

PLYOMETRICS AND LOAD CARRIAGE PROGRESSIONS

Many situations encountered by tactical athletes demonstrate the importance of rate of force development (RFD), or the ability of a muscle or muscle group to develop maximal force as quickly as possible. Scenarios range from a police officer pursuing a suspect on foot, a warfighter quickly sprinting to cover, or a firefighter rapidly ascending the stairwell of a burning high-rise building.

RFD is universally accepted as something that all tactical athletes need to develop and enhance. Although strength and conditioning coaches universally accept the importance of RFD enhancement, many are still unsure about how to train it correctly. For example, many believe that simply doing some jumps for conditioning at the end of a workout or the latest CrossFit “death circuit” is sufficient to enhance RFD.

Strength is the ability to contract muscles with maximum force. If someone can squat more than the average person, does that mean they will automatically sprint faster than the average person? Of course not. Buying into this logic could endanger the law enforcement or tactical professional. Even with great sprint mechanics, if a tactical athlete cannot develop tension in a muscle quickly, they will not be fast. To truly be the most effective tactical athlete, one must be able to develop force rapidly.

PLYOMETRIC TRAINING

Plyometrics was originally known as jump training or the shock method, as it was called by noted researcher Yuri Verkhoshansky. Having its origins in the former Soviet Bloc countries, it originally involved using the body’s kinetic energy as resistance. Kinetic energy was created by allowing the body to fall (from a box or as a result of jumping) and is followed by a stretch reflex and then a voluntary contraction. In other words, the tactical athlete falls, then lands, and then immediately jumps back up in the air. Jump training relied heavily on the stretch reflex to enhance the explosive jump upward.

Briefly, plyometric training will increase a tactical athlete’s explosiveness, agility, and reflex actions. It will also allow them to accelerate at a more rapid pace and with less actual movement. A good example is a boxer whose jab is most effective if they are 12 inches away from their target as opposed one who can produce similar force while only six inches away. Appropriate use of plyometric training can also strengthen and improve the proper function of the joints and their surrounding tissues.

8-WEEK PLYOMETRIC TRAINING PROGRAM (3 DAYS PER WEEK)

Week	Day 1	Rest	Day 2
1	Box jumps: 4 x 4 (reps x sets)	3–4 days between sessions	Box jumps: 4 x 4
2	Box jumps: 5 x 4	3–4 days between sessions	Box jumps: 5 x 4
3	Box jumps: 3 x 4	3–4 days between sessions	Box jumps: 3 x 4
4	Box jumps: 3 x 4 Single-leg box jumps: 3 x 3	3–4 days between sessions	Box jumps: 3 x 4 Single-leg box jumps: 3 x 3
5	Box jumps: 6 x 2 Altitude drops: 3 x 3	3–4 days between sessions	Standing long jump: 1 x 8 Bounding: 6 x 3
6	Single-leg box jumps: 3 x 3 Depth jumps: 3 x 3	3–4 days between sessions	Bounding: 6 x 3 Standing triple jump: 1 x 6
7	Single-leg box jumps: 3 x 3 Depth jumps: 3 x 3	3–4 days between sessions	Bounding: 6 x 3 Standing triple jump: 1 x 6
8	Lateral box jumps: 3 x 3 Depth jumps 3 x 3	3–4 days between sessions	Single-leg hops: 4 x 2 Zig-zag bounding: 6 x 3

LOAD CARRIAGE

The requirement to carry additional load is a given in most occupational roles within military, law enforcement, and firefighting occupations. The size and structure of the load carried relies on the specifics of the tactical athlete’s role, the equipment carried, the tasks to be undertaken, the length of the mission, and the environment that an operation is performed in. Nearly 65 percent of recently surveyed law enforcement officers wear 20

pounds of additional gear or more to work routinely. In Afghanistan, the typical US soldier had to carry an average external load of 99 pounds, with some carrying more than 140 pounds of additional load.

Load carriage increases biomechanical demands on the tactical athlete, particularly on the back, lower extremities, and shoulders.

Load carriage has been shown to have the following effects on tactical athletes:

- Reduced situational awareness, leading to a measurable decline in shooting response time
- Reduced foot speed
- Reduced agility
- Reduced coordination
- Reduced force production
- Increased fatigue, leading to reduction in reaction time, vigilance, memory, and logical reasoning
- Significantly reduced VO2 max
- Increased heart rate, respiratory frequency, and energy expenditure
- Significant forward trunk flexion
- Increased rate of injury

Biomechanics, posture, speed, agility, and other factors are further exacerbated in smaller people with smaller amounts of muscle mass and lower levels of limit strength.

Tactical athletes must also possess the strength and power for short missions that require very heavy load carriage. Research shows that training for short, heavy bursts is best accomplished with high-intensity sessions characterized by heavy weight or increasing other intensity variables, such as speed or grade of slope via low-volume training sessions. Besides simulating the physiological demands of a mission with heavy loads, high-intensity load carriage will also be enhanced by the following:

- Training to increase limit strength
- Training with strongman events (this is extreme load carriage)
- Training for increased speed and power production
- Interval training
- Increased aerobic capacity

The bottom line is that the stronger a tactical athlete is and the more efficient they can move with extreme load, the better they will perform with high-intensity load carriage. How heavy will 60 pounds of additional load feel to a tactical athlete who can move quickly with 450 pounds on the farmers walk for 100 feet? The stronger and faster a tactical athlete is, the lower the percentage of limit strength and maximum speed they will have to exert in daily occupational tasks.

6 WEEK LOAD CARRIAGE GENERAL TRAINING PROGRAM

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Upper- body strength	Lower- body strength	Loaded march	Total-body strength	Aerobic training	Interval training	Off
2	Upper- body strength	Lower-body strength	Loaded march	Total-body strength	Aerobic training	Interval training	Off
3	Upper- body strength	Lower- body strength	Loaded march	Total-body strength	Aerobic training	Interval training	Off
4	Upper- body strength	Lower- body strength	Loaded march	Total-body strength	Aerobic training	Interval training	Off
5	Upper- body strength	Lower- body strength	Loaded march	Total-body strength	Aerobic training	Interval training	Off
6	Upper- body strength	Lower-body strength	Loaded march	Total-body strength	Aerobic training	Interval training	Off