# Olympic Weightlifting for Tennis Course

## Workbook & Quiz

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# Olympic Weightlifting For Tennis Course

*Presented by Coach Rich Lansky & Dr. Mark Kovacs*
*An International Tennis Performance Association (iTPA) educational course*

## Introduction

Olympic lifting for tennis can be a very important component to an athlete's training program. When performed correctly, the power outputs, rate of force production and improvement in ground reaction forces in athletes is clear. Although Olympic lifts are used in many training programs for sports, the use of Olympic lifts for tennis is sometimes debated within the strength and conditioning, tennis coaching and rehabilitation communities. These debates are justified due to a multitude of factors. It is always important to remember that any exercise is neither good nor bad alone. An exercise or movement pattern is only good or bad depending on:

- the strengths/weaknesses of the athlete
- the age and stage of development of the athlete
- the short and long term training and competition goals of the athlete
- the benefits vs. the risks of the movement
- the psychological and physiological restrictions that may be involved

The reason that this educational course was developed was to shed light on why the Olympic lifts can be beneficial for tennis athletes, but also when they may not be appropriate for certain individuals. This educational course involves over three hours of practical video instruction showing detailed Olympic lifting exercises and progressions with real athletes; also included is this workbook that includes detailed written coaching descriptions of the major lifts. At the end of the workbook is a Quiz designed for the course, and this can be used toward iTPA continuing professional education (CPE) credits (worth 75 iTPA credits) as well as credits for other strength and conditioning, sports performance, athletic training, physical therapy and fitness organizations. Also included is a short survey requesting your feedback on the course.

Before proceeding with the course it is important to define some simple terms. The true definition of the "Olympic lifts" describes only two exercises: the "Snatch" and the "Clean and Jerk." These are the two movements that are used during Olympic Weightlifting competitions. However, today in the world of athletic development the term Olympic lifts usually refers to all the auxiliary lifts and progressions associated with the two traditional Olympic weightlifting movements. This may number in excess of 20 different movements. Therefore, when discussing Olympic lifts, it is important to understand are we talking about the tradition Snatch or Clean and Jerk, or could we be discussing a high pull or jump shrugs. These different movements require very different ranges of motions, strength and stability. Some of these exercises could be fine for a certain tennis player, while other movements may not be appropriate. If you are unfamiliar with these terms, we will discuss these later in the workbook and throughout the videos.

Many coaches and trainers have concerns about the Olympic lifts for a number of reasons. The typical concerns are the perceived injury risks. However, it is clear from the research that when performed correctly, under appropriate supervision, weightlifting movements are a very low risk activity and do not provide a greater risk of injury to the athlete than playing tennis. The problem is many times tennis athletes do not perform these movements correctly due to poor technique, flexibility deficits, coordination issues or just inappropriate resistance. This problem comes back to poorly trained coaches, using inappropriate resistance (usually inappropriately heavy) and progressing athletes too quickly before they have the flexibility and stability to achieve optimum positions during the movements. The goal of this educational course is to help coaches and trainers who work with tennis players implement the correct movements and also understand when certain movements may not be appropriate for certain tennis athletes. As the goal of the Olympic lifting movements is to improve power production on the tennis court, it is clear that if the athlete is not moving the bar

at maximum velocity, then the goal of the exercises is not accomplished — that is developing explosive triple extension power. Some movements in the Olympic lifting family are better suited to tennis players, whereas other exercises are less appropriate for some tennis players. This course provides coaching cues throughout the video examples and teaching progressions about common flaws and methods to correct these flaws in technique. The workbook includes photographs and written descriptions of the major movements and coaching cues that will help the tennis performance specialist improve the power production of tennis athletes. Don't forget to register for Tennis Performance Trainer (TPT) or Certified Tennis Performance Specialist (CTPS) if you haven't already. Help the iTPA change the way tennis is trained. www.itpa-tennis.org


**Contents of Video Course for "Olympic Weightlifting for Tennis" (If subscribed instead to the online video library, videos have same titles).**

## DISC 1

**Introduction to Olympic Lifting Movements**

**Appropriate Equipment: bars, weights, platforms straps, tape, collars, blocks**

**Basic Assessments for the Tennis Athlete to Determine the Readiness for Different Levels of Olympic Movements (Power, Flexibility, Strength)**

**Power Assessments**

- Vertical Jump (Power), CMJ (Counter Movement Jump) & Single Leg
- Drop Jump
- Standing Long Jump

Reactive Jumps (Power)

- Three Hop Test

Other Power Tests

- BLOB & Overhead Toss

**Flexibility Assessments**

- Overhead Squat
- Ankle/Calf Flexibility Test
- Hamstring Flexibility (Straight Leg Raise)
- Shoulder Range of Motion Test
- Upright Row

- Wrist Flexibility

**Strength Assessments**

- Supine Glute Bridge
- Static Core Assessment
- Planks: Traditional and Side

**Warm Up Exercises**

- Stick Mobility Series
- Hurdle Mobility
- Rotational Squat to Press with Stick
- Gate Swings & Snatch Balance
- Lunge & Reach Progression
- Split Jerk Footwork with Quick Split

**Introductory Lifts for Olympic Movements**

- Back Squat and Common Flaws
- Front Squat and Common Flaws
- Overhead Squat and Common Flaws
- Jump Shrug or Power Pull
- High Pull
- Squat to Press Combo
- Split Squat to Press

**Snatch**

- Power Snatch Introduction & Teaching Progression

1. Power Snatch from Mid Thigh
2. Power Snatch Above the Knee
3. Power Snatch Below the Knee
4. Power Snatch - Lift Off
5. Power Snatch From the Floor
6. Power Snatch + Overhead Squat
7. Full Snatch Progression

- Dumbbell Snatch & Discussion
- **Power** Snatch, Power Dumbbell Snatch and Common Flaws

**Cleans**

- Power Clean Introduction

1. Power Clean Mid Thigh
2. Power Clean Above the Knee
3. Power Clean Below the Knee

4. Power Clean - Lift Off
5. Power Clean From the Floor
6. Power Clean + Front Squat
7. Full Clean Progression

- Cleans: Common Flaws
- Dumbbell Power Clean & Discussion

## DISC 2

**Overhead Lifts**

- Pressing Movements
- Push Press
- Power Jerk
- Base Strengthening Exercises
- Dumbbell Overhead Lift

**Auxiliary Lifts**

- Pulls

**Use of Blocks**

- Use of Blocks

**Rich Lansky Interview**

Topics:

- Introduction
- Why Should Tennis Athletes Utilize the Olympic Lifts?
- How Young Can an Athlete Be to Start Learning Olympic Lifts?
- How Much Strength Should a Tennis Player Have in Relation to How Much He or She Cleans?
- When is the Best Time in a Training Cycle to Implement Olympic Lifts?
- What About the Risk of Injury?
- College Tennis Athletes Who Have Never Done Olympic Lifting Before…

# Olympic Weightlifting for Tennis

***Guidelines are compiled from a combination of sources including the National Strength & Conditioning Association and USA Weightlifting and reviewed by Coach Richard Lansky, USA Weightlifting Certified U.S. International Coach, and Dr. Mark Kovacs.***

Listed below are initial starting recommendations for Olympic lifts in tennis.

- In general, starting from the "hang" position or from the blocks is preferable for tennis athletes when working on explosive power, especially when the objective is to improve rate of force development (RFD) — as opposed to starting the bar from the floor.

- Cleans (specifically the receiving position of the bar in the hands — the "catch" position) is a very difficult position for tennis players to successfully master due to the flexibility limitations and the stress that the arm position puts on the wrist, elbow and shoulder. In general, cleans are not suggested for tennis players, unless taught at a young age and the athlete has exceptional flexibility and does not complain of any wrist pain. Catching the bar can sometimes be done with lighter loads, while heavier loads may be performed via the pulls.

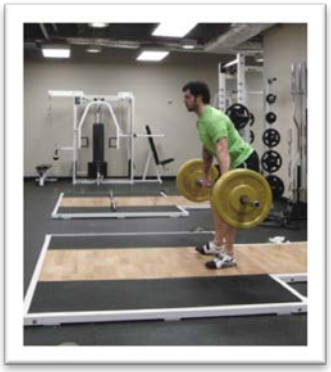
- Most auxiliary or supplemental lifts are encouraged — pulls (sometimes referred to by the performance coach as the "jump shrug".) Lighter loads may also be performed with variations of a high pull.

Jump Shrug

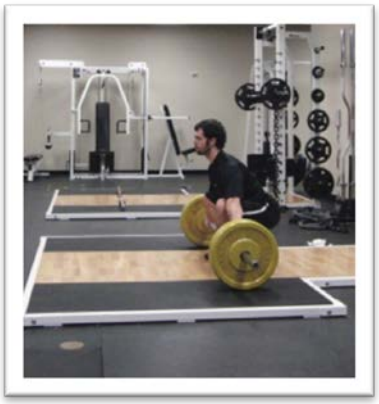
- One caution is the overhead lifts that are considered auxiliary or supplemental to the Olympic Lifts. Due to the greater likelihood of shoulder impingement, overhead vertical pressing movements are limited in the tennis player, and for many tennis players, it may not be suggested at all. However, the push press and power jerk, when performed correctly, are less of a slow, mechanical shoulder pressing movement and more of a power movement utilizing the lower body and core muscles to explosively propel the weight to arms-length overhead.

## Some Basic Olympic Lifting Terminology

- Any lift with the word "hang" in front of it (i.e hang snatch, hang high pull, hang jump shrug etc) is describing a starting position with the bar not placed on the floor. The barbell could be positioned at mid-thigh, sometimes called the high hang position, or at a position in relation to the knee, such as above the knee, at the knee or slightly below the knees. This enables the athlete to start in an athletic power position, with the shoulders over the barbell, the hip and knees flexed and ready to explosively contract to propel the bar and body in a vertical direction via triple joint extension, or active extension of the musculature surrounding the hips, knees and ankles. This position often allows the athlete to avoid the common pitfall of navigating the bar around the knees when pulling from the floor, which can be a technical challenge for many athletes.



- Any lift that has no words before the movement or the words "from the ground" are attached (i.e. snatch, clean, etc.) — The bar position is on the ground (or lifting platform) and the athlete has to initiate the first pull in the sequence from this stationary ground position.



From the Ground

- Any lift with the word "power" before the major movement (i.e. power snatch, power clean, etc.) represents catching the bar in a semi-squat position, instead of the traditional full squat position. The semi-squat position can be anywhere from a slight bending at the hips and knees, or a quarter squat or even a half squat position. As long as the hips are above the level of the knees in the receiving position, the lift can be termed a power variant.

Power position

Full-squat position

## Snatch, Power Snatch, Snatch Variations

As the full and power snatch are both highly technical movements, and require a great deal of time and supervision by a competent and skillful teacher, it may be difficult to teach these effectively to large groups, or to individuals later in their careers who have major muscle imbalances, weaknesses and/or tightness. With appropriate supervision and time, these movements can be a

great addition to the tennis player and when performed appropriately do create very high power outputs that can improve the athletic ability of the tennis athlete.

In addition, as with most basic sport skills, the Olympic style lifts and their derivatives can effectively be taught to younger athletes during the so-called sensitive learning or 'skill-hungry' years (pre-pubertal years). Athletes that do not have highly developed strength levels and muscle development (as noted during the later years of training and development) tend to 'pick up' the nuances of successfully executing the movements as compared to those that try to 'muscle their way' throughout the movements. As such, it is often recommended that these movements be taught to younger athletes utilizing specialized equipment (i.e. wooden and plastic dowels, five lb. and three kg bars, wooden or plastic plates, etc). If appropriate lighter equipment is used, the movements can be taught safely and effectively, with load being minimized in terms of emphasis and technical proficiency being the main focus of the process.

## Snatch

| Full Snatch |  |
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| **Exercise Setup** | ▪ Dedicated lifting area or platform, squat rack, weighted bar (typically 45lbs, but beginners can use 5 or 10 lb plates, or 10 lb and 15 lb bars) + appropriate weight plates squat rack, weighted bar (typically 45lbs) + appropriate weight plates.<br><br>**Wooden plates or plastic plates in smaller load increments are especially helpful to beginners in maintaining the appropriate set up positions when lifting from the floor. These discs are available in one kg to five kg loads and are the same circumference and diameter as normal competition plates.)* |
| **Exercise Technique** | ▪ The athlete stands behind the bar which is resting on the floor or lifting platform. The athlete's feet will start in a jump position (hip-width or just inside hip-width) and the athlete will land in the catch position which is slightly wider than hip-width. The catch or receiving position is often thought of as a "squat' position and the beginning position is often thought of as a "jump" or a "pull" position.<br><br>**note: for some tennis players, the full snatch movement can prove challenging and may not be appropriate due to the complexity and possible chance of injury. As with any advanced strength and conditioning exercise, if it is not perfectly technically accurate, it presents inherent risk. However, under expert guidance from an experience and certified weightlifting coach,* |

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| | *most tennis players can learn to perform this movement following an appropriate progression.*<br><br>▪ The athlete sets up behind the barbell, with the feet in a hip width position, toes pointing straight ahead or turned slightly out. The athlete should bend down into a semi-squat position and grasp the barbell with a wide grip (see the addendum on determining proper hand spacing on the barbell for the performance of the snatch and its variations).<br>▪ This starting position has the athlete assume an athletic position with the shoulders in advance of the bar and the shoulders higher than the hips. The hips should be set up higher than the knees. The trunk should be set in a neutral position or even slightly lordotic, depending on the individual's normal spine curvature and posture.<br>▪ The hand spacing for the snatch grip position can be determined by measuring the distance between the elbows when held in a "scarecrow" position. The other method involves measuring the distance between an outstretched arm from the fist to the opposite shoulder. A simple method would be to use the knurling rings on the bar as a landmark to start and adjust the grip to the comfort levels of the individual athlete. Some athletes will utilize a slightly more narrow grip than is customary with weightlifters due to individual mobility/stability/ flexibility issues.<br>▪ The bar should be at the athlete's mid-shin, close to the body and remain close to the body throughout the lift. The athlete should tighten up all of the body's levers, and take up all slack in the upper extremities via scapular retraction. The chest is up and the head is either looking straight ahead or in a neutral position. The elbows are turned out and the shoulders are internally rotated.<br>▪ The *"first pull"* begins with the athlete pushing his/her feet into the ground, which provides the impetus to break the barbell off the floor. It is important to think of 'pushing" the feet into the ground thus utilizing the lower extremities to lift the barbell during this phase, instead of "ripping or jerking" the barbell off the ground via back extension. The athlete should shift the knees backwards as the barbell moves off the floor and slightly back toward the athlete. Due to the athlete keeping all levers tight and maintaining the solid trunk position, the relationship between the shoulders and the hips does <u>not</u> change. |

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| | ▪ During the first pull all action is accomplished via knee extension without any contribution from the low back or arms.<br>▪ As the barbell passes knee level, it moves toward the power position (which resembles the vertical jump posture right before take-off). This is sometimes termed the transition phase of the left. During the transition phase, the athlete shifts his/her trunk back, although the shoulders remain slightly in advance of the barbell. The barbell should remain close to the body and make slight contact somewhere between the mid-thigh and the lower abdomen.<br>▪ The second pull, or the 'explosion" phase, involve an explosive triple joint extension of the musculature surrounding the hips, knees and ankles. This action is actually biomechanically identical to a vertical jump as far as the lower extremity actions are concerned. Some coaches also term this the "jump-shrug."<br>▪ The athlete should actually attempt to jump off the platform or floor, fully extending the hips, knees and ankles. At the same time, the athlete should shrug up with the trapezius musculature; imparting further impulse to the barbell this transfer of power is accomplished without any bending or pulling of the arms. The legs and hips do the work up to this point in the process.<br>▪ After completing the triple joint extension, or explosive "jump shrug," the athlete quickly begins to pull on the bar. This allows the athlete to 'pull under' the rapidly moving barbell. Thus, as the barbell is traveling upwards, the athlete is actually pulling himself or herself downwards. For the snatch, the athlete should think of 'punching' himself or herself under the bar into the receiving position. The athlete's feet move out to a receiving or squat position as he/she pulls under. The athlete moves his/her feet side to side, and punches up on the barbell. This action results in the athlete being able to simultaneously lock the barbell out at arms-length as his/her feet contact the platform. The timing of the movement actually results in the athlete being able to 'fix" himself/herself under the barbell at the exact point in time that the barbell has reached its maximum height and is about to start falling back to the ground. This moment of "weightlessness" of the barbell makes it the ideal time to fix it securely overhead.<br>▪ The athlete continues to push up on the bar, "reaching' up via the scapular and latissimus dorsi |

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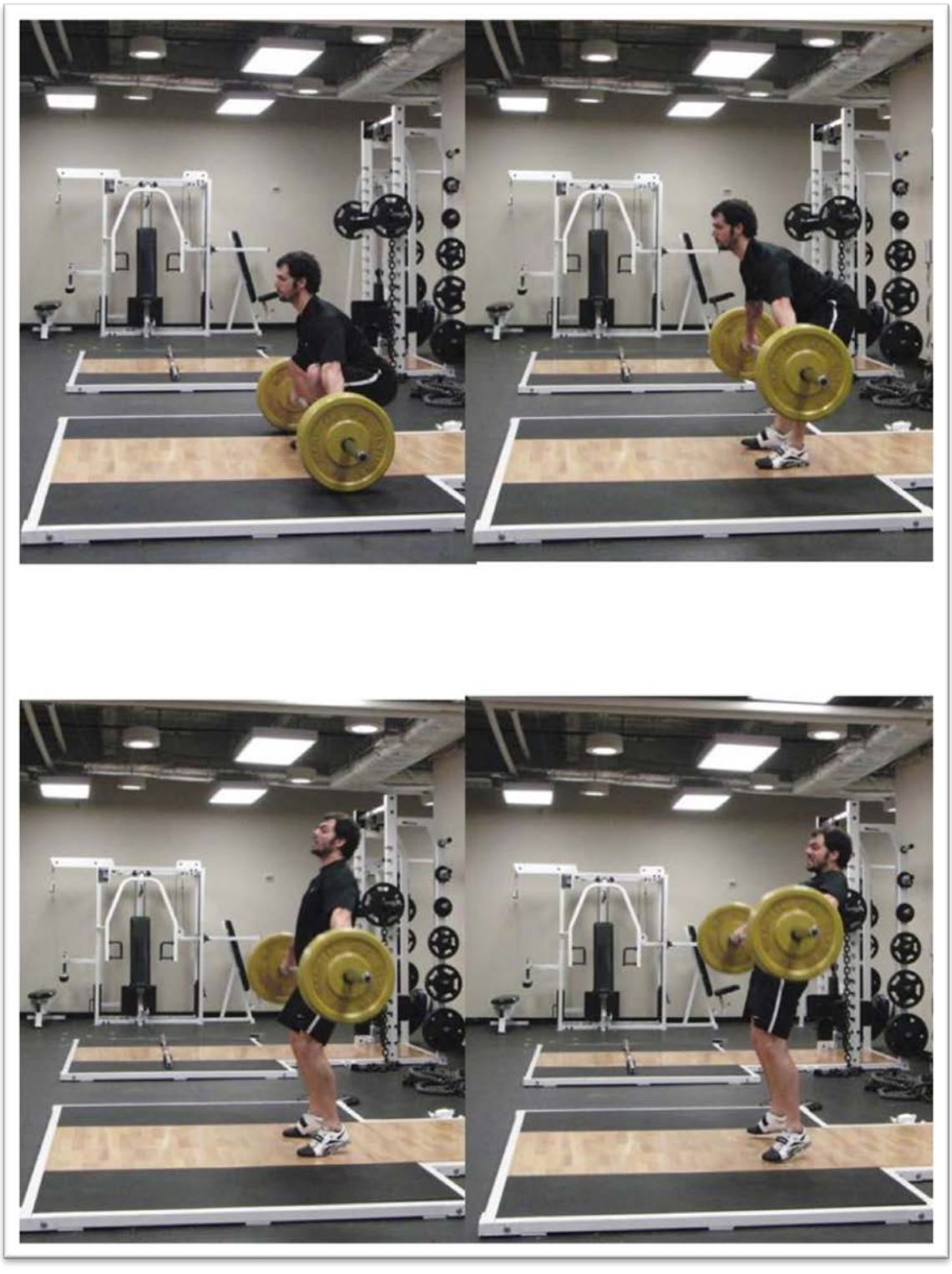
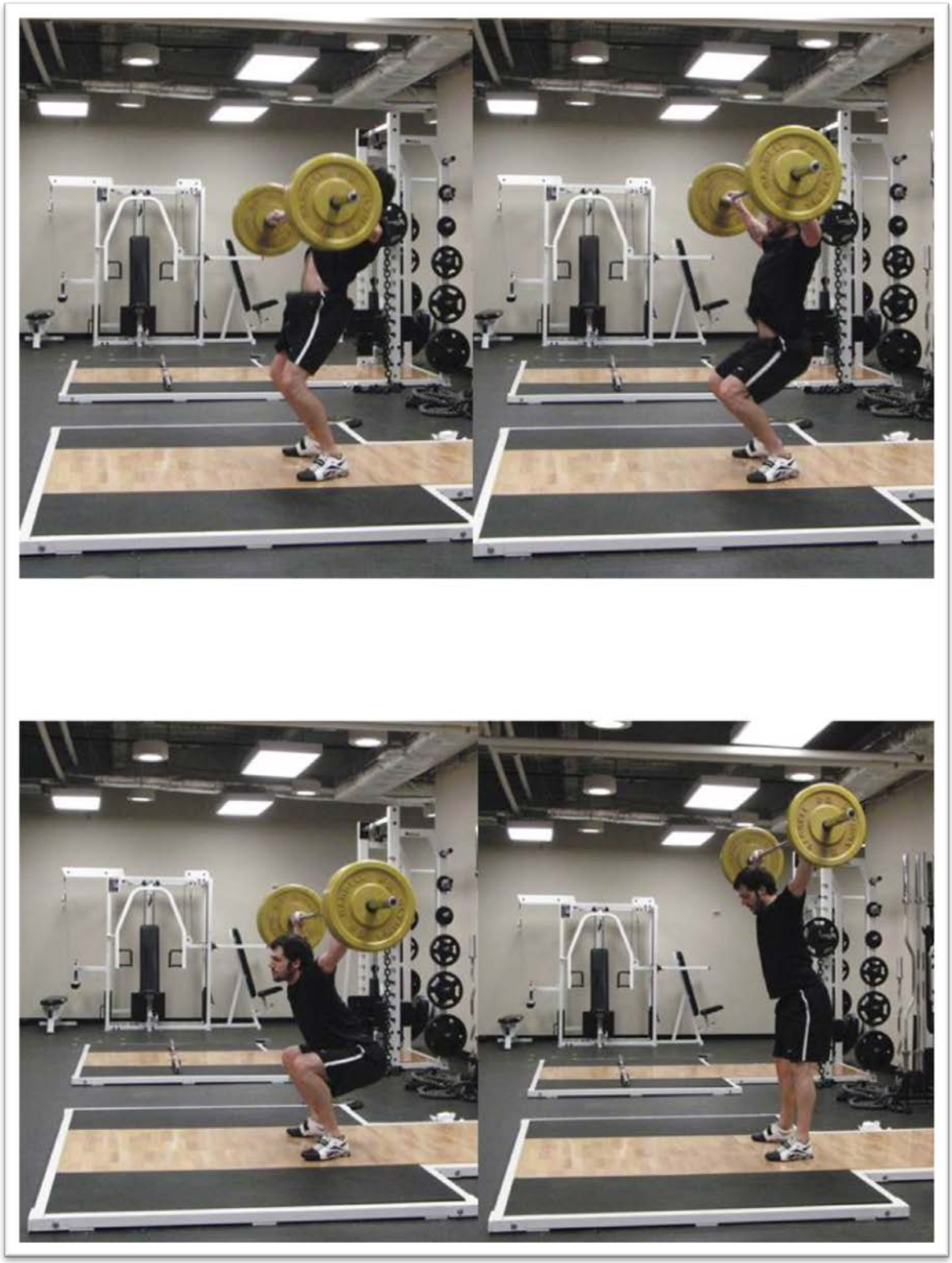
| | musculature and fixing the barbell overhead. The athlete should maintain constant pressure on the barbell while in this squat or receiving position.<br>▪ Keeping the chest inflated and all of the upper body musculature tight, the athlete then stands up with the bar overhead. This overhead squatting posture involves keeping the trunk as vertical and upright as possible, thus keeping the barbell fixed in a plane that is over the athlete's center of gravity and base of support.<br>▪ From this finish position the athlete will drop the weight in front of the body onto the lifting platform.<br>▪ Perform this movement for the appropriate number of repetitions (1-5). Please refer to the program design section for a discussion and explanation of the reasoning behind the prescribed limitations on the rep ranges per set. |
| **Variation** | ▪ A coaching cue for the athlete is to maintain a solid trunk position via isometric contraction of the core musculature of the abdominals and lumbar areas, as well as the scapula-thoracic muscles of the upper body. This isometric contraction will help the athlete maintain the correct posture during the entire movement and allow for effective transfer of explosive force from the lower body via triple extension (ankle, knee and hip joint extension).<br>▪ *Variations:* This exercise can be performed using different starting positions by varying the area where the barbell is placed (i.e. mid- thigh, knee level, below the knee, shin level, etc.) as well as timing under resistance (eccentric versus concentric time points), when the barbell starts at any position other than the floor - it is considered a 'hang snatch' variation. |





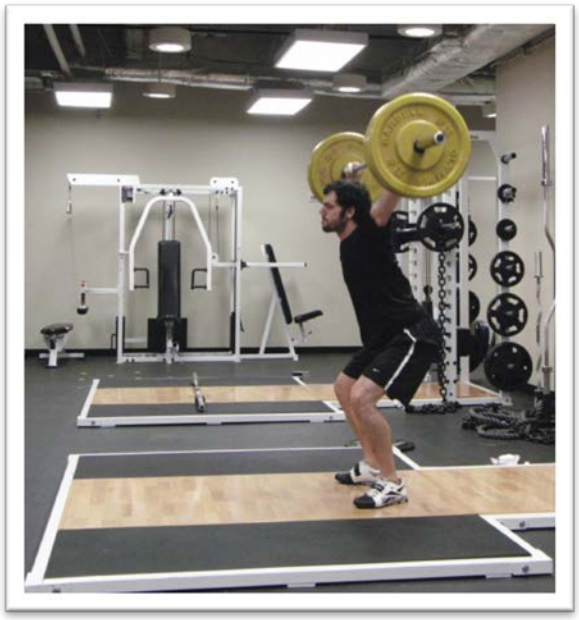
## Snatch

**Common Errors and Possible Corrections/Coaching Cues**

| Common Errors | Fixes and Adjustments (cues) |
|---|---|
| Feet too wide/narrow in start position | Adjust feet to jump (pull) position |
| Feet land too wide in catch | Pop feet out only to catch (receiving) position |
| Feet too narrow in catch | Pop feet from jump/pull to receiving stance |
| Shoulders behind bar | Lean forward |
| Back rounds during pull | Squeeze scapula, keep a big chest and tight core |
| Hips higher than shoulders at start | Drop the hips |
| Hips lower than knees | Bring hips up |
| Hips pop up on first pull | Drive chest up, keep hips low, initiate push into ground– opposed to pull w/upper arms – Squeeze barbell off floor. |
| Bar hits knees as it rises | Move knees back as you initiate the pull |
| Bar swings out, away from body | Rotate elbows out in start position, keep bar close to body, cock wrists in toward body |
| Pull is cut short | Extend through hips, finish jump, big shrug at top |
| Extra movement of bar overhead | Push up on bar |
| Loose bar as standing up | Core tight, chest up, push up on bar |
| Lack of stability | Push up on the bar at all times, pushing up on it and reaching up with the latissimus dorsi. |
| Lose the barbell behind during recovery from deep squat position | Maintaining a strong and tight core, keeping the chest up, push up on bar using the latissimus dorsi. |

# Power Snatch

| Power Snatch | |
|---|---|
| **Exercise Setup** | ▪ Platform, or dedicated lifting area clean of equipment, squat rack, weighted bar (can be 15 lbs, 22lbs/10kg, 33 lbs/15 kg and 44lbs/20 kg) + appropriate weight plates. (wooden plates or plastic plates in smaller load increments are especially helpful to beginners in maintaining the appropriate set up positions when lifting form the floor. these discs are available in one kg to five kg loads and are the same circumference and diameter as normal competition plates.) Squat Rack, Weighted Bar (typically 45lbs) + appropriate weight plates. |
| **Exercise Technique** | ▪ The power snatch is performed in the same fashion as the full snatch except that the athlete receives the barbell overhead in a semi-squat position rather than a full squat. As long as the athlete catches the bar overhead while squatting above parallel (thighs relative to the floor), it is considered a power snatch. |
| **Variation** | ▪ Power snatches, like the full snatch, can also be performed from similar positions by using blocks of various heights (i.e. mid-thigh, knee level, below the knee, etc). When the aim of the program is to enhance rate of force development (or rate of force production), block work is preferable over hang position work.<br>▪ Both the power snatch and full snatch can also be performed with dumbbells or kettlebells, although the receiving force profiles are slightly different with kettlebells. |



Power Snatch Catch Position

## Clean, Power Clean, Clean Variations

*As the full and power cleans are both technical lifts, and require a large time commitment and supervision from a competent teacher, it may be difficult to teach these effectively in large group scenarios, or to individuals later in their careers who have major muscle imbalances, weaknesses and/or tightness. The *"catch position"* is one area that many tennis players struggle with. The reason is typically lack of wrist and forearm flexibility. As the wrist is a common injury area in tennis, the full and power clean are both lifts that may not be appropriate for many tennis players, if they have not learned the movements at a young age and are appropriately flexible. However, an experienced technical coach can adapt these movements to the individual concerns of each tennis athlete.

# Full Clean

| Full Clean | |
|---|---|
| **Exercise Setup** | ▪ Platform, or dedicated lifting area clean of equipment, squat rack, weighted bar (can be 15 lbs, 22lbs/10kg, 33 lbs/15 kg and 44lbs/20 kg) + appropriate weight plates. (wooden plates or plastic plates in smaller load increments are especially helpful to beginners in maintaining the appropriate set up positions when lifting form the floor. These discs are available in one kg to five kg loads and are the same circumference and diameter as normal competition plates.) |
| **Exercise Technique** | ▪ The athlete stands behind the bar which is resting on the floor or lifting platform. The athlete's feet will start in a jump position (hip-width or just inside hip-width) and the athlete will land in the catch position which is slightly wider than hip-width.<br><br>**Note: For most tennis players, the full clean is challenging and may not be appropriate to the complexity and possible chance of injury if not perfectly taught and performed in a safe and effective technical fashion.*<br><br>▪ The starting position has the athlete in a low squat position with the shoulders in advance of the bar and higher than the hips. The hips are higher than the knees. The hand grip is in a "clean grip" shoulder-width position.<br><br>▪ The bar should be at the athlete's mid-shin, close to the body and remain close the body throughout the lift. The athlete's shoulders should be in front of the bar. The arms are straight, with the shoulder rotated internally toward the lifter and the elbows out. The wrists can be "cocked" in toward the athlete to keep the barbell close to the body.<br><br>▪ The *"first pull"* begins with the athlete moving the knees back and driving the chest upward. The hip and shoulder angle will remain the same during this first pull. The action is accomplished via knee extension. Like with the snatch, the trunk should remain upright and statically contracted via isometric action of the core muscles of the abdominals and erector spinae.<br><br>▪ The "second pull" will start to occur once the bar |

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| | passes the knee. The bar will move in toward the body, and will brush the upper thigh area. This is often termed the "power position', and is where the transition occurs between the first and second pull. At this point, the athlete explodes vertically via hip, knee and ankle extension (triple joint) and moves explosively into a vertical jumping action.<br><br>▪ After completing the full jump and a synchronized shrug, the athlete continues to pull on the bar as he/she drops under the bar while rotating the elbows forwards and up while also dropping into a full squat position. The athlete should think of actually pulling himself under the bar, as the athlete rotates the elbows up and through. The barbell actually is fixed on the clavicle so that it stays over his center of gravity and base of support in this receiving position.<br><br>▪ Taking a deep breath, the athlete pushes up with the elbows to maintain a solid "rack" position.<br><br>▪ The athlete will then stand up in a front squat concentric movement and once fully upright will drop the weight in front of the body onto the lifting platform.<br><br>▪ Perform this movement for the appropriate number of repetitions (1-5). |
| **Variation** | ▪ A coaching cue for the athlete is to keep his core strong and solid with good posture during the entire movement and explode the hips, thighs and calves during the triple joint extension (ankle, knee and hip joint extension).<br><br>▪ The full clean can be performed from the hang ( i,e, mid thigh, knee level, below the knee, etc). The full clean can also be performed from similar positions by using blocks of various heights (i.e. mid-thigh, knee level, below the knee, etc).<br><br>▪ When the aim of the program is to enhance rate of force development (or rate of force production), which is nearly always the priority in a tennis specific Olympic lifting program, block work is preferable over hang position work. |

# The Clean

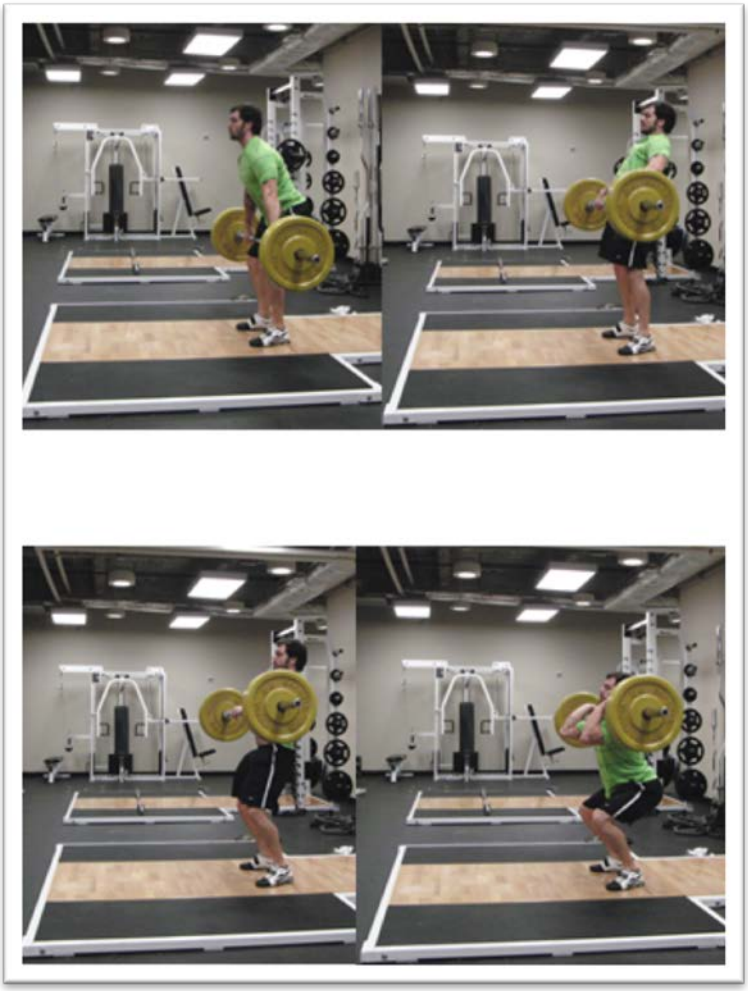
**The Clean Common Errors and Possible Corrections/Coaching Cues**

| Common Errors | Fixes and Adjustments (cues) |
|---|---|
| Feet too wide/narrow in start position | Adjust feet to jump (pull) position |
| Feet land too wide in catch | Pop feet out only to catch (receiving) position |
| Feet too narrow in catch | Pop feet out more |
| Shoulders behind bar at the start | Lean forward so that the shoulders are over barbell |
| Back rounds during pull | Squeeze scapula, keep a big chest and tight core |
| Hips higher than shoulders at start | Drop the hips |
| Hips lower than knees | Bring hips up |
| Hips pop up on first pull | Drive chest up, keep hips low, initiate push into ground – opposed to pull w/upper arms – squeeze barbell off the floor (lift offs or pulls to the knee are a great fix) |
| Bar hits knees as it rises | Move knees back as initiating the pull |
| Bar swings out, away from body | Rotate elbows out in start position, keep bar close to body, cock wrists in toward body |
| Losing the bar as standing up | Core tight, chest up, push up on bar |
| Pull is cut short | Extend through hips, finish jump, big shrug at top |
| The athlete shrugs early, pulling forward onto the toes | Stay over the bar longer, and then "explode" into a vertical jump. Common coaching cues "Jump and Shrug" or "Shrug with the hips" |
| The barbell crashes on the athlete and is lost forward | Time the pull … do not drop under the barbell until have achieved full extension |
| Barbell is lost forward due to jumping backward during the second pull | "Jump Tall" – coaching cues are to think of a vertical jump with the bar |
| Barbell is lost forward due to difficulty getting the elbows through and racking the weight | "Jump Tall & Quick Elbows" "Elbows Through." Practice jump-shrug & rack and upright row & rack combos |
| Lack of stability | Push up on bar at all times, pushing up on it and reaching up with the latissimus dorsi |
| Dumping or dropping the barbell forward while recovering from the deep squat position | Maintain a strong and tight core, keeping the chest up, drive the elbows up and high |
| The athlete shrugs early, pulling forward onto the toes | Stay over the bar longer, and then "explode" into a vertical jump. Common coaching cues "jump and shrug" or "shrug with the hips" |
| The barbell crashes down on the athlete during the pulling under action and the barbell is lost forward | Time the pull … do not drop under the barbell until full extension is achieved from the hips and knees. Work on timing of the racking |
| Barbell is lost forward due to jumping backwards during the second pull and receiving position "sometimes termed as "backing off" on barbell | "Jump tall" – coaching cues are to think of a vertical jump with the bar |
| Barbell is lost forward due to difficulty getting the elbows through and racking the weight | "Jump tall and quick elbows," "elbows through." Practicing the jump-shrug and rack, upright row and rack combos. Also adding flexibility work for the muscles around the shoulder, elbow and wrist joints |

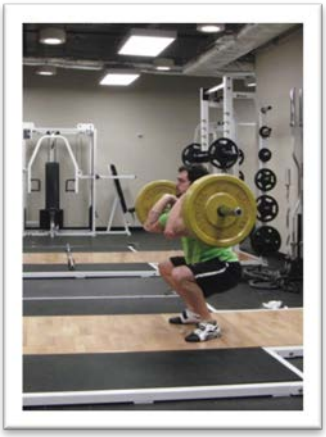
# Power Clean

| Full Clean | |
|---|---|
| **Exercise Setup** | ▪ Platform, or dedicated lifting area clean of equipment, squat rack, weighted bar (can be 15 lbs, 22lbs/10kg, 33 lbs/15 kg and 44lbs/20 kg) + appropriate weight plates. (wooden plates or plastic plates in smaller load increments are especially helpful to beginners in maintaining the appropriate set up positions when lifting form the floor. These discs are available in 1 kg to 5 kg loads and are the same circumference and diameter as normal competition plates.) |
| **Exercise Technique** | ▪ The starting position has the athlete in a low squat position with the shoulders in advance of the bar and higher than the hips. The hips are higher than the knees. The hand grip is in a "clean grip" shoulder-width position.<br>▪ The bar should be at the athlete's mid-shin, close to the body and remain close the body throughout the lift. The athlete's shoulders should be in front of the bar. The arms are straight, with the shoulder rotated internally toward the lifter and the elbows out. The wrists can be "cocked" in toward the athlete to keep the barbell close to the body.<br>▪ The *"first pull"* begins with the athlete moving the knees back and driving the chest upward. The hip and shoulder angle will remain the same during this first pull. The action is accomplished via knee extension. Like with the snatch, the trunk should remain upright and statically contracted via isometric action of the core muscles of the abdominals and erector spinae.<br>▪ The "second pull" will start to occur once the bar passes the knee. The bar will move in toward the body, and will brush the upper thigh area. This is often termed the "power position,' and is where the transition occurs between the first and second pull. At this point, the athlete explodes vertically via hip, knee and ankle extension (triple joint) and moves explosively into a vertical jumping action.<br>▪ After completing the full jump and a synchronized shrug, the athlete continues to pull on the bar as he/she drops under the bar while rotating the elbows forwards and up while also dropping into a 1/4 or 1/3 squat position. The athlete should think of actually pulling himself under the bar, as the athlete rotates the elbows up and through. The barbell actually is fixed on the clavicle so that it stays over his center of gravity and base of support in this receiving position. |

| | |
|---|---|
| | ▪ Taking a deep breath, the athlete pushes up with the elbows to maintain a solid "rack" position. The athlete will then stand up in a front squat concentric movement and once fully upright will drop the weight in front of the body onto the lifting platform.<br>▪ Perform this movement for the appropriate number of repetitions (one to five). |
| **Variation** | ▪ A coaching cue for the athlete is to keep the core strong and solid with good posture during the entire movement and explode the hips, thighs and calves during the triple joint extension (ankle, knee and hip joint extension).<br>▪ The full clean can be performed from the hang ( i,e, mid thigh, knee level, below the knee, etc). The full clean can also be performed from similar positions by using blocks of various heights (i.e. mid-thigh, knee level, below the knee, etc).<br>▪ When the aim of the program is to enhance rate of force development (or rate of force production), which is nearly always the priority in a tennis-specific Olympic lifting program, block work is preferable over hang position work. |



Hang Power Clean



Full Clean Bottom Position

# Push Press

| Push Press | |
|---|---|
| **Exercise Setup** | ▪ Squat Rack, Weighted Bar (typically 45lbs) + appropriate weight plates. |
| **Exercise Technique** | ▪ The athlete will take the barbell from the rack to a position high on the chest, across the clavicle. The elbows and wrists same position as the 'rack" position in the clean or power clean.<br><br>**note: for many tennis athletes, a large amount of overhead lifting is not recommended due to the possibly greater chance of impingement issues. However, if the "push press" and "power jerk" is performed in its intended manner, the overhead movement can have a great benefit with decreased risk of injury since the explosiveness and movement is core and lower extremity driven – not from the shoulders. Much of the perceived risk from overhead lifting centers around the external rotation and abduction position of the shoulder, especially behind the head variations. However, the push press and the jerk movements, when taught and executed properly, minimize this risk issue since the barbell or dumbbells are driven upward via leg action and the momentum or impulse of the barbell carries the barbell past this abducted-rotated position ( the danger zone) before the muscles of the shoulders, traps and triceps actually "kick in."*<br><br>▪ Feet will start in the jump position (hip-width) to begin the exercise movement. The starting position has the bar at anterior shoulder height (clavicle level) with an overhand grip shoulder width apart.<br>▪ The athlete will inhale, filling the chest with air. This creates a solid base or platform from which to drive the barbell overhead. In addition, the increased intra-thoracic and intra-abdominal pressure creates a natural support structure from the trunk.<br>▪ The movement is initiated via hip and leg action, utilizing the glutes, hamstrings and quads to eccentrically drop into a ¼ squat position followed by an explosive drive upward from the hips. The athlete then pushes up against the barbell, driving it overhead in a straight line until it is locked out at arms-length. It is important that the trunk remains vertical and does not adopt a lordotic or kyphotic posture during the dip and drive action.<br>▪ The hips and upper thighs should come to full extension as the arms continue to press the barbell overhead (i.e. vertical |

| | |
|---|---|
| | jump movement without leaving the ground). The athlete should continue to "reach up" overhead with the latissimus and scapular musculature to keep the barbell fixed in a safe and solid position over the athlete's center of gravity and base of support.<br>▪ The athlete exhales at the top of the movement; then remaining under control, carefully lowers the barbell back to the starting position. With heavier loads, the athlete should have a spotter on each side help lower the barbell back to the starting position.<br>▪ Perform this movement for the appropriate number of repetitions (1-10). |
| **Variation** | ▪ A coaching cue for the athlete is to keep a strong core and good posture during the entire movement and explode the hips up through triple extension (ankle, knee and hip joint extension).<br>▪ Variations: A very practical variation that may have benefits to the tennis athlete is the Kettlebell push press or the landmine push press. Kettlebells in either hand rather than a barbell. |

# The Push Press

**The Push Press Common Errors and Possible Corrections/Coaching Cues**

| Common Errors | Fixes and Adjustments (cues) |
|---|---|
| Feet too wide/narrow in start position | Adjust feet to athletic base position |
| Leaning too far backwards or forwards from the trunk during the pressing action | Encourage athletic base with chest up and back set. Encourage a straight line of force production |
| Not utilizing enough hip and leg action to initiate the push press exercise | Concentrate on the dip and drive starting action. "Dip and Drive." Keep the weight on the heels during the dip |
| Letting elbows drop down during the dip portion, which will result in a re-positioning of the barbell to appoint too low on the chest. This will cause the barbell to travel out and away from the athlete | "Chest Up"<br>"Elbows Set"<br>"Big Chest & Get Some Air" |
| Driving the hips and pelvis forward instead of upwards during the dip and drive. This will often cause the bar to travel too far backwards as the athlete moves his/her arms to full extension or possibly injure the lower back | "Dip and Drive"<br>"Straight Line"<br>"Butt Back"<br>"Shift the Hips"<br>"Straight Line Press" |
| Not locking the elbows out during the pressing action | "Drive the bar to arms-length," "reach from the scapula!" |
| Not extending the hips and knees during the drive phase to finish the exercise | "Drive Through"<br>"Dip, Drive and Finish" |
| Pressing the Bar too far away from the body and outside the athlete's base of support | "Relax the Hands"<br>"Don't Grip So Tight"<br>"Let the Legs and Hips do the Work" |

Push Press

Push Jerk

## Olympic Weightlifting For Tennis Quiz

Answer the following questions to test your knowledge and retention of the information in this course. If submitting for iTPA CPE credits (or continuing education for other organizations), take this quiz and grade yourself using the answers provided and save in case you are audited.

1. Which of the following movements has the highest power outputs when performed with technical proficiency?
    a. Jump Shrug
    b. Snatch
    c. Overhead Press
    d. Front Squat

2. Which of the following movements may increase the chance of shoulder impingement?
    a. Power Clean
    b. High Pull
    c. Overhead Press
    d. Jump Shrug

3. Which of the following movements is the most technically challenging (of the choices listed)?
    a. Mid-thigh power clean
    b. Jump shrug
    c. Below the knee power clean
    d. Back squat

4. Which of the following movements is the most technically challenging (of the choices listed)?
    a. Mid-thigh power snatch
    b. Jump shrug
    c. Below the knee power snatch
    d. From the floor power snatch

5. True or False: The push jerk is predominantly an overhead pressing movement.
    a. True
    b. False

6. Which of the following positions may be a concern for the wrists of a tennis athlete, if the athlete does not have good flexibility around the elbow and wrist?
    a. The starting position of the snatch
    b. The pulling position of clean
    c. The catch position of the clean
    d. The catch position of the snatch

7. During the "catch" position of the clean the biggest concern for the tennis athlete is the lack of _____
    a. Wrist and elbow flexibility
    b. Ankle and knee flexibility
    c. Ankle and hip
    d. Tricep strength

8. True/False: The "power" catch position requires less eccentric strength in the hips and lower body than the "full" catch position in the Snatch.
    a. True
    b. False

9. Which of the following is the most appropriate teaching progression for the "snatch"?
    a. Jump shrug, snatch from mid-thigh, snatch from above the knee, snatch from below the knee
    b. Snatch from below the knee, snatch from the floor, high pull, snatch from above the knee
    c. High pull, snatch from the floor, snatch from the floor with overhead squat, snatch from above the knee
    d. Snatch from the floor, snatch from below the knee, snatch from above the knee, snatch from the mid-thigh

10. When starting from the floor for the "clean", which of the following is a common flaw?
    a. Core contracted and shoulders back while grasping the bar
    b. While grasping the bar the hips are pushed back with hips at or below knee level
    c. Pushing hard into the ground to break inertia for the first pull from the floor
    d. None of the above

11. Which of the following exercises requires the widest hand grip position?
    a. Push press
    b. Full clean
    c. Power snatch
    d. Power clean

12. True/False: During the push press exercise should the athlete lock out the elbows at the top of the movement?
    a. True
    b. False

13. Which of the following is a major benefit of performing the snatch or clean for a tennis athlete:
    a. Triple joint extension of the ankle, knees and hips
    b. Absolute strength of the quadriceps
    c. Muscular endurance of the deltoids and triceps
    d. None of the above

14. If the athlete performs the following "error" during the pulling phase of a snatch or clean, which of the following are positive coaching cues that can aid the athlete in improving the technique of the movement?

    *Error: Back is rounded during the pulling motion*

    a. Contract pectoralis major and shallow positioning of the core muscles
    b. Contract the scapula stabilizers (i.e. rhomboids) together, while keeping a big chest and tight core
    c. Position head low to the ground with eyes looking at feet
    d. None of the above

15. Which of the following is one of the most important aspects of why Olympic lifting movements can improve serve speed for the tennis athlete?
    a. Improving muscular endurance in the pectoralis major
    b. Improving triple joint flexion (ankle, knee and hip)
    c. Improving ground reaction forces
    d. Improving aerobic capacity

**Quiz Answers:**

1. B
2. C
3. C
4. D
5. B
6. C
7. A
8. A
9. A
10. B
11. C
12. B
13. A
14. B
15. C