This new special machine joins the Panatta wide range of products. One of its main features is the focus on the lower limbs training and particularly on the gluteus muscles.

STANDING ABDUCTOR MACHINE

PANATTA

Worldwide Fitness Company

The **Standing Abductor** takes into account the abduction of the hips and, unlike the classical abductor machine with seat, it is designed to do the exercise while standing up, in order to have a better muscles activation for the lower limb.

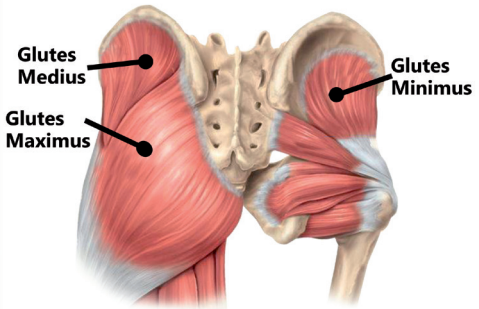
The **standing Abductor** allows performing a targeted and efficient workout on the different side and back muscles of the thigh, such as the Gluteus Maximus, medius and the tensor fasciae latae, that are the directly involved in the abduction of the thighs.

MUSCLES ANATOMY

The **"coxo-femoral"** articulation of the hip articulates the head of the femur or thigh-bone on the pelvis", ensuring wide mobility for the lower limb through the action of several muscles.

On the back part of the thigh, we have the Abductor Muscles that are composed as follows: The muscle bundles of the **minimus and medius gluteus** are at a deep and middle level while on the surface level it is more evident the **tensor fasciae.** In the back area of the pelvis, there is the **Gluteus Maximus,** that with its muscles development shapes the so popular backside.

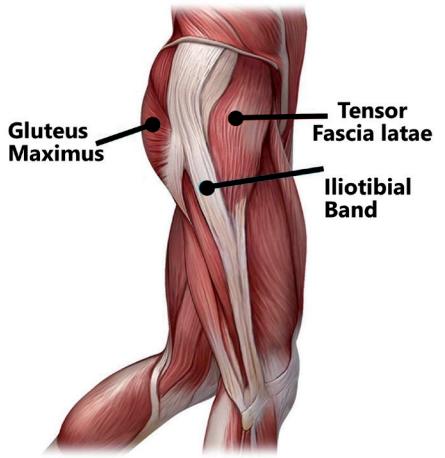
GLUTEUS MUSCLES



Single Joint Muscle
Articulation Coxo-femoral

ACTION and FUNCTION
abduction, extension and external rotation of the femur

TENSOR FASCIA LATAE



Biarticular Muscle
Hip and Knee joints

ACTION and FUNCTION
abduction, flexion and internal rotation of the femur

TECHNICAL FEATURES OF THE "STANDING ABDUCTOR"

The **standing abductor** displays with a wide platform, where the user stands-up before beginning the exercise. This is made of two others robust and rotating platforms, with their respective back supports for the legs that allow performing the hips abduction in total safety. Furthermore, the machine is equipped with a wide handle to easily hold-on and keep the correct posture in every kind of height and position.

EXERCISE BIOMECHANICS

The **standing abductor** gives resistance with a decreasing load curve, during the r.o.m., so ensuring an efficient and physiological workout on the back and side muscles of the thigh; the performance can be in two different ways with a particular biomechanics of the exercise.

EXERCISE 1
(mono-articular movement and hips abduction)

POSITION: The user gets on the machine holding the appropriate handles, in a squat position with the hips and knees flexed; the trunk must keep bent forward and the head of the femur in line with the rotation centres of the machine.

PERFORMANCE: The exercise implies the hips abduction at a horizontal level, keeping the squat position and the trunk flexed of about 60° (angle pelvis/femur) during the two steps of the movement with the opening and closing of the coxo-femoral articulation against-resistance.

MUSCLES ACTIVATION: The workout focuses on the gluteus muscles involving the gluteus minimus and medius, and an even more consistent participation of the Gluteus Maximus, facilitated by the hip flexed on the knee. Finally, the bending of the lower limb, kept stationary during the exercise performance, adds isometric tension to the Gluteus if compared to the traditional exercise performed with the abductor machine in a sitting position.

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EXERCISE 2
(multi-articular movement with the abduction of the hips and pelvis extension)

POSITION: The user gets on the machine, holding the respective handles, in a semi-squat position (the knees and the hips are barely bent) with the trunk bent forward; In this case, the matching of the head of the femur with the rotation centres of the machine corresponds only when bending the limbs.

PERFORMANCE: The exercise starts with a deep bending of the lower limbs and a simultaneous hips abduction with the opening of the "coxo-femoral articulation"; then, there is the ascent stage with an extension of the pelvis up to a partial distension of the lower limbs and a simultaneous closure of the hip joint against-resistance.

MUSCLES ACTIVATION: The double movement of the hip, abduction, and extension, allows a complete activation of the gluteus muscles, with a specific and higher input on the Gluteus Maximus, in line with the action of this wide muscular bundle. Even the Hamstrings muscles and quadriceps activate, but both perform an isometric workout to keep the user stable during the exercise.

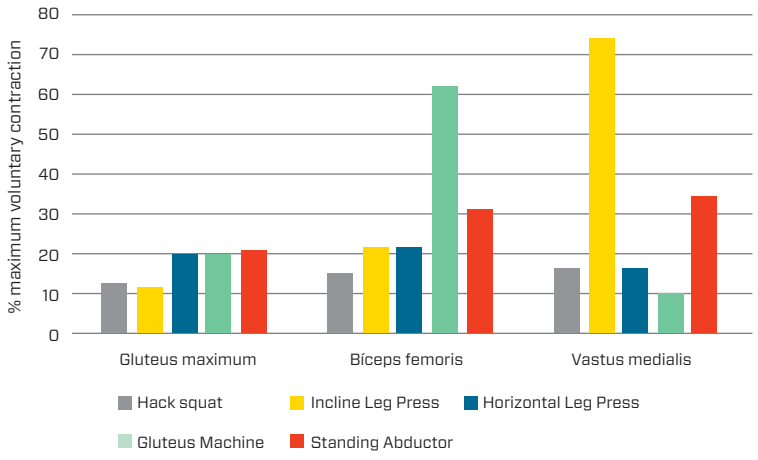
EVALUATION OF THE MUSCLES ACTIVATION WITH THE EMG (ELECTROMYOGRAPHY)

The study of muscular activations carried out in the Panatta Lab allows detecting differences and advantages in the use of the Standing Abductor if compared to the most popular machines for the lower limbs training. The three muscles tested with the machine are the gluteus, the femoral biceps, and the quadriceps.

The analysis results highlight a good activation of the gluteus muscles, that shows to be in line with the exercises performed with the horizontal press and the gluteus machine while being superior compared with other exercises using the Hack Squat or inclined press (Fig. 1). The femoral biceps activates at a 30% of its best concentration but remains definitively inferior compared to what happens with the gluteus machine.

This could be due to the position taken during the horizontal abduction of the hip. In particular, the femoral biceps keeps the pelvis under control in the squat position as well as determines an external rotation of the leg with the knee flexed. Even the quadriceps shows a proper activation (>30% of the MVC), in an isometric way, due to the squat position.

To sum up, the Standing Abductor is able to boost the muscles in a balanced way preserving the joints of the lower limbs and the lumbar region of the back.



TRAINING PROPOSAL WITH THE "STANDING ABDUCTOR"

The Panatta technical team suggests using the Standing Abductor in the mode 1 for beginners that start with a programme for gluteus tone, with a progression of the workloads step-by-step; that can be made of 3-5 series each of 10-15 rips, with recoveries of about 1 min.

After that, in order to strengthen the exercise this could be performed using bigger loads to create an important stimulation of the gluteal muscles and in general of the lower limbs; also in this case it is recommended to do 3-5 series each one x 10-15 rips with about 1 min. recovery between one and another.

In both the ways of working it is useful to hold-on 2 seconds with the contraction at the end of the concentric stage and during the eccentric one by reducing the speed. This will consequently lead to a better and deeper stimulation of the muscle fibres.

Biomechanics of the exercise with resistance, by Massimiliano Menchi and Matteo Romanazzi.