins, followed by cool-down

### **COOL-DOWN**

As per SESSION 1

## SESSION 5

### WARM-UP

As per SESSION 1

**40 secs Exercise – 40 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. Romanian Dead Lift
2. Squats without chair
3. One-arm row
4. Bicycle crunch
5. Straight Leg Raises
6. Low Plank
7. Single Leg Dead Lift

### Run

1. Easy run outside – 4 mins, 1.30 mins rest between runs by easy walking x 3 sets
2. Easy walking 5 mins, followed by cool-down

### COOL-DOWN

As per SESSION 1

## **SESSION 6**

### **WARM-UP**

As per SESSION 1

**40 secs Exercise – 40 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. One-arm row
2. Bicycle crunch
3. Straight Leg Raises
4. Low Plank
5. Single Leg Dead Lift
6. Squats – with weights
7. Push ups - on knees

### **Run**

1. Easy run outside – 5 mins, 2 mins rest between runs by easy walking x 3 sets
2. Easy walking 5 mins, followed by cool-down

### **COOL-DOWN**

As per SESSION 1

## **SESSION 7**

### **WARM-UP**

As per SESSION 1

**50 secs Exercise – 50 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. Straight Leg Raises
2. Low Plank
3. Single Leg Dead Lift
4. Squats with weights
5. Push ups – on knees
6. Bridge – feet on floor
7. Standing Y

### **Run**

1. Easy run outside – 6 mins, 2 mins rest between runs by easy walking x 2 sets
2. Easy walking 5 mins, followed by cool-down

### **COOL-DOWN**

As per SESSION 1

## **SESSION 8**

### **WARM-UP**

As per SESSION 1

**50 secs Exercise – 50 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. Single Leg Dead Lift
2. Squats with weights
3. Push ups – on knees
4. Bridge – feet on floor
5. Standing Y
6. Step-ups – on stairs or box
7. Heel touching

### **Run**

1. Easy run outside – 8 mins, 2 mins rest between runs by easy walking x 2 sets
2. Easy walking 5 mins, followed by cool-down

### **COOL-DOWN**

As per SESSION 1

## **SESSION 9**

### **WARM-UP**

As per SESSION 1

**60 secs Exercise – 60 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. Press-ups - on knees
2. Bridge – feet on floor
3. Standing Y
4. Step-ups – on stairs or box
5. Heel touching
6. Kneeling Superman
7. Side plank – bent knees

### **Run**

1. Easy run outside – 10 mins, 3 mins rest between runs by easy walking x 2 sets
2. Easy walking 5 mins, followed by cool-down

### **COOL-DOWN**

As per SESSION 1

## SESSION 10

### WARM-UP

As per SESSION 1

**60 secs Exercise – 60 secs Rest x 2 sets** – 2 mins rest between each set – as many repetitions as you can in each set

1. Standing Y
2. Step-ups – on stairs or box
3. Heel touching
4. Kneeling Superman
5. Side Plank – knees bent
6. Calf Raises with chair
7. High knees

### Run

8. Easy run outside –10–15 mins if possible
9. Easy walking 5 mins, followed by cool-down

### COOL-DOWN

As per SESSION 1

**Related video:**  
**Athletics**



**More info:**  
**About athletics**



**More info:**  
**Exercise descriptions**



**More info:**  
**About fat burn**





## 8. Zumba

M. Augustynowicz, Gdynia Sports Centre

Zumba is a programme with a combination of dance and fitness. Created by the Colombian dancer and choreographer, Alberto "Beto" Perez, during the '90s, Zumba involves aerobics and dance, which are matched to appropriately selected tracks. As an innovative form of fitness, it is based on simple dance moves performed to energetic music originating from the following dance styles: Salsa, Hip-hop, Soca, Samba, Rumba, Reggaeton. Classes are taught only by instructors licensed by Zumba Fitness, LLC.

Zumba is also an endurance training, aerobic and cardio exercise. It is usually 1 hour long. Alternating fast and slow rhythms burn fat, slim the silhouette and improve the physical condition. There are several different types of Zumba classes, from Aqua Zumba work-outs to classes like Zumba Step, Zumba Toning, Zumba Gold and even Zumba classes for kids.



Zumba is great for both the body and mind. In other words, it is for everyone who likes to move to music, regardless of age, dance experience or skills, because it is easy to adjust to individual needs and abilities.

## Introduction to the Lessons

Each lesson is divided into three definite parts:

- I. **WARM-UP takes about 10–15 minutes.** *Use exercises working with arms, head, hips, waist, and legs. You can use the main steps which will be shown in Chapters I of each lesson and combine them as you like. You can add short moves to music to further lessons. Put them together in a smooth motion as you need to your prepared music.*
- II. **CHOREOGRAPHY takes 20–30 minutes.** *You will find it in each lesson; the main steps and examples in QR Code.*
- III. **COOL-DOWN AND STRETCH takes 10–15 minutes.** *Use exercises working with arms, head, hips, waist, and legs. You can use the main steps which will be shown in chapters III in each lesson and combine them as you like. You can add short moves to music to further lessons. Put them together in smooth motion as you need to your prepared music.*

### Don't forget:

- Wear comfortable sports shoes and clothes
- Drink water between and after the lesson
- Warm-up – Warming up before exercise is essential for muscular health. Dance and aerobics activities increase breathing and heart rate.
- Choreography – steps are interesting and simple. You can mix main steps, choose music as you like and create your own style. Whatever way you move in is perfect.
- Cool-down and stretch – the main goal of cool-down is to reduce heart and breathing rates. A gradually cool body temperature helps your heart rate and breathing to return to resting levels gradually. The stretches will keep you flexible and prevent tightness, helping you to avoid injury.

## LESSON 1

- I. **WARM-UP** – e.g. music *“Thurston Harris – Little Bitty Pretty One”*
- a) march from the right side
  - b) step touch to the right and to the left side (4x) (QR: point I.1)
  - c) stand in 1 spot, bounce, bend knees, add shoulder-roll back /in turn right and left (4x) each side
  - d) shoulder roll front/in turn right and left (4x)
  - e) step touch /hands on the hips (4x)
  - f) step touch, at the same time turn your head slowly to the left and the right (8x)
  - g) step touch double right, switch sides (8x)
  - h) combination with step touch single and double, add 2 hands up, or clap your hands (8x)
  - i) in turn right and left hand up, in turn 2 hands in front /single and double
  - j) head, arms, hip, trunk rotation
- Repeat in your combination of moves
- II. **CHOREOGRAPHY**
1. **Teaching of choreography** – e.g. music *“Jump in Line – Shake, Shake Senora”*
- a) V step clapping hands 3x and add basic Salsa step (count to 8) (QR: point I.6 and I.10a)
  - b) 4 steps forward, shake your body with arms, and four steps back (all 2x)
  - c) 4 steps forward, lift your arms up (cross right and left side) (all 2x)
  - d) efficient stance in 1 spot, with feet slightly apart and shift your weight from side to side to the rhythm, work with hips and arms (8x)
  - e) Jumps on the spot switching legs (hands “playing drums”) (8x) (all 2x)
  - f) 4 steps forward, shake your body with arms, and 4 steps back (all 2x)
  - g) 4 steps forward, lift your arms up and 4 steps back (cross right and left side) (all 2x)
  - h) Right leg and left forward (touch your toes), then right leg to the side, touch your toes and the same to the left side. Repeat move forward to the rhythm (single and double step), hands on hips
  - i) Jumps on the spot, switching legs (hands “playing drums“ up and down) (8x), (all 2x)
  - j) Repeat subsections f), g), d), e)
  - k) 4 steps forward with swinging arms, add 2x basic Salsa steps and 4 steps back with swinging arms. finish with 2x basic Salsa steps (all 2x)
  - l) 4 steps forward, shake your body with arms and clap your hands (count 1, 2, 3, 4) and 4 steps back, shake arms and again 4 steps forward, clap your hands (count 1, 2, 3, 4) and 4 steps back, shaking arms

- m) 4 steps forward, lift both your arms up (cross right and left side) and clap your hands (count 1, 2, 3, 4) and 4 steps back with the same movement of arms and again 4 steps forward and clap four times and back 4 steps
- n) Repeat *subsections h), i)*, then 4 steps forward, lifting arms up (cross right and left side), 4 steps back, repeat to the front and back, finish with 4 steps to the front  
Repeat all 2x

## 2. Teaching of choreography – e.g. music “Marcelo Cezan – Soy Para Ti”

- a) Step Touch with clapping hands (8x) (QR: [point I.1](#))
- b) Use V step (4x) hands alternately, right and left hand up and back on right hip and left (QR: [point I.6](#))
- c) Basic Salsa step (8x) (QR: [point I.10a](#))
- d) Salsa two-step – 2 steps to the right, wave your arms to the front (count 1, 2) and 2 steps to the left side(count 3, 4,...8) repeat (2x) (QR: [point I.10c](#))
- e) Sleepy leg – 4 steps to the right and 4 steps to the left. On the left side, cross your left arm on the right shoulder and cross the right arm on the left shoulder (to the rhythm), then raise right arm, then left arm, right arm to the side and left arm to the side, lower them and repeat moves (2x) (QR: [point I.11c](#))
- f) Steps forward, move: diagonally to the right side, 4 steps with right foot, switch to the other side and do 4 steps forward as well. Then go back the same way
- g) Repeat *subsections b), c), d), e), f)*
- h) Knee up single (count to 8) (2x) and double (count to 8) (2x)
- i) Repeat *subsection f)*, add move with arms from *subsection e)* and in the end, cross right arm with left and swing

## 3. Teaching of choreography – e.g. music “Marc Anthony – Valio La Pena”

- a) March on the spot, work with hips (continue until the lyrics begin)
- b) Salsa basic step – effortlessly (count to 8) (all 3x) (QR: [point I.10a](#))
- c) Salsa back step (8x) (all 4x) (QR: [point I.10b](#))
- d) Repeat *subsection b)* at faster tempo than *subsection c)*
- e) Repeat *subsection b)* at fast tempo, but count to 8, then repeat *subsection c)*, turn hips to the back, at the same time, alternately raise your arms, but count to 8 (all 2x)
- f) Step out left leg slowly with left arm lifted to the side, shake your arms, change to the right side (to the rhythm) (all 2x)
- g) Repeat back Salsa, basic Salsa to the end of the song

- III. **COOL-DOWN AND STRETCH** *(with fluid movements, focusing on inhalation and exhalation)* *(QR: [point II.1](#))*

## LESSON 2

- I. **WARM-UP** – use combination moves (*Lesson 1, chapter I*)  
Repeat choreography *Lesson 1, chapter II, point 3* (music e.g. “*Marc Anthony – Valio La Pena*”) – you can use the subsection which you find in all the choreography in *QR: point II.7*:
  - c) Salsa back step, add combination move: step forward (start from right foot) then step back with left foot – step centre-step
  - e) Salsa two steps in all 4 directions and work with arms
  
- II. **CHOREOGRAPHY** – repeat choreography from *Lesson 1, chapter II, point 1 and 2*
  1. **Teaching of choreography Cumbia** – e.g. music “*Fuego – Kumbia Kings*”
    - a) Single Reggaeton Stomp (*QR: point I.14a*) continue to the moment when the refrain begins
    - b) Step right foot forward to the heel (4x), then rock backwards and forwards to the right side. (4x) back with rock backwards and forwards to the left side (4x) (*QR: point I.11b*)
    - c) Machete step to the right (4x) and to the left (4x) (*QR: point I.11d*)
    - d) Sleepy leg to the right (8x), Sleepy leg to the left (8x) (*QR: point I.11c*)
    - e) In a circle to the right (8x) and in a circle to the left (8x) (*QR: point I.11a*)
    - f) Repeat *subsections b), c), d), e), b)*
    - g) Reggaeton Stomp (4x)
    - h) Beto Shuffle (slowly count to 8) (*QR: point I.9b*)
    - i) Repeat Beto Shuffle (move: on the spot – double to the right and double to the left – count 1, 2 – 3, 4 ...8 and repeat (all 4x)
    - j) Repeat *subsections d), e) and b), g), h)*  
Repeat all 2x
  
- III. **COOL-DOWN AND STRETCH** – use combination moves (*Lesson 1*)  
Add exercise: Stretch your shoulders – place one hand on the back, with opposite hand grab elbow and nice and easy pull it forward and hold. Switch sides. Stretch your wrists – one arm in front with elbow bent, grab your fingertips with the opposite hand, and slowly pull them all the way down, hand facing the floor. Change sides.



## LESSON 3

- I. **WARM-UP** – use choreography ([QR: point II.2](#)) and moves to MACARENA ([QR: movie 1](#))
  
- II. **CHOREOGRAPHY** – use choreography from [Lesson 2, chapter II, point 1](#); [Lesson 1, chapter II, point 1](#) (music “Jump in Line – Shake, Shake Senora”) – you can use the subsection, which you will find in all the choreography in [QR: point II.4](#):
  - a) Salsa two step
  - d) 4 steps forward, 4 steps back (hold each step)
  - e) all 4 directions
  1. **Teaching of choreography** – e.g. music “Earth, Wind and Fire – September”
    - a) March on the spot, continue until the stave begins
    - b) Grapevine step to the right and left (count to 8) (all 4x) ([QR: point I.3](#))
    - c) Cha-cha step moves (try step to the back): right leg to the back – cha-cha and left foot to the back (side to side) (4x) (last 4 steps repeat on the spot) ([QR: point I.8b](#))
    - d) Step touch (8x), shift your weight to the supporting leg and cross other leg behind and continue to the other side, add arms up and down to the rhythm as you like (all 2x) ([QR: point I.1](#))
    - e) Stance, with feet slightly apart, spin your wrists on right and left side and repeat (count fast to 8 to the rhythm) (4x)
    - f) Repeat *subsection b)*, *subsection c)*, *subsection d)*, count 4 x to 8
    - g) Repeat *subsection b)*, *subsection d)*, count 4x to 8
    - h) Repeat *subsection e)* and continue to the end of the song  
Repeat all 2x
  
- III. **COOL-DOWN AND STRETCH** – use combination moves from [Lessons 1 and 2, chapter III](#). Add exercise – stretch biceps: lift one arm up, elbow is bent behind your head, pull your forearm down. Grab your raised elbow with the opposite hand. Pull the elbow towards the head. Hold and change sides.





## LESSON 4

### I. WARM-UP

1. Use choreography *Lesson 1, chapter II, point 2* (music: “Marcelo Cezan – Soy Para Ti”) – you can use the subsection, which you will find in all the choreography in *QR: point II.6*:
  - b) Machete step (4x) (start with right side) (*QR: point I.11d*)
  - c) Machete step (4x) (left side)
  - d) Reggaeton Pump with two step – double step to the right side, then single move to the left, single to the right, double step to the left, single to the right and single to the left (2x) (*QR: point I.14b*)
2. Use choreography *Lesson 3, chapter II, point 1* (music: “Earth, Wind and Fire – September”) – you can use the subsection, which you will find in all the choreography in *QR: point II.8*:
  - b) Sleepy leg 4 to the right and to the left (count to 8) (all 4x) (*QR: point I.11 c*)
  - c) Steps backwards – 4 steps backwards to the right and clap your hands, 4 steps to the left side, clap your hands (count to 8 repeat) (4x)
  - d) Reggaeton Pump, but try to move: double pull to the right and double pull to the left (count to 8) repeat (2x) (*QR: point I.14b*) add step touch (8x) shift your weight to the supporting leg and cross other leg behind and continue to the other side in the same way, add arms up and down to the rhythm as you like (*QR: point I.1*)

### II. CHOREOGRAPHY – repeat choreography from *Lesson 1, chapter II, point 1* (music: “Jump in Line – Shake, Shake Senora”) – you can use the subsection, which you will find in all the choreography in *QR: point II.5*:

- a) Reggaeton Stomp continue until refrain begins (*QR: point I.14a*)
  - b) Step touch to the right with shaking arms (2x), double step to the right (wave your arms from side to side) and step touch with shaking arms to the left (2x) and double step to the left (wave your arms) (all 2x) (*QR: point I.1*)
  - c) V step, and lift your arms, alternately work with hips (hold each step) (*QR: point I.6*)
- 1. Teaching of choreography** – e.g. music “Barry Manilow – Copacabana”
- The whole group can stand in a circle*
- a) March on the spot while playing drums (hands “playing drums”), continue to the moment when the stave begins
  - b) Step touch, waving your hands side to the sides (8x) (*QR: point I.1*)
  - c) Three steps forwards and clap your hands, three steps backwards and clap your hands (4x)
  - d) V step add hands up (count to four to the rhythm)

- e) Stance with feet slightly apart, spin your wrists on right and left sides and repeat
- f) Sleepy leg 4 steps to the right and 4 to the left, double step to the right and left (sleepy leg) (QR: [point 1.11c](#))
- g) Repeat *subsections d), e)*
- h) Step touch, wave your hands from side to side (8x)
- i) Repeat points from the beginning, start from *subsection c) ... to h)*
- j) March in one direction in the circle, step on the other leg (put foot to the side), relax arms continue to the moment when the stave begins
- k) Repeat *subsection i)*
- l) Add step touch, move your arms up and down (4x) while moving and pull them to the front (4x)
- m) Jumps on the spot switching legs, move: “hands playing the drums” (8x)
- n) Repeat *subsection h)* (you can add move: (slowly) roll back your shoulders)

## 2. Teaching of choreography – e.g. music “*Tangled Up*” from Caro Emerald

- a) On the spot, step side to side (touch your toe), arms in right position which is used in Tango (count to 8 to the rhythm) (QR: [point 1.16](#))
- b) Tango step – slow tempo (count slowly to 8) (all 2x)
- c) Tango step – quick tempo (count faster to 8) and quick soles of your feet (2x)
- d) Cha-cha step to the back, start with right foot, put it behind, cha-cha-cha and put the left foot behind, continue (8x) (you can move: side to side) (QR: [point 1.8b](#))
- e) Step to the front (4) and back (4) (move: forwards and cross your legs)
- f) Repeat *subsections b), c), d), e)*
- g) On the spot, hands on hips, one leg goes round in a circle to the side, then the other leg in the same way (4x)
- h) Double step side to side (1, 2 to the right 3, 4 to the left..), wave your arms (count to 8) and on the spot with bounce until refrain begins
- i) Repeat *subsection d)* and *subsection e)*, repeat (2x)

## III. COOL-DOWN AND STRETCH – use combination moves from [Lessons 1–3](#)

Add exercise – stretch chest: stand tall with your back straight, interlace fingers behind your back as you straighten out your arms and lift chin to ceiling



## LESSON 5

- I. **WARM-UP** – repeat from *Lesson 3*
- II. **CHOREOGRAPHY** – repeat choreography from *Lesson 4, chapter II, point 1-2*
  1. **Teaching of choreography** – e.g. music “As Meninas – Xibom Bombom”
    - a) March with bounce, continue to the moment when refrain begins
    - b) US Samba step side to the side (8x) repeat (all 2x) (QR: *point 1.15*)
    - c) Double step to the right, shift your weight on to the supporting leg (right) on 3,4 put your left foot double time on your toe, (you can lift your arms at the same time), double step to the left and repeat the same move with your right leg (to the right side count 1, 2–3 and 4 and to the left 5, 6–7 and 8 (4x)
    - d) Diagonally double step forward (start with right foot), swing your arms then double step with left leg, back with the same moves, continue to the refrain (or use move: *Beto Shuffle in QR: point 1.9b*)
    - e) Repeat *subsection b), subsection c)* and *subsection b)*
    - f) Salsa basic step – effortlessly (count to 2), then the same step, but do the squat while stepping on right foot to the side and then left foot to the side and squat (count 2) repeat (all 3x), end moves on the spot, shake your arms (QR: *point 1.10a*)
    - g) Repeat *subsections c), d)* and *subsection b)*; Repeat *subsections c), b)* and continue to the end of the song
- III. **COOL-DOWN AND STRETCH** – use combination moves from *Lessons 2–3*

## LESSON 6

- I. **WARM-UP** – repeat moves from *Lesson 4*, you can use steps (QR: *point 1. 6 to 8*)
- II. **CHOREOGRAPHY** – repeat choreography *Lesson 2, chapter II, point 1; Lesson 3, chapter II, point 1; Lesson 5, chapter II, point 1*
- III. **COOL-DOWN AND STRETCH** – repeat moves from *Lesson 2*



## LESSON 7

- I. **WARM-UP** – repeat from *Lesson 1*, add your combination moves which you find in *QR: point I.1–18*
- II. **CHOREOGRAPHY** – repeat all choreographies from *Lesson 4, chapter II*, but in *point 2* (music “*Tangled Up*” from Caro Emerald) you can use the subsection, which you can find in all choreography in *QR: point II.9*:
  - b) double step to the right (count 1, 2), shift your weight on the supporting leg (right) on 3 and 4 put your left foot double time on your toe, then double step to the left and repeat the same move with your right leg (4x), (arms in right position which used in Tango (*QR: point I.16*))
  - g) Beto Shuffle slowly single to the rythm (4x) (*QR: point I.9b*)
  - h) Beto Shuffle – move: double two to the right (count 1, 2) and two to the left (count 3, 4) (8x)
- III. **COOL-DOWN AND STRETCH** – repeat from *Lessons 1–3*

## LESSON 8

- I. **WARM-UP** – repeat from *Lesson 2*
- II. **CHOREOGRAPHY** – repeat all choreographies from *Lesson 1, chapter II; Lesson 5, chapter II point 1* (music “*As Meninas – Xibom Bombom*”) – you can use the subsection, which you will find in all the choreography in *QR: point II.10*:
  - g) Slow destroza step (*QR: point I.14 c*), count 4 on the right foot then 4 on the left, you can move from side to side, add arms, lifting them up while moving (all 2x) then hit your hands double time on your thighs and double hand clapping (4x), end moves on the spot, shake your arms
- III. **COOL-DOWN AND STRETCH** – repeat from *Lessons 2–4*

## LESSON 9

- I. **WARM-UP** – use *QR: point II.2 (movie – Macarena)* or use steps (*QR: point I.1–8*), add moves with extra arm with clapping, then swinging alternately your arms in a large circle, then both in one spot, bend knees; Sleepy leg – two to the right and one move to the left
- II. **CHOREOGRAPHY** – repeat choreography from *Lesson 5, chapter II, point 1* (music “*As Meninas – Xibom Bombom*”) – you can use the subsection, which you will find in all the choreography in *QR: point II.11*:

- h) **Salsa basic step** all 4 directions (count to 8), then the same step, but do the move: squat while stepping on the right foot to the side and then with the left foot to the side and squat (count 4)

- III. **COOL-DOWN AND STRETCH** – repeat moves that you like most or use exercises which have been shown in *Lessons 1–4*

## LESSON 10

- I. **WARM-UP** – use *QR: point II.1, add moves from Lesson 1, point 1*
- II. **CHOREOGRAPHY** – choose 3 or 4 choreographies that you like the most and add your own moves
- III. **COOL-DOWN AND STRETCH** – repeat from *Lesson 1–3*



**Additional  
Resource: Zumba  
Steps**



**Related video:  
Zumba**



## 9. Adapted Physical Activity

Lisa Crosetti, Unione Italiana Sport per Tutti

Adapted Physical Activity (Attività Fisica Adattata), known as AFA, is a group gym programme to alleviate a sedentary lifestyle and to maintain a good health status. Exercises are meant for subjects with painful illnesses caused by hypomobility (backache, gonalgia, coxalgia) and chronic diseases consequent from cerebral ictus and Parkinson's. The activity is not a substitute

for rehabilitative intervention, though a change of lifestyle can really help prevent the onset of new menomation and disabilities (secondary and tertiary) caused by a sedentary lifestyle.

AFA can be described as an individualised activity practised in homogeneous groups. Work groups (15–20 people) are characterised by the involvement of subjects with homogeneous psychophysical conditions regarding each pathology. The purpose of the exercises is the same as a gentle gym course: regaining mobility of joints, increase of flexibility, muscular strength and resistance, respiratory and cardiovascular system improvement, etc. AFA exercises differ from others in the gradual nature of the amount of work, the adaptation to the pathology and its development, and the attention to any contraindications or specific needs of the subject. AFA provides aerobic exercises with no load (no weights are used), avoiding any jumps or detachment from the ground, which may cause consequences on already compromised joints and structures.

One of the important goals of AFA is also aggregation, which promotes socialisation between the members of the group, which is fundamental to guarantee a good psychophysical health status.



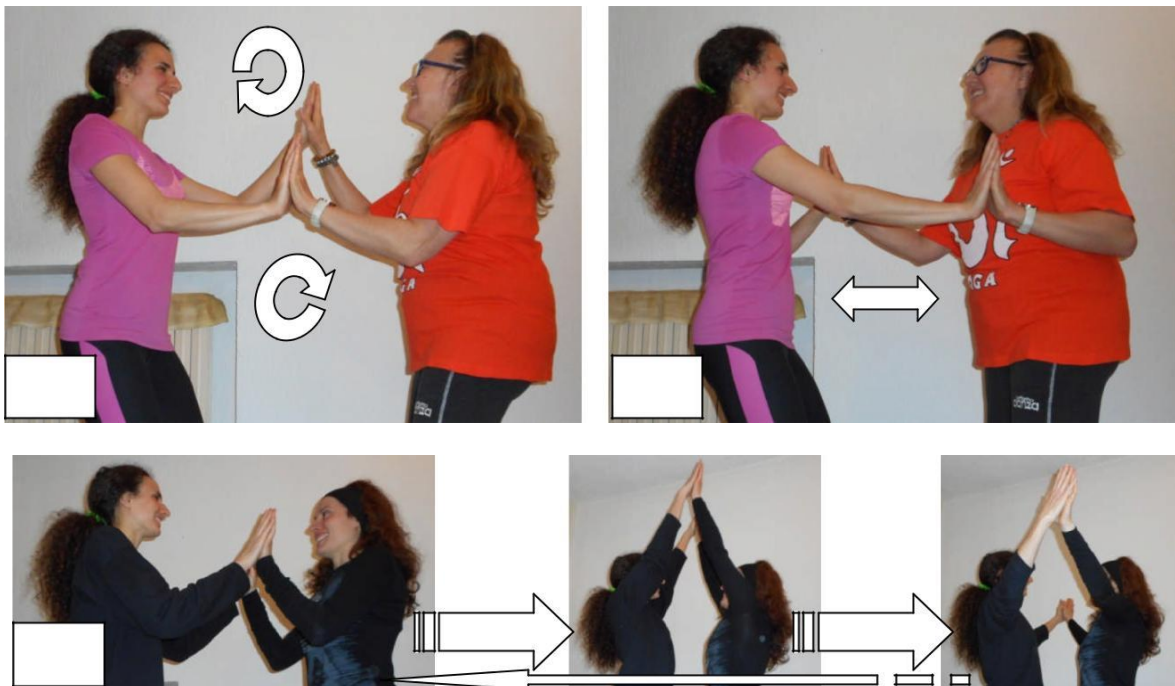
## Floor exercise: Exercise 1

After performing a short warm-up, march to music on site (about one minute). Participants get ready to start the 30-minute lesson that concludes with 15 minutes of stretching exercises. Participants are arranged in multiple lines and follow the movements of the instructor that take place in front of them. Each exercise lasts for about 20 repetitions. There will be cool-down breaks, but the motor action will not be interrupted.

### WORKING EXAMPLE: a dynamic series of thrusts and counter thrusts of arms

Participants rapidly group into couples (of similar heights). One in front of the other, staying in neat rows, they reach the hands of the partner. The legs are slightly bent and spread apart, feet parallel for the legs to follow the movement of the upper limbs through light bounces. They perform these actions following the instructor's commands, avoiding exceeding the speed or amplitude of the movements, considering their needs and limits, and those of the partner:

1. Make large circular movements, as for the bicycle exercise. The movement must involve the shoulders and thoracic outlet. 20 times forwards and 20 in reverse.
2. Generate alternate thrusts (right and left) with forearms parallel to the ground. Action must reach the shoulder blades and upper back. 20 repetitions.
3. Make circles on the frontal plane, matching hands inside-high-off-low, like cleaning a mirror. The gesture must involve shoulder blades and back. 10 repetitions.



## Floor exercise: Exercise 2

### **WORKING EXAMPLE: series of leg push-ups alternating with forward kicks - down and back in the buttocks**

Legs are bent at a suitable angle for the articulatory capacity of each person; those suffering from hip or knee arthrosis reach an angle of not less than  $90^\circ$ , while subjects in a better physical condition can squat, keeping the back straight and bringing the pelvis in anteversion, legs apart, feet parallel and knees in line with the latter. Simultaneously, the upper limbs follow the flexing, bending at right angles towards the forehead, closing the fists. Neck and shoulders remain relaxed. Returning upright, a lower limb moves forward, such as to realise a low height kick as the arms extend back with clenched fists. Proceed to do the same with the contralateral limb, alternate after each bend. Perform 10 repetitions.

After that, the movement after the bending changes, realising a buttock kick, is trying to reach up to the corresponding side with the heel. People who can not fully flex the knee must ensure to bring the joint in line with the torso and perpendicular to the floor. They perform 10 repetitions: 5 with the right leg and 5 with the contralateral leg.





## Sticks EXERCISE 1

WORKING EXAMPLE: series of extensions and bending arms, crossing the sticks

Rapidly group into couples (of similar heights). One in front of the other, the participants remain in rows. Hold the stick parallel to the ground, with the palm facing the front. At the beginning, the legs are bent and spread apart, with the feet parallel, for the legs to follow the movement of the upper limbs with light bounces. Return to the erect position, extending the lower limbs like the upper ones, to have one edge of the stick against the other, forming an X with the partner's stick. Proceed to return to the former position, bending the upper and lower limbs. Repeat the motor gesture, changing the direction of the hands, bringing the edge of the stick which was upwards, down, and vice versa. The exercise involves the shoulders and upper back.

Perform 20 repetitions.

Do not exaggerate the speed and range of the motion, and be careful not to accidentally hit the partner's hands with the stick.



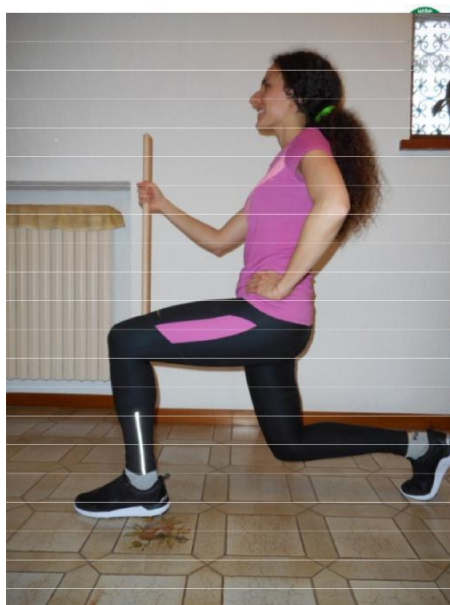
## Sticks: Exercise 2

WORKING EXAMPLE: series of lunges with stick

Hold the stick perpendicular to the floor with one hand. Use the tool as a support in the execution of the motor task. When the instructor commands it, bring forward the lower limb – the opposite one to the hand holding the stick – and carry out a series of lunges from that position. The legs are bent at 90 ° angles: the advanced limb will have the leg perpendicular to the ground (be sure to keep the foot forwards compared to the knee, avoiding such an overloading of the articulation). The front leg has to be parallel to the floor, while the knee of the rear leg is perpendicular to the ground (slightly detached from the ground). Stand on the forefoot. The upper limb next to which the stick is held, will also be bent at 90 °, while the other arm rests on the hip. After the lunge is completed, return to the upright posture, keeping the feet in the same position.

Proceed to carry out a series of lunges for 10 repetitions. Repeat the motor action, holding the stick with the other hand and advancing the lower limb which was previously the rear support.

Perform the same movements up to a total of another series of 10 repetitions of lunges.

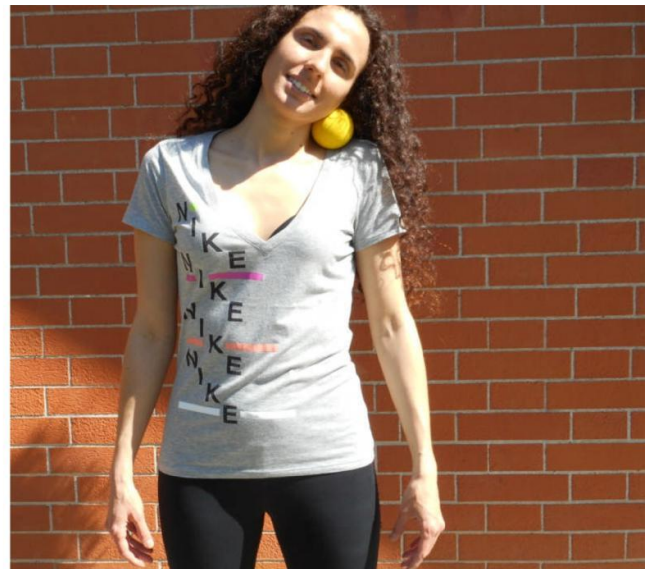


## Soft Balls: Exercise 1

### **WORKING EXAMPLE: series of shoulder elevations towards the ear compressing the ball**

Place the sponge ball between the trapezius muscle of the shoulder, the head inclined in the direction of the latter. At the instructor's command, compress the soft ball, bringing the shoulder towards the ipsilateral ear, so as to crush the sponge ball between the two structures. The back is upright and the arms outstretched; remaining relaxed at the sides of the torso. The legs are slightly bent and spread apart, feet parallel in such a way as to follow the upper limbs' tasks with light bounces. After performing 10 compressions of the ball, change shoulders and reverse the inclination of the head to realise another 10 compressions on the opposite side. The exercise involves the muscles of the shoulders, neck and shoulder blades.

Do not to exaggerate the speed of execution or the amplitude of movement and be particularly careful with the cervical spine, since it is an extremely sensitive region.



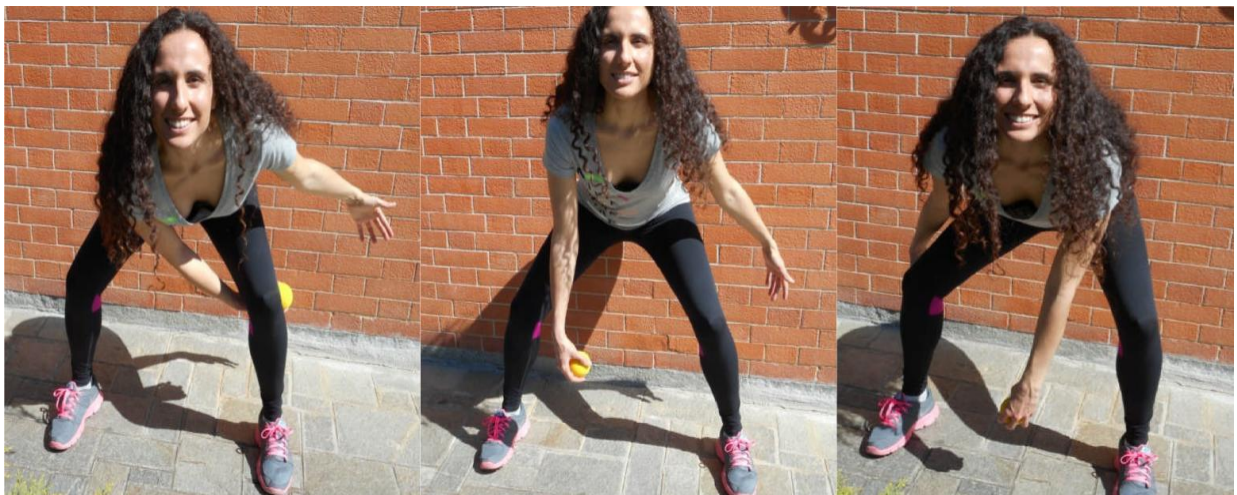
## Soft Balls: Exercise 2

### **WORKING EXAMPLE: passing the soft ball to form the shape of an “8” between spread legs**

Bend and spread the legs, keeping the feet parallel and follow the actions of the hands with light bounces. Make sure to have the back straight and the pelvis slightly in anteversion. Grasp the soft sponge ball and pass it from side to side, forwards and behind the knees, not touching them, shaping an “8” between the lower limbs. The arms are freely extended and accompanying the gestures of the hands, that pass the ball from right to left, from front to back and from outside to inside. Keep neck and shoulders relaxed.

Carry out 10 series in one direction and the same number in the opposite direction.

The exercise involves the muscles of the upper and lower limbs, and improves eye-hand coordination.



## Chairs: Exercise 1

### WORKING EXAMPLE: series of manual handling of loads with chair

Stand behind the chair. Get the body close to the object, spread and bend the legs carefully, bringing the knees to the outside and the feet parallel. Bring the pelvis in anteversion so to push out the buttocks. Maintain the spine upright, the shoulders low and relax the cervical spine. Look ahead to the horizon. From this position, trying to maintain the object as close as possible to the body, lift the chair from the base and extend the legs. Lift the object from the ground, but by acting exclusively with the lower limbs. End the exercise in reverse: put the chair back on the ground, bending the lower limbs and with the back straight.

Repeat 5–8 times.

This motor action involves almost the whole body, so avoid exaggerating the speed or the amplitude of the movement, and be extremely careful with the joints involved.



## Chairs: Exercise 2

### WORKING EXAMPLE: series of speeding of legs in the sitting position

Sit on a straight-backed chair, legs bent at 90 degrees and arms relaxed at the bust. At the instructor's command, spread the right leg and then the left one alternately to the rhythm of music. After reaching the maximum opening, return to the starting position, bringing the right leg closer to the body and then the contralateral one. Repeat the movement 10 times. After that, reverse the opening round, starting the movement with the left leg, followed by the right. Repeat this movement 10 times too.

This motor exercise involves the lower limbs. Do not to exaggerate the speed and range of motion and be extremely careful with the joints.



## Mat: Exercise 1

### WORKING EXAMPLE: cycling in pairs on the mat

Divide into pairs quickly (of similar height) and put the mat close to your partner's, at the wide part. Sit on the mat longitudinally, with the legs bent and feet flat on the floor, in front of the partner. Lie on your back on the floor, arms relaxed next to the hips. Lay the head on the mat and bring the chin in retraction, taking care to keep the position for the entire duration of the exercise (a subject with accentuated kyphosis should get a pillow to put under the head to support it). So as not to strain the spine overly, be really close to the partner. From this position, touch the soles of the feet of the partner and perform circular movements with the legs, as if riding a bicycle.

Perform 10 circular movements forwards and 10 backwards.

This particular motor action involves the lower limbs and abdominal muscles. It is recommended not to exaggerate the speed or range of the motion, not to get overly tired, and to respect your own needs and those of your partner.



## Mat: Exercise 2

### WORKING EXAMPLE: series of antero-posterior displacements with buttocks on the mat

Sit lengthwise on the mat with legs stretched and back straight. Not using the hands, make small steps forward in succession by moving one buttock and the other, contracting the oblique abdominal muscle and lifting, one after the other, the hips off the ground. The legs follow the movement, slightly flexing, but not contributing much to the motor action. Move the arms, which have to be flexed, to counteract the buttock action. When the right buttock goes forward, bring forward the left arm to compensate the movement, and vice versa. Upon reaching the edge of the mat, perform the reverse movement to return to the starting point, bringing one buttock behind the other and going back on the mat in the opposite direction. Perform three to four moves back and forth, for a total of six to eight repetitions. This particular motor task involves the arms and legs, abdominals, back and buttocks.

It is recommended not to exaggerate the speed or amplitude of the execution and not to get excessively tired.



Video: APA





## 10. Memory games

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Many scientific researches have shown that our brain functions in a similar way to our muscles: we have to keep it busy, only in this way will the brain retain its strength and flexibility. Our brain needs constant mind exercise, which we could also characterise as mind aerobics.

If we do these exercises on a regular basis, our ability to think, learn, memorise and make decisions will improve. We will be able to think faster, connect various bits of information better and memorise more. By training our memory, we keep our bodies and brains in top form.

The Memory Games in this chapter are designed to train your brain through training various abilities:

- **Spatial abilities**, which facilitate the understanding of space, affect the memory about what we see, help us orientate in space and similar. These abilities are trained by solving puzzles, finding similarities and differences.
- **Language abilities**, which are important for expressing oneself clearly. It can be trained by searching for words with the same or opposite meanings, solving crosswords and puzzles, constructing sentences from words, etc.
- **Mathematical abilities** are abilities connected with numbers, such as calculating by heart and solving mathematical problems.

Creativity is also a very important part of memory training. Creative exercises do not have a set ending. The most important thing is that one searches for new and different ways of telling a story, making up puzzles, new words, drawing, etc.

All brain activities require memory, which can be trained by various exercises and memory games, which you will find on the following pages.



## 1st CYCLE OF ACTIVITIES

**Initial instructions:** Participants form a circle. Before each part of the activity, the trainer gives instructions to participants about the activity. The trainer stands in the middle of the circle with a ball (or other object). He passes the ball randomly among the participants.

### Part 1: Finding antonyms

When the trainer throws the ball (or other object) to a participant, he/she is given a word and has to give the antonym (opposite of this word). If the participant cannot think of the appropriate word, other participants help.

*Example: the trainer says 'new', the participant says 'old'.*

Duration of activity: 5 minutes.

### Part 2: Finding synonyms

When the trainer throws the ball (or other object) to the participant, he/she is given a word and has to give a synonym (a word with the same meaning). If the participant cannot think of the appropriate word, other participants help.

*Example: the trainer says 'pretty', the participant says 'beautiful'.*

Duration of activity: 5 minutes.

### Part 3: Combining adjectives with nouns

When the trainer throws the ball (or other object) to the participant, he/she is given an adjective and has to give a noun which would create a meaningful phrase. If the participant cannot think of an appropriate word, other participants help.

*Example: the trainer says 'boring', the participant says 'speaker'.*

Duration of activity: 5 minutes.

### Part 4: Finding hyponyms

When the trainer throws the ball (or other object) to the participant, he/she is given a hypernym and has to give as many of the hyponyms as possible, without pausing. If he pauses, other participants can add more words.

*Example: the trainer says 'furniture', the participant says 'chair, table, closet, ...'*

Duration of activity: 5 minutes.

## **2nd CYCLE OF ACTIVITIES**

**Initial instructions:** Participants spread out around a designated area, close enough so that they can hear each other. The trainer stands in the middle of them, close enough for participants to hear him/her. Each participant is given a number which he/she has to memorise for the set of activities. Whenever the trainer calls out his/her number, it is that specific person's turn to speak. Before each part of the activity, the trainer gives instructions to participants about the activity.

### **Part 1: Counting letters in a word**

The trainer says a certain word aloud and calls out one of the numbers. The participant whose number he has called must count the number of letters in the word the trainer has said.

*Example: the trainer says 'building', the participant says '8'.*

Duration of activity: 5 minutes.

### **Part 2: Memorising words that belong to the same group**

The trainer reads without pausing 10 words that belong to the same group. After finishing reading, he/she calls out the number and the participant who has been given the specific number, has to repeat as many words as possible. If he cannot remember all the words, other participants can add to them.

*Example: the trainer says 'deer, bear, rabbit, cat, horse, penguin, cow, parrot, donkey, bird', the participant tries to repeat as many as possible.*

Duration of activity: 7 minutes.

### **Part 3: Memorising random words**

The trainer reads 10 random words without a pause. After finishing reading, he/she calls out the number and the participant who has been given the specific number, has to repeat as many words as possible. If he cannot remember all of the words, other participants can add to them.

*Example: the trainer says 'bear, house, car, student, friend, cook, leaf, radio, video, robot', the participant tries to repeat as many of them as possible.*

Duration of activity: 8 minutes.

## 3rd CYCLE OF ACTIVITIES

**Initial instructions:** Participants stand in a straight line. Before each part of the activity, the trainer gives instructions to participants about the activity. The trainer stands in front of the line.

### Part 1: Multiplication game

The trainer chooses a number from 2 to 9, e.g. 4. The participants are told to count in a sequel (the first one says number 1, the second says number 2, the third one says number 3), but each time a number comes up that is a multiple of the number 4, this participant does not say the number, but says BUM instead. The participant who makes a mistake has to pay an easy penalty, such as 5 crouches or turns or something similar. After the mistake, the trainer chooses another number and the exercise is repeated.

*Example: the trainer chooses number 3. The first participant says '1', the second says '2', the third says 'BUM', the fourth says '4', the fifth says '5', the sixth says 'BUM', etc.*

### Part 2: Simple multiplication

The trainer gives the participants very simple multiplication activities on a very basic level. The purpose of the activity is not to test their Maths skills, but to stimulate their fast response.

*Example: the trainer says '8 divided by 4 equals – ' and the participant says '2'.*

### Part 3: Finding rhymes for numbers

The trainer says a number and the first participant has to find a word that rhymes with this number. Afterwards, this participant has to say a word and the participant standing next to him has to find a word that rhymes with this number, and so on. Participants cannot use the same word twice.

*Example: the trainer says 'three', the participant says 'me'.*

### Part 4: Creating words according to a number given

The trainer gives the first participant a number and the participant has to say a word that contains the same number of letters. Afterwards, this participant has to give a number to the person standing next to him and he/she has to say a word with that number of letters.

*Example: the trainer says '5', the participant says 'house'.*

Duration of each activity: 5 minutes.

## 4th CYCLE OF ACTIVITIES

**Initial instructions:** Participants stand in a straight line. Before each part of the activity, the trainer gives instructions to the participants about the activity. The trainer stands in front of the line.

### Part 1: Saying and repeating individual words

The first participant in the line says a random word. The next participant has to repeat this word and add his/her own word. The participant besides him/her has to repeat both words and add a new one, etc. The activity continues until one of the participants misses a word. Then the activity is repeated with new words.

*Example: the first participant says 'house', the second says 'house, river', the third participant says 'house, river, church', etc.*

Duration of activity: 8 minutes.



### Part 2: Creating a story

The first participant in the line says a short sentence. The next participant has to repeat this sentence and add his/her own short sentence. The participant beside him has to repeat both sentences and add a new one, etc. The activity continues until one of the participants cannot remember one of the sentences. Then the activity is repeated with new sentences.

*Example: The first participant says: 'The man bought a car.' The second participant says: 'The man bought a car. The car was blue.' The third participant says: 'The man bought a car. The car was blue. It was old,' and so on.*

Duration of activity: 8 minutes.

## Part 3: Matching words with colours

The trainer says a certain word aloud and the first participant in line has to say the colour/colours connected to this word. Afterwards, the same activity is repeated with each participant.

*Example: the trainer says 'sun', the participant says 'yellow'.*

Duration of activity: 4 minutes.

## 5th CYCLE OF ACTIVITIES

**Initial instructions:** Participants are divided into pairs.

### Part 1: Describing clothes

Participants are asked to look carefully at each other and try to remember what the other person in his pair is wearing. Afterwards, they have to turn their backs to each other and try to describe what the partner is wearing, describing the type and colour of the clothes. When one of them finishes the description, the partner says whether it was correct or not.

*Example: The participant describes his/her partner: 'John is wearing a yellow T-shirt, blue shorts, white socks, black trainers.'*

Duration of activity: 5 minutes.



## **Part 2: Retelling a story**

One of the participants is asked to tell his partner a short story. The trainer can set the number of sentences the story must have. The partner has to listen carefully to the story. When he/she finishes the story, the partner has to repeat it as accurately as possible. The partner who told the story tells his partner what information/sentences were missed out when retelling the story. Afterwards, the partners switch roles.

Duration of activity: 8 minutes.

## **Part 3: Country characteristics**

One member of a pair tells his partner the name of a random country. His partner has to say 10 things he associates with this country. Afterwards, the partner who mentioned the country tries to repeat these 10 words. When finished, they change roles, choose another country and repeat the activity until it is stopped by the trainer.

*Example: one of the partners says 'Italy', the other says 'pasta, spaghetti, Rome, ...'.*

Duration of activity: 8 minutes.

## **6th CYCLE OF ACTIVITIES**

**Initial instructions:** Participants are divided into pairs.

### **Part 1: Repeating a clapping rhythm**

One of the participants in the pair produces a rhythm by clapping his hands. The other member of the pair listens to the rhythm and tries to repeat it by clapping. Afterwards, they change roles. They continue with the exercise until it is stopped by the trainer.

*Example: The participant claps his hands 10 times in a certain rhythm. The other participant repeats the rhythm by clapping.*

Duration of activity: 4 minutes.

## Part 2: Mime

One of the participants is asked to mime an activity. The other partner must guess which activity he has been shown. The same person mimes 5 different activities in turn, while the partner tries to figure out the activities. When the first person has finished miming all 5 activities, the partner tries to repeat all 5 activities by miming them. Afterwards, they switch roles.

Duration of activity: 8 minutes.



## Part 3: Imaginary drawing

One of the participants is asked to use his hands to draw an object/animal in the air. The partner must guess what object/animal he has been shown. The same person draws 5 different objects/animals in turn, while the partner tries to figure out the object/animal. When the first person has finished drawing all 5 objects/animals, the partner tries to repeat all 5 objects/animals by drawing in the air. Afterwards, they switch roles.

Duration of activity: 8 minutes.





## 7th CYCLE OF ACTIVITIES

**Initial instructions:** Participants are divided into pairs.

### **Part 1: Finding objects with the same shape**

One participant in the pair is given three tags, one in the shape of a square, another in the shape of a circle and the third in the shape of triangle. All tags are different colours. The member of the pair with the tags lifts up different tags and the partner tries to mention an object which has the same shape as the tag. Each time the object named has to be different. When the trainer asks them, they switch roles.

*Example: The participant shows a circle. The partner says 'sun'. The participant shows a square, the partner says 'house', etc.*

### **Part 2: Showing shapes**

One partner still has the tags with different shapes and colours. The partner who is not holding the tags, names objects with different shapes and the other person holding the tags lifts up the tags with the same shape as the mentioned objects. When the trainer asks them, they switch roles.

*Example: The participant says 'roof'. The other participant lifts the tag in the shape of the triangle.*

### **Part 3: Naming objects with the same colour**

One participant in the pair is given several tags of different colours. The person holding the tags lifts up a tag of a certain colour and the partner must name different objects/animals of the same colour. When the trainer asks them, they switch roles.

*Example: The participant lifts up green and the other partner says 'grass'.*

### **Part 4: Finding people who wear the same colour**

One partner takes some time to observe the people in the group. Then he turns away from the group and faces his partner, who holds tags of different colours. The person with the tags lifts a tag of a specific colour and the partner tries to name the people wearing clothes of the same colour. When the trainer asks them, they change roles.

*Example: The participant lifts up green and the other participant says 'John and Mary'.*

Duration of each activity: 5 minutes.

## 8<sup>th</sup> CYCLE OF ACTIVITIES

**Initial instructions:** Participants are divided into pairs.

### **Part 1: Guessing the articulated word**

One participant in the pair makes up a word and articulates it with his mouth, without making a sound. The partner tries to guess the word. He guesses until he gets it right. The same person articulates 10 words in a row. Finally, the person who was guessing the words, repeats all 10 words. Then they switch roles.

*Example: The participant articulates the word 'cat' without making a sound. The partner tries to figure out the word. At first he says 'map', but the other person indicates that he is wrong. Afterwards, he says 'cat' and the other person indicates that he is right.*

Duration of activity: 8 minutes.

### **Part 2: Repeating sentences backwards**

One of the pair says a short sentence. The partner listens to the sentence and then tries to repeat it, but backwards. The same action is repeated with different sentences until the trainer tells them it is time to switch roles. Each sentence should be a bit longer.

*Example: The participant says: 'My house is in the countryside.' The partner says: 'Countryside the in is house my.'*

Duration of activity: 8 minutes.

### **Part 3: Describing rooms in a house**

One partner describes one of the rooms in his house. He tries to include as many details as possible, including the shapes and colours of the furniture. The other partner tries to memorise as many details as possible and then tries to repeat the description as best as possible. Afterwards, they switch roles. When they both finish, they choose another room and repeat the exercise. The exercise can be repeated until the trainer stops it.

Duration of activity: 5 minutes.

## 9th CYCLE OF ACTIVITIES

**Initial instructions:** Participants are divided into pairs

### **Part 1: Turning letters into numbers**

The trainer gives the participants 5 letters, e.g. A, B, C, D, E and gives a number to each letter. For example, A is 1, B is 2, C is 3 and so on. They try to memorise which letter is represented by which number. When they have done this correctly, one of the partners says out loud an addition sum with letters. The other partner has to transfer the letters into numbers and solve the sum. Afterwards, they switch roles. They repeat the activity until the trainer stops it.

*Example: One partner says: 'A + B is?' The other partner says: '1 + 2 = 3.'*

### **Part 2: Multiplication sums with letters**

The trainer gives the participants 10 letters, e.g. A, B, C, D, E, F, G, H, I, J and gives a number to each letter. For example, A is 1, B is 2, C is 3 and so on. They try to memorise which letter is represented by which number. When they have done this correctly, one of the partners says out loud a multiplication sum with letters. The other partner has to transfer the letters into numbers and solve the sum. Afterwards, they switch roles. They repeat the activity until the trainer stops it.

*Example: One partner says: 'A x C is?' The other partner says: '1 x 3 = 3.'*

### **Part 3: Combining addition and multiplication sums with letters**

The trainer gives participants 10 letters, e.g. A, B, C, D, E, F, G, H, I, J and gives a number to each letter. For example, A is 1, B is 2, C is 3 and so on. They try to memorise which letter is represented by which number. When they have done this correctly, one of the partners starts by saying aloud the combinations of addition and multiplication sums with letters. The other partner has to transfer the letters into numbers and solve the sum. Afterwards, they switch roles. They repeat the activity until the trainer stops it.

*Example: One partner says: 'A + B x C is?' The other partner says: '1 + 2 x 3 = 6 + 1, which = 7.'*

Duration of each activity: 8 minutes.

## 10th CYCLE OF ACTIVITIES

**Initial instructions:** Participants are divided into groups of four

### **Part 1: Guessing a described building**

One participant in the group thinks of a building in the town and describes its location to 3 other people in the group. The other group members try to guess which building he/she is describing. They take turns until the trainer stops the activity.

*Example: This building is located in the town centre. It is between the Post Office and the shop. It is opposite the hotel.*

### **Part 2: Guessing an animal**

One person in the group thinks about a specific animal. He does not say the name of the animal to the other people in the group. The other group members have to ask as many questions as possible to guess the correct animal. The questions should be formed in such a way that only 'yes' or 'no' answers are possible. They should not ask specific questions like 'Is it a dog?' right away, but rather ask about the characteristics of the animal, e.g. 'Does it live on a farm?' If a person tries to guess the animal and he/she is wrong, he/she is out of the game.

*Example: The participant asks: 'Is this animal dangerous?' The answer: 'Yes, it is.'*

### **Part 3: Memorising details about the description of people**

One participant in the group describes a person. It can be a real person or an imaginary person. The other people in the group try to memorise as many details as possible. After the first person has finished the description, another person gives his/her description. Afterwards, the third and fourth persons do the same. After all 4 people in the group have finished their descriptions, they take it in turns trying to repeat as many details as possible to repeat the descriptions of the other members of the group.

Duration of each activity: 6 minutes.

**Related video:  
Memory Games**



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