

Strength Training Benefits for Figure Skaters

To benefit from strength training, it is necessary for you to identify your weaknesses and work on them.

Most athletes believe that strength training can only be carried out in a weight room or gym utilizing various pieces of equipment (barbells, dumbbells, weight machines, etc.). This is a myth as strength training is any physical activity that emphasizes the application of resistance to the muscular system.

For figure skaters, these activities can include conventional exercises (presses, squats, pull-ups, etc.), running-specific strength exercises such as step-ups and one-leg squats, plyometric or 'jump' training, calisthenics, injury-preventing gymnastic exercises (walking on toes or heels), and throwing, twisting, and swinging activities with a medicine ball.

What activities beneficial for figure skaters?

Scientific research strongly suggests that conventional strength workouts can decrease the risk of injury in endurance athletes. This can promote higher performances by fostering more consistent training. In addition, work carried out by celebrated Finnish researcher Paavo Komi indicates that strength programs can heighten an athlete's top power and increase endurance.

Recent studies indicate that strength training can enhance running economy by about 3%, enough to shave about a minute from 10km times. We know also that plyometric training can help strong runners become faster, e.g. utilize the strength in their legs more quickly.

Finally, strength routines help some runners add a few muscular contours to their bodies and emerge from their 'skinny-stick' physiques. This research should also apply to figure skaters.

Many skaters fear that strength training has a 'down side' – large, undesirable gains in muscle mass, which create more 'dead weight' to be lugged around during running. This fear is based more on myth than reality.

The truth is that significant increases in muscle mass require specific training methods

and a huge commitment of time and energy – far more than most figure skaters are willing to spend just on strength training.

A program to develop leg strength

Of course, the way to benefit from strength activities is to increase their difficulty and specificity over time. For example, you could start developing more leg strength for running by doing basic two-legged squats – with only body weight for resistance – for two to three weeks.

Then, you could progressively increase the difficulty and specificity of the exercises in the following manner: during weeks 4 to 6, you could carry out two-legged squats with greater resistance (while holding a barbell or dumbbells).

For weeks 6 to 8, you could complete one-leg squats with light to moderate resistance (doing one-leg squats is more specific to running than two-legged squats, since full weight is on only one foot at a time, as it is during running).

During weeks 9 to 12, you could move on to uphill runs while wearing a weighted vest to strengthen the 'push-off' phase of your running strides.

During weeks 11 to 13 (overlapping the weight-vest period), you could add in two-legged forward hopping, to enhance power production while landing/rebounding during running.

For weeks 13 to 15, you could move on to one-leg forward hops (since you would be landing on only one foot at a time, the specificity would increase and the intensity (difficulty) would double).

During weeks 15 to 17, you could emphasize downhill running to learn to control and enhance the rebound phase of foot-strike.

A simple program like this will add some strength and power to your legs, but a key problem is that there are nearly an infinite number of strength exercises and almost as many workout programs.

How do you select the exercises and program that are perfect for you? How do you coordinate your strength program with your running routine?

Pinpointing your weak links

Those are difficult questions to answer, because the truth is that there is not a single set of strength exercises that is best for all athletes; instead, there are fewer strength-training exercises that are best for you.

If you are like most skaters – you have unique strengths and weaknesses. For each of your weaknesses, there are a handful of strength-training exercises that will make you stronger. Your job is to identify your weaknesses and strengthen them.

But how do you pinpoint your weak links?

Certainly, if you are recurrently injured in one part of your body, that area is unnecessarily weak and needs to be bolstered. Or, if you find that you have decent foot speed but you are always breaking down with a variety of different injuries, then you may need to develop basic overall strength (and/or flexibility).

On the other hand, if you are seldom injured and have good endurance but lack speed, your need is for a resistance program that will ‘teach’ those strong muscles of yours to function more quickly (e.g. your program needs to emphasize power training). Sometimes, working with a knowledgeable coach or trainer will help you identify things you should stress during strength training.

And it helps to know that there are really just four basic types of strength training for athletes, each of which can assist you in accomplishing a specific goal.

The four types are described below:

1. General strength and conditioning exercises

These activities include many of the conventional weight-training exercises such as presses, squats, pull-ups, push-ups, abdominal crunches, bar dips, various rowing movements, and the like. Also included in this category are some of the less conventional exercises like medicine ball throws and twists and various activities for the ‘core’ muscles (abdominals and low back).

These conventional exercises provide ‘generalized’ strength – strength throughout your body to protect your muscles and connective tissues from the repetitive stresses and impacts of running.

2. Skating-specific strength training

This category includes exercises that more closely imitate the biomechanics and motor patterns required for skating. The exercises include step-ups, speed squats, one-leg squats, jumping lunges, hill running, weighted runs (while wearing a weight vest) and resistance runs (with rubber tubing, a parachute, or a weight sledge providing the resistance).

This specific type of strength training, less familiar than general strength training to many athletes, is becoming increasingly popular in the sports-training community because it provides ‘Specific strength’ – more strength to carry out the actual movements needed in a particular sport. When you carry out running-specific strength training, you get stronger while running – not just while seated at a weight machine.

3. Reactive or speed-strength training exercises

This type of training, often referred to as plyometrics, includes various types of hopping, bounding, and jumping exercises which teach your muscles to generate more force and generate the force more quickly.

The goal, of course, is to develop more powerful ‘push-offs’ when you are running. Reactive training fosters a high degree of strength in the muscles, tendons, ligaments, and bones, since the impact forces are usually higher than they are during regular running workouts.

Reactive training also stretches muscles, tendons, and ligaments vigorously, promoting greater elasticity and efficiency of movement. A key point to remember, though, is that reactive training cannot simply be plopped into your training routine without preparation.

An effective training program is built on a foundation of general and running-specific strength training and must start slowly with low-level hopping and jumping. Otherwise, the forces generated during reactive training will create injured – not more powerful – parts of your body.

4. Preventive gymnastics exercises

This is no doubt a new area of training for you. When most Americans hear the term gymnastics, they think of gymnasts performing dangerous flips, twists, and stunts on the balance beam, parallel bars, or rings.

In the European training community, however, the term gymnastics is synonymous with strengthening, rehabilitative, or restorative exercise or therapy. For skaters, the function of preventive gymnastics is to strengthen the feet and lower parts of the legs in order to minimize the risk of injury in those areas.

Gymnastics exercises differ from general and running-specific strength exercises in that their effects are more localized, their intensity is lower, and they are actually carried out more frequently than other forms of strength training.

A number of gymnastics exercises, including walking on toes and heels, skipping on toes forward and backward, toe pulls, zigzag bounding on the toes, and running barefooted on sand, grass, or hills, can be carried out nearly every training day, often as part of your warm-up or cool-down.

Coordinate your training

Obviously, throwing a few exercises together, adding some weights on a bar, and starting to lift weights do not achieve a quality off ice training program. A comprehensive, optimal strength program will include work in each of the four categories described above, with an emphasis on your weak points.

At the same time, your strength program needs to be coordinated with all of the other training that you do, and it must complement – not detract from – your skating. After all, you are training to improve your skating skills, not to become a weight lifter.

For example, let us say that you plan to start serious strength training this March and that your most important competitions of the year will take place in the fall regional competitions (October – early November), Sectionals (November - December), and National Championships (Late January through February – Early March).

After you are finished competing for the season, you can simply focus on general strength and conditioning exercises until mid-April when you would begin to add in some specific skating strength training, which would continue through mid-June.

In early June, you would start up your reactive (speed-strength) training as the summer training season gets into full swing, and in mid-June you would make your off ice training more difficult. This combination of skating-specific and speed-strength work would continue through the end of July.

In August, you would ‘fine-tune’ your strength training, bolster any remaining weak links, and continue to focus on the speed-strength work, which will help ‘sharpen’ you for the fall qualifying competitions. Throughout this period, from March to September, you would carry out your injury-preventing ‘gymnastic’ exercises.