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# Execution of *plies* – basis of classical dance technique

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**Abstract**: We rest our endeavour on the fact that the correct technical execution of classical dance movements may lead to the development of specific motor skills and their accurate performance, hence leading to higher precision in movement. This will result in increased body stability when at rest and in motion, increased number of pirouette turns and in higher joint range of motion. This research aims at determining the interindividual differences occurring in similar training conditions in children learning classical dance techniques, and the way in which the proper acquisition of movement mechanisms helps improve the execution technique. Higher mobility of lower limb joints combined with the development of muscular strength in the lower body may lead to accurately performing the classical dance technical elements. We measure the subjects' mobility of the lower limbs and the maximum amount of force generated by their lower body muscles during the first year of study. At the end of the year, after developing the basic skills, the subjects undergo retesting. Proper training at the appropriate time is an important indicator of measuring the accuracy of performing the motor skills developed over the years, thus contributing to a long and injury-free career of the dancers.

**Keywords**: *plié*, motor skill, basic movement.

## Introduction

*Plié* is a bending of the knee or knees. This is an exercise to render the joints and muscles soft and pliable and the tendons flexible and elastic, and todevelop a sense of balance. *Pliés* are done at the bar and in the centre in all five positions of the feet.

The bending movement should be gradual and free from jerks, and the knees should be at least half-bent before the heels are allowed to rise. The body should rise at the same speed at which it descendend, pressing the heels into the floor.

## 1. Theoretical substantiation:

Classical dance aims at training the dancer's body to correlate the various movements in order to acquire the specific dance technique. This technique resides in the reorientation of the muscle structure (called *en dehors* body posture) in order to perform the movements in a new form, with a personal aesthetic vision. The technique

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relies on a series of fundamental movements as: *plié* (flexion and extension), *battement* (abduction and adduction), *rond de jambe* (circumduction movement) (Paskevska, 2002). We will further address the *plié* movement.

The basic mechanism of plié movement is the flexion and extension of the legs, in frontal plane which cuts the body into front and back halves, resulting in three angles at the lower limb level (ankle, knee, pelvis). The main muscles involved in movement are the leg flexors while bending the knees, and the leg extensors as the knees straighten. The elements must be carefully executed so that the maximum flexion point equals the starting point of the extension.

The *plié* can be performed while standing with the legs straight, toes pointing straight forward (when first learning the movement) or with the feet turned outward (a classical dance-specific movement).

When flexion and extension is part of the combined movements, the *plié* can be performed with both feet on the ground (e.g.: *battement soutenu*) or with one foot on the ground (e.g.: *battement fondu*).

The *plié* is very important for it starts and ends different steps and balance elements, being a prerequisite for the takeoff and landing of every jump or leap and the initiation of nearly every turn (Macovei, 1999). Therefore, being a starting point for almost all movements, the *plié* must be executed in a flexible, controlled manner, while the body weight must be evenly distributed on the two feet when executing the proper *plié*.

The maximum flexion point:

- in '*demi plié*' – it depends on the length of the Achilles tendon, therefore the execution of the movement depends on the inner information of each individual; during the movement, the dancer's heels remain on the floor;

- in *'grand plié'* – flexion is complete; the pelvis is lowered to the ankle level, yet without touching the ankles. The dancer must take into account that rising the heels while bending the knees (the tendons are fully extended) and lowering the heels while strengthening the knees (going up by exerting pressure on the heels) must be performed gradually and constantly (Vaganova, 2017).

Position of the torso in *plié*: the chest must remain steady and tense all throughout the movement, to reach maximum stability.

### 1.1. Doing the plié while keeping both feet on the ground: the proper plié

The only part of the lower limb remaining on the ground is the foot, which is the supporting point of the body. As executing the *plié*, the pressure on the supporting foot increases. The body weight falls on the knees, which tend to increasingly bend; the execution of the *plié* resides in maintaining the progressive joint flexion. The (anterior and posterior) leg muscles are not contracted, the body weight produces a passive knee flexion. The dancer must maintain a proper balance every step of the flexion movement.

**2. Method:**

An optimum balance while executing the *plié* will result in higher body stability, increased number of pirouette turns and higher joint range of motion (Nastase, 2011). To that effect, the *plié* must be accurately executed from the start.

**2.1. Problem statement:** children with high lower limb mobility can build muscular strength in the lower body, which helps them accurately execute the plié, which is the basis for classical dance elements.

This research aims at determining the interindividual differences occurring in similar training conditions in children learning classical dance techniques, and the way in which the proper acquisition of movement mechanisms helps improve the execution technique.

**2.2. Research subjects:** the study covers a group of beginners aged 9 – 10 years. It is the age of learning and grasping new motor information. The future dancers developing the required skills is very important, for the correct learning of the fundamental movements is a determining factor for the long-term precision and mastery of execution.

**2.3. Research method:**

We measure the subjects' mobility of the lower limbs and the maximum amount of force generated by their lower body muscles during the first year of study. Therefore, we use the Sargent test to assess the lower limb joint effort and to calculate the maximum amount of force the children can develop (Cordun, 2009). At the beginning of the activity, we measure the subjects' lower limb mobility and force, and at the end of the year, after they have developed the fundamental skills, the subjects undergo retesting. Subsequently, we perform a comparative analysis between the assessments undertaken and the performance of the subjects.

**3. Results and discussions:**

Assessment of the lower limb mobility is achieved by calculating the lower body joint effort. The measurements are performed by passive mobilisation of the lower body, this being a more appropriate method for the beginners. Table 1 reveals the values recorded at the end of the testing period.

**Table 1 – passive mobility measurements:**

| No. | Surname and first name | Functional coefficient of coxofemoral joint | | Functional coefficient of ankle joint | |
|---|---|---|---|---|---|
| | | Right | Left | Right | Left |
| 1. | G.I. | 80.1 % | 67.8 % | 59.4 % | 69.6 % |
| 2. | B.A. | 94.9 % | 93.4 % | 99.2 % | 104.4 % |
| 3. | G. A. | 99.0 % | 96.6 % | 101.6 % | 104.8 % |
| 4. | I.V. | 78.8 % | 79.6 % | 81.6 % | 94.2 % |
| 5. | H.I. | 90.8 % | 98.4 % | 103.6 % | 99.4 % |
| 6. | V.A. | 123.0 % | 111.5 % | 107.2 % | 119.2 % |
| 7. | P. A.. | 89.6 % | 96.8 % | 99.8 % | 99.2 % |
| 8. | I.O. | 101.3 % | 100.6 % | 86.4 % | 94.4 % |
| 9. | C. S. | 93.2 % | 96.6 % | 85.0 % | 77.5 % |
| 10. | C. E. | 79.2 % | 71.3 % | 68.4 % | 72.8 % |

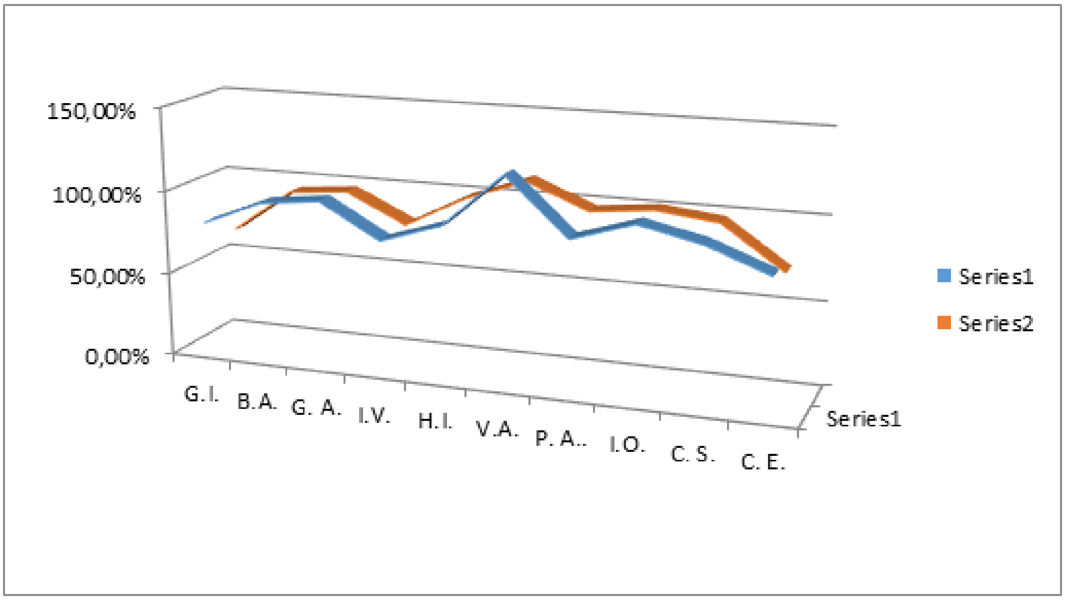


**Chart 1: Functional coefficient of coxofemoral joint**

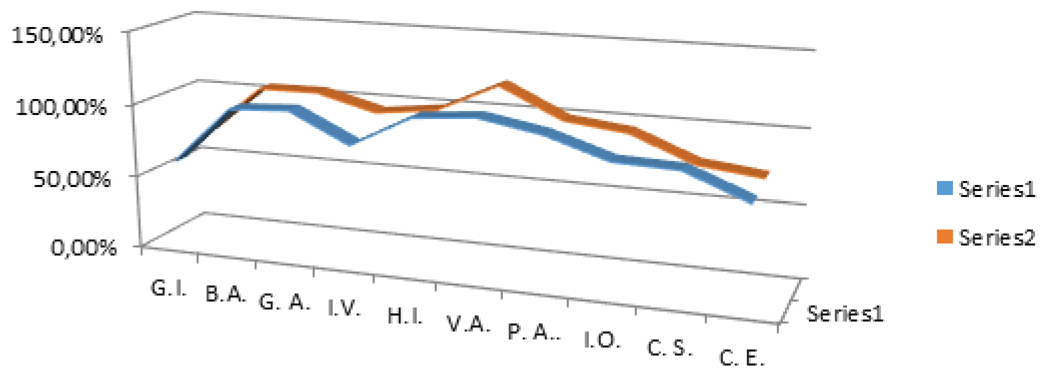


**Chart 2: Functional coefficient of ankle joint**

The maximum amount of force generated by the subjects' lower body muscles is calculated through the Sargent test which assesses the maximum a-lactacyd anaerobic force obtained by measuring the maximum length of a jump (the execution of three successive jumps). Table 2 reads the values recorded at the initial and final assessments, namely at the beginning and the end of the school year.

**Table 2 – assessment of the effort capacity**

| | | SEPTEMBER | | | | JUNE | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | Surname and first name | Maximum length of a jump (cm.) – 3 jumps | | | Force (kgs./sec.) | Maximum length of a jump (cm.) – 3 jumps | | | Force (kgs./sec.) |
| | | I | II | III | | I | II | III | |
| 1. | G.I. | 25 | 27 | 26 | 66.40 | 38 | 36 | 40 | 80.82 |
| 2. | B.A. | 31 | 34 | 35 | 85.29 | 37 | 39 | 41 | 91.76 |
| 3. | G. A. | 32 | 39 | 37 | 81.00 | 38 | 37 | 39 | 80.4 |
| 4. | I.V. | 28 | 29 | 34 | 67.39 | 34 | 36 | 32 | 70.63 |
| 5. | H.I. | 24 | 18 | 22 | 66.28 | 28 | 27 | 25 | 71.00 |
| 6. | V.A. | 32 | 29 | 28 | 80.57 | 36 | 37 | 37 | 86.64 |
| 7. | P. A.. | 21 | 23 | 25 | 68.57 | 30 | 32 | 33 | 78.77 |
| 8. | I.O. | 23 | 24 | 27 | 65.39 | 28 | 27 | 25 | 66.58 |
| 9. | C. S. | 31 | 33 | 34 | 76.74 | 40 | 41 | 42 | 87.09 |
| 10. | C. E. | 28 | 29 | 27 | 72.87 | 39 | 41 | 40 | 86.65 |
| Average force | | 73.05 | | | | 80.094 | | | |

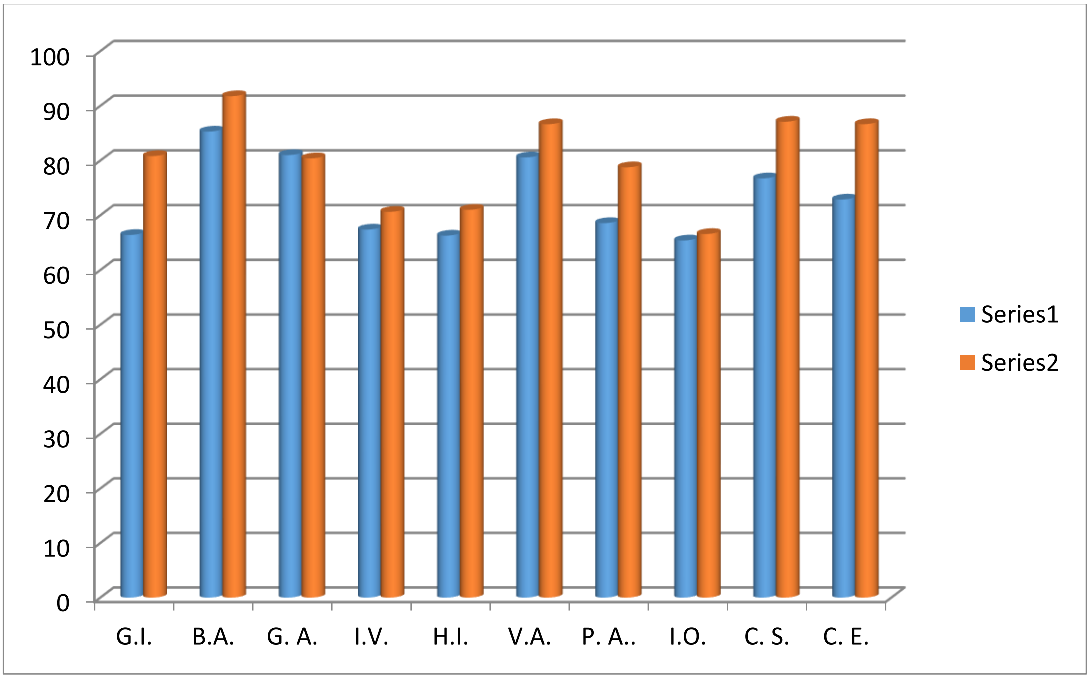


**Chart 3: The strength of the subjects tested**

As shown above, the values range from sufficient to average. The figures are realistic, given the fact that the subjects currently experience the motor learning stage, classes being largely based on explanations.

The execution of movements reveals some issues in the upper body of the subjects:

- the pelvis leans slightly backward, especially in the second foot position, which causes the anterior hip ligaments – which are overstrained due to flexion, abduction and outward turning – and the hip internal rotators to become less tight.

Correcting the subject's chest position following the pelvis tilting back causes the spine to slightly curve inward. Therefore, correction of the chest position must start from the centre of the body, that is by repositioning the pelvis. Contraction of anteroposterior muscles, which will correct the lordotic posture of the spine, will cause the torso to rotate backwards.

- contraction of gluteal muscles brings the iliacus closer to the thighbone and maintains the *en dehors* rotation. Correction of the lordotic posture is relatively easy to achieve in *demi plié* position. The deeper the *plié*, the greater the tendon strain and the harder the *en dehors* posture to maintain. Also, the body stability involving the action of the abdominal, gluteal and spinal muscles is harder to achieve.

If the *plié* becomes too deep, correction of the body is no longer possible, the back muscles relax, the chest slides forward leading to unsteadiness. It is thus preferable to perform a less ample *demi plié* while maintaining proper body posture.

Nevertheless, this ‘less ample *demi plié*’ should be executed in so far as it doesn’t render the movement itself inefficient.

At the end of the year, we notice an improvement in execution, both in terms of accurately performing the technical elements and of flexibility of the body.

**4. Conclusions:**

Proper training at the appropriate time is an important indicator of measuring the accuracy of performing the motor skills developed over the years, thus contributing to a long and injury-free career of the dancers.

The fundamental movements must be trained to achieve precision in execution which will improve the execution of the entire dance technique. This learning will result in correct coordination of movements, with the least expenditure of energy, more precise, subtle and correct execution of elements and in reaching and training an individual symmetry of movement, essential in the art world. Since the performance is accompanied by music, the movements must be executed with great precision, at high speed, which requires the minimization of energy expenditure (Thomasen, Rist, 1996).

For dancers, motor learning capacity is a higher step in which the coordinative capacities – including the three basic general capacities (guiding capacity, capacity to adapt and readapt to movement and learning capacity) – hold a fundamental place. Training the coordinative capacity, force and body placement at the optimum time is a determining factor in terms of reaching performance in dance, as in fact in all sports.

Professional dance careers are both highly rewarding and exceptionally challenging, so success as a dancer requires robust preparation. Mihail Baryshnikov said: *I do not try dance better than anyone else. I only try to dance better than myself.* (Taylor, 2015).

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