

VOLLEYBALL

Performance Digest

Introducing the Power Pull: Enjoying the Benefits of Explosive Lifting for Volleyball Without the Risks and Hassles

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The explosive lifts, more commonly known as Olympic-style weightlifting, are important to the development of any power/power endurance athlete. This includes baseball, softball, soccer and volleyball players. Why? Because they are all ground-based sports. Players' need for ground-based strength training movements is based on the conditioning principle of specificity; they should train like they play. Their sports are explosive and we believe that explosive lifting has good transfer similar to these sports in the execution of the "triple extension." This refers to the simultaneous extension of three joints: the ankle, knee, and hip. Traditional weightlifting (Olympic-style) lifts require this same explosive extension, with resistance; so again, the lifts are specific training for these sports. However, these lifts are advanced, not introductory lifts that may create teaching challenges for the coach.

Coaches' Hesitation About Explosive Style Lifts

Given the positive results these lifts bring, it's important to explore what coaches need in order to proceed. First is flooring/facility concerns related to dropping barbells, as done in weightlifting halls. This is the #1 reason clubs don't want this type of lifting. But don't worry, there is no need for athletes from other sports to drop weights. For the most part, these athletes are not aspiring to become Olympic

weightlifters. Since these athletes do not aspire to become competitive weightlifters, they will NOT be lifting maximum weights so there is little need for concern over flooring issues. That said, athletes must be taught to properly lower weights and some sort of platform area is needed just in case of missed lifts. Proper weightlifting equipment minimizes many concerns. The biggest expense is good bars and this is where one should NOT scrimp. Use of rubber bumper plates is recommended, but not absolutely necessary. Some form of squat rack/power rack is helpful. Most high school PE facilities today include the necessary gear.

A major concern is having access to a qualified weightlifting instructor to teach these exercises. Sports where overhead skills are performed such as volleyball, soccer and baseball/softball, coaches might be reluctant to have their players do full Snatch and Clean-and-Jerk lifts. The primary concerns are possible stress on the shoulder with the barbell overhead and stress on the elbow joint in racking the power clean. Non-weightlifting coaches often state these are the major concerns, especially with heavy loading.

A final concern involves the time needed to master the full competitive lifts with a fair degree of efficiency, which is often well beyond the scope of most programs. There just isn't enough time to properly teach this supplemental activity to athletes focused on their chosen sport.

The Dumbbell Solution

Some conditioning coaches advocate the substitution of dumbbells in place of barbells when doing explosive lifting. Use of dumbbells can address muscle imbalances and should not present much of a problem for most athletes. Nevertheless I can't think of too many good reasons to use dumbbells for the snatch or clean-and-jerk exercises. One concern is the difficulty in controlling both arms against separate loads. This can be a challenge and will not make for a better athlete. Another problem with dumbbells is the usual failure to produce triple extension benefits. Dumbbells do not give themselves well to the 'double knee bend' technique needed to maximize the benefits available from these lifts, if performed with a barbell.

While dumbbells are fairly inexpensive, a team would require many dumbbell sets of near-similar weights.

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There is little differentiation between players' level of strength. Depending on the number of athletes being trained at the same time, a coach might need as many as 10 to 12 pairs of dumbbells at the same or close to the same weight.

Most dumbbells today are not adjustable and few, if any, have revolving sleeves. This makes dumbbell application for the quick lifts very limited.

Dumbbell use has some application, but perhaps mostly in assistance movements. They can be a fun diversion but the classic lifts should be taught and primarily performed on a barbell. Dumbbells can create false hopes and expectations.

The Sub-Maximal Effort Solution

Many sport coaches advocate the use of explosive style lifts but only with sub-maximal resistance. Sub-max is absolutely necessary for learning technique. Technique cannot be learned with heavy weights, so for drilling technique, light weights and fairly high (5) reps make sense. Many reps does NOT translate to maximum strength and power results. Most athletes who use these lifts are shot putters or football players, so moderate weights are the order of the day and may benefit women and juniors; however, power production is lessened with sub-max loads, depending on the exercise. Traditional explosive lifts are designed to be performed with moderate to heavy loads. This can be a problem for coaches of juniors and women, due to popular misconceptions explained later.

What is a sub-max load? Sub-max load is normally anything under 90% of 1-RM. Let's assume non-weightlifter or combative athletes will never need to know their true 1-RM, so any lift will most likely be sub-max. Sub-max loads CAN produce more power (and limited pure strength improvement) if the object of the sport is light (volleyball, baseball/softball, soccer). Sports requiring heavy objects or strong opponents require nearer to max loads, at least some of the time. For our purposes, maximal load performed at maximal speed will develop the greatest amount of power. The question becomes, how much is necessary based on the demands of the sport and level of athletes? This can be tricky. Determining the right load to use is difficult.

Getting Started

There are six things that need to be addressed to start an explosive lifting program: knowledge, equipment, teaching skills, a program, confidence and support.

Knowledge

As with any sport or activity for athletic improvement, at least the coach (if not the athlete) needs to totally immerse him or herself in learning the nuances of the sport. Many so-called 'experts' are not that knowledgeable and far too many certified fitness professionals know little, if anything, about this form of lifting. Knowing what is best for your athletes is most important. Coaches must either learn a great deal about this form of training before using it with their team OR they must secure a well-qualified person to teach the lifts.

Equipment

As discussed above, it's best to have the team train at a location that has the necessary equipment. This may be a high school or college weightroom or something like a sports performance training center.

Technique Teaching Skills

Whole lift technique must be taught first and it may be months before anything other than technique is taught. This presents a problem in terms of keeping athletes motivated. It also can present an unbalanced program. It is necessary to include other significant strength-building exercises at the same time one teaches advanced (explosive) lifting techniques.

Beginning Training Program

The following exercises can be safely introduced to athletes with a solid foundation of strength training behind them. Advanced exercises should NOT be introduced to total novices. Some of these exercises (with heavier intensities) make up a more advanced program as well.

Overhead Squat

Press/Push Press/Power Jerk

Snatch Pull (high blocks)

Power Snatch (high blocks)

Possibly other variations

Other necessary S&C exercises

There is no program that will address all needs and all scenarios.

This is ONLY for a beginner learning Olympic-style explosive lifts. This player is assumed to have done at least six months of preparation work, with myriad exercises for total development. Special consideration has been given to upper body pushing and pulling (multiple joint), squats, front squats, lunges, back extensions and abdominal exercises. When learning explosive lifts, reps are max of 5; sets can be multiple up to 7-8. Not all exercises are used in all workouts. Resistance is minimal with proper technique usually taught with broomsticks, dowels or empty light bars. When learning the lifts, 3X weekly is appropriate, with additional 'shadow' lifting at home on off days.

Confidence/Support

One must have a long-term approach to learning and training the explosive lifts. These are complex, highly coordinated sports skills that need to be properly learned. Non-weightlifter athletes' motivation may be quite low for this type of training as their training priority is usually their sport.

"Can I teach this?" This is a necessary question with no easy answer. It is possible, but somewhat unlikely that an average coach can effectively teach Olympic-style lifts in the proper way. Most sport coaches need to enlist solid support. First, become educated. Second, create a total sports performance program that addresses your needs. Third, create a means for having the lifts effectively taught and supervised. This probably means finding someone well qualified (no easy task). These lifts are highly complex and it's beyond me how so many novices seem to think they know how to properly teach the lifts. Teaching the lifts improperly greatly reduces their value and may introduce safety issues. Athletes of coaches reading this article should NOT get hurt in the weightroom. Similarly, they should not waste time and effort attempting advanced lifting techniques half-heartedly. Don't attempt to teach that which you do not understand. Get outside help!

Program Considerations

Depending on the age and development of the athletes (this varies tremendously and all scenarios require dif-

ferent training contingencies), one should:

- ❖ Set a base (during which explosive technique MAY be taught).
- ❖ Develop appropriate strength and power in order to be able to adequately execute advanced moves.
- ❖ Use explosive lifting at the appropriate time of the year (need for a periodized program).
- ❖ For established athletes, use explosive lifting as their primary, year-round approach to strength and conditioning training.

This procedure with a young player could take several years to accomplish. With a senior athlete or college student, adequate time to both prepare properly and learn technical skills is seldom available. Properly learning explosive lifts prior to reporting to college can be a blessing, for coaches and athletes alike.

A Simple Solution—The Power Pull

Implementing the full snatch and clean-and-jerk lifts for non-weightlifters, although potentially very beneficial for many, is a huge challenge and a big gamble. If you look at the starter program it can be a very intimidating proposition—one that is best left to the major college strength program with a wealth of teaching resources and equipment. But the benefits of these movements are just too great to ignore. What is the coach to do?

Some strength and conditioning coaches will advocate the hang power clean with or without finishing with a rack of the bar with the elbows. Others may use only a high pull type of movement from the floor, hang, or blocks (rack). This lift does not include the final receiving position of the bar on the shoulders. Lifting from the hang (not the ground) has its own problems, namely a lot of stress on the lower back due to fatigue.

Well-intentioned coaches quite often teach the hang position improperly. This causes all sorts of technique and efficiency problems that can lead to poor results or injury for non-weightlifter athletes.

The solution is to focus on one exercise that gives you the most bang for your buck. Something that is easy to learn, produces the most absolute power, is safe for all athletes to do, doesn't require a lot of equipment and can be done with heavy loads—the power pull. Athletes don't have to lift catch the bar, which puts stress on their elbows or push the bar overhead (snatch) or catch the barbell on the shoulders (clean).

The power pull (or high block pull as I call it in *Explosive Lifting for Sports*) can be done off blocks, pulling stands or from a power rack using a barbell and non-bumper plates. Athletes of various heights need to be able to do this exercise with the barbell at the same relative position, which can be a challenge. You'll have athletes of various heights, so have available an adjustable pulling station or solid mats to raise the athlete and ensure getting into the right pull position (mats are not necessary if you have access to an adjustable power rack). An alternative would be to have the ability to

raise or lower the height of the blocks. You'll need to be able to quickly adjust either the pulling station or the athlete up or down a few inches. This requires creative blocks or solid mats for athletes to stand on.

Blocks or a power rack eliminate the concern of having the weights damage the gym floor. The environment is controlled and safer. For the purpose of this sport it's not necessary to pull the weight into a rack position or overhead. Now all we will do is simply execute an explosive triple extension with the near simultaneous firing of the muscles that extend the hip, knee and ankle. The bar only needs to travel a short distance.

Learning the Power Pull

The movement is simple with two basic things to remember. 1) Jump explosively with the barbell and 2) don't use your arms. The starting position is an athletic "power position," ready to jump. The positions to consider are two: from the clean position and from the snatch position. In the snatch position a lighter weight is used and the bar is in a high position at the start. The bar starts near the crotch or top of the thighs. After an explosive vertical jump, the bar ends up just below the chest bone (sternum). The arms are not involved—the athlete is taking advantage of the lighter weight and the momentum generated with the jump. The explosive jump will cause the bar to rise this high, but don't have athletes focus on a big arm pull...this needs to be a big jump.

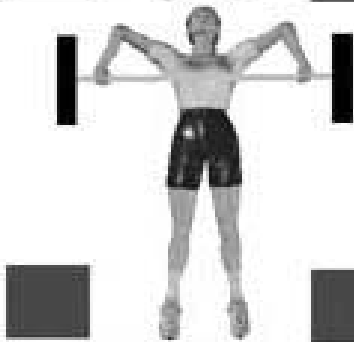
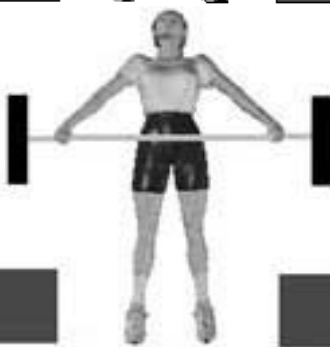
In the clean position the bar is at mid-thigh because of the narrower grip, which also allows more weight to be used. After the explosive triple extension as one jumps the bar travels only to about navel height. Again, don't emphasize a big arm pull.

In either case, if your athletes can pull the weight higher than the stated target zone, the weight is probably too light. As far as loading is concerned, a general guideline to use is that if the athletes can pull the weight to the sternum or above, the load is too light. If they can't pull it to the navel or slightly above, it's too heavy. This makes determining how much weight to use a simple task.

All lifters will benefit from using pulling straps. These require a little instruction, but they are necessary in order to lift appropriate resistance and gain the proper benefit.

Also, the term jump does NOT mean to come off the floor—we are NOT interested in losing contact with the floor. Jump violently (there's no time to create any force production over time) and then rise on the toes and shrug the trapezius muscles of the upper back. The athletes should be able to hold a balanced, on "tip toes," position momentarily before lowering the weight in one smooth motion back to the pulling station.

Doing the power pull is a great alternative to Olympic style weight training. ●



More Information Please!

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For a copy for his book/DVD *Explosive Lifting for Sports*