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| **Midsection (core) routine** |
| **By Dan Riley HoustonTexans.com** [**http://www.houstontexans.com/**](http://www.houstontexans.com/) |
| At the beginning of every off-season program I address our team regarding a variety of topics to include the term “core” training.  During my presentation I ask our players not to use the word “core” unless they are referring to the Marine Corps, the Corps of Engineers, or my most fond Corps, the Corps of Cadets at West Point.     |  | | --- | |  | | **Herein lies an *acceptable* core...** |   When Roberta Anding, our team nutritionist, heard me say this, she was pretty rough on me. She said, “What about the apple “core? The players cannot say apple 'core'?” Roberta is a Registered Dietitian and our Texans nutrition expert. She finally said “You have got to let it go.” In the area of nutrition Roberta rules so I added apple core to the list of acceptable corps/core items for our players.    I am unaware of the origin of the term “core training” but during the latter part of my career it has been popularized with books, videos, gadgets, and quackery.  During the past decade “core hype” has created frenzy over the powerful muscles of the hips and midsection. It makes me wonder how in the heck we got along before the “Core Nation” evolved. Have the “core fanatics” discovered some new muscles that did not exist twenty years ago?  A competent fitness professional must possess a minimum amount of physiological, anatomical, biomechanical, and neurological information, to prevent “shooting from the hip” when providing fitness advice. Because you read something in a book, see it on a video, hear it from an**NFL** **strength coach**, a personal trainer, or a self-proclaimed “fitness expert”, it does not insure the information is factual.  I have been training athletes for thirty-three years and somehow have survived without “corelucinating.” If it sounds like I am a “core basher” I’m not. Promoting fitness awareness for any part of the human body is good. I have always preached **balance** when organizing a strength program. Total body strength is essential for the competitive athlete. The muscles surrounding the hips and midsection are only a **part** of the equation when it comes to developing total body strength.  I have always divided the body into five major segments to include:  1. Neck and Traps  2. Hips and Legs  3. Midsection  4. Upper Body  5. Arms  In our program we teach our players that every muscle group and all exercises are equally important. As a strength coach, my number one priority is short-term and long-term injury prevention. In the area of injury prevention the muscles of the “core” are no more important than any other muscle group in the body.  If there is a priority, and protection is a concern, the muscles of the**neck**, **traps**, and muscles surrounding the **shoulder** capsule must have the highest priority for any athlete engaged in activities involving collisions and physical contact.  Most athletes and fitness enthusiasts understand the value of emphasizing the core (and that is good). What is perplexing is the lack of emphasis on more important areas of the body (and that is not good). We often inherit players with underdeveloped and ignored neck and shoulder muscles. Significant deficiencies exist. Isolation exercises must be performed to target these critical areas.  In this installation of the Fitness Corner we provide information regarding our player’s midsection routine. The midsection is primarily made up of three major muscle groups (the Thoracic muscles are primarily involved in breathing). They include the following:   1. Trunk flexors 2. Trunk rotators 3. Trunk extensors   In their text, Anatomy & Physiology, Seeley, Stephens, and Tate, list (p. 325 – 331 tables 11.8 – 11.10) the major muscle groups moving the vertebral column and the abdominal wall. Also listed are the major functions of each group. I do not want to bore anyone with the anatomical names of all the muscles involved but I have included those composing the abdominal wall.     |  |  | | --- | --- | | **Muscle** | **Function** | | Rectus Abdominus    External abdominal oblique    Internal abdominal oblique    Transversus abdominis  Quadratus lumborum | Flexes vertebral column, compresses abdomen  Flexes and rotates vertebral column; compress abdomen; depresses thorax  Flexes and rotates vertebral column; compresses abdomen; depresses thorax  Compresses abdomen  Laterally flexes vertebral column and depresses twelfth rib |   Observe the function of the muscles composing the midsection. The muscles of the low back and abdominal region primarily flex, rotate, and extend the trunk.  The term “**stabilizer”** is another trendy “core” term used with reverence by many fitness professionals. Do the muscles of the core serve as stabilizers? Absolutely, however most muscles in the body serve as a stabilizer in some capacity. Almost every muscle in our body stabilizes to help keep us erect. If these muscles did not stabilize, the body would collapse to the floor.  In his book Primary Anatomy, Basmajian refers to these muscles as fixators or postural muscles.He states the following:  “A great many muscles that have nothing to do with the actual performance of the specific feat come into play to ‘fix’ the position of the body as a whole; these are known as **fixators** or **postural** muscles. In most, if not all, group movements, fixators play their part. When for example, the elbow is to be flexed, it becomes necessary to fix (stabilize) the shoulder joint in a suitable position, in order to steady the whole elbow region; the shoulder muscles, thus contributing to the efficient working of the elbow flexors, act as fixators.”  Do I consider elbow flexion a good exercise to strengthen the shoulder muscles due to their involvement as stabilizers? Common sense tells us the answer is no. Specific exercises designed to target each of the shoulder muscles must be performed. The shoulder strength gained is insignificant and only at one fixed point. Basmajian calls this additional exercise as “dubious at best.”  To generate maximum gains in strength throughout the entire muscle, the Sliding Filament Theory tells us a muscle must be shortened (concentrically) and lengthened (eccentrically) through its full range of motion.  Most muscles serving as stabilizers remain in a fixed position (static contraction). Many years ago isometric exercise became very popular until researchers determined strength was developed only at the specific angle the muscle was exercised at. Strength was unaffected throughout the full range of motion of the muscles involved. Full range exercise is not developed when a muscle is forced to exercise in a fixed position.  For example, when one of our players **properly** performs a set of negative only chin-ups for the first time, his abdominals are very sore the next day. The abs are forced to perform a significant amount of strenuous work stabilizing the abdominal wall during the execution of this very demanding exercise.  Are the abs working (stabilizing) exceptionally hard to stabilize the abdominal wall while performing a negative only chin-up? Absolutely.  Would I recommend negative only chin-ups to develop the abdominal muscles? Absolutely not. Performing any exercise at one fixed point violates the physiological requirements for full-range exercise.  Perform an Air Seat against the wall. Are the muscles of the hips and legs working hard at one fixed point? Absolutely. Is this a good exercise to develop strength throughout the full range of motion? Absolutely not. Because an exercise is hard does not necessarily mean it is the most productive alternative available.  Equipment manufacturers have recognized the anatomical and physiological needs of muscles by designing structurally sound equipment for single-joint (isolation) exercises.     |  | | --- | |  | | **Direct and rotary resistance** |   Fitness professionals must understand and recognize the need for **direct**resistance and **rotary** resistance when exercising the muscles of the core. Fitness professionals must also recognize the limitation of equipment that only provides **straight-line**resistance while performing a rotary movement.    We are fortunate to have a well-equipped facility. Whenever possible, when performing an isolation exercise, try to find equipment designed to provide direct and rotary resistance.     |  | | --- | |  | | **Straight-line resistance** |   We teach our players to view the muscles of the midsection in the same manner as any other muscle group. We apply the same Rep Rules for exercises for the midsection as we do any other exercise.     1. Eliminate momentum during the raising phase. For example while performing sit-ups or ab crunches, some lifters perform what we call throw-ups and fall-downs. Instead of raising the weight in a very smooth manner the lifter snaps the elbows and head forward jerking the body (this will make the exercise easier). In the starting position of a sit-up (below) or crunch we ask our players to eliminate cheating (eliminate the use of the head and elbows to help raise the weight) by crossing the arms on the chest and gently tucking the head forward. This will also put tension on the abs in the starting position. Once you start the exercise do not allow the head to return to the ab board until you have finished the last rep. When the head returns to the ab board it allows the muscles to momentarily rest. It should be the goal to make all exercises harder, not easier.      |  |  | | --- | --- | |  |  |         2.    Pause momentarily in the muscles fully contracted position (below). When     it comes time to train the abs we sometimes see fitness enthusiasts strap on their crash helmet and get ready to get it on. Some people are more concerned with **how many** sit-ups they can perform not realizing it is the quality (how hard) of each rep that produces maximum gains. Some lifters snap and jerk the weight up without pausing momentarily in the sit-up position and then effortlessly fall back using the ab board to rebound and bounce off to throw the upper body up again (throw-ups and fall-downs at their finest). For maximum gains eliminate all sudden movements. Raise the weight in a very smooth and deliberate fashion and take even more time to lower the weight.     |  |  | | --- | --- | |  |  |         3.    After pausing in the contracted position for a count of 1001, there must be a smooth separation from the contracted position to begin the lowering phase (no sudden drop).      4.    Emphasize the lowering of the weight (take longer to lower the weight). Lowering the weight is one-half of the exercise. Really take your time lowering the body.      5.    Consistent lowering speed from the sit-up position back to the initial starting position.      6.    Pause momentarily (do not bounce off the floor) in the starting position before initiating the next rep.  Listed below are the basic exercises our players choose from to strengthen the muscles of the midsection.    1.      Trunk Flexion Nautilus Nitro Ab Crunch     |  |  | | --- | --- | |  |  |     2.      Trunk Flexion Quantum Ab Crunch     |  |  | | --- | --- | |  |  |     3.      Trunk Rotation Medx Rotary Torso left/right     |  |  | | --- | --- | |  |  |     5.      Trunk Flexion Ab Board     |  |  | | --- | --- | |  |  |     6.      Leg Raises     |  |  | | --- | --- | |  |  |     Do not straighten the legs after each rep is performed (below left). This allows the abs to rest momentarily. Leave tension on the abs in once you begin this exercise and keep it there until you finish the last rep. Do not jerk the legs into the air. Raise them in a very slow smooth and deliberate manner and then pause for a count of 1001 in the contracted position (below right).     |  |  | | --- | --- | |  |  |     7.      Trunk Extension Medx Low Back     |  |  | | --- | --- | |  |  |     8.      Trunk Extension Back Extension     |  |  | | --- | --- | |  |  |   Our standard midsection routine incorporates the following sequence. Any additional exercise (leg raises or more than one crunch) is optional.  1.      Trunk Flexion – 12 – 15 reps  2.      Trunk Rotation – 12 reps  3.      Trunk Extension – 12 reps  In the past I over-trained the abdominals. I assumed that the abs needed hundreds of reps to reach their maximum potential. I have learned the hard way (after wasting significant time on non-productive exercise). To increase the strength of any muscle, overload must be provided (more weight/and/or more reps). Too many reps (time under load) and muscle endurance will improve but not the anaerobic strength and power.  If a person continues to use his/her bodyweight, the muscles of the midsection will eventually adapt to the weight of the torso. The abdominals (or low back muscles) will eventually stop gaining strength if more resistance is not applied.  Our players can increase the resistance for each of our ab and low back exercises by as little as one-pound increments.  I often observe fitness enthusiasts performing multiple sets of (throw-up and fall-downs) crunches and side crunches with their bodyweight. It burns every time but the weight of the torso has not changed. There is no additional overload and therefore no additional strength gain.  It does not guarantee improvement because an exercise burns or hurts. Hold your arm out in front of you with a very light dumbbell and perform small arm circles. Continue to do this each workout. It burns and hurts but eventually little benefits will be derived.  Like all exercises our players perform, we document the amount of weight used and the number of good reps completed. When a player can complete the designated number of good reps, we must add weight, if the goal is to continue to gain strength.  This was not easy. After getting blasted by our team nutritionist, I agreed to stop my “Ignore the Core” campaign. But I told Roberta if, and only if, the “Core Nation” agrees to place equal emphasis on the muscles of the neck, traps, and muscles crossing the shoulder capsule.  Gotta go. It is time to go work my core. |
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