# The ABC's of *Box Jumping*

## The safest and most effective ways to perform this great exercise

Lusia Angilau photo by Steve Kinslow.


BFS has been saying it for nearly four decades, and finally the message is going mainstream: "Box jumps work!" Not just a way to make athletes more powerful, box jumping is a fast, efficient method of conditioning for physical fitness. Let's take a closer look.

Box jumping is associated with the concept of plyometrics. The late Russian sport scientist Yuri Verkhoshansky is considered the founder of plyometrics as a means of sports training to improve athletic performance.

In the 1950s Verkhoshansky was a track coach who coached jumpers at the Aeronautical Engineering Institute in Moscow. Due to Moscow's harsh winters and small indoor training facilities, Verkhoshansky had to be creative to improve the athletic ability of his athletes in the off-season. Although weight training was not generally accepted for jumpers at this time, this coach thought differently.

Verkhoshansky believed weight training would be valuable for jumpers due to the stress of the jumps in athletics – in the takeoff for the triple jump, for example, the stress could reach up to 660 pounds. To replicate this stress, he tried having his athletes perform heavy half squats, but he found that the lower back was the weak link and the lift caused back problems. He also tried leg presses, but because athletes at that time had no access to the appropriately designed machines we have now, they had to balance a barbell on their feet – obviously a dangerous practice.

As a solution, Verkhoshansky found that he could create a safer training effect with less stress on the spine by performing jumps off platforms. These jumps would increase muscle tension and create a release of elastic energy stored in the muscles and tendons during landing. He called this type of exercise "shock training," but in the US this exercise was put into a larger category called plyometrics. Likewise, in the US an "aerobics" class involves more than just aerobic training, as often stretching and abdominal training are also performed.

Verkhoshansky's methods worked, and 12 of his athletes achieved the prestigious level of "Master of Sport" in the 1960s; in 1964 one of his athletes, Boris Zubov, broke Soviet and European records in the sprint events. Verkhoshansky eventually left coaching to focus on scientific research and on teaching his training methods to other coaches. In fact, US researchers have confirmed Verkhoshansky's work.

In a paper published in the *Journal of Applied Sport Science Research* in 1992, researchers reported the results of a six-week study on the effects of squatting and plyometrics on the vertical jump. The group that performed only the squat increased their vertical jump by 1.3 inches, the group that performed just plyometrics increased it by 1.5 inches, but the group that performed both squats and plyometrics increased their vertical jump by 4.2 inches!

Photo by Action Sports Photography.

Even in soccer, the ability to jump high gives an athlete an distinct adavantage. Shown is Sean Wright of Reeths-Puffer High School in Muskegon, Michigan. The school was featured in our March/April 2006 issue.

Although Verkhoshansky's shock training methods are better than half squats, they are extremely hard on the body and must be used conservatively. However, there are other forms of box jumping that can be used for conditioning, activities that Verkhoshansky would call "preparatory plyometrics." For example, standing in front of a box and simply jumping up and landing on the box creates a strong contraction of the leg muscles, but because the athlete drops only a few inches before making contact with the box, there is minimal stress on the joints.

Of course, the height of a box chosen for this purpose depends upon the level of the athlete – which is why the smaller BFS Readiness boxes (which start at just 10 inches) are ideal for children, untrained athletes, individuals coming off injuries, and even senior citizens. For high-level athletes, BFS offers a challenging 42-inch box.

## Anatomy of a Plyo Box

BFS CEO/Founder Dr. Greg Shepard introduced the BFS Plyo box nearly 30 years ago. To enhance the stability of the exercise and facilitate box jumping drills involving forward movement, BFS's boxes have a nonslip landing surface and a pyramid shape. This design also reduces the weight of a box and allows the boxes to be stacked upon each other to reduce storage area; the hand holes placed near the top make it easy to move the boxes.

Although lightweight steel plyometric boxes are available from other exercise equipment companies, the problem with those is that an athlete's feet can easily get caught in an open plyometric box. With a solid box such as the ones BFS offers, the feet simply slide down if the athlete does not jump high enough to complete the exercise.


A variety of box sizes is necessary to train all levels of athletes. The triangle shape enables the boxes to be stacked to save space – in contrast to the square box shown above.

To properly run a plyometric box jumping program, coaches should make sure that athletes have access to boxes of various heights. Whereas the standard plyometric box for high school athletes is 20 inches, for middle school athletes, heavier athletes and athletes at a lower skill level it's best to start them on 10-inch Readiness boxes. Also, spotters should be used when attempting jumps of greater difficulty, and nothing should be placed on top of a plyometric box. Rather than purchasing higher boxes, some coaches will place thick bumper plates on top of plyo boxes – but this dangerous practice places the athlete at a high risk of injury.

To learn more about the BFS Plyometric Box Jumping Program, order a copy of the BFS textbook, *Bigger Faster Stronger,* and the BFS DVD *Plyo Box Jumping*. This program is a great method to increase athletic and physical fitness. BFS

The BFS Readiness boxes start at 10 inches to accompany beginners or less-explosive athletes.