

Implement Training

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The purpose of this article is to discuss the value of implement training in terms of achieving a competitive advantage for coaches and athletes.

Strength and Conditioning and Science

A tremendous amount of research based information has been published relevant to strength and conditioning over the last 15 to 20 years. As a result the vast majority of any strength and conditioning program should be based on scientific training principles. That said, it has to be acknowledged that designing strength and conditioning programs is not an exact science. Between those areas where there is conflicting or little information there is room for individual interpretation and creativity. The science of strength and conditioning simply is not at a point where any one program could be labeled the best against which the effectiveness of all other training programs could be evaluated.

Implement training/non traditional training (balance training, tire flipping, resistance chains, junk yard training, etc) is one area of strength and conditioning where very little research exists. We do know that exercising on an unstable surface, while perhaps valuable when working with an injured athlete, has a negative effect on the ability to generate force or power (2) and thus probably does not have a place in the training programs of most athletes. Research has also shown a very high metabolic response to pushing or pulling a motor vehicle (1). As a result this type of training may be effective in sports that involve similar movement patterns with similar energy requirements.

Reasons to Utilize Implement Training

To the neuromuscular system any form of resistance can be used for resistance training. That is, the body does not know what form of resistance is being lifted, whether it is in the form of a standard barbell or a water filled keg. What the body does know is that if the intensity of training is at a high enough level adaptations will occur because the stresses being applied to the body are high enough to stimulate physiological adaptation.

Implement training also adds physiological and psychological variation to the training program. From a physiological standpoint it is recognized that performing the same repetitive program can cause training adaptations to dramatically decrease or even reverse, and implement training can dramatically increase the amount of variation in the training program. Psychologically implement training reduces the monotony of training and provides the athletes a fun and unique training stimulus. Finally, like other forms of coaching, working as a strength and conditioning coach is part science and part art. We know that performing resistance training with standard types of implements, correctly applied, can have a positive effect on the strength and power capabilities of the athlete. The artistic portion of the equation comes in the blending of traditional training with implement training to provide that competitive advantage.

Applying Training Principles to Implement Training

It is not being suggested that all forms of implement training will automatically have a positive effect on performance or injury reduction. Just as coaches have to carefully select what standard forms of resistance training movements are going to be included in their training programs; careful selection of implement training activities is also necessary. For example, most strength and conditioning coaches would likely agree that performing decline dumbbell flies is not an exercise that they would emphasize for their athletes if improving on field performance is their primary goal. This exercise is performed in a non-sport specific position, utilizing a non-sport specific movement pattern. Similarly, there are a variety of potential implement training movements that do not transfer effectively to improving athletic performance.

Implement Training Modes to Consider

Remember that there is little research looking at the value of implement training. As a result the following recommendations on what implement training modes to consider for your athletes are based on the experiences of the author over several years of including implement training in the training programs of athletes under his supervision.

Tires

First, properly flipping a truck or tractor tire requires triple extension at the ankle, knee, and hip, similar to what occurs during performance of weightlifting movements. However, from a teaching standpoint, primarily because there is no catch phase, teaching an athlete to properly flip a tire is an easier process than teaching them how to clean or snatch. As a result you may be able to more quickly get your athletes moving heavy weights explosively when flipping a tire than what occurs when you have to first teach them proper weightlifting movements.

Secondly, again because no catch phase is involved, athletes may be able to flip a tire pain free when injuries would prevent them from being able to clean, snatch, or jerk. This is an especially strong consideration in-season when athletes begin to collect various injuries. As a result you can continue to train them explosively without aggravating injury situations.

Finally, in contrast to weightlifting movements, which can best be described as vertical jumping with a barbell and primarily involves a vertical movement component, flipping a tire combines a vertical and a horizontal component. For many athletes (football, hockey, and wrestling) this may be a more sport specific way to train. Think about an offensive lineman exploding off the line of scrimmage to execute a block or a linebacker tackling a running back. These movements are more horizontal than vertical in nature, so supplementing the weightlifting movements with tire flipping may be a better approach for these types of athletes.

Water Filled Implements

Many athletes encounter an active resistance (typically in the form of an opponent) during competition rather than a static resistance. While a typical barbell or dumbbell provides a rather static resistance, water filled implements provide a much more dynamic resistance. This is because the water moves inside the implement as the exercise is being performed. Because of the dynamic nature of this type of training the athlete cannot utilize the same level of resistance with water filled implements as compared to a standard barbell or dumbbell. As a result water filled implement training is not the preferred method when training for maximal strength. However, because of the dynamic nature of water filled training it is an excellent supplement to standard training when the goal of training is developing functional strength (same as “sport specific strength” or “performance strength”). For many athletes there is as big a need for functional strength as there is for maximal strength.

Chains

While not typically thought of as implement training, chains provide a couple of advantages in the training programs of athletes. First, as the chains are lifted off the floor during performance of the exercise, there is a gradual increase in the training resistance, which matches the natural strength curve within the body. For example, during performance of a bench press, the chain hangs off the bar and onto the floor. At the bottom of the range of motion, when the bar is resting on the chest, the athlete is in his or her weakest position and a greater portion of the chain rests on the floor. As the bar is lifted off the chest the athlete moves into a stronger position and the bar becomes progressively heavier as more and more chain is lifted off the floor, again matching the natural strength curve in the body.

A second advantage of chains, though not often discussed, is that the chains, similar to the water filled implements, provide a dynamic resistance. This occurs because as the chains are lifted off the floor the chains oscillate while hanging on the bar, increasing the stability requirements of the movement.

Conclusions

Implement training, while sometimes viewed as too far from the norm to be seriously considered, is simply another tool to be added to the tool chest. Implement training should not be viewed as a replacement to traditional training but as a supplement to traditional training. The goal in training an athlete is not to develop maximal strength but to maximally develop the athlete, and this requires a combination of maximal strength training and functional strength (“sport specific” or “performance strength”) training.

References

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