



BUNGYPUMP WALKING

- the new capability of rehabilitation training

BungyPump walking is multifunctional training which lets improve strength and efficiency at one time. BungyPump poles are technical modification of Nordic Walking poles. They contain support-amortization element whereby they can be very interesting tool in daily therapeutic work.

Work of many physical therapists is not only based on the learned therapies but first of all on their knowledge which helps them to create or use custom tools on various stages of improving patient. The more experience, the more courage in creating their own ways to help the patient recover. As in any professional proceedings thorough knowledge is required. No less important, however, the ability of creative look at the problem seems to be significant and individually matched method of treatment to each patient. Experienced physiotherapist / physical therapist, programming the therapy, in addition to a health problem, he will take into account the characteristics of the patient, such as: temperament or behavioral habits. Physical activity of man, the way it is moving is a specific and extremely valuable indicator of the state of the body. By analyzing posture is possible to determine postural instability problems, assessment of fall risk, identify the source of imbalances and to verify the effectiveness of the therapy. One of the basic physical function of man is walking, and although it seems perfectly natural, in fact, it is one of the most complex physical activities.

In some cases, the right therapeutic rehabilitation program complements the march training in terrain. A form of terrain rehabilitation may be training with Nordic Walking poles (NW) or training with BungyPump poles (BP). In both cases, therapeutic treatment based on perpetuating the correct motor habits and teaching patient the proper techniques of movement using marching poles.

NORDIC WALKING AND BUNGYPUMP TECHNIQUE OF MARCH

Contains natural and human physiological movements of the locomotion, enriched with element of repulsion poles from the ground, which resulting in an increase in the dynamics of the march. Using poles stimulates proper posture, increases the support plane. Movement alternation affects on supplementation of the physical symmetry. The principle of the system move with poles is the movement of the body, when the movement was enforced involvement of the greatest possible muscle groups in the most natural way for humans. During the march torso leans forward, and the speed increases compared to the free walking. By increased rotation of the trunk, in addition to vigorous walking, except launch and strengthen the shoulder girdle, spinal joint are also mobilized. Intensive work of muscles In the upper half of the body involves large muscle groups and it is mainly focused on the work of the shoulder girdle, on the other hand wrist and elbow joints are protected. The task of the therapist during the conduct of the course is to observe and correct motor habits of the patient. Effectiveness of the training requires working through all elements of proper walk, run the shoulder girdle and upper torso in the range of rotation.

Harmful to health work "on his elbows," which could be observed in people practicing walking with poles on their own, due to a lack of supervision and required training by the instructor. Person walking "on the elbows" during the march has attached arms to the body, tense of neck muscles and shoulder rim muscles, there is no trunk rotation, lack of movement in the joints of shoulder and upper limbs' movement is done by bending the elbows, usually in the range of 90-130 degrees. Deformation of techniques of march with poles described above is not the only one that can be observed, but it is impossible to mention all the mistakes made by amateurs of this popular sport. Unfortunately, many people still believe that training in this activity is not necessary, and the results of movement degeneration are injuries from overload.

However, in practice, take into account such characteristics as: age, body weight, level of body mastering, diseases, or all facts affecting the practitioner movement restrictions. People with motor problems initially receive poles about 2.5 cm to 5 cm lower. Gradually, as the achievement of progress, change pole length to the height indicated on the body. In contrast, in the case of sporting people with whom you can start training on poles longer than provided in the tables.

The maximum length of the poles BP properly set is then, when the end handles the practitioner reaches the chest. Starting training with someone less well-trained, with insufficient strength of the shoulder girdle, it is best to set the total length of the pole a little bit lower than chest height.

During walking, pole is pressed against the length of the set of depreciation (maximum 20 cm), and then returns to the overall length. The mistake is to allow the rapid spring back of pole. If you observe this phenomenon, we should consider reducing his, length of by the above tips or - if it is possible - change the poles with less resistance. Proper work of muscles during walk is then, when the movement is performed smoothly at every stage.

THE HEALTH BENEFITS OF WALKING TRAINING

The health benefits of practicing NW became the subject of numerous publications. They emphasized all values of practicing walking with sticks, as an effective cardio workout, beneficial for the cardiovascular system. Another frequently reported benefit is improvement the emotional state of a group of people practicing walking with poles. Recommendation of method Nordic Walking for older people is simple and effective form of activity, combined with spending time in the fresh air. It is also emphasized that the use of poles while walking is a form of stabilizing and increasing the safety of practitioners. Presented above position appears in most cases. It is common to associate that poles serve older people to increase the support plane, thereby increasing the sense of security and ease of loco motor movement in the area. As it turned out, feeling of the body stability varies by exercising depends on the type of poles used during the walking. March with Nordic walking poles produces a feeling of the body to retain more stability than with poles BP. Poles BungyPump (because of pneumatic work of pole) is more noticeably than Nordic walking poles effort force the upper limbs, shoulder rim and postural muscles, as well as provoke more dynamic movement. Using while walking poles BP postural muscles work is greater by the force of power which is required to overcome the resistance of the pole.



While pressing a pole, a contrictic work is carried out by muscles and then these muscles which are in the movement must do eccentric work to keep the fluidity of movement while the pole is coming back to its original length. The poles are flexing during the pressing and putting resistance to force which depends on model. During rhythmic, alternating movement occurs opposite muscle group tension which is called Antagonist muscles. Manufacturer of BP poles revealed the results of studies about the amount of energy which is used and Circulatory and respiratory changes expressed in maximum oxygen absorption ($VO_{2max}/l/kg$), which occurs during the march using this equipment. The research carried out by the Swedes showed that the use of BungyPump pneumatic poles during the march gives averagely 21% $VO_{2max}/l/kg$ higher compared with normal march and 18% higher in comparison to march with traditional Nordic Walking poles. Research and practice of sport confirm that the maximal oxygen uptake (VO_{2max}), has a significant impact on endurance level. In many disciplines endurance sports, high aerobic potential (oxygen) whose the main indicator is VO_{2max} which is considered to be the major determinant of success. The results of the studies also revealed that 20 minutes walk with BP poles on platform which has 10-30 degree tilt, with a speed of 6.5 km / h, increases calorie outtake up to 77%, which is about 48% higher in comparison to the effortless walking and 32% higher compared to effects of march with NW poles. Undoubtedly the information-opinion of rheumatologists is very important for physiatrist. Rheumatologists recommend the form of a march with BungyPump poles for persons with joint problems as a result of existing autoimmune diseases. Today, Currently researches are being conducted to obtain integrated, synchronized and normalized information to gait cycle related to time-spatial parameters of walk with using B.P poles, such as: step length, time of step and cycle and cadence.

BUNGYPUMP WALKING AS A TRAINING OF PRIOPROCEPTION



The term, “proprioception” was introduced in 1906 by Sherrington. He described proprioception as awareness of the position of one's body. The signals from the receptors (proprioceptors) which are located in the structures of the muscles, tendons and joints and the vestibular system, reaching the spinal cord, may initiate the reflex responses. Interdependence of proprioception (deep feeling) and returnable neuromuscular actions is an important factor which helps keeping functional stability of joints, keeping a balance, regulation of muscle tone and motor coordination. A proper deep feeling is basis for proper functioning of joints and the arrangement of body parts in movement which depends on it. Both injuries and surgery intervention handicaps this function, so restoration of prioproception is one of the key elements of rehabilitation. In the program of rehabilitation, the task which will teach the patient the reflexive stabilization of joints are necessary. It is possible with exercises of abrupt change in position of joint and dynamic movement of leg. For this type of exercise therapists use a various kinds of kits which ensure unstable ground. The using of BP enable us to learn proper

control and how to put hurted leg and hand in joint. During the march movement of the body is automatic, without the use of awareness. That's why in the final phase of rehabilitation where we introduce more complex tasks BP walking training which could be an interesting complement of the therapy. At the same time it is an excellent functional training because it combines the training of joint proprioception with strength training of muscles.

BENEFITS FORM USING MARCH POLES IN STEADY STATE

Nordic walking poles have earned a well-deserved popularity and are commonly used for recreational purposes, therefore they can be found in many homes and are in possession of people of different ages and different level of physical activity. Therapist in the program of improvement can include exercises which enable patient to use the equipment which is at home. In steady state while free active exercises and breathing exercises, to support the leg or mobilize the joints of the hands should be used gym stick, which successfully can be replaced by a marching stick. As explained above, BP poles differ in its construction from NW poles with absorber which is built in shaft which put up certain resistance. Available in the market equipment gives the opportunity of changing a difficulty of exercises. In weight training we use the sequence from the lowest resistance to the heaviest resistance, consecutively form 4 kg, 6 kg to 10 kg. During the balance exercises and the training of proprioception it is recommended to use a resistance from the lowest to heaviest. In standing, we recommend the patient to support hands on BP poles, giving four points of body supporting, including two unstable. The exercises should be repeated without eye control. Using unstable base during the exercises generates additional effort by involving more muscle groups. During these exercises the main obligation of the patient is to keep the position of the body as well as to control hands so that they could be on the same level. In the market there are many new of devices that enrich the work of therapist. In the deep feeling training all kinds of devices are used, for example big balls so-called Swedish balls, sensor/motor disks, unstable platforms, and so on. The opposing groups of muscles are stretched while using these devices. When it comes to using BP poles in the outdoor training as well as during the stationary exercises we have an opportunity to combine deep feeling training with the training which improves the efficiency and durability. They also enable us to benefit from weight training, without need of buying additional equipment. The poles don't take up a lot of space, which is important for a small clinic with limited area.



***Katarzyna Marciniak,
Physiotherapist, Poland***