

THE POWER CLEAN

Part 1 in a Series
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Editors Note:

This is the first in a series of articles on the power clean to be published in the next few issues of Bigger, Faster and Stronger Journal. I hope these articles will help coaches better understand and teach this important lift. This first article tries to answer some of the most asked questions when talking about the power clean. Future articles will include proper techniques sequences, how to teach the power clean, most common technical errors and more.

WHY THE POWER CLEAN?

There are basically two reasons a coach should have power cleans or similar lifts in his program:

- 1) Development of muscular power
- 2) Similarity between the power clean and athletic movements.

1) Development of muscular power:

All athletic movements require muscular power, especially in the lower extremities (legs and hips). A basketball lay up, a football tackle, a dive off a diving board, the take off in the high jump and many more require the legs and hips to exert maximum force in a short period of time. This very strong contraction is called power or speed-strength. The more force applied (strength) in a very short time (speed), the greater the amount of power generated by the athlete. If one of the two components is missing (either speed or strength), the athlete has no power. These two components can be worked separately; strength in the

weight room and speed on the field. They can also be worked together in the weight room by doing lifts that require both components. These particular lifts are the Olympic style lifts which include the power clean. Many studies have shown that Olympic style lifts produce the highest power output of any human movement measured to date.

The power clean is an explosive lift in which speed is a very big factor. With speed being so important and heavy weights being moved, the power output is great. The power clean just cannot be done slowly. Other lifts like the bench and squat have minimal power output because speed is not a factor; they basically develop strength. Many coaches still believe that the weight room is the place to develop only strength and the field is the place to develop speed. I believe that some lifting exercises go beyond the strength factor and one of them is the power clean.

2) Similarities between the power clean and athletic movements.

Because of the way the power clean is executed, it is very similar to many athletic movements.

A) Rotary hip movement: A biomechanical analysis of the power clean will show the rotary action of the legs and hips, which is very similar to jumping, running and pulling action common to many sports. All of these movements require the use of a combined leg and hip drive. The big muscles of the legs and hips bring the hips forward and up. Basically the hips and legs have to get underneath the body to push it up and out. It makes no difference whether the action is directly straight up (high jump) or at an angle (tackling). In the power clean the legs and hips move under the body by a rotary action to drive the body to a full extension.

B) The pre-stretch: As I just pointed out, in the middle of the pull when the hips move under the bar, the thighs are positioned so that a pre-stretch is placed upon them. Because of this pre-stretch, the muscles of the legs will contract more forcefully. As the athlete perfects this phase his muscles will react more explosively. This pre-stretch is very similar to plyometric jumping. More on this aspect will be in future articles.

C) Multi Joint movement: The power clean is a "complete" lift, since all muscle groups work in performing the exercise. It is a multi-joint exercise working the ankles, knees, hips, back, shoulders, elbows and wrists, and most of the muscles associated with these joints. Muscle coordination is improved because the muscles work together in a chain reaction. For a powerful total body movement to occur, each joint and associated muscles must produce proper forces at proper times. When these produced forces are joined the result is a force of great magnitude. The power clean is one of a very few resistance exercises that can produce this great force.

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Why don't some coaches use power cleans in their programs?

After talking to many coaches of all levels at different clinics and on the phone, I have found that there are two basic reasons why some don't do power cleans.

A) They cannot teach it.

B) They do not fully understand it.

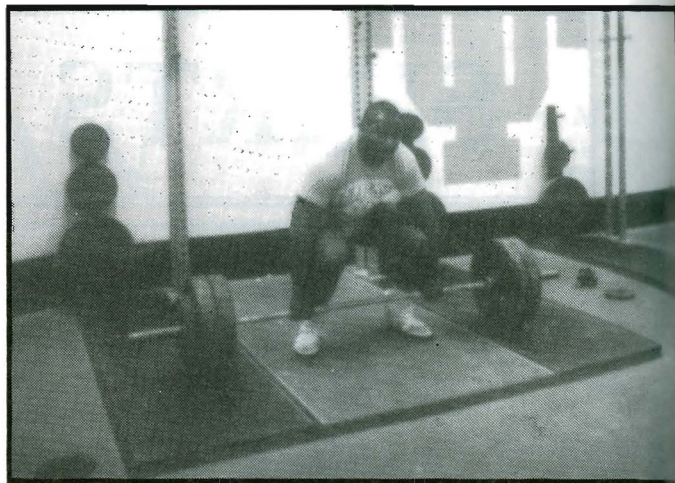
A) Many coaches have never done power cleans in their life or even tried to learn how to teach it. They know the lift is important but because of lack of knowledge they leave the power clean out of their program. In this case they are doing the right thing. I would rather see athletes not do power cleans than do them wrong. By doing them wrong you do not get the benefits (hip rotation, pre-stretch), plus the injury factor is very high. Most coaches see the power clean as "something very complex." In reality the power clean is not as difficult as it may seem. It can be taught as easily as squats or dead lifts if coaches take the time to understand the technique. If lack of knowledge of its technique is the reason for not doing power cleans, I strongly suggest a sincere effort in learning it so the lift can be incorporated in their workout.

B) Other coaches do not fully understand the benefits of the power clean. They state that the same muscle groups the power clean develops can be developed by doing other type exercises. This is true, but development of those muscles is only one of the reasons for doing power cleans. What about the specificity of movement, the total coordination, the hip rotation, the pre-stretch and more? These factors should be taken into consideration when planning a workout. There is more than just getting big muscles when working in the weight room. During my coaching career I have always found that my "athletic" athletes who have good all-round speed, strength, flexibility and coordination are my best power cleaners. I also found that being "strong" does not necessarily mean a good power clean. These cases showed me that the power clean goes beyond the development of strength.

I have pointed out a couple of the reasons coaches will not have his team do power cleans. This is fine, for I am not in their shoes and do not fully understand their situations. One thing I do not like is when some of these coaches, because of their lack of knowledge and understanding of the power clean, denounce the lift to cover up their ignorance. In doing this, they contradict my knowledge and expertise.

Is the power clean a dangerous lift?

As I stated recently at the NSCA Convention in Dallas, I do not think the power clean is a dangerous lift. I will say the power clean is a "complex" lift requiring technique, mental concentration and total body fitness. Coaches have made the lift dangerous because many do not realize technical errors which will lead to injuries. Where coaches get caught is that they hear from others that the power clean should be used when working out. What they do is incorporate the lift into the workout without teaching it to the athlete. With improper technique the athlete can get hurt like in any other lift.



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Another area where coaches make the lift "dangerous" is in the amount of weight used. They often do not follow a slow progressive increase in the load and end up lifting too heavy. They are more concerned with the total pounds than the execution of the lift. If the load is too heavy, the lift will be done incorrectly. They need to understand that the movement is what is important, not the amount of weight used. It's much better to use a lighter weight and do it right with proper pull, hip rotation, acceleration of the bar and a strong recovery than the amount of weight used.

The coach should take into consideration several other aspects when performing the power clean:

- 1) The power clean should be done early in the workout when the athlete is at his best, not at the end when he is tired.
- 2) Lighter weights should be used if done on the same day as practice.
- 3) Do not lift heavy all the time.
- 4) Lift on a proper surface area (wood is the best).
- 5) When performed during the season, a lighter load should be used than that used in the off season.
- 6) The power clean should be used as a training exercise, not as a competitive lift.

When should an athlete start doing power cleans?

I do not think there is a "minimum" age when teaching the power clean. What is important is that the teacher knows what he is talking about. When teaching, the load should be minimal until the technique is learned. At that time the weight can be slowly increased as the athlete gains confidence and mature physically. The power clean is more complex than most other lifts, therefore more time must be spent in the perfection of its technique.

The coach should give proper instruction (more on this in later articles). Some technique drills should be used early so the athlete can get the "feeling" of doing it right. As the strength, skill and coordination improve the technique will also improve. We must understand that when the athlete is young his ligaments, joints and musculature are not fully developed. Let's not tamper with nature, give the athlete time to mature and learn before incorporating a lot of power cleans with heavy loads.