

Sayaka Yamauchi, Dancer, Singapore Dance Theatre
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Pointe Preparedness

Farah Fadzali, November 2020

Understanding the basic parts of the pointe shoes

It is common to see ballet dancers hitting the block of their new pointe shoes against a hard surface in order to get the right “feel” and deaden the sound of the shoe. Table 1 is a brief description of the pointe shoes as seen in Figure 1.

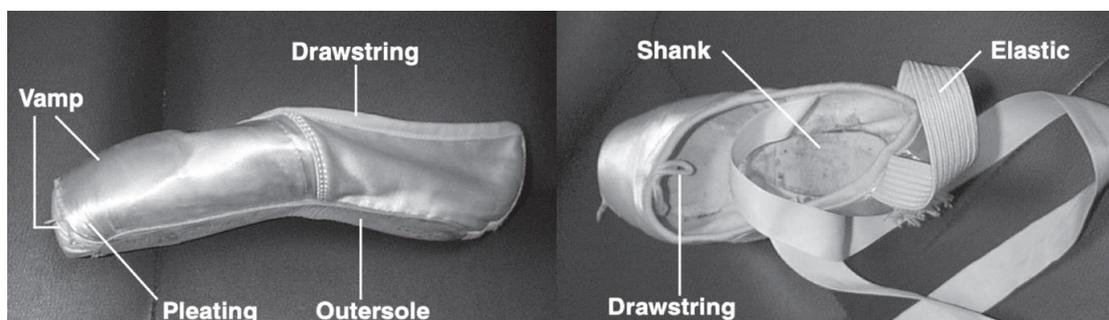


Figure 1. The parts of a pointe shoe⁹.

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Parts of the pointe shoes:	Box or Block	Vamp	Pleating	Shank	Drawstring
Description:	<p>The box is a reinforced part of the pointe shoe that covers the toes and metatarsophalangeal joints, MTP joints (joints of the metatarsals bones of the foot and proximal bones of the toes).</p> <p>Traditionally the box are made of several layers of canvas reinforced with glue. Today, some manufacturers are making the boxes out of modern plastics which tend to last longer and can be somewhat mould into individual foot shape.</p>	<p>The vamp is the part of the block from the top of the toes to the underside of the toes down as far as the pleating.</p>	<p>The pleating is the gathered satin, under the toes, where it meets the outer sole.</p>	<p>The shank is the stiffened, reinforced innersole beneath the ball and heel. Shanks can either be full length, $\frac{3}{4}$-length, rigid, flexible, or soft, and made of cardboard, carbon fibre, or plastic.</p> <p>They are often intentionally broken or shortened by the dancer to tailor pliability.</p>	<p>The drawstring is a small string found in the top line of the shoe that is tied at the top of the vamp. It keeps the shoe from buckling at the top line.</p>

Table 1. The basic parts of the pointe shoes⁹.

Dancing on pointe

Dancing on pointe requires a dancer to rise onto the tips of her toes while dancing. Dancing on pointe is much easier if the dancer has maximal plantar flexion (maximum pointing and flexing of the feet at the ankle joint), as well as flexibility and strength in the ankle, and correct alignment within the pointe shoe¹⁰. If the pointe shoes are well fitting, and the dancer is trained correctly, the shoes will aid the dancer's movement, and acts as a major stabiliser to

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the feet². The shoes are designed to support the dancer's full body weight on a small base of support – sometimes distributing the weight between two feet – while most other times, just one foot supports this extreme load. In addition to foot and ankle flexibility and strength, the dancer must also have impeccable core balance, calf, and leg strength^{1,3,14}. When dancing in pointe shoes, the body's center of gravity and dancer's body weight are centralised between the first two toes. It has been identified that many ballet injuries are influenced by the pointe shoes and inadequate fit^{9,14}.

Growth and development

Most dancers who train on a weekly basis require at least two to four years of training in ballet technique, with a good attendance record, before going on pointe^{6,7,16}. For young female adolescents, the growth rate increases sharply around age 10 and reaches a peak of approximately 10.5 cm / year (four inches / year) at age 12^{12,16}. Peak weight gain velocity of 8.5 kg / year is reached at age 12.5 years, and quickly decelerates to less than 1 kg / year (2.2 pounds / year) at age 15^{12,16}. There may be significant differences in physiological development amongst girls, depending on the onset and tempo of puberty¹⁶. The completion of growth in a tubular (long) bone of the leg is signalled by the fusion or closure of the epiphyses (rounded end of a long bone)^{3,11,12,16}. This occurs in the foot slightly earlier than in the leg.



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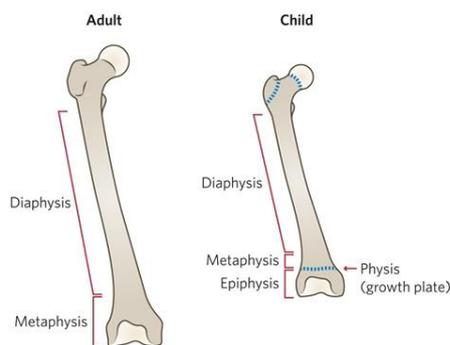


Figure 2. Bone structure¹⁷

Placing a child on pointe before they are ready may cause potential danger to them as they may not have adequate range of motion, strength, and stability^{15,16}. Conversely, a child with an inflexible foot and ankle, resulting in insufficient plantar flexion range of motion, is also at risk^{6,8,13}. These factors may cause undue stress on the leg, pelvic girdle and trunk^{2,3,11,13}. A child with hypermobile feet and ankles is particularly at risk if placed on pointe too early as they often lack the required strength and postural control to work safely on pointe.

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Prior to beginning pointe work in these students, all the muscles of the leg must be strengthened, and adequate proprioceptive control developed, to facilitate correct alignment^{5,6,11,16}.

To ensure proper alignment on pointe, the line of the metatarsals (represented by the top surface of the forefoot) between the big toe and the second toe should be align to the line of the tibia (front of the shin) when the foot is pointed (combined ankle and foot plantar flexion). If there is hyperextension (“sway-back”) of the knees, even more ankle and foot range of motion (plantar flexion) is needed to assure proper alignment on pointe¹⁶.

Breaking into the pointe shoes

Although each pointe shoe is unique and hand-crafted, they are standardized with no arch, and an almost brick-like hardness when purchased new. They are usually modified in a process called ‘breaking in.’ Breaking into shoes allows ballet dancers to be more comfortable, moulding them to the shape of their foot^{4,12,15}. It is recommended that non-professional dancers should simply start the breaking-in process by dancing in the



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shoes, with only a few moderate adjustments. One way to soften the toe box is to step on it lightly, or to crunch the box with one’s hands. This will make the toe box less square, and more flexible to the shape of the toes. After the box is broken in, the dancer should put the pointe shoes on, and mould the shank of the shoe to the arch and ball of the foot^{1,2,3,4}. Bending the shoe to the arch of the foot allows for the heel to “rest” onto the shank, while bending it at the ball of the foot assists the dancer in rolling up to pointe more fluidly. The dancer must be careful not to snap the shank. Breaking a pointe shoe instead of moulding it can significantly shorten the life of the shoe. A broken shoe no longer supports the body and it will compromise the structure of the shoe which greatly risk the safety of the dancer^{7,8,14}.

End

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Farah is now a dance science researcher studying injury prevention and performer's health and safety practices. Together with her achievements and qualifications, Farah hopes to work towards the development of dance science research in Singapore.

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