

SPEED AND POWER

EDITOR'S NOTE: Some may ask if this article with all of its Olympic lift variations is compatible with the BFS program. The answer: Absolutely! We do five auxiliary exercises after our core lifts in the off-season. Our main criterion when selecting auxiliary exercises is what exercises will most help us win. We believe all of the variations presented by Coach Cross should receive serious consideration for implementation into your program. I would advise a coach to introduce them first to a small group of athletes. See how it works for you and then go from there. I would also advise strongly to get our 15 pound aluminum bar and our training plates (5 lb. and/or 10 lb.)

Two of our five recommended auxiliary exercises during the off-season on Monday and Friday are Leg Extensions and Leg Curls. Most weight rooms have this equipment and they are safe, easy to use and to coach. But if you were to ask me which exercises would most help you win, Leg Extensions or one of the exercises presented by Coach Cross in this article, I would say Coach Cross' exercises.

Therefore, if you have the proper equipment and have several good athletes who can already Clean and/or Snatch with great technique, go for it!

By Tom Cross

INTRODUCTION

Most school sports can be classified as "power" sports. The running, jumping, starting, stopping and changes of direction in these sports require a rapid Rate of Force Development (RFD). Many coaches agree that increased strength will enhance speed. Strength, however, is an elusive quality. The strong vol-

leyball player would have little use for a 400 lb. bench press, but that might be considered a weak level for the "power" lifter. Also, there are different strength qualities. Strength is the ability to produce force. This may occur at zero velocity (isometric strength). Dynamic strength may result in a variety of velocities, depending upon the resistance. Speed-strength (vital in sport activi-

ties) is the ability of the neuromuscular system to produce the greatest possible velocity as the result of force applied to a given resistance.

SPECIFICITY OF TRAINING

We as coaches recognize the value and need for more specific training. Several scientific studies present evidence that explosive exercises have characteristics which



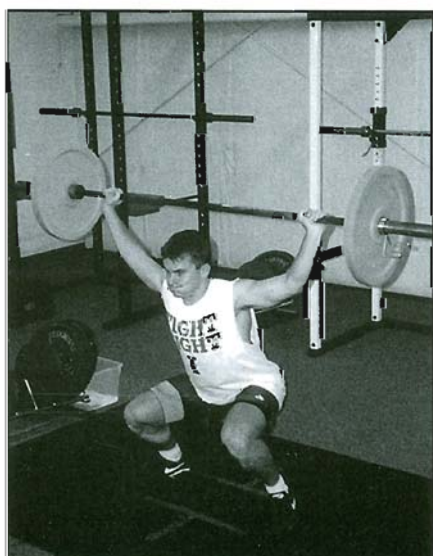
enhance the RFD. The snatch and the clean & jerk are movements that require the following:

- 1) high force
- 2) high velocity
- 3) movement specific training
- 4) total body involvement

Speed for sports also requires the sequential use of muscles in a specified order — from the lower limbs and hips, through the trunk (torso strength), and finally to the upper extremities. These exercises strengthen muscles and joints in the same order and at similar velocities as needed in sport. The concurrent shift which occurs during closed kinetic chain exercise causes unique muscular contractions and interactions that are not possible with isolation exercises. In the real world of sports, muscles are not used in isolation so exercise that strengthens an individual muscle is somewhat limiting to athletic performance.

USING COMBINATION LIFTS

In free weight training, the



Travis Unser (Sr. FB) during the down phase of a Drop Snatch.

athlete must become proficient in four basic fundamentals:

- 1) Pulling
- 2) Squatting
- 3) Pressing
- 4) Jerking

The coach must teach these fundamentals early in the training and insist upon strict technique. “There are no dangerous exercises, only dangerous coaches.” (Statement by Meg Ritchie, from “The Pac-10 and the Power Clean” in BFS, 1994 Summer Edition). When fundamentals are acceptable, it is relatively simple to do exercises in combinations which facilitate the training. Among the many advantages, these are what I like best:

- 1) A huge time saver
- 2) Adds variety to the program
- 3) Stimulates the proper energy system
- 4) Stimulates recruitment of fast twitch fiber
- 5) Promotes flexibility, balance and explosiveness



Andy Hyatt (Sr Baseball) completing a hang Snatch/Squat Combination.

- 6) Strengthens the torso
- 7) Improves concentration
- 8) Develops a keener kinesthetic sense
- 9) More efficient use of time and equipment
- 10) Athletes like them — that may be the best reason

WARM-UP AND RANGE OF MOTION COMBOS

1. Snatch Walking Lunges — Stick or Training Bar only
Benefits: Hip, Groin, Torso strength; Flexibility and balance with an elevated center of gravity.
Coaching Points: Begin with the stick, shoulder, and hips in a straight vertical line. Take a long lunge step; keep the front heel down, knee above the ankle; the back knee should come very near or gently touch the floor. Start light and progress as control improves.



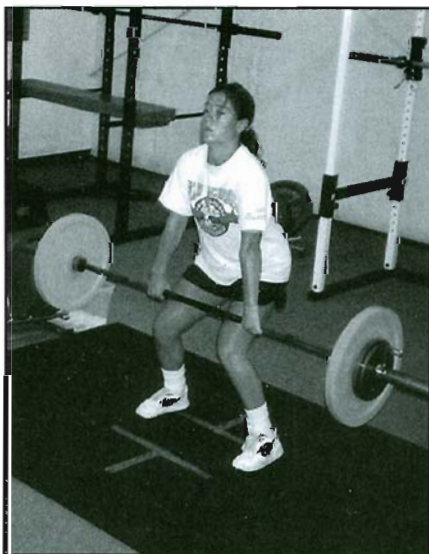
Andy going from the pull into the receiving position for a Power Snatch.

Note: In addition to the immediate benefits, this exercise prepares the athlete for split catches for jerks and snatches as training progresses.

2. Snatch-Squat With Press — Stick / Training Bar
Benefits: Hip, Groin, Torso strength; Vertical Torso; Trapezius Strength and Flexibility.

Coaching Points: From the overhead snatch grip position, pull the bar apart to tighten the muscles of the shoulder girdle; lift the chest and tuck the chin; slowly squat keeping the heels down and the bar above the ankle; at the bottom, lower the bar to the shoulders and press it back to the extended arm position; recover from the squat to the starting position.

Note: most athletes will need extremely light weight!



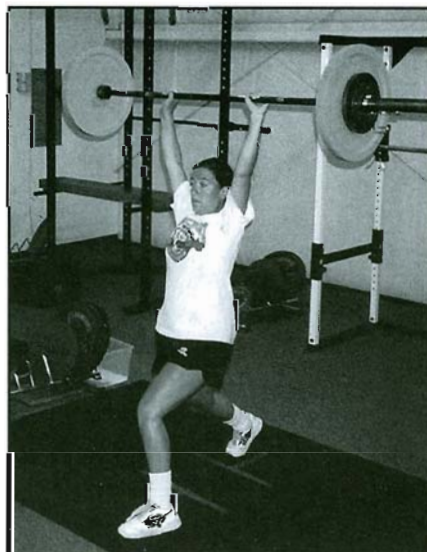
Rebecca Flick (Jr. V-Ball) starting position for a Hang Clean.

By using variations of any fundamental exercise a coach is limited only by his imagination. Your situation (time, facility, equipment) dictates what works best. Take your favorites and put them into combinations. Squats, including all types of single leg training, fit well into these exercises.

OLYMPIC COMBINATIONS

1. Hang Clean / Front Squat
Benefits: Explosive pull and catch, followed by a strength and flexibility movement.

Coaching Points: First, power clean from the hang above the knees position, catching the bar on the deltoids with the elbows high. Second, slowly lower the body into the full squat position keeping the elbows high and the heels on the floor; return to the upright position keeping a high elbow, chest up first torso.



Rebecca completing a Clean & Jerk Combination

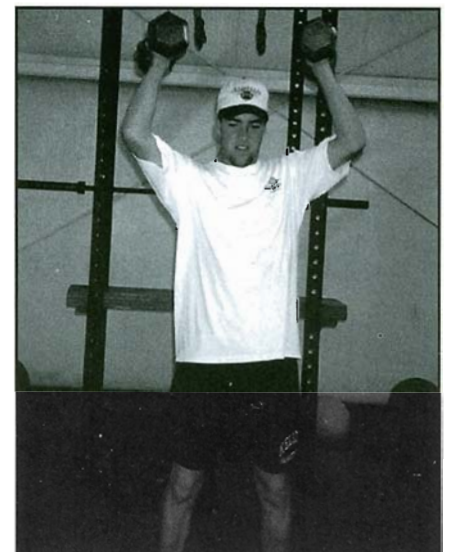
Limit this to 3-4 repetitions per set.

2. Clean and Jerk — the Competition Lift
Benefits: Extremely quick; high power output developing functional strength and footwork.

Coaching Points: First, clean the bar from the floor and catch it as in #1 above. Second, gain good balance, then jerk the bar overhead using a split catch. Regain balance by recovering the front foot first. Limit this exercise to 3 repetitions per set.

3. Front Squat / Push-Press or Jerk

Benefits: Explosive hip work while recovering from the squat; use of arms and torso in overhead training.
Coaching Points: First, squat as in #1 above. Second, just above the midpoint in the recovery phase, open the hips as you rock them back slightly, then



Andy in the recovery phase of a Dumbbell Squat Press



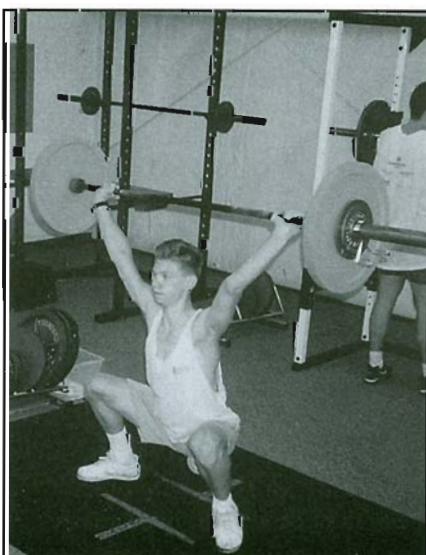
explode (jump) through the bar. The athlete may continue to press out the bar for a push press, or rebend at the knee as the elbow is locked while the weight is suspended for a jerk. The push press is more a strengthener, the jerk is very athletic and specific for its "quick-up" "quick-down" demands.

4. Back Squat / Push-Press or Jerk:

Same as #3 above. For many athletes the balance is more difficult with the bar behind the head. When jerking behind the head, our athletes usually do not split the feet but use a "power" catch. It is very effective when done with dumbbells. Each of these olympic combinations may be done in this manner.

5. 3 Position Clean / Snatch

Benefits: A method to place added emphasis on the "finish of the pull" or Jump phase to increase velocity.



Wes Cole (Soph. Martial Arts) receiving position of a Drop Snatch.

Coaching Points: First, from the high hang position, hips back, shoulders forward, weight toward heels, do a quick triple extension of ankle, knee, and hip joint bringing the hips into the bar. Make it straight up and tall. Second, repeat the move from the hang below the knees. Third, repeat the move from the floor.

Two repetitions of this combination involves 6 pulls which is okay for pulls only, but if the athlete is catching the bar, we recommend only one repetition (3 pulls).

6. 2 + 2 + 2 Clean Combo (6 lifts)

Benefits: Test of Concentration; high level anaerobic training.

Coaching Points:

1. Do not over load the bar
2. Two Power Cleans from floor
3. Two Split
4. Two Front Squats



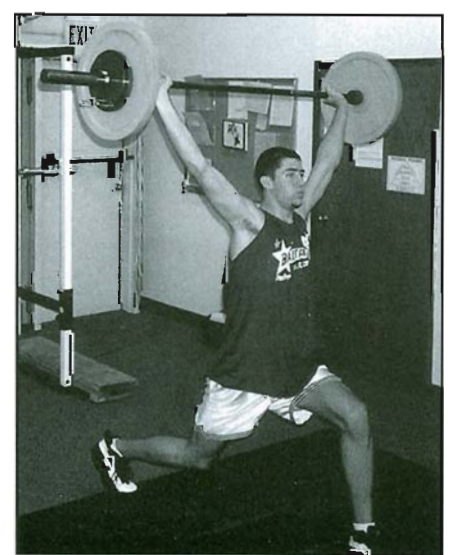
Sarah Vrabac (Soph. V-Ball) receiving position for a Power Snatch.

5. Check Heart Rate — do not repeat before proper recovery. This is an excellent way to get in season work done in a very short time. Players can get 3 sets in 10 minutes and you have covered all the bases; strength, speed, flexibility, plus anaerobic conditioning. Send them home!

7. Hang Snatch / Squat

Benefits: The most powerful of athletic movements, followed by a strength and flexibility movement to strengthen the hips, torso and shoulders.

Coaching Points: First, power snatch from the hang above the knees position and catch the bar overhead with the feet in proper squat position. Second, using good squat technique and pulling the bar apart (attempting to make it longer) lower the body into the full squat position; keep the heels on the floor and the chin tucked. Return to the upright position. Limit this combo to 3 repetitions



Brian Paine (College B-Ball) receiving position of a Snatch using split catch.

8. Snatch / Behind Neck Push-Press
Benefits: Strengthens shoulder muscles and receiving position
Coaching Points: First, power snatch from the floor. Second, lower the bar to the shoulders and return it to the extended position with a quick dip and drive from the legs. Third, return the bar to the floor for the next repetition. Limit this combo to 4 repetitions per set.
9. Hang Snatch with Split Catch / Split Squat
Benefits: Quickness, balance, footwork, athletic position and back strength.
Coaching Points: First, snatch from the hang above the knees position using the Split Catch as in the Jerk. Second, with the bar overhead and without adjusting the feet, lower the back knee to the floor (one or two reps) and recover with the feet in line and lower the bar for the next rep. Limit this combo to 2 repetitions per set.
10. Upright Row / Hang Snatch
Benefits: Low Back Strength; Shoulder Strength
Coaching Points: First, from a hang above the knees position, do the upright row using a mini hip thrust and bringing the elbows high. (Grip will be a narrow snatch position). Second, from the same starting position, snatch overhead and catch in the deepest squat position possible. Return to starting position. Limit this combo to 4 repetitions per set.

11. Snatch Pull / Snatch
Benefits: Improves low back and hamstring strength; Improves velocity of the pull or “Jump” phase.
Coaching Points: First, emphasize the fundamentals of the pull phase, especially keeping shoulders in front of bar until the bar is above the knee; finish the pull with maximum velocity. Second, after returning the bar to the floor, repeat the process and catch the bar in the overhead position. This combo is helpful in making pulls more practical for the athlete. Limit this exercise to 4 repetitions per set.
12. Triple Snatch Balance
Benefits: Back and shoulders strength; hip strength; strength in the receiving position.
Coaching Points: First, with the bar on the shoulders and the feet in the receiving position, squat and press at the same rate so the bar does not move until after your elbows lock, then it moves down only. Recover to the standing position before returning the bar to the shoulders. Second, drop very quickly into a deep snatch squat position, locking the elbows as quickly as possible so the bar does not move until after the elbows have locked. Return. Third, from a tight pulling foot position, give a slight heave to the bar, drop squat moving the feet into the receiving position. Same rules apply to moving the bar.
Note: This combo may be done in singles or doubles. Also you may wish to

switch the order depending upon your objectives and the needs of the athlete. The pressing move builds strength in shoulders; the drop and lock moves allow the athlete to handle more weight and strengthen the receiving position. All our athletes use some variation of this combo 2 days each week.

Summary

The primary goal in using these training concepts is not to achieve the highest 1 RM, but to develop the best possible RFD which transfers into increased speed. Much of the training needs to be at an intensity from 58% to 76%. Should the intensity go above 80%, the work would be more productive if it is not done in combo form. Also, there needs to be periods in the training cycle that are designed more toward producing the maximum strength which is necessary for successful explosive training.

A Word of Caution:

Eleven of the twelve combos involve overhead training! Base your training intensity on the overhead part of the exercise, not on what they bench or squat! Remember, a good training program produces ongoing progress. We must begin where the athlete is and progressively move forward. Many athletes are sadly lacking in torso strength but will improve rapidly with the use of the combination training. I would recommend the use of one combo each training session.....□