

The Key to V2 Aero Success: Skating in Balance

by Doug Garfield Ph.D.

Introduction

V2 Aero roller skis provide the most accurate simulation of on-snow Nordic skating of all brands of roller skis on the market today. The overwhelming conclusion by coaches and skiers is that learning to roller ski proficiently on them will make you a better snow skier. In addition to their biomechanical precision, V2 Aeros offer skiers other significant technical advantages. For example, Aeros tolerate rougher surface conditions such as hard-packed dirt and crushed limestone, which allows you to explore new routes previously off limits. Aeros also give you more control because you can adjust the rolling resistance, which allows you to fine-tune your workout intensity and descend hills safely with uniform braking.

The two-wheel design with pneumatic tires is a breakthrough in roller-ski design, but this design places additional balance and stabilization demands on you than snow skiing does.

Like Riding a Bike

Like a bicycle, Aero skate skis have no inherent stability. For example, when riding your bicycle, you are its only source of balance. Likewise on Aero roller skis, you are the sole provider of the balance required to make them roll skillfully so the shafts don't scrape the ground. Even the best Nordic skaters, must learn how to do this over 6-12 orientation sessions before they're completely comfortable. Like learning to ride a bicycle, you'll experience a learning curve as your balance receptors learn the differences between skiing on snow and roller skiing on Aeros.

Keeping this fundamental need in mind—you *are the only source of balance when roller skiing on Aeros*—is your first step to successfully using them. Second, it is important to understand that your ability to ski skate on snow does not immediately transfer to Aero roller skis. You must first learn to balance and stabilize them before you can roller ski with the same skill and ease that you can on snow.

Requirements for Roller Skiing in Balance

Let's examine the six factors that determine how well you balance on Aero roller skis and what you can do to optimize their individual contribution.

1. Balance

- Balance is the process of staying in equilibrium. To stay balanced, you combine eyesight with a continuous stream of sensory information that is provided by specialized receptors called proprioceptors. As mentioned, balancing on Aero roller skis is more challenging than on snow skis. As a result, it takes time for your proprioceptors to get the hang of it.
- *My balance feels shaky even after the first dozen sessions on my Aeros. Can I improve my sense of balance?* Yes. You can significantly increase your ability to balance with special exercises like the ones you find in *The Steady Ski*, a book that provides a complete program to help you improve your balance.
- To determine your current ability to balance, take the test described on the following page.

Classic Ski Balance Test

Standing on one leg, vigorously swing your opposite leg and arms as if you were classic skiing. Try to do this for 30 seconds without assistance. As you do this, observe how steady your balance is. Do you have to hop to regain your balance? Are the muscles of your feet working overtime to keep you upright? Does your trunk lurch suddenly to catch you from falling? Try some practice runs to get the hang of it before you take the test.

If you can do 30 seconds nonstop with only a minimum of the balance-saving maneuvers described above, then you have the minimum level of balance required for Aero roller skis. Recall the bicycle example I mentioned? If your body works hard to stay in balance while you take the test—lots of twitches, lurches, foot adjustments, and arm waving unrelated to the smooth actions of efficient poling—imagine what it would be like if this is how you balanced riding your bicycle?

You should be able to balance on your right and leg legs with only minor adjustments that are barely visible to an observer. Better yet, if you can do this test with your eyes closed, making only minor adjustments, you'll have no problem adapting to Aero roller skis. By the way, this test is also an excellent practice drill—learn to do it with your eyes closed without any extraneous movement—and a warm-up routine for priming your proprioceptors before you roller ski.



Figure 1: The classic-ski balance test

- If the test reveals that your balance is wobbly and unpredictable, then you need to fine-tune your sense of balance with *The Steady Ski* program. If you do the exercises three to four times a week for only 15 minutes a session over three to four weeks, you'll significantly improve your sense of balance, and therefore, your ability to use Aero roller skis successfully.

2. **Stabilization**

- Stabilization is the brawny partner of your balance receptors. It is the application of muscular force for supporting your skeletal segments at the correct angles and positions so that you can maintain the correct body positions while skiing. Stabilization empowers all your static and dynamic actions with firm, never rigid, support. Balance and stabilization are partners.

because without strong skeletal stabilization of your trunk, arms, and legs, you cannot hold your body in balance.

- *Can I improve my stabilization strength?* Yes, everyone can. *The Steady Ski* program includes a complete program of primary (trunk) and secondary (arm and leg) stabilization training. Like balance improvement, you can make significant gains in your ability to stabilize your body, and as a result, manage your Aero roller skis more effectively.
- Want to find out how well you can stabilize your body? Try the following test of core stabilization, which is critical to Nordic skiing on snow and rollers because your trunk is the foundation of your arms and legs. An unstable core or trunk means unstable arms and legs.

Core Stabilization Test

On the floor, start in the kneeling position illustrated below in Figure 2. In this position, firm up your abdominal wall and then straighten your legs so that you are in the position illustrated in Figure 3. In this position, hold your body ruler-straight and breathe normally during the entire test. (To exit the test, return to the kneeling position first.) Try to hold this position for 30 seconds without shaking. If you can do it, you have the minimum level of trunk-stabilization strength required of Nordic skiers. If you cannot hold the position without shaking for 30 seconds, your level of trunk-stabilization strength will compromise your ability to manage Aero roller skis.



Figure 2: Start position of trunk stabilization test

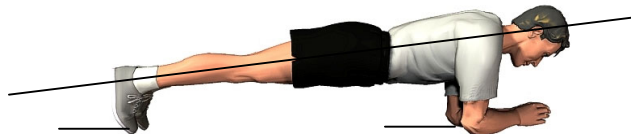


Figure 3: Hold your body perfectly straight during the test

3. Body Alignment

- There are two types of body alignment we need to consider in our discussion: the natural alignment of your skeleton and the technical alignment of your body when you ski. In this case, let's consider your natural alignment, typical issues that influence roller skiing, and solutions that will help you ski with improved alignment.
- Foot-ankle-knee-hip alignment is an important feature of your body's posture that can significantly impact your ability to balance your Aeros in the optimal, rolling position. The fact is poor alignment of your skeleton makes balancing and stabilizing more difficult on Aeros.
- Try this, stand in front of a full-length mirror wearing shorts and examine the alignment of your legs. Compare your knee alignment to the three illustrations below.

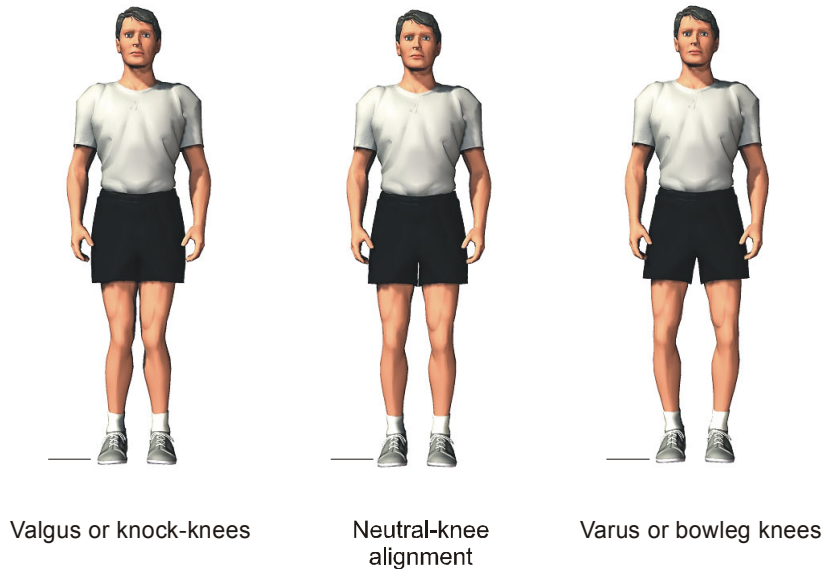


Figure 4: Examples of typical knee alignment

- The more your knees depart from neutral alignment as illustrated by the center figure above, the more unstable you will be on Aero roller skis and the greater your need for corrective footbeds, balance and stabilization training, and supportive ski boots.
- Another way to assess alignment problems is to do a slow squat in front of the mirror. As you squat down, do your knees (or just one knee) naturally rotate inward or outward? If so, the stability of your weight-bearing position is reduced in proportion to the degree your knees (or knee) deflect inward or outward.
- Customized footbeds can considerably improve the alignment of your feet, ankles, knees, and hips for roller skiing, which in turn will significantly improve your ability to ski with your Aeros in the optimal, rolling position.
- When going up hills, the inside roller-ski forks should clear the surface of the ground by at least 15mm. If your inside forks are closer to the ground than this, you are exceeding the envelope of good skiing alignment.

4. Boots

- As alluded to above, footbeds and ski boots make a significant contribution to your alignment because they help position and support the foot and ankle, which also influences your knee and hip alignment. In addition, they are the technologies that provide the greatest amount of variability, and therefore, must be optimized for a good, roller-ski experience.
- We've discussed footbeds, so let's take a look at boots. There are two types of boots that are appropriate for skating on Aeros, specialized, skate-only boots and *combi* boots, the type you can use for classic and skating.
- My recommendation is this: use skate-only boots unless you are an expert on Aero roller skis. (Note that I said expert *roller* skier and not expert *snow* skier.) In fact, of all the skate boots on the market, choose the ones with the most support. Moreover, if you have any leg-alignment issues, I urge you to get custom-designed footbeds. This combination of supportive boots and orthotic realignment will allow you to relax and roller ski in balance.

5. Skill Transfer

- Roller skiing on Aeros is the best simulation of snow skating available, but the balance, stabilization, and alignment requirements are more difficult than on snow. When you have good balance, stabilization, and alignment, you can skate on Aeros with the same degree of precision that you can on snow. But if you have any problems with the big three—balance, stabilization, and natural alignment—or with your skiing alignment, any one of these problems, individually or in combination, will lessen your ability to steady the Aeros with optimal alignment. Typical evidence of skiing out of balance is damage to the shaft and forks. If you see this kind of excessive wear on your Aeros, then you are skiing out of balance.
- If you think about it, this is actually a very good thing because it means that you will be made aware of these problems and can address them thoroughly, which in turn will improve your snow performance all that much more. After all, roller skiing is an opportunity to improve all aspects of your skiing—balance, stabilization, body alignment, and technical skills.
- In other words, if you consider yourself an expert snow skier, but you are having difficulty balancing your Aeros, then you must identify and address your balance, stabilization, and alignment issues. (Beginners must do the same.) Until you do, you won't be able to roller ski in balance or with the same technical expertise that you can on snow.
- Regardless of your skill level, *always* roller ski with protective equipment. The most important item is an appropriate helmet. Never roller ski without one on your head. In addition, gloves and kneepads provide extra protection and are a wise personal choice for many roller skiers.

6. Surface Conditions

- As you can imagine, the quality of the surface on which you roller ski can make it easier or harder to ski in balance. Hard, smooth surfaces like good quality pavement are the best for learning, whereas rough, soft surfaces like spongy dirt, crushed limestone, or fire-road trails will substantially increase the challenge of skiing in balance.
- During your start-up learning phase, roller ski on a smooth, firm surface. This will let you concentrate on skill development without distractions.

Summary

1. Recognize and understand that skating on V2 Aero roller skis requires considerably more balance and stabilization than skating on snow. The proof is in the equipment. A snow ski is an inherently stable thing—put a snow ski on the ground and it doesn't fall over. On the other hand, an Aero roller ski is inherently unstable—place an Aero roller ski on the ground in the upright, rolling position, take your hand away...it falls over.
2. Test your balance and stabilization to determine your current abilities as outlined in this document. If you fail or just meet the minimum standards described here, do *The Steady Ski* program to develop these vital ingredients of athletic performance. If you exceed the minimum standards, it is also a good idea to do *The Steady Ski* program because every athlete can improve these qualities, and therefore, positively impact their snow and roller skiing.
3. Identify any leg-alignment issues you may have and correct them with custom-fitted orthotics. In addition, roller ski in skate-only boots. They're more supportive than combi boots, which will let you practice longer with less fatigue.
4. Understand that you won't be able to skate on Aero roller skis with the same prowess you can on snow until you overcome any balance, stabilization, and alignment deficiencies.
5. Learn to roller ski on smooth, consistent surfaces so that you can relax and learn.