

When Can I Start Pointe Work?

by the International Association for Dance Medicine and Science

www.DanceMedicine.org



The young dancer asks, “When can I begin pointe work?” The answer usually given, almost without thought, is 12 years of age. It would be better if the person answering would respond, “What kind of a dance student are you?” Starting pointe at age 12 presupposes that the child is beginning her fourth year of ballet classes (having begun classes at age 8 or 9) at a ballet academy with a program designed to train professional ballet dancers. Acceptance to such a program would indicate that the child has proper anatomic facility. The program itself would consist of classes progressively increasing in difficulty and frequency over the first 3 years. By age 12 the child would be taking 4 classes per week. Her feet and ankles would be strong, her trunk and pelvic control would be good, and her proprioceptive skills would be appropriate. Pointe would begin with 15 minutes of exercises at the end of each class.

This student must be contrasted with the child who began classes at age 5 at a local dance school and now, at age 10, takes one ballet and one tap class a week. She is small for her age, with weak feet and ankles. She is very “loose-jointed” (hypermobile) in her spine, knees, feet and ankles. Her teacher wanted her to start pointe 2 years ago, but the mother thought she wasn’t serious enough about her dancing. Her cousin began pointe work at age 10 and she wants to know why she can’t start now.

Growth and Development

Can any one age be the correct answer for all children? Are all girls at the same stage of development at age 12? The answer to both questions is “No.” There may be significant differences in girls’ physiologic development, depending on the onset and the tempo of puberty. After age 5, linear growth proceeds at approximately 5.5 cm/year (2 $\frac{1}{8}$ inches/year). For girls, the growth velocity increases sharply around age 10 and reaches a peak of approximately 10.5 cm/year (4 $\frac{1}{8}$ inches/year) at age 12. The peak weight gain velocity of 8.5 kg/year (3.8 pounds/year) is reached at age 12.5 years, and quickly decelerates to less than 1 kg/year (2.2 pounds/year) at age 15. During this rapid growth there are bound to be significant differences in development from one child to the next. Mr. Justin Howse, retired orthopaedist to the Royal Ballet School (London, UK), states “the only factor which matters is the state of development of the child and to be dogmatic about an age does not make any reference to the child’s maturity or immaturity.”

The completion of growth in a tubular (long) bone is signaled by the fusion or closure of the epiphyses (growth

plates). This occurs in the foot slightly earlier than in the leg. The appearance of ossification (bone formation) centers in the foot begins at age 2 months in utero. The last epiphysis to close in the foot does so at an average age of 16 years in boys and 14 years in girls. From age 5 through age 12 the average girl’s foot grows 0.9 cm (0.35 inches) per year, reaching an average foot length of 23.2 cm (9 $\frac{1}{8}$ inches) at age 12. After age 12, the average girl’s foot growth slows to 0.8 cm (0.31 inches) per year for the next 2 years. The completion of growth of the bones of the feet is often given as a reason for choosing the age of 12 at which to begin pointe. However, bone growth in the average girl’s foot is not complete at age 12.

How far along in bone maturation is any one particular girl at age 12? The knowledge of statistical averages does not predict the growth of any one girl. Chronological age does not necessarily correlate with bone age. Although x-rays can show the completion of growth in the foot, they are not so good at determining the exact stage of bone maturation prior to epiphyseal (growth plate) closure.

If bone growth in the foot is not complete at age 12, and if this is a common age at which girls begin pointe, is there any medical evidence for damage to the bones of the growing foot resulting from pointe work? Not to our knowledge; not from studies, anecdotes, or our (collective) personal experiences. This is not to suggest that institution of pointe work before age 12 would also be harmless. Again, although there is no evidence from studies of ballet dancers, studies in gymnasts have established the potential harm of repetitive microtrauma to growing bones.

So, if neither chronological age or bone maturation alone determines when to begin pointe work, what other factors must be considered?

Celia Sparger wrote her book *Anatomy and Ballet: A Handbook for Teachers of Ballet* in 1949. In 1970, in the book’s fifth (and final) edition, she writes: “It cannot be too strongly stressed that pointe work is the end result of slow and gradual training of the whole body, back, hips, thighs, legs, feet, co-ordination of movement and the ‘placing’ of the body, so that the weight is lifted upwards off the feet, with straight knees, perfect balance, with a perfect demi-pointe, and without any tendency on the part of the feet to sickle either in or out or the toes to curl or clutch. This moment will arrive at different times in different children, not only by virtue of previous training but according to their physical type, and in this may be included the growth of the bones.”

Risks Associated with Starting Pointe Too Early

The potential dangers to the child from being placed on pointe before she is ready are many. They have less to do with actual bone or joint damage, although these are real concerns, and more to do with the results of dancing on pointe without proper range of motion, strength and stability. These may include psychological problems, including decreased confidence and poor self-esteem, due to inability to properly execute the requested movements, and physical problems due to the stresses on the leg, pelvic girdle, and trunk. The dancer may have difficulty developing her ballet technique and may actually be creating bad habits if she is struggling to work on pointe.

The child with hypermobile feet and ankles is particularly at risk if placed on pointe too early. This type of foot has been termed the “over arched” or “over pointed” foot. These children are actually more likely to be selected at auditions because they have feet that are very pleasing to the eye. However, the underlying weakness of all the muscles of the leg must be corrected before pointe work is allowed. These students must have the strength and proprioceptive control to work on pointe in the correct alignment rather than in the over arched or over pointed position.

At the opposite end of the spectrum, the child with an inflexible foot and ankle resulting in insufficient plantar flexion (pointe) range of motion is also at risk. To insure proper alignment on pointe, the line of the metatarsals (top of the foot) should become parallel to the line of the tibia (shin bone) when the foot and ankle is pointed (plantar flexed). Attempting to perform pointe work without such anatomic facility will place excessive stresses not only on the foot and ankle, but also on the leg, pelvic girdle, and trunk. If there is hyperextension (sway-back) of the knees, then even more ankle and foot range of motion (more plantar flexion) is needed to assure proper alignment on pointe. Unfortunately, insufficient foot and ankle range of motion may not improve with time, and children with these restrictions may never obtain the proper flexibility to allow pointe work.

Assessing the Pre-Pointe Student

One of the factors affecting the development of muscular strength and proprioceptive ability is the age at which the child has begun studying ballet. Although movement classes beginning at age 4 may be beneficial for other purposes, no proper ballet training can be accomplished before age 8 (both Cecchetti and Balanchine agreed on this!). Another factor is the frequency at which the child takes ballet class. In general children taking ballet class once a week will progress slower than those taking ballet class twice a week. Those taking four ballet classes a week will progress fastest, but this frequency of class is usually found only in professional schools or academies.

The growth and development of each individual child must be considered before allowing that child to begin

pointe work. The ballet teacher should always do a pre-pointe assessment to insure that the child is not placed on pointe too early. The child who is ready for pointe will have: (1) well-placed postural control with good to excellent abdominal and trunk support; (2) good leg alignment from the toes, through the arches of the feet, to the tibia (shin bone) and the femur (thigh bone). Within any one class of 13-year-olds there will be girls in different stages of pointe work, just as there will be a variety of physiques and abilities. This places a large amount of responsibility on the dance teacher. Admission to the teacher’s ballet class may be solely based on a desire by the child (or the parent) to dance. The teacher may fear that the child will be removed from the school by her parents if she is not placed on pointe early. Communication with parents is essential to explain the reasons behind the decision and to prevent misunderstandings.

Guidelines

We suggest that it is wiser to be conservative when choosing an age at which to begin pointe work. As Howse notes, “there are certainly well-known dancers who were not strong enough to start their pointe work until they were over the age of sixteen and this has proved no handicap in their career.”

In light of the above discussion, here are some guidelines for when to begin pointe:

1. Never before age 12.
2. If not anatomically sound (*e.g.*, insufficient ankle and foot plantar flexion range of motion; poor lower extremity alignment), do not allow pointe.
3. If not truly pre-professional, discourage pointe.
4. If weak in the abdomen, trunk or legs, delay pointe and consider implementing a strengthening program.
5. If hypermobile in the feet and ankles, delay pointe and consider implementing a strengthening program.
6. If ballet classes are once a week, discourage pointe.
7. If ballet classes are twice a week, and none of the above apply, begin in the fourth year of training.

George Balanchine was a master of choreography on pointe and was the one who created the “baby ballerina.” He is reported to have said that there was no reason to get a young dancer up on full pointe if she could not do anything when she got up there!

Written by: David S. Weiss, M.D., under the auspices of the Education and Media Committees of IADMS.

This paper may be reproduced for educational purposes, provided acknowledgement is given to the “International Association for Dance Medicine and Science.”

©2007 IADMS and David S. Weiss, M.D.

www.DanceMedicine.org

www.iadms.org

When Can I Start Pointe Work?

by the International Association for Dance Medicine and Science
www.DanceMedicine.org



References:

- Barringer J, Schlesinger, S: *The Pointe Book*, ed. 2. Dance Horizons/Princeton, 2004.
- Grieg V: *Inside Ballet Technique*. Dance Horizons/Princeton, 1994.
- Guggenheim CL: A survey of elite professional ballet schools regarding the initiation of pointe work in children. *Medical Problems of Performing Artists* 9:15-17, 1994.
- Hamilton WG, In Reider B (ed): *Sports Medicine, The School-Age Athlete*, ed 2. Saunders, 1996, p. 543-581.
- Howse J, Hancock S: *Dance Technique and Injury Prevention*, ed 2. Theatre Arts/Routledge Chapman & Hall, 1992.
- Roemmich JN, Rogo, AD: Physiology of growth and development: Its relationship to performance in the young athlete. *Clinics in Sports Medicine* 14(3):483-502, 1995.
- Sarrafian SK: *Anatomy of the Foot and Ankle: Descriptive, Topographic, Functional*, ed 2. Lippincott, 1993.
- Solomon R, Micheli LJ, Ireland ML: Physiological assessment to determine readiness for pointe work in ballet students. *Impulse* 1(1):21-38, 1993.
- Sparger C: *Anatomy and Ballet: A Handbook for Teachers of Ballet*, ed 5. Adam & Charles Black, 1970, p. 74-78.
- Watkins A, Clarkson PM: *Dancing Longer, Dancing Stronger*. Dance Horizons/Princeton, 1990.
- Zetaruk MN: The Young Gymnast. *Clinics in Sports Medicine* 19(4):757-780, 2000.