Strength Training Basics

Strength training is a vital part to be a fast ski racer, it is common for U.S. ski team members to do two strength sessions nearly every week for the entire year.  Strength training increases ski speed in several ways; it can help increase coordination and strength by creating new neural pathways from the brain to the muscles, or it can increase the size of muscle fibers to become stronger (hypertrophy).  For skiing performance, we are usually looking to increase the size of the muscles as athletes go through puberty this way they have the baseline strength and muscle size they need to ski fast.  With that said, we don't want athletes’ muscles so large that it negatively affects their uphill ski performance.  In terms of pasta types, we are looking for a fettuccini noodle, not angel hair or ravioli.  Once we have enough muscle to work with, the focus changes to developing those muscle fibers to be as strong and resilient as possible.

Here are some of Coach Gerrit's favorite strength sessions.
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**Muscle Endurance** - this workout is great if you don't have access to a gym.  This workout is inspired by The Uphill Athlete, this book is great read and does a better job then most textbooks at explaining the physiology behind training.  I would highly recommend this book if you want to further your understanding of why we train.
First get a really good warm-up, 15 minutes of running with some muscle activation drills like high knees, butt kicks, etc...
Do 3 sets of 10 reps for each exercise before moving onto the next one, you get one minute of rest between sets to start with but you can follow the entire progression of the workout  here [**https://www.uphillathlete.com/at-home-muscular-endurance-workout-with-progression/**](https://www.uphillathlete.com/at-home-muscular-endurance-workout-with-progression/)**.**This workout includes some different exercises to make it more ski specific.
Exercise 1 - Single Leg Jump Squats
Exercise 2 - Tricep dips on a bench
Exercise 3 - Jump Squats
Exercise 4 - Lat. Pull Downs or assisted pull-ups
Exercise 5 - Side Lunges (right leg)
Exercise 6 - Side Lunges (left leg)
Cool down - 5-15 minutes of core work and 10 minutes of light aerobic activity.
This workout can be really taxing so once a week should be plenty and try to do one rep per second to help imitate the pace of power application in skiing.

**Max Strength -**This workout is great because it can result in quick gains in strength with little to no hypertrophy.
The key with this workout is to get a really good warm-up, take 2-3 minutes of rest between each set, and lift heavy.  This should only be done by those who have experience lifting and can use good form.  Do 3 sets of 5 reps for each exercise.
Exercise 1 - Weighted Pull-Ups
Exercise 2 - Squats
Exercise 3 - Weight hanging dips
Exercise 4 - Deadlifts
Exercise 5 - Bench Press
Exercise 6 - Step-ups or lunges
Pick 5 core exercises that you can add weight to and make it really hard for 20 seconds and rest for 40 seconds.
Cooldown - light aerobic activity for 10 minutes.

**Power-Speed -**This a great workout to do right before the race season begins as it makes you feel really strong and powerful at the same time without being too taxing on the muscles.  Follow the same warm-up, amount of rest between sets, and amount of sets and reps as max strength.  The only difference this time is two exercises are paired together and are meant to be done back to back immediately (one strength based exercise is paired with one power based exercise)
1st Exercises - Squats and Jump Squats
2nd Exercises - Weighted Pull-ups and Med Ball throw downs
3rd Exercises - Alternating Lunges and Single leg jump squats
4th Exercises - Bench Press and Clap Push-ups
After that, pick some of your favorite core exercises and alternate between adding weight and adding speed to the exercises.
Cooldown - light aerobic activity for 10 minutes

If you have any questions related to these strength sessions please contact coach Gerrit at ggarberich@uolf.org