Kick Double Pole

Kick double pole is the second gear in the classical transmission. It is used on gradual-uphill terrain when double pole would bog the engine down or diagonal stride would over-rev the engine.

Introduction

There are several important factors that play a key role in properly executing kick double pole. To make the discussion easier they have been broken down into body position, timing and power. Each of these components plays an integral part in executing the technique successfully. It is important that the athlete perfect each component to be successful.

Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in kick double pole is similar to other ski techniques as well as to other sports.

Feet: Center the weight across the ball of the foot. If the weight is too far forward onto the toes it will be hard to apply enough force through the kick. If it is too far back it will be hard to apply force quickly enough to be powerful. In kick double pole the weight will shift to the whole foot after the double pole portion of the technique, but will shift back to the ball of the foot for the kick. Body position drills should focus on keeping the weight on the ball of the foot.

Ankles: The bend in the ankles is vital to directing the power in such a way that the skier is propelled forward down the trail and not up in the air. The degree of bend at the ankle is dependent primarily on terrain - the steeper the terrain the deeper the angle at the ankle. Also, the more force the skier is attempting to deliver the deeper the angle will be.

Knees: The angle at the ankle must be closely mimicked by the angle at the knee in order to keep the skier's weight positioned over the feet where the force can be directed through the ski to the snow. Generally skiers struggle to get the proper angle at the ankle rather than at the knee. What results is a knee angle greater than the ankle angle, which places the skier's weight behind the feet. This slows the speed of the kick, loads a great deal of weight on the quadriceps, and diminishes the amount of force applied to the kick.

Hips: The hips must be high and forward. When it comes to body position this is accomplished by having the skier's weight over the balls of the feet, maintaining the proper ankle and knee angle, keeping the upper body in a "C" position and by maintaining a quick kick.

Look for the hips to remain high and forward through the entirety of the double pole kick cycle – even after the double pole portion of the technique.

Core/Back: The upper-body, from tailbone to head, should form a soft "C" shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This "C" position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This "C" should be very shallow leaving the skier quite upright or rather pronounced, thereby putting them in an aggressive forward position. The depth of the "C" is also dependent upon terrain with most skiers adapting to a more up-right shallow "C" position as the terrain becomes steeper.

An "S" shape in the back is the most common core body position mistake and puts a lot of pressure on the lower back as well as forces the hips back. Another common mistake is to fold at the waist into an "r" position. This too forces the hips back and makes it hard to deliver power to the kicking ski or onto the poles in the double pole.

Shoulders: Shoulders should be rounded leaving the arms hanging free and loose in front of the body. Even skiers who ski in a very shallow, upright "C" position should have a forward attitude at the shoulder. This position allows for a smooth pendulum swing of the arms as well as a good position from which to apply both body weight and force to the poles.

Arms: In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arms at pole plant should enable the skier to apply maximal force with the core and back as well as the weight of the upper body to the poles. This means that the arm will be close to or greater than 90 degrees. At pole release the hands should be low. The follow through of the arm is dependent upon speed (and terrain). The faster the skier is moving the longer the follow through. Keep the follow through short to help keep the hips high at the end of the double pole.

Timing

In all techniques the whole body works together to transfer the skier's weight from ski to ski and down the track. The kick double pole begins with a double pole. This leaves the arms slightly behind the skier, the upper body in a relatively low position and the skier's weight spread evenly over both skis. The skier must then transfer all their weight to the kicking ski, plant, compress and explode forward off the kicking ski (as in diagonal stride) in absolute synchrony with the forward swing of the arms, the return of the upper body back to a high double pole position, and the forward swing of the back leg. The opposite leg becomes the kicking leg in the next cycle.

Please see the Diagonal Stride PDF for an explanation of the term "kick" and the actual timing of the kick. In kick double pole the kick is very similar to that of the diagonal stride kick. In the same way the "kick" can be likened to the explosive jump of a long jumper's jump in that the weight is planted

on the ball of the foot, the athlete compresses down on the planted foot, and then explodes forward off the foot down the trail or, in the case of the jumper, through the air. In both diagonal stride and kick double pole the "kick" propels the skier down the track and onto the other ski and into an extended position. In kick double pole the skier is now gliding on one ski with both arms forward in a double pole position. The skier applies a double pole similar to a normal double pole. Please see the Double Pole PDF for further explanation of this portion of the technique. See more on timing under "Power".

Power

Power results from force applied quickly. Power relies on being in a position that allows both the application of the skier's strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier. The effective, efficient and repetitive application of power to the skis and poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.

The job of the kick in kick double pole is the same as in diagonal stride (Please see the Diagonal Stride PDF). Just as in diagonal stride the speed of the kick is of primary importance to power development. At the same time weight shift is just as vital. Many people attempt to kick with their weight spread evenly over both feet in the double pole kick. All the skier's weight must be on the kicking ski in order to apply maximal power to that ski. In fact the ski will receive 100% of the skier's body weight plus the force added by the kick itself.

In kick double pole the arm swing forward must be as quick as the kick itself. This powerful forward swing will help gain forward momentum. This brings the skier into a double pole position. Please see the Double Pole PDF for an in depth explanation of the technique. In kick double pole the double pole will likely be notably shallower with less follow through and less upper body compression than in regular double pole. This is due to the technique being carried out on generally steeper terrain and the need for the hips to stay high for the kick portion of the technique.

Training/Racing

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver – and they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed

at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.

Drills

- Locked 'n Loaded
- Ankle Float

Conclusion

Proper body position enables proper timing—both of which enable effective, efficient application of power.