

Accelerating Your Weight in to your Push – Using your Abdominals

To have maximum speed you have to have forward momentum. To have forward momentum you need to accelerate your weight ahead of your pushing skate. This is partially accomplished through allowing your ankle to bend to accelerate your weight forward to the ball of the foot. It is also accelerated by constant movement of your hips in the direction you want to go.

There are a number of different muscle groups that work in unison to help propel your hips forward. By now you are all familiar with the butt tuck. That is keeping your hips under you rather than letting them drift back. Another way to think of the butt tuck is keeping your cheek bones (the ones you sit on) pointed towards the ice. The butt tuck acts to engage the large muscles of the butt and outer hip so you can use them in your push.

Another very important muscle group is the abdominals. The upper abdominals help to keep your upper chest in position and prevent upper body rotations. The mid abdominals also assist in keeping your chest in position, prevent upper body rotations, and keep your butt tucked. The lower abdominals (the muscles located between your belly button and your pubic bone) are used to help keep your butt tucked, and more importantly to assist in thrusting your weight forward and preventing outward rotation of the thigh. Any time there is a rotational movement in any part of the body there is a resultant loss in power (See Nov 05 tip Japanese Four Eyes).

Let's try some simple off ice exercises to find out how to use your abdominals better to prevent rotations. Stand in a fairly high glide/ recovery position with your chest about 45 degrees to the ground. Now just let your upper and mid abs hang loose and rotate your upper body. See how easily your body rotates? Now tighten your upper and mid abs and try to rotate your upper body. Didn't rotate so easily, eh?

Now take the same position and relax your upper, mid, and lower abs. Allow your recovery thigh to come forward, but not past your other leg, and rotate it outward. Now slightly tighten your upper and mid abs and press your lower abdominal muscles forward (like you are trying to push your muscles out of your skin. Now allow your recovery thigh to come forward, but not past your other leg, and try to rotate it outward. Keep pressing your lower abs forward as you do this. Harder to rotate your thigh outward, right?

So, now that you have a feel for how to use each section of abs to keep your alignments (Japanese Four Eyes) let's find out how to use them to accelerate your weight (hips).

This exercise is best felt with a set of Techni-Cords using slight resistance. Once you have the feel for the acceleration of your weight, you can then start to increase the resistance to develop power and strength. If you don't have a set of Techni-Cords you can do it leaning on a chair. You will need masking tape for this. Starting with the masking tape under the back part of the ball of your foot, place a masking tape line heading perpendicular from the ball of your foot (about 3 feet long). Place another piece of tape, again starting from the ball of your foot, heading 35 degrees to the original line, and another similar piece heading 45 degrees from the original line. The lines at 35 and 45 degrees are your 'fall line' guide, where you want your body to fall to.

Start in a glide/recovery position, in a fairly high position again to get the feel for it. Your weight will be moving on a 35 - 45 degree angle to your glide foot. Start with your weight on your heel. Now allow your ankle to bend and at the same time press your lower abs forward as you are leaning on the 35 - 45 degree plane. Allow your recovery thigh to come forward as you start your lean so that it is almost even with your leading thigh when you reach the fully loaded position. Feel that acceleration as your weight moves from your heel to the ball of your foot? Now do the same drill but without pressing your abs forward. I'm sure you feel the difference in acceleration of your weight. If you didn't feel it the first time keep trying. The key is to find the right muscles to engage in the lower abs to pull or propel your hips forward. Once you reach the fully loaded position, continue to press your abs forward to continue accelerating your weight forward as you push.

A few key technical cues to help avoid rotational errors:

- Make sure there is no break in body alignment in either the load leg, or the recovery leg, no chest or hip rotations, and no outward rotation of your recovery thigh/knee/foot as it comes through to land.
- Keep your chest angle the same, from start to finish. Opening of the chest will cause chest and thigh rotations.

As we are all different in our thinking and interpretation of what we want to accomplish, different technical cues might work better for some of us. Other ways to think about the acceleration of your hips are:

- **Pull** your hips forward
- **Push** your hips forward
- **Push/ bring, pull** your butt forward
- **Push** the small of your back forward
- **Bring /pull / push** your belly button forward
- **Bring** your whole body forward

And I'm sure there are more that you find will work for you. Find your own cue and use it, feel it, see it, be it!

The line of fall is slightly different for each body type (short torso, long torso, short thighs, long shins etc) The lines below will allow for those differences. The lean and push should follow somewhere between or on the lines, resulting in the landing foot to do the same. The line is where the pressure can be maintained on the ball of the foot all the way to the end of the extension. A skater can learn to project their weight farther forward by using the lower abdominals and still maintain the pressure on the ball of the foot all the way through the push.

