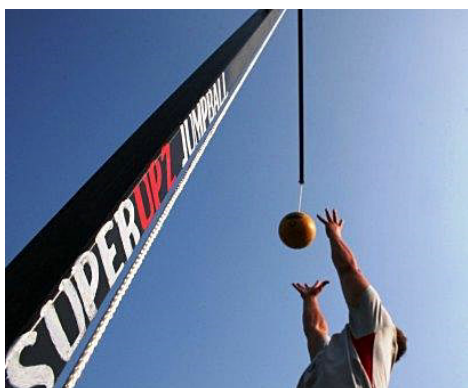


JUMPBALL And OVERHEAD GOAL TRAINING

By

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The SuperUPZ Jumpball overhead goal training method is based on the powerful tool of immediate knowledge of results. When an athlete can increase his/her motivation to succeed, that same athlete would



then be able to increase their performance accordingly. Goals are very important to any training philosophy or program. Feedback in the form of time, weight, velocity, height, etc., can be a strong motivator for any athlete to increase performance. If the feedback is positive, this reinforces what the athlete is currently doing, therefore the athlete will be motivated not to let the results drop. If the feedback is negative, the athlete will be motivated to work harder to achieve the desired goal.

Immediate feedback of results is very important. An athlete who is performing a series of 40-yard sprints without immediate knowledge of results will work only as hard as their perceived intensity for the sprints. Likewise an athlete who is timed on each sprint and is training until performance drops off by a pre determined fatigue rate would work much harder to keep his performance up, as they will have immediate knowledge of their results. Immediate knowledge of results will inform the athlete if they need to increase or decrease the intensity of training. Another example is that of an Olympic Weightlifter (OW). One OW trains 5 sets of 5 repetitions using X amount of weight. Another OW uses a Power Output Measurement Device, which analyzes the power output (watts) of each repetition and displays to the athlete the percentage of best effort for each repetition, so the athlete will always work at the desired intensity. The better motivator is clearly the immediate knowledge of results Power Output Measurement Device method. The difference between immediate knowledge of results versus “winging it” can be great. This could be the difference between a 1-inch gain in an athlete’s vertical jump, versus a 6-inch gain in the same athlete’s vertical jump in that same period of time. This is where Jumpball overhead goal training comes into play.

Studies have shown as much as 5” gains in vertical leap through the use of an overhead goal in vertical jump training. 5 inches in vertical could mean the difference between 29” and 34”. This could mean the difference between a possible college scholarship or a career that ends with the last game of the high school season.



A brief overview of the “reward system” of the Central Nervous System (CNS) leads one to the study of Neuroscience and Psychology and information on inhibitory and excitatory neurotransmitters. With regards to the SuperUPZ Jumpball and overhead goal training, the depth of our Neuroscience discussion will revolve around these inhibitory and excitatory motor neurons and neurotransmitters and their involvement in the reward system of training. The four primary neurotransmitters associated with the cognitive reward systems are:

Inhibitory Neurotransmitters

- **GABA (gamma aminobutyric acid)** – Released to control motor behaviour
- **Glycine** – Released to control spinal reflexes and motor behaviour

Excitatory Neurotransmitters

- **Glutamate**- The most prominent of excitatory transmitters
- **Epinephrine (Adrenaline)** -Plays a central role in the short term stress reaction also known as fight or flight response. It increases heart rate and stroke volume, elevates blood sugar levels as well as other physiological adaptations to stress.

In theory, a person's strength and power are controlled by the CNS. When an athlete recruits muscle fibers or motor units to lift an object, the central nervous system releases two neurotransmitters, GABA (gamma aminobutyric acid) and glycine. These inhibitory neurotransmitters weaken the signals being sent to from the CNS to the muscles, limiting the athletes ability to lift a weight that is too heavy and risk injury. On the opposite end of the spectrum, in times of great stress, the CNS will release Epinephrine and or Glutamate, and delay the release of or refrain completely from releasing GABA and Glycine. This is how, in theory, the wives tale of grandmothers lifting cars to save a kids life can potentially be true.

In terms of performance, looking at the actions of each of these neurotransmitters, it is easy to see why an athlete would want to delay the release of GABA and Glycine while increasing the release of Glutamate and Epinephrine. This is what reward system, goal training, and immediate knowledge of results accomplishes. As the athlete reaches the goal, he/she will get the reward (pull the ball down). Getting the reward leads to instant knowledge of results with regards to maximum jump height achieved and successful submaximal repetitions. With each successful repetition and gained reward, the CNS becomes subconsciously excited, increasing the release of Glutamate and Epinephrine, while delaying the release of GABA and Glycine. With the delay in release of GABA and Glycine, the musculotendinous system is allowed to work at a potentially higher level. Recruiting more motor units and muscle fibers, creating a greater elastic effect in the Musculotendinous unit (MTU), and delaying action by the muscle spindles and Golgi Tendon Organs, allows the body to produce more power, and thus, jump higher. Below are the results of previous studies on the reward system and how it relates to physical performance.

- 1. THE EFFECTS OF AN OVERHEAD GOAL ON DROP VERTICAL JUMP PERFORMANCE AND BIOMECHANICS.** Kevin R. Ford, Gregory Meyer, Rose L. Smith, Robyn Byrnes, Sara Dopirak, Timothy Hewett, 1. Rehabilitation Sciences, University of Cincinnati, Cincinnati, OH; 2. Childrens Hospital, Cincinnati, OH, **CONCLUSIONS:** Utilization of an overhead goal during plyometric training and testing may increase vertical jump height performance and alter lower extremity biomechanics. These results may indicate that overhead goals can be incorporated during training and testing protocols to better simulate effort levels utilized during sport competition.
- 2. THE NEURAL SYSTEM THAT BRIDGES REWARD AND COGNITION IN HUMANS** J. B. Pochon, R. Levy, P. Fossati, S. Lehericy, J. B. Polin, B. Pillon, D. Le Bihan, and B. Dubois Institut National de la Santé et de la Recherche Médicale, Departments of Neuroradiology and Psychiatry, Hôpital de la Salpêtrière, 75013 Paris, France; and Commissariat à l'Energie Atomique, 91401 Orsay, France Communicated by Etienne-Emile Baulieu, College de France, Le Kremlin-Bicetre Cedex, France, February 22, 2002 (received for review December 17, 2001) **CONCLUSIONS:** The study showed specific brain activation in relation with changes in both the cognitive loading and the reward associated with task performance.
- 3. OPTIMISM IN ATHLETIC PERFORMANCE_ Gordon, R. A., & Kane, J. M.** (2002, February). Explanatory style on the soccer field: Poster presented at the 3rd annual meeting of the Society for Personality and Social Psychology, Savannah, GA. In 2001, **CONCLUSIONS:** Gordon and Kane looked at the relationship between optimism and enhanced performance in the game of soccer. As predicted, Gordon and Kane found positive relationship between optimism and athletic performance. Their data also suggest that optimists maintain motivation and performance during losing games, whereas pessimists' performance deteriorates under such circumstances.

4. **EXPLANATORY STYLE AS A MECHANISM OF DISAPPOINTING ATHLETIC PERFORMANCE.** Seligman, M. E. P., Nolen-Hoeksema, S., Thornton, N. & Thornton, K. M. (1990). *Psychological Science*, 1, 143-146 **CONCLUSIONS:** the performance of pessimistic soccer players varied as a function of the teams' performance (i.e., when the team was winning these players performed well, but their performance was worse in losing matches). However, there was little variability among the optimistic players (they performed at a high level across both wins and losses. The preceding experiments support the hypothesis that people with an optimistic attributional style not only try harder, but may actually enhance their performance after receiving negative feedback.

5. **SPORT SPECIFIC, GOAL ORIENTED TRAINING MAY REQUIRE FUNCTIONAL OVERLOAD TO MAXIMIZE EXPLOSIVE POWER IN FEMALE ATHLETES.** Brown, B, & Flocks, C. (1997). *International Sport Science Conference*, Monte Carlo. **CONCLUSIONS:** an international conference topic linking goal training to maximizing explosive power in athletes.

Overhead goal training can be done in many ways. An athlete could use a vertical jump testing device or set marks on a wall to measure the height of each jump in training. These methods give an athlete immediate knowledge of results, but do not tap into the psychology of the reward system. The SuperUPZ Jumpball method of overhead goal training accomplishes both. It gives the athlete immediate knowledge of results and taps into the "reward system" for increased motivation. This scientifically proven methodology is a must for any athlete. By tapping into the power of the subconscious reward system to increase an athlete's vertical leap, overhead goal training is a great tool to incorporate into any performance training program. If you are interested more in the SuperUPZ Jumpball Scientific Vertical Jump Training System, visit their website at www.superupz.com.

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