Jump Training: ¿Why and How?: an Exhaustive Review
General, Conceptual and Historic Framework

Rodrigo Ramírez-Campillo
Department of Physical Activity Sciences
Research Nucleus in Health, Physical Activity and Sport
Laboratory of Measurement and Assessment in Sports (LabMED)
University of Los Lagos, Osorno, Chile
Different to others “plyometric” muscle actions (i.e., precision throwing), jumping is common to many animal species…..and is the closest to fly that we can get, as a non-flying specie.
¿Why humans jump?

Joy

Dance (MASAI)

Dance (ZULU)

Avoid danger

Croos places

Social protest

TRAINING - COMPETITION

Planetary exploration

708 y before modern era, since 18th ancient Olympiad

Minetti 2002
From a conceptual point of view...

**PLYOMETRIC** literally means “increased length”.

**Plyometric Training** has been defined as “The specific capacity of a muscle to develop an increased force impulse immediately after a forceful mechanical muscle stretch”.

**Jump Training** usually implicates multi-joint exercises, big muscle groups, and “near-maximal” voluntary effort during the concentric muscle action.

Usually requiring only body-weight load.....
Therefore, **JUMP TRAINING** may incorporate many types of jump exercises (not only popular exercises as the Drop Jump or other “high-impact” jump exercises) and usually (although not always) will incorporate an SSC.
From an historic point of view......

Some jump training techniques were introduced near 3000 years ago, during the ancient Greek Olympiads (i.e., 700 y before modern times).


more recently, in 1885, the muscle elastic component was studied, performing what today we know as SJ and CMJ.

The researchers founded an “increased external mechanical energy production” (i.e., height of the jump) during the CMJ.
Rodolfo Margaria, in the 6th decade of the 20th century studied the “relevance” of the SSC, indicating that a concentric muscle action, preceded by an eccentric muscle action, allowed a greater muscle performance versus an isolated concentric muscle action.


His findings were used in N.A.S.A. for walk-moon preparation.

Also in the 6th decade of the 20th century, Yuri Verkhoshansky popularized a training method that incorporated drop jumps, used with the intention to improve the SSC muscle behavior and the myotatic reflex, introducing the concept of “The Shock Method”, latter popularized as “Plyometric Training” by his friend and athlete Fred Wilt.


“This method may improve the neuromuscular system as a whole for explosive movements, not only the contractile muscle component”.

In the 7th decade of the 20th century, studies used jump actions to analyze muscle behavior from a more “biological perspective”.

*Acta physiol. scand.* 1974. 91. 385—392

From the Laboratory for the Theory of Gymnastics, August Krogh Institute, University of Copenhagen, Denmark

**Storage of Elastic Energy in Skeletal Muscles in Man**

By

Erling Asmussen and Flemming Bonde-Petersen
Also during the 7th decade (and latter on the 8th decade) of the 20th century, Dr. Carmelo Bosco published several studies related to “elastic energy utilization”.

Utilization of stored elastic energy in leg extensor muscles by men and women

PAAVO V. KOMI and CARMELO BOSCO

Kinesiology Laboratory
Department of Biology of Physical Activity
University of Jyväskylä
FIN-40100 Jyväskylä 10
Finland
Effects of Dynamic and Static Training on Vertical Jumping Ability

RICHARD A. BERGER
Texas Technological College
Lubbock, Texas

Therefore, from a scientific perspective, Jump Training has been investigated from nearly 50 years ago.....

...however, from the sport-historical perspective, jump training methods has been used from nearly 3000 years ago....

...agreed in that JUMP TRAINING usually implicates multi-joint exercises, big muscle groups, adequate voluntary effort during the concentric muscle action, usually requiring only body-weight load, and may incorporate many types of jump exercises (e.g., low impact; high impact; etc.), and usually implicating an SSC.
Review of the Day
JT, from a scientific point of view, is a relatively new (<50 y) research study area.

However, from a practical and sport-related point of view, JT had an ancient history, of near 3000 years ago, considering that JT implicates several types of jumps.