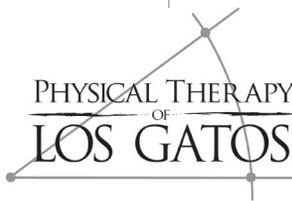


Biodex Balance System SD

- **Balance Protocol for Dancers**



A cooperative effort by Biodex Medical Systems and Physical Therapy of Los Gatos



Biodex Balance Protocol for Dancers

At Physical Therapy of Los Gatos, we progress our dance patients through their rehabilitation according to their stage of healing and specific criterion objectively measured including balance, strength, core muscle endurance, flexibility and neuromuscular control. The dancer's balance is measured with the Biodex SD system. In order for the dancer to progress to a more advanced phase of rehabilitation and increased dance practice, they must obtain a score of >95% on the Postural Stability testing and in the appropriate stage of tissue healing. The difficulty of the testing protocol is increased to provide greater and greater difficulty and challenges to their balance. See Figure 1 below for these details. One criterion the dancer must meet to return to full dance performance is demonstration of the Passé position on releve with upper extremity porte bra motion on the Biodex platform set at level 1 with a score of >95%.

Ballet dancers train extensively to be able to repetitively perform specific postures while balancing, turning, and jumping. One of these postures is the Passé position, which requires the dancer to stand on a single supporting leg with the opposite working leg held in hip flexion, abduction, external rotation. An ideal passé position is where the dancers working leg is in the maximal amount of hip abduction and external rotation so that the leg is placed in the frontal plane and touching the supporting leg just above the knee, while the supporting knee stays extended and stable. Porte bra * is an overhead arm movement which the dancer performs while maintaining a passe position. Releve** is a heel raised position (in full ankle plantarflexion) of the supporting leg which the dancers must maintain throughout many movement patterns.

BALANCE APPLICATION PROTOCOLS

Balance Protocol for Dancers

The balance testing is measured in the Postural Stability program because the functional demands of the dancer are to be stable on one leg which maintains the same position throughout the dance movement ie. turn or jump. Programs such as the Limits of Stability are not functional to the dancer because the center of gravity should not be moving in various planes.

Rehabilitation is matched to the phase of healing of the damaged tissues. The length of each phase is dependent on the specific tissue that is healing, ligament versus tendon versus muscle. There are four phases. Phase I is defined as the inflammatory phase in which maximal protection is needed for the injured tissue. During this phase the dancer may be wearing a brace, and training both lower extremities on the Biodex. The reparative phase is phase II in which the strength of the tissue is directly related to the new disorganized collagen and single leg stance is allowed. Releve and upper extremity motion are introduced in phases III and IV, which are defined as early and late maturation phases and occur toward the end of rehabilitation. The goal of returning the dancer to full performance is achieved by obtaining optimal strength of the injured tissue which requires the appropriate physiological loading of the tissue.

Stages of Tissue Healing:

I Maximum Protection	II Moderate Protection	III Early Maturation	IV Late Maturation
STATIC Double leg stance with external support	Single leg stance	Single leg pass'e position	Single leg pass'e position on releve
LEVEL 6 Double leg squat 45-60° with external support	Single leg stance with external support	Single leg pass'e with upper extremity motion (porte bra*)	Single leg pass'e position on releve
LEVEL 1 Double leg squat 45-60° with external support	Single leg stance with external support	Single leg pass'e with upper extremity motion (porte bra*)	Single leg pass'e position on releve
LEVEL 1			Single leg pass'e position on releve with upper extremity motion (porte bra*) Return to dance

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