

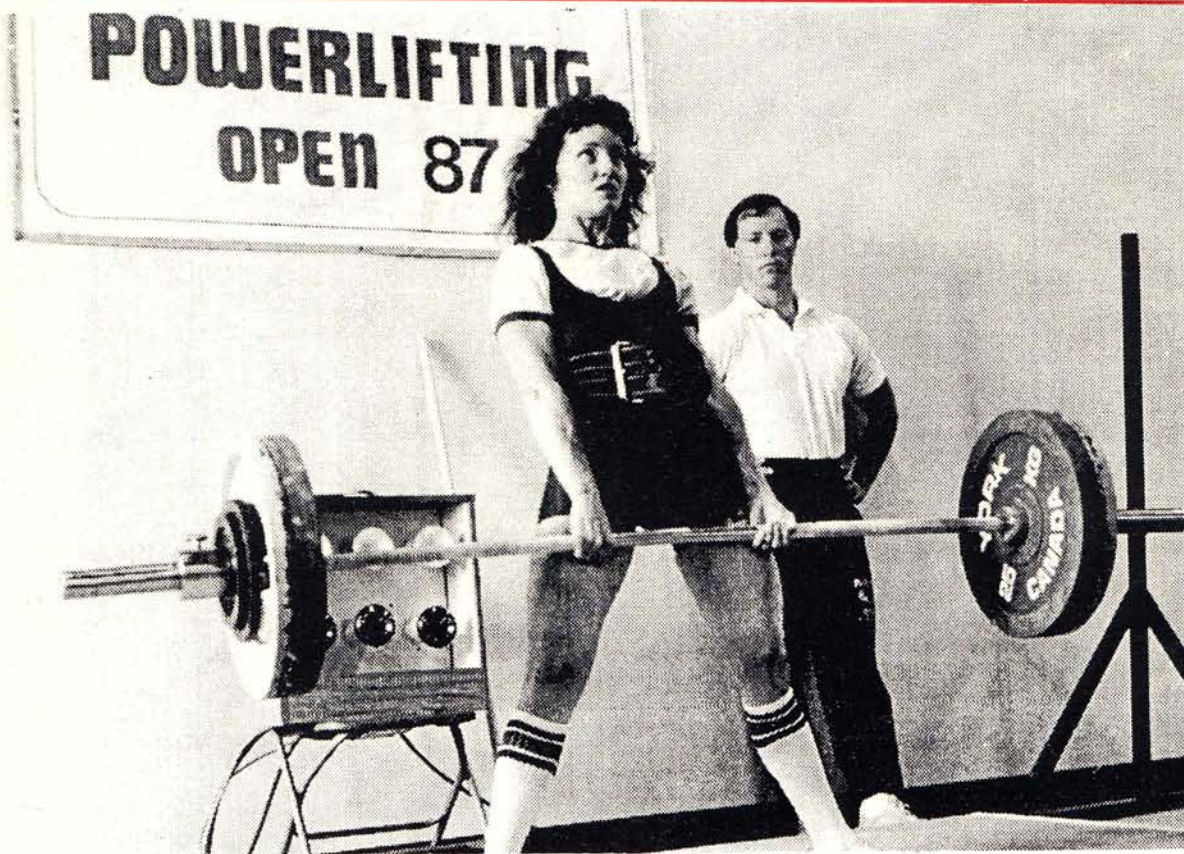


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VALERIE HOVINGA

ARE PLYOMETRICS SAFE????

by Matt Brzycki

Plyometrics have been used as a training modality by track and field athletes for many years. These exercises and drills have been touted as the 'link' between strength and speed. During the 1980's, the popularity of plyometrics is literally growing by leaps and bounds as a method of increasing explosive strength in such sports as football, basketball, volleyball, gymnastics and powerlifting.

Plyometric training utilizes the myotatic or stretch reflex of a muscle. This reflex is elicited when a muscle is pre-stretched prior to a contraction. Pre-stretching results in a more powerful movement that would otherwise be possible. In-depth jumping, for example, uses an individual's body weight and the force of gravity to evoke this response. In this exercise, you are required to step off a box from a specified height (usually 2½-3½ feet). The elastic nature of muscles (in this case the gluteals, quadriceps, hamstrings and calves) allows you to store potential energy during the lowering (or eccentric) phase of this movement. Upon making contact with the ground, your lower body musculature is forcefully pre-stretched which brings about the stretch reflex. The stored energy is then released as kinetic energy resulting in a rapid, explosive movement.

Other popular exercises based upon this principle include bounding, hopping and box drills. More recently, upper body plyometrics (such as ballistic or drop pushups) have been introduced for the development of explosive power.

At first glance, plyometric training appears to be a rather innovative idea. Unfortunately, it is not without its share of controversy. It seems as if a great deal of misleading information, half-truths and confusing rhetoric are being spewed forth by plyometric 'experts'. For example, 'experts' on the subject are eager to point out that plyometrics 'bridge the gap between strength and speed'. However, no one ever explains exactly what this rather nebulous description means.

Incidentally, most of the accolades showered upon plyometrics are based on personal anecdotes or the erroneous protocol of biased research. Furthermore, the belief that the elastic properties of tendons and muscle tissue can be trained to become more efficient at storing energy is completely unfounded. In other words, no conclusive evidence exists to suggest that plyometrics are a productive method of training.

Most importantly, the potential for traumatic injury is extremely high due to the repetitive, ballistic nature of plyometric exercises. In fact, many prominent sportsmedicine doctors, physical therapists and athletic trainers view plyometrics as 'an injury waiting to happen'. When performing plyometrics, the musculoskeletal system is exposed to extreme biomechanical loading. The muscles, bones and connective tissue act as natural shock absorbers to dissipate the imposed stress. An injury occurs when these stresses exceed the structural integrity of a joint. Potential injuries include (but are by not limited to) heel bruises, shin splints, meniscal damage, patellar tendinitis and vertebral compression as well as various sprains, strains and stress-related fractures. One sportsmedicine doctor feels that sciatic conditions and even a loss of motor ability may result. Young athletes are especially prone to trauma since their musculoskeletal systems are relatively immature. The epiphyseal plates of their long bones haven't fused yet thereby making the head and neck of the femur especially vulnerable.

Incredible as it may seem, one plyometric guru advocates 'altitude jumps' which he describes as stepping off a box or a platform from a height of 5 feet to 9 feet, landing on the ground and jumping up as high as possible! This can only be viewed as musculoskeletal suicide.

Again, the ironic part is that no one has ever proven conclusively that plyometrics produce any favorable responses. However, even if plyometrics did promote significant gains in explosive strength, the risks far outweigh the benefits.

The old adage that 'A little bit of knowledge is dangerous' seems very true concerning the stretch reflex. So, before you listen to the claims of the so-called 'experts' and decide to take that first step off the plyometric soapbox, ask yourself, "Is it worth the risk?"

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Canadian Powerlifting Union

POWERLIFTING QUALIFICATIONS STANDARDS FOR WOMEN

CLASS	44 (97)	48 (105)	52 (114)	56 (123)	60 (132)	67.5 (148)	75 (165)	82.5 (181)	82.5+ (181+)
Elite	290 (639)	310 (683)	332.5 (733)	355 (782)	375 (827)	412.5 (909)	445 (981)	477.5 (1053)	512.5 (1130)
Master	262.5 (579)	282.5 (623)	302.5 (667)	322.5 (711)	340 (749)	375 (827)	405 (893)	435 (959)	465 (1025)
Class I	235 (518)	255 (562)	272.5 (601)	290 (639)	305 (672)	337.5 (744)	365 (805)	392.5 (865)	417.5 (920)
Class II	210 (463)	225 (496)	242.5 (535)	257.5 (568)	272.5 (601)	300 (661)	325 (716)	347.5 (766)	372.5 (821)
Class III	182.5 (402)	197.5 (435)	212.5 (468)	225 (496)	237.5 (524)	262.5 (579)	282.5 (623)	305 (672)	325 (716)
Class IV	157.5 (347)	170 (375)	182.5 (402)	192.5 (424)	205 (452)	225 (496)	242.5 (553)	260 (573)	280 (617)

POWERLIFTING QUALIFICATION STANDARDS FOR MEN

CLASS	52 (114)	56 (123)	60 (132)	67.5 (148)	75 (165)	82.5 (181)	90 (198)	100 (220)	110 (242)	125 (275)	125+ (275+)
Elite	482.5 1064	525 1157	565 1246	632.5 1394	692.5 1527	745 1642	785 1731	827.5 1824	857.5 1890	882.5 1946	917.5 2033
Master	445 981	482.5 1064	520 1146	580 1279	635 1400	682.5 1505	722.5 1593	760 1675	787.5 1736	810 1786	842.5 1857
Class I	400 882	432.5 953	465 1025	522.5 1152	570 1257	612.5 1350	645 1422	682.5 1505	705 1554	725 1598	757.5 1670
Class II	352.5 777	380 838	410 904	457.5 1009	500 1102	540 1190	570 1257	600 1323	620 1367	640 1411	667.5 1472
Class III	305 672	332.5 733	357.5 788	402.5 887	437.5 965	470 1036	497.5 1097	525 1157	542.5 1196	557.5 1229	580 1279
Class IV	267.5 590	290 639	312.5 689	350 772	380 838	410 904	432.5 953	455 1003	475 1047	487.5 1075	507.5 1119