

To: High Jumpers, U of Michigan Track Camp
From: Jeffrey Watry, Assistant Womens Track Coach, U of M
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Subject: ANALYSIS OF FOSBURY FLOP HIGH JUMP TECHNIQUES

INTRODUCTION

Your goal as a high jumper should be to clear the highest height possible given your ability. This can be accomplished with less difficulty if you understand the proper technique and physical requirements of the style you will be using.

There are three high jump styles that have produced results of at least 2.30 meters (7' 6 1/2"). These styles are the straddle roll, power flop and speed flop. Research and performances over the past five years indicate that the power flop and speed flop have the potential to produce higher jumps than the straddle roll. In addition, while it may take nearly as long to master either one of the flop style as it does to master the straddle roll technique, it is easier to use one of the flop styles within a limited training period to obtain good results. Therefore, the two flop styles are better suited to the athlete in a four year high school or college program. Because of these reasons I recommend you use one of the flop styles. The following information is presented to help you understand the technical aspects of the two styles of Fosbury Flop.

SPEED OR POWER: TWO STYLES OF THE FOSBURY FLOP

Similarities

In both Fosbury Flop styles an athlete jumps or takes off of the leg farthest from the bar. This is called the plant or take off leg/foot. The inside or leg nearest the bar is called the drive leg. In a crude sense this jumping motion is similar to what you use when going in for a layup in basketball.

There are other similarities, the most obvious being the back layout over the bar. (See figure 1) In both flop styles, "speed during the approach should be emphasized" with some acceleration during the last three strides. There should be a lowering of the hips during the last three strides and this will be more noticeable in the power flop. The amount you settle during this phase is directly related to the amount of strength and quickness you possess. Again speed must be emphasized. An increase in the speed you approach the bar, if

effectively handled, results directly in an increase in height jumped. This will require you to devote some training time solely to developing a smooth fast approach. A curved or "J" shaped approach is most often used. (See diagram 1)

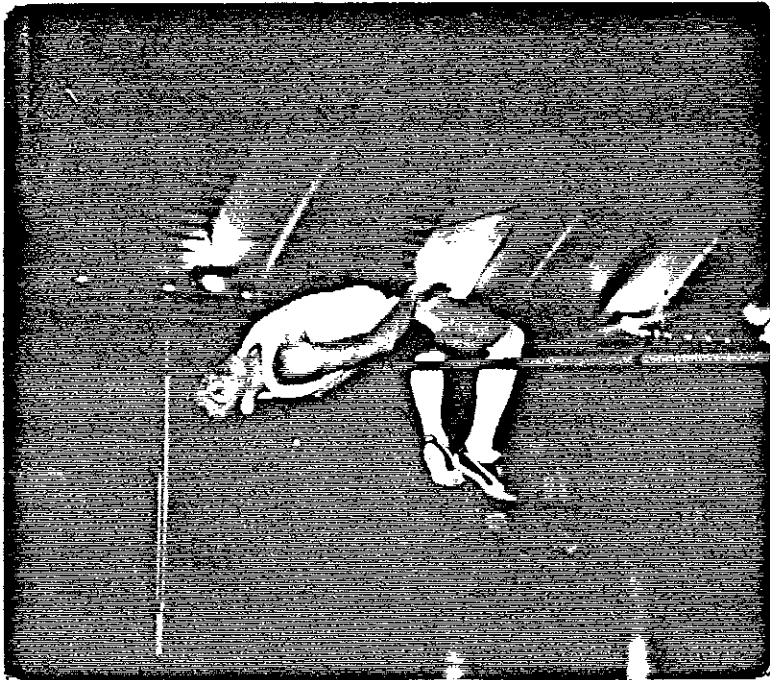


FIGURE 1. Layout

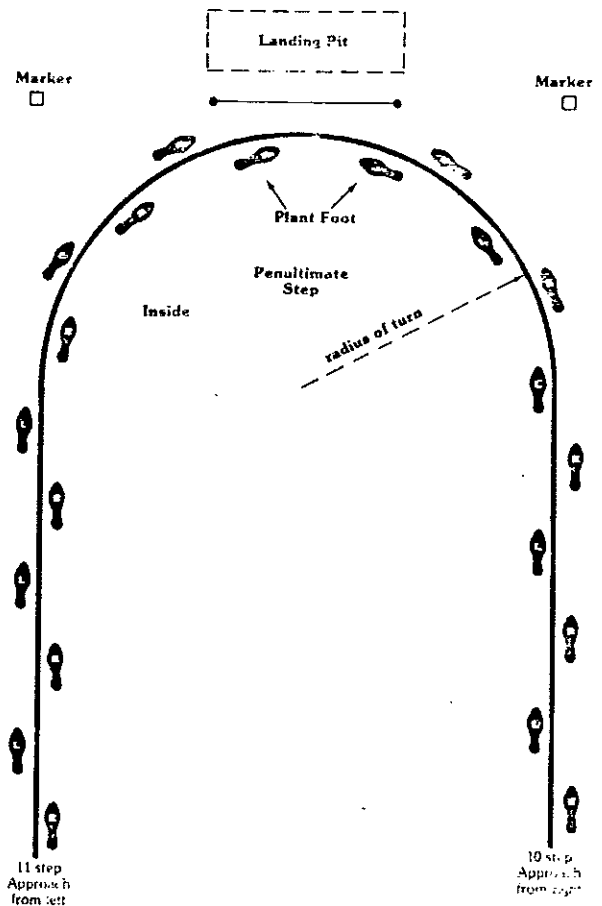


DIAGRAM 1. Approach

In both flop styles the object is to jump high, or better yet, to raise your center of gravity enough to allow you to clear the bar. This means you should convert the majority of your approach speed to vertical lift. Simply stated, you should try to go straight up when you jump. Many jumpers make the mistake of trying to jump over the bar instead of jumping up. Don't worry, even if it feels like you jumped straight up, you will still end up landing in the pit. What will happen is you will get more height on your jump and have a better chance of clearing the bar.

Takeoff should occur when you are running at an angle nearly parallel to the bar, with the takeoff foot pointed in the direction of the approach, not parallel or away from the bar. At the takeoff point approximately two feet away from the standard, the inside knee and both arms should come up quickly until the thigh and upper arm are both parallel to the ground and then abruptly stopped. This is called

Blocking. When blocking is accomplished properly it allows you to get better height on your jump. Also there shouldn't be any lean towards or into the bar at the moment of take off. Leaning in usually results in the athlete going into the bar rather than over it. (See figure 2&3)

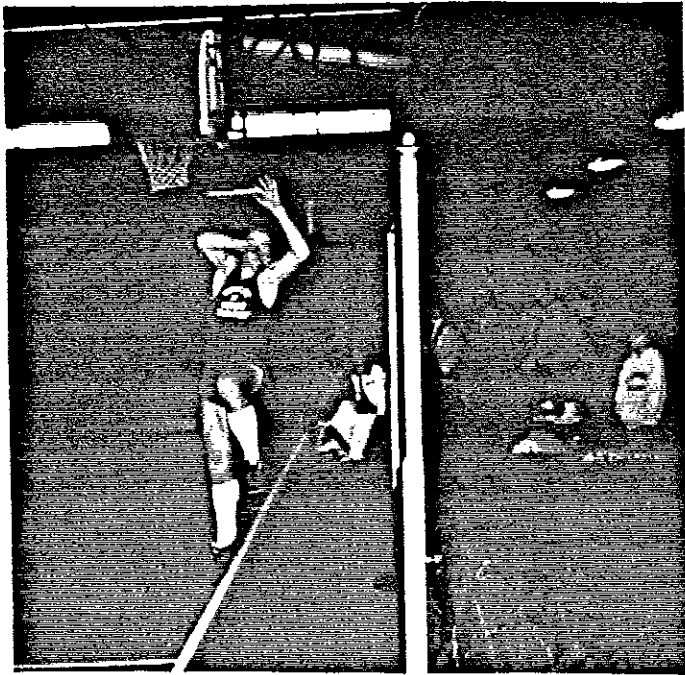


FIGURE 2. Vertical take off



FIGURE 3. Lean in

The difference in lean seems slight but it should be noted that Fig. 2 was a good jump and Fig. 3 was a miss.

To accomplish a vertical take off you must be able to counteract the centrifugal force generated by the curved portion of your approach. This centrifugal force is what you feel when you run a curve or around a corner. It is a force pushing you out, or in our case, towards the bar. To counteract this you should lean into the curve or away from the bar. In fact you should feel as if you are going to jump away from the bar.

You should also lower your hips slightly prior to your takeoff foot making contact with the ground. This can be accomplished by having the second to last step being slightly longer than the rest, thus lowering the center of gravity and the hips. The last step should be slightly shorter; the short stride raises the center of gravity. Thus even before leaving the ground, the center of gravity is rising. This makes it easier to jump up rather than into the bar.

Differences

There are numerous technique differences that should be recognized in order that you can determine which style you are presently using. The most notable is the manner in which the drive leg is brought through on take-off. In the speed flop the drive knee/leg is brought through very quickly and high with the heel of the foot tucked close to the buttocks, thus emphasizing quickness. In contrast the power flop drive leg is brought through much lower and in many cases the jumper actually drags the toe of his/her drive leg on the ground during this phase. (See figure 4&5)

A somewhat simplified way to characterize the differences in the speed flop and power flop is in the manner they appear to jump or take off in order to clear the bar. The speed flopper runs into the air, seemingly with little effort, whereas the power flopper tends to look very powerful and explodes off the ground.

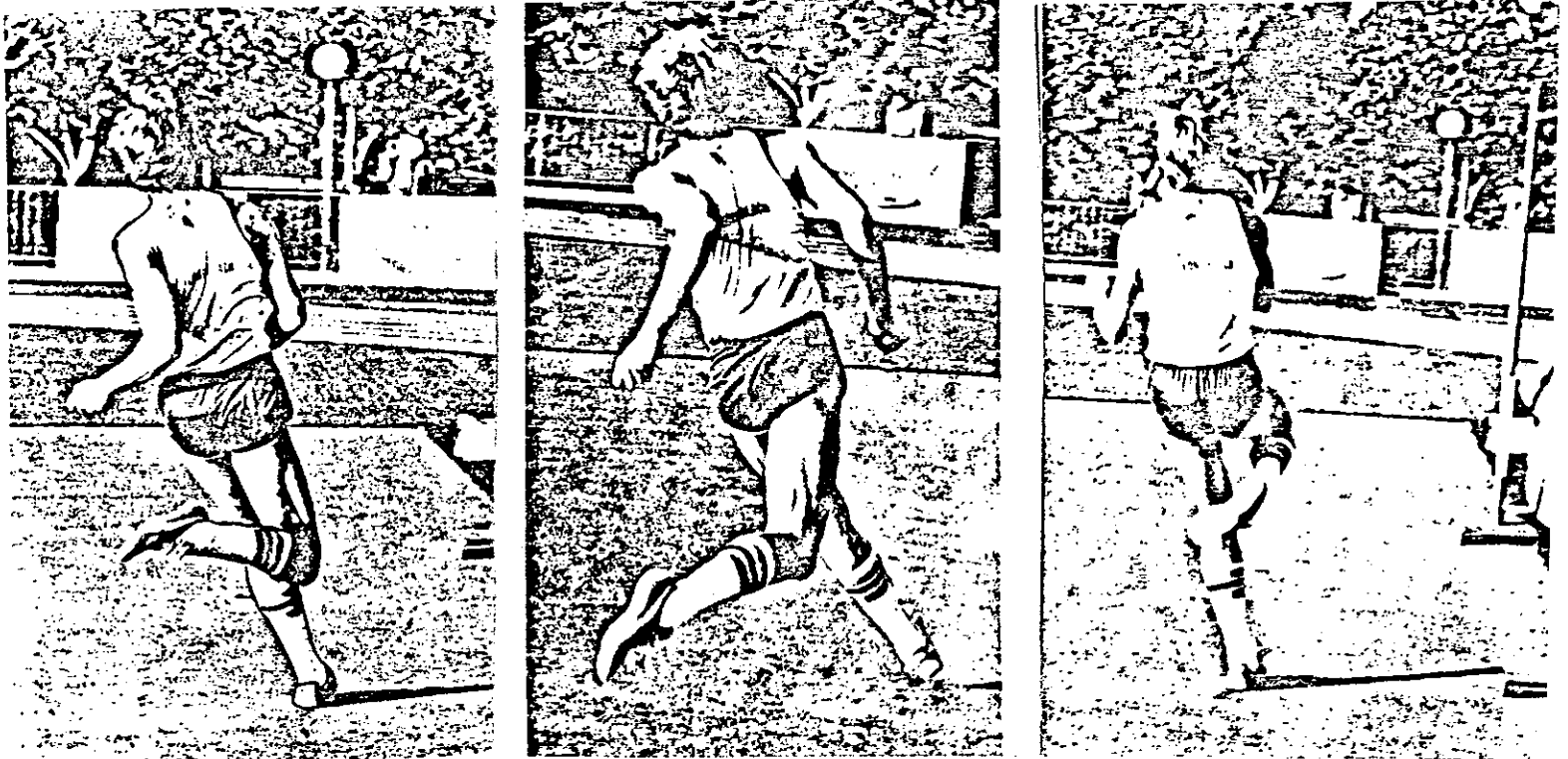


FIGURE 4. Drive leg sequence for speed flop



FIGURE 5. Drive leg sequence for power flop

CONCLUSION

In summary, to fully develop your abilities, you must be able to decide which style of jumping fits you best and correct any technical flaws that you may have when using that style. This can be accomplished by understanding the technical aspects and physical requirements of each style as well as the technical differences between the two styles as laid out in this report. As a follow-up to this you should sit down with your coach and discuss a training program that will strengthen you in the areas required by your style.