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### 1. Preliminary exercises for the legs

There are many good exercises for toning and strengthening the legs. However, we shall study here only four very complete exercises that cover practically all muscles of the leg, permit an easy progression, provide additional cardio benefit and have been described in every Physical Culture course.

**1. Walking in place.** The key to do properly this easy and very healthy exercise is to bend your leg backwards as far as you comfortably can in the first part of the exercise and later (with the leg in the same position) try to elevate your knee as high as you can in a slow and controlled way without ballistic actions. You must alternate the leg motion in a posture similar to a

flamingo pose. Stand erect and raise one knee while you bend backwards the lower part of the same leg. During this movement you must keep the equilibrium with the other stretched leg only. Now, lower the knee and repeat the same motion with the other leg. Do this in a cyclic fashion (see Figure 1). In this way you work isometrically the other leg (the sustaining one) in the alternating movement. You can change this walking exercise into a very strenuous one applying additional MC contraction to the moving muscles, so you need very few reps to strengthen your legs very effectively. You can lean against a wall if you need it at first. Walking in place without MC contraction and performed during 30 min or more is one of the best cardiovascular exercises<sup>1</sup>. This simple exercise is also the safest one for your joints, because it does not imply any impact or repetitive external resistance motion<sup>2</sup>. The Maxalding variation of this exercise consists in doing it lying supine. This variation allows a more powerful abdominal work. Remember to do it slowly. Optimal results are achieved using slow MC breathing (SMCB). Don't count the number of steps, but the number of breathings. There is another extraordinary variant of the walking in place (perhaps my favourite) exercise that uses dynamic muscle control (DMC). It is equivalent to a hard trekking. Walk slowly (each step should be synchronized with an inspiration or expiration of every SMCB) contracting all muscles of the legs without forcing them to vibrate. Don't use antagonistic resistance, the muscles must be contracted during all motion, not to work one against the other. The sensation should be very similar to walk in a very viscous liquid or to hard skiing. If you perform this exercise

1 Please, do not spend your money in expensive machines that promise improved cardio benefits. Walk normally or try the simply walking in place instead, you will be surprised with the results. It is more demanding than it seems, specially if you raise your knees enough.

2 All motions are done in the air, the only precaution you must keep in mind is not to do the leg bendings in a jerky fashion.

## 1. Preliminary exercises for the legs

correctly you should notice also a very powerful contraction of the complete abdominal wall. If you are in good form you can try a complete contraction of all the muscles of the body, but remember to be careful and progressive and to walk slowly, because a too quick movement can produce an excessive tension in the muscles of the back. Performed this way dynamic muscle controlled walking (DMCW) is one of the most complete exercises ever designed. Don't overdo it, 5 to 10 min per day should be sufficient. Do it so and feel the power of MC (see Figure 2)!



**Figure 1.** Strongfort walking in place. Notice the relaxation of the raising leg muscles and the face.



**Figure 2.** The maxaldist Walter Stocker performing DMCW. Notice the perfect almost complete body contraction and the great effort this exercise demands, expressed in his face.

- 2. Squats.** One of the best exercises for the legs. There is a no ending controversy about the safety of the complete squat. In general the exercise is safe, but both too much weight or too much repetitions can make it dangerous for the knees. However, Maxalding does not use weights or high repetitions, so you should not have any problems if your joints are in good form. The Maxalding squat uses two techniques in order to make the exercise more productive. The first one is tilting,

you simply incline your bodyweight to the side that you are rising. The second technique is better, because it does not imply any imbalance, and is based in dynamic muscle control (DMC). Contract all your leg muscles during the squat movement, inspire during the raising phase and exhale during the lowering phase. Perform the exercise as slowly as you can. The muscle contraction must be fluid and not shaking, avoiding antagonistic actions. You can test yourself sometimes trying to do one leg squats, but I do not recommend them for regular training.

3. **Lateral raises.** Simply raise one leg to the side as far as you comfortably can contracting all leg muscles simultaneously without forcing them.
4. **Toe raises.** This is a typical exercise for the development of the calf muscles. Remember to contract the calf muscles during both phases of the movement that should be done very slowly.

The combination of MC and walking in place (WP) is one of the most effective fat burners I know. One splendid possibility is the aforementioned DMCW. Another one is to do some WP steps in between each MC isolation. This contributes to raise your heart and breathing rate. The results can be extraordinary. The optimal sequence is this: 5 SMCB with WP + 1 MC isolation (Saldo-Pullum method, 1 contraction of 3 slow breathings + 3 ballistic contractions of 1 breath each) + 5 SMCB with WP + ... Perform it from head to toes.

This method has an additional mental training benefit. First, its warming effect

helps to improve your MC contraction and sensing awareness. Second, it teaches you how to relax your muscles, and to slow down voluntarily your heart and breathing during stressing situations. You can think that WP during 5 breathings are not a very demanding activity, but do it properly and feel the results after 1 hour of continuous training.

This is a simple example of interval training. In fact, the Saldo-Pullum technique (alternating slow and quick performances) is an advanced example of this general idea. Another very productive variation is the Tabata's protocol<sup>3</sup>.

We shall apply the Tabata's method to WP.

- Warm up: 3 min. Slow pace WP.
- 5 breathings with slow pace + 10 breathings with fast pace (you don't need to run in place, but to raise your knees as much as you can without jerking and as fast as you are able without beating forcibly the floor).
- Cold down: 3 min. Slow pace WP.

## **2. MC of the muscles of the leg**

### **2.1. Gluteal MC (*gluteus maximus*)**

This is a simple method to isolate powerfully the gluteus. Keep your legs straight at shoulder width and open your feet outwards as far as they form an appreciable angle with your line of sight. Now, trying to keep both legs straight,

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3 Be sure that you don't have any heart problem before practising any exercise in a Tabata's fashion, because this method is really demanding.

bend your back slightly backwards. The weight imbalance produced by the position of the back should produce a remarkable contraction of the gluteus. Probably, the thighs contract also, but you can reduce this contribution with practice.

You can work one side more intensely tilting the back to such side.

## **2.2. Front upper leg MC**

This involves the quadriceps muscles. Each portion of the quadriceps is very difficult to isolate from the others, so the best approach is to vary the joint angles in order to produce different levels of contraction of each part.

### **2.2.1. Quadriceps contraction with straight legs and feet to the front**

Stand erect with legs perfectly straight and feet pointing to the front. Now try to bend your knees backwards, but without varying the position. Some people find easier to try to raise the kneecaps in this position. You should notice a powerful contraction in the front of the thighs.

### **2.2.2. Quadriceps contraction with straight legs and feet rotated outwards**

This exercise is performed exactly in the same form than 2.2.1, but this time you should point your feet outwards. This vary the contraction of the quadriceps intensifying the action of the external portions.

### **2.2.3. Quadriceps contraction with one advanced straight leg**

Keep your legs straight, but advance one of them with its feet pointing to the front. Contract the quadriceps as in 2.2.1. You should observe a more intense

contraction in the upper part, near the hips. You can do this contraction even harder raising the contracted leg to the front forming a 90° angle with your body (parallel to the floor), but be very careful, because the muscles are very prone to cramping in this forced position.

If you try to relax the quadriceps with a leg in this position, the tensor fasciae latae and the sartorius muscles can be powerfully contracted also.

### **2.2.4. Upper leg contraction in a stretched position (adductors, gracilis, iliopsoas, pectineus)**

This exercise is an excellent alternative to PNF stretching of the legs. Keep your legs straight and open them to sides as far as your comfortably can. Now contract powerfully your upper leg muscles. Keep the contraction 5-10 breathings or apply some of the advanced MC techniques.

You can combine this exercise with lateral raises to increase safely your range of motion.

## **2.3. Rear upper leg MC (hamstrings)**

You can work the muscles of the hamstrings very powerfully with MC, but be very careful, because these muscles are very prone to painful crampings. Perform each contraction slowly and progressively always under the trembling point.

### **2.3.1. MC of the hamstrings in a stretched position**

Keep one leg completely straight and the other (the contracted one) slightly bended. In this position try to move the bended leg backwards but do not move

it. Feel the contraction and try to intensify it mentally. When you have developed the mind muscle connection, the imaginary movement is not necessary.

Sometimes could be helpful to feel the contraction produced when you stretch these muscles with the leg completely straight in a elevated position.

### **2.3.2. MC of the muscles of the hamstrings in a contracted position**

Stand erect and place your hands over a solid wall or furniture in order to keep balance. Bend one leg so that the lower leg forms a 90° angle with the upper leg. The other leg must be kept straight.

In this position try to point your toes backwards as far as you reasonably can. You should notice a very powerful contraction in the back of the leg. Be careful with the possibility of cramping.

In advanced stages you do not need to rotate the feet in order to produce the isolation. Besides, varying the angle of the leg you can transfer some of the tension to the surrounding muscles, especially the calf muscles.

### **2.4. Front lower leg MC (*tibialis anterior*)**

This control is very easy. You can do it standing erect or sitting on a chair. Keep your legs straight or forming a 90° and raise your feet forward as far as you can. You should notice a powerful contraction of the *tibialis anterior*. Keep the position and try to intensify the contraction mentally.

### **2.5. Calf MC (*gastrocnemius, soleus*)**

This control is easier in a sitting

position (legs at 90°) at first. Put your feet firmly over the floor and try to raise the calves. Most people are able to contract the calves in this way.

When you master this contraction, try to contract your calves in a lunge position or raising your body weight over your toes. This way you can work the muscles from different angles. You could observe some additional tension in the surrounding muscles, especially the hamstrings.

### **2.6. Toe MC**

1. You can work your toes both standing or sitting. The first exercise is to contract your toes downwards as far as you can without strain. Keep the contraction and try to intensify it during 5-10 breathings. The *tibialis anterior* is worked also to some extent in this position.
2. The second one is the raising of the toes with the legs straight and the feet firmly placed over the floor. Raise your toes upwards as comfortably you can and keep the tension several breaths. You should notice that the calves are contracted also in this position.

You can use the alternative movement from (1) to (2), specially if you are sitting, to feel very clearly the isolation of the *tibialis anterior* (1) or the *gastrocnemius* (2).