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Vertical jump test

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Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. This is called the standing reach height. The athlete then stands away from the wall, and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. The jumping technique can or cannot use a countermovement (see vertical jump technique). Attempt to touch the wall at the highest point of the jump. The difference in distance between the standing reach height and the jump height is the score. The best of three attempts is recorded. variations: The vertical jump test can also be performed using a specialized apparatus called the Vertec®. The procedure when using the Vertec® is very similar to as described above. Jump height can also be measured using a jump mat which measures the displacement of the hips. To be accurate, you must ensure the feet land back on the mat with legs nearly fully extended. Vertical jump height can also be measured using a timing mat. The vertical jump test is usually performed with a counter movement, where there is bending of the knees immediately prior to the jump. The test can also be performed as a squat jump, starting from the position of knees being bent. Other test variations are to perform the test with no arm movement (one hand on hip, the other raised above the head) to isolate the leg muscles and reduce the effect of variations in coordination of the arm movements. The test can also be performed off one leg, with a step into the jump, or with a run-up off two feet or one foot, depending on the relevance to the sport involved. For more details see vertical jump technique. scoring: The jump height is usually recorded as a distance score. See the vertical jump norm table to rate scores. For more information, see a selection of vertical jump test results. It is also possible to convert jump height into a power or work score. advantages: this test is simple and quick to perform. disadvantages: technique plays a part in maximizing your score, as the subject must time the jump so that the wall is marked at the peak of the jump. comments: The jump height can be affected by how much you bend your knees before you jump, and the effective use of the arms. The test is also sometimes incorrectly spelled as the "Sergeant" or "Sargent" Test. history: This method described above for measuring a person's vertical jump height is sometimes known as a Sargent Jump, named after Dudley Sargent, who was one of the pioneers in American physical education. reference: Sargent, D.A. The Physical Test of a Man. American Physical Education Review, 26, 188-194. (1921) Any comments, suggestions, or corrections? Please let us know. Commenting is closed on this page, though you can read some previous comments below which may answer some of your questions. Tupli (2014) Does height affect the vertical jump test? Add 15 Inches to Vertical Jump Tupli (2017) Not really. It depends mostly on your leg strength. See Ivan Pedroso on youtube. There r a lot of other guys that aren't very tall who have jumped a long ways. Because distance is the product of speed and pop; run fast, push hard off the ground and try to launch yourself at a 45 degree angle. Callum (2014) this the best test to conduct if you are a basketball player EuropaPointFC (2019) competing to improve is better than measuring EuropaPointFC (2019) Excellent workouts for improve but not everythings sportsmen do needs to be measured Mo (2020) My experience with basketball has been a roller coaster of a journey, from practising with shooting, dribbling and endurance. However the main component of basketball is the ability to convert your energy to jump extremely high. One of the few exercises I thought I would have to do was the use of weights to do deadlifts and squats. My experience with basketball has not only been fun, but fulfilling as you are introduced with a range of workouts using no weights! Getting into shape has never been so easy! Thomas Arvel (2018) To be honest I've always had problems with vertical jumps in my entire life. When I played with my teammates I looked at them with envy because most of them easily made a dunk while I was not even close to reach the basket. Not so long ago I decided that I will succeed in dunking no matter what. I kept reading books, searching online then I finally came across this program available online which finally gave me the results which I was looking for. Now when it comes to vertical jumps I have no more worry and I can focus on fixing other parts of my game :) Radu Radoi (2017) Before starting Vert Shock I was just grazing the rim... After week 7 I threw down my first dunk! LaMont Frazier (2017) Stretching is key to becoming a great leaper. Billy reid (2016) I need to know how to... Eijay Nini (2017) Good Day Sir/ Ma'am,We the fifth year Physical Therapy students of Cebu Doctors University from the Philippines, are currently having our research study entitled "Acute Effects of Dynamic Core Exercise on Vertical Jump among Cebu Doctors' Volleyball Players" would like to ask permission to use your tool "Sargent Jump Test" that is found on your page. We just want to apply the test in our study and not use your material for other publications.Your respond would be a big help to our study Sir/ Ma'am. Hoping for your kind consideration. Rob Admin Eijay Nini (2017) Hi Eijay. This is a standard test procedure and you are free to use it as you wish. In a research study it would be best for you to reference a published research paper abouts the vertical jump procedure Among the many different fitness tests to assess various aspects of your strength and fitness, the vertical jump test is arguably the most well-used, time-tested assessment of an athlete's power Rodríguez-Rosell, D., Mora-Custodio, R., Franco-Márquez, F., Yáñez-García, J. M., & González-Badillo, J. J. (2017). Traditional vs. Sport-Specific Vertical Jump Tests. Journal of Strength and Conditioning Research, 31(1), 196-206. A good vertical jump performance is key in sprinting speed, volleyball players, high jump athletes, NBA players, and high school basketball players alike. Keep reading to learn about vertical jump test norms, how to assess your highest vertical jump, and what a good and average vertical jump is for men and women of different ages. According to a study , the overall average vertical jump height for both sexes combined (n=116 subjects) was just about 40 cm (15.75 inches). Using the data from this study, the average vert jump test results for men was 45 cm (17.7 inches), and the average female vertical jump height was 30 cm (11.8 inches). The average age of the subjects in these studies was around 26-27 years old. Unfortunately, it is hard to find the average vertical jump height by age since most vertical jump norms or studies have been conducted with college-aged students (N.d.). Retrieved from or professional athletes. According to the Eurofit Vertical Jump Testing De L'Europe, C. (n.d.). TESTING PHYSICAL FITNESS EUROFIT Experimental Battery PROVISIONAL HANDBOOK STRASBOURG 1983 COUNCIL OF EUROPE. , here are the vertical test norms by age for men and women based on percentile rankings: Age Range cm (in)Percentile20-2930-3940-4950-5960+80th43(16.9)40(15.7)36(14.2)30(11.8)26(10.2)60th39(15.4)35(13.8)31(12.2)27(10.6)23(9.1)40th36(14.2)32(12.6)28(11.0)25(9.8)20(7.9)20th31(12.2)29(11.4)25(9.8)21(8.3)17(6.7) The two primary approaches to performing the vertical jump test to determine your vertical jump height are either jumping as high as possible from a standing start or having a running approach to your vertical jump. The latter vertical jump test protocol, where you get to run a step or two and then leap to the highest point, will result in higher vertical jump test averages than the average standing vertical jump height. According to the Guinness Book Of World Records Highest vertical leap (running start). (2022, June 27). Guinness World Records, the highest vertical jump with a running start is 1.27 m, or 4 feet 1.92 inches. This is essentially equivalent to a 50 inch vertical jump height. This world record vertical jump height for men was achieved by Darius Clark (USA) in Salt Lake City, Utah, USA, on 28 June 2022. On the other hand, the highest jump world record Highest standing jump (male). (2021, February 7). Guinness World Records, for men from standing (no run-up) is 1.70 m (5 ft 7 in), or about 67 inches. This highest standing vertical jump world record is held by American Christopher Spell and was set in February 2021. The highest vertical jump height for women is not readily available. For reference, Michael Jordan's vertical jump is said to have been about 48 inches. Your vertical jump ability is a good reflection of your lower-body power Vanezis, A., & Lees, A. (2005). A biomechanical analysis of good and poor performers of the vertical jump. Ergonomics, 48(11-14), 1594-1603. and explosiveness. After around age 30, the average vertical jump height reduces with each decade which passes. This is due to the loss of anaerobic power and decreased muscle mass as you age. On average, men have higher average jump heights than women. Factors such as average lower body fat, higher muscle mass, and longer legs are all contributing factors. The other key component that contributes to your vertical jump ability is the relative percentage of fast-twitch vs slow-twitch muscle fibers you have, also known as type II vs type I muscle fibers. Because the vertical jump test is an explosive power-based fitness assessment, and fast-twitch muscle fibers (type II fibers) responsible for more powerful, forceful, explosive contractions, the more fast-twitch muscle fibers you have in your calves, hamstrings, glutes, and quads, the better your vertical jump will be. When you do an official vertical jump test, you use a device called a jump tester, which has thin plastic sticks in one-inch increments along the upper portion of a tall pole. To test vertical jump height at home or at the gym, you can use a pencil or erasable marker and jump up along a wall. Mark the wall, being careful not to extend the writing implement higher than the tips of your fingers. Although most people inherently know how to jump after mastering this developmental milestone in toddlerhood, actually performing a proper vertical jump test takes a fair amount of skill and practice. As mentioned, the test for vertical jump height can either be performed from the standing position or with a running start, like a vertical leap. However, it is most common to do the vertical jump test protocol without a running start. Here is how to do a standing vertical jump test: Stand with your core and legs engaged, your chest up, and your feet directly under your hips. Keeping your spine upright and core engaged, quickly bend your hips and knees into a partial squat, sitting your hips back and thrusting your arms behind you to create momentum. Explode upward, jumping as high as possible while driving your arms forward and overhead. Reach up as high as you can with only one arm, and hit the marker on the vertical jump tester (or make a mark on the wall with a writing utensil). After you start coming back down, straighten back out and land softly with your knees bending to absorb the load, ensuring they stay straight forward rather than caving in. Allow your arms to swing backward as a counterbalance. Your vertical jump measurement is the distance between your standing vertical reach (stand up and reach up as high as you can, recording the height of the tip of your fingers) and the height you reach with your fingers when you jump. For example, if your vertical reach is 98 inches and you mark 128 inches up on the wall with your pencil, your vertical jump distance is 30 inches. Here are a few tips for increasing your vertical jump technique and height on the vertical jump test: Resist the urge to widen your stance because this actually reduces the leg power you'll be able to generate and drive into the ground for take-off. While keeping your feet anchored into the ground, consciously pull your knees outward so that you feel tension in your hips because this engages the hips and glutes so that they're primed and ready to fire rather than fully relaxed. This gets your neuromuscular system geared up so that muscle recruitment for your jump is faster. Make sure to reach up with only one hand instead of both arms because performing a unilateral vertical reach increases the maximum height you obtain compared with reaching with both arms. Incorporate plyometrics into your workout routine. This can include box jumps and body weight jumps and lunges. You can learn more about how to improve your vertical jump here. Vertical jump testing is a popular way to assess an athlete's power and explosiveness, but how do you perform the tests properly, and how do your results stack up against the competition? In this article we're going to cover: The vertical jump test describes a wide cohort of jump tests in which athletes aim to jump as high as possible. This loosely includes countermovement jumps and squat jumps, performed both with and without arm movement. The vertical jump test is most often used as a measure of power and explosiveness. Athletes who are stronger and who can produce force more quickly tend to score better. It is a popular field test due to its simple and inexpensive nature. Vertical jumps are also sometimes used as measures of athlete readiness to train. In this context, coaches may have athletes perform a few vertical jumps at the start of each training session, and adjust training volume, intensity and difficulty based on how each athlete scores in relation to their average vertical jump values. The vertical jump contains the following components of fitness: Vertical jumps can simply be used to assess the motor control and movement component of an athlete's fitness, i.e. how well can that athlete actually jump and land? Studies have shown jumping is an essential motor skill across a wide range of sports, including but not limited to soccer (Stølen 2005), basketball (Ziv 2009), volleyball (Sheppard 2008) and handball (Kruger 2014). As a coach, I tend to look for a balanced, midfoot jump, plenty of height, and a landing in which knees are in line with toes, with force absorbed through toes and mid foot, an upright posture and a braced core. When we say that vertical jumps are used as a measure of power, it would actually be more accurate to say that they do so indirectly, by collecting related data such as jump height and flight time. This data can then be plugged into equations to derive power, or when using equipment such as force plates, the data can be fed into various computer programmes (Bioware) to calculate this information (plus much more) for you. If you're planning to use the vertical jump as part of your fatigue monitoring plan, then it can be conducted at the start of each training session. Alternatively, if you're using it as a performance tracking measure, I recommend testing something in the region of once every 6-12 weeks. Here's how it's done... Set up your wall, vertec, jump mat or force plates. If using a vertec, jump pole, have your athlete stand side on to the pole and reach up as far as possible with the hand closest to it. Feet should be kept flat on the ground, and the point of the fingertips should be marked/recorded. (Optional) Record body weights if you plan on using the Sayer's Power Equation later; this is a good opportunity to take athletes' body weights as well. Decide upon and explain jump style This is the time to decide whether your athletes are going to do countermovement jumps, and whether or not they're going to be allowed/encouraged to use their arms. It doesn't matter which jump style you use, so long as it is consistent from test to test, and that the athlete knows how to consistently perform it. Personally, I like countermovement jumps with arm usage as in my opinion, they're more relatable to sporting movements. With that said, the ability to standardise squat jumps without arm usage (hands on hips) might make them more internally valid as a measure of lower body power. Conduct practice attempts Give athletes at least 3 practice attempts to ensure consistent technique. Athletes jump and you record data Have each athlete perform between 3 and 5 single, maximal effort jumps, separated by at least 1 minute. As these jumps take place, record your results either on paper, or ideally, on a laptop/computer setup. When recording data, jump mats will display jump heights and extra data automatically, whereas with vertec or chalk wall testing you need to measure the distance between each athlete's standing reach height and their jumping reach height. You can either take each athlete's best result, or take an average of their jumps, personally I prefer the latter, as it tends to better account for anomalous high or low results, and give a truer representation of how that athlete tends to jump. To be fair, though, it doesn't really matter so long as it's consistent between athletes and between tests. You can also go on to derive data such as power, impulse, force, side to side asymmetries etc if so desired using software like Bioware, or by manually plugging a lot of numbers into various physics equations. Realistically, though, you have to have a good reason for data collection, and if you aren't going to use it to impact your coaching decisions, extra data is just a waste of time and effort. Good vertical jump scores vary depending on the type of jump, i.e. countermovement, squat jump, with arms, without arms etc. The following two sets of normative data are both based on vertical jumps being performed with a countermovement and the use of arms. Vertical jump test norms with arms) Via TopEnd Sports: Vertical jump norms by age (Countermovement with arms): A large-scale study (Taylor 2010) of almost 2000 school children in the UK collected the following data... Vertical jump height (cm) and predicted peak power (W) percentiles of males and females by age. So if you were reading the data... A 12 year old male who jumped 34cm would be in the 90th percentile of jump ability A 14 year old female who jumped 30cm would be in the 75th percentile And so on Hypothetically, this data could be used as part of a talent identification process, but the reality of talent identification is far more complex with dozens of factors at play, and so the overall usefulness of normative data for the 10-15 age group should be taken with a strong pinch of salt. We should also consider that this data is specific to children in the UK, and that normative values will likely differ around the world. Studies (Rodríguez-Rosel 2016) have generally found that vertical jump testing is a valid and reliable test of lower body explosive power. With that said, vertec devices have been found to have variable results in comparison to jump mats and force plates, as well as to be susceptible to variations in jump execution. What this means is that jump testing is valid and reliable, but that results from one type of testing device should not be compared against results from a different type of device. It also means that standardising how each jump is performed is important. The vertical jump test is simple to use. You either set up a vertec jump pole, roll out a jump mat, or give your athlete a piece of chalk and have them jump next to a wall. For coaches with limited time and lots of players, this is perfect. A vertec pole costs a couple of hundred dollars, or you can make your own with a couple of hours of pretty basic DIY effort. For coaches on a budget, this is great. Through years of coaching, I've found that pretty much every athlete loves jump testing. Athletes are by nature competitive, both with themselves and their teammates, so if you give each athlete multiple attempts, you'll often see a fun gym environment created. So long as athletes land in a decent squat pattern, vertical jump testing is safe, with very little risk involved. This also means that one coach can safely and effectively supervise multiple athletes. Compare this to say, 1-rep max squat or power clean testing, and you can see why it's significantly safer. Since the term vertical jump test is such a broad banner, it can mean different things to different people, and is often not standardised. For example, let's say an athlete performs a 'vertical jump test' at club A, and scores 50cm. This jump was a countermovement jump with arm swing. They train hard for 3 months, only to perform another 'vertical jump test' at their new club B, this time with no countermovement and no arm swing. The athlete now finds that they only jump 45cm! Not only is this deheartening for the athlete, but it also poses difficulty for coaches, because it provides no real indication of how training has been going. With that said, this disadvantage can be significantly reduced through proper communication between clubs and tests, or simply through making a note of the test style used. This disadvantage is essentially a continuation of the first disadvantage. Athletes need to have decent jumping technique and landing mechanics in place. Without decent jumping technique, it can be hard to conclude that training has improved power production, versus say the athlete just improving jump technique.In my experience, this issue can be avoided through the use of a familiarisation session, and by taking a few opportunities to teach athletes jumping mechanics BEFORE testing is conducted.