

YURI VERKHOSHANSKY

SHOCK METHOD

Published by Verkhoshansky SSTM
2018 – Rome, Italy

ON THE COVER

THE FAMOUS PHOTO OF THE LEGENDARY VALERY BRUMEL WHO BROKE THE HIGH JUMP WORD RECORD FIVE TIMES, FROM 1961 TO 1971.

Shock Method

© Copyright: Natalia Verkhoshansky

Published by Verkhoshansky SSTM©

www.verkhoshansky.com

Edited by Natalia Verkhoshansky, Bryan Mann and Matt Thome

Translation of the book “Shock Method” Russian edition - Natalia Verkhoshansky

Translation of the book “Tutto sul Metodo d’Urto” Italian edition - Carlo Buzzichelli

All rights reserved.

No part of this book may be reproduced, stored in any electronic format or other retrieval system, or transmitted in any form, by any means, including mechanical, photocopy, recording and may not be used in any form for commercial purposes without the prior written permission of the authors.

THANKS AND ACKNOWLEDGMENTS

We wish to thank Bryan Mann and Matt Thome, for their precious work in reviewing and editing. Their contribution has been determinant for the whole editorial project.

We also would like to thank Carlo Buzzichelli for the translation of the book “Tutto sul metodo d’urto” which has been the basis of the editorial project.

TESTIMONIALS

THESE TESTIMONIALS WERE TAKEN FROM THE FIRST RUSSIAN EDITION OF “SHOCK METHOD”. HERE WE ARE REPORTING ONLY THE TESTIMONIALS REFERRED TO DEPTH JUMP WHICH IS ONE OF THE MOST FAMOUS MEANS OF SHOCK METHOD CONCEIVED BY PROF. VERKHOSHANSKY

For jumpers the Depth Jumps are like a sip of fresh water on a hot day. Moreover, they are an optimal method to evaluate the functional state of the athlete and to increase explosive muscle strength.

Vitali Petrov, trainer of the former world pole vault record holder Sergei Bubka.

I had not thought that Depth Jumps could be so useful for the weightlifter. I am very sorry that I did not know anything about these exercises before.

Yuri Kozin, former world weightlifting record holder.

The Depth Jump is one of the main means I use to increase explosive strength and muscle reactive capacity and to control my functional state.

Igor Palkin, former world high jump record holder.

I do not like exercises with barbell and jumping exercises. Only the Depth Jumps increase my strength.

Vladimir Jascenko, former world high jump record holder.

The Depth Jumps are an excellent means of training, but in using them you must use the brain.

Ianis Lasis, former world record holder in the javelin throw.

The Depth Jumps are daily bread for triple jumpers; they are what is most necessary for them, first of all.

Viktor Saneev, former world record holder in the triple jump.

The Depth Jumps replace the muscles with very elastic steel springs. Without them it is not possible to perform the jumps on ice, characterized by a high flight height.

Stanislav Guk, trainer of many world champions in figure skating on ice.

The Depth Jumps are the basis of the volleyball players' ability to jump.
Vladimir Patkin, general technician of the Soviet National Volleyball Team.

The Depth Jumps are the best way to make the muscles explosive, especially if they are used in a rational combination with the barbell exercises.

Ekkart Arbeit, general technician of the National Athletics Team of the former GDR.

Depth Jumps? It is a very effective means. If I had appreciated it before, Boston would not have won so easily in Rome.

Igor Ter-Ovanesian, former long-time jumper and general coach of the former USSR National Athletics Team.

TABLE OF CONTENT

THANKS AND ACKNOWLEDGMENTS.....	I
TESTIMONIALS	II
INTRODUCTION: CLARIFYING TERMS AND METHODOLOGICAL ISSUES (NATALIA VERKHOSHANSKY).....	9
I.1. SHOCK METHOD AND DEPTH JUMP	9
I.2. DEPTH JUMP AND PLIOMETRICS	12
I.3. PLIOMETRICS AND PLYOMETRICS.....	15
I.4. STRETCH-SHORTENING CYCLE AND DROP JUMP	18
I.5. DROP JUMP AND DEPTH JUMP	21
I.6. PROTECTIVE FUNCTION OF THE NEURO-MUSCULAR SYSTEM.....	28
I.7. SUPER METHOD OF SPECIAL STRENGTH TRAINING	34
PREFACE OF YURI VERKHOSHANSKY	39
1. SHOCK METHOD: WHAT IT IS AND HOW IT WORKS	43
1.1. THE SHOCK REGIME OF MUSCULAR WORK AND ITS PARTICULAR FEATURES	43
1.1.1. WHAT KIND OF SHOCK REGIME OF MUSCULAR WORK ARE WE REFERRING TO?	43
1.1.2. HOW THE COLLISION OF FALLING BODY WITH THE GROUND INFLUENCES THE MAXIMAL HEIGHT OF SUBSEQUENT VERTICAL JUMP?.....	47
1.1.3. HOW THE COLLISION BETWEEN THE FALLING EXTERNAL LOAD AND THE STRAIGHTENED-UP HUMAN HAND INFLUENCES THE FORCE OF SUBSEQUENT REPULSIVE MOVEMENT?.....	49
1.1.4. CONCLUSION.....	51
1.2. REACTIVE ABILITY OF THE ATHLETE	53
1.2.1. REACTIVE PROPERTIES OF NEURO-MUSCULAR SYSTEM AND THE MUSCLES FUNCTION AS “LOCOMOTOR SPRINGS”	53
1.2.2. THE REACTIVE ABILITY OF ATHLETE: WHAT IT IS AND HOW IT MAY BE EVALUATED.....	55
1.2.3. MAY THE REACTIVE ABILITY BE IMPROVED, OR IT IS WHOLLY DETERMINED BY THE INNATE CHARACTERISTICS OF THE ATHLETE’S NEURO-MUSCULAR SYSTEM?.....	59
1.2.4. HOW DOES REACTIVE ABILITY CHANGE UNDER THE INFLUENCE OF TRAINING?.....	61
1.2.5. CONCLUSIONS	63
1.3. APPLYING THE KINETIC ENERGY OF A FALLING WEIGHT AS A FACTOR OF MUSCULAR STIMULATION	63
1.3.1. HOW DOES THE WORKING EFFECT OF AN UPPER EXTREMITY MOVEMENT, PERFORMED IN THE SHOCK REGIME, CHANGE WITH INCREASING THE WEIGHT OF THE FALLING LOAD AND THE HEIGHT FROM WHICH IT FALLS?.....	65
1.3.2. HOW DOES THE MAXIMAL HEIGHT REACHED IN DEPTH JUMP CHANGE BY INCREASING THE BODY’S WEIGHT (WITH ADDING THE LOAD)?	68

TABLE OF CONTENT

1.3.3. HOW DOES THE MAXIMAL HEIGHT REACHED IN THE DEPTH JUMP CHANGE BY INCREASING THE DROP HEIGHT?	70
1.3.4. HOW DO THE OTHER PARAMETERS OF THE DEPTH JUMP CHANGE BY INCREASING THE DROP HEIGHT?	71
1.3.5. CONCLUSIONS	72
1.4. TRAINING EFFECTS OF THE EXERCISES PERFORMED IN THE SHOCK REGIME.	74
1.4.1. HOW DOES THE WORKING EFFECT OF A SHOCK-REPELLING MOVEMENT OF THE UPPER EXTREMITY CHANGE IF THIS MOVEMENT IS APPLIED AS A TRAINING EXERCISE?	74
1.4.2. COMPARISON BETWEEN THE TRAINING EFFECTS OF DEPTH JUMPS AND OTHER JUMPING EXERCISES	76
1.4.3. THE STRENGTH CAPABILITIES OF ATHLETES AND THE RESULTS OF INTRODUCING DEPTH JUMPS INTO THE STRENGTH TRAINING PROGRAM	77
1.4.4. IN WHAT WAY DOES THE USE OF DEPTH JUMPS IN THE TRAINING PROGRAM INFLUENCE THE STRENGTH ABILITIES OF ATHLETES?	81
1.4.5. HOW DOES THE REPETITIVE PERFORMANCE OF DEPTH JUMPS INFLUENCE THE EXPLOSIVE ABILITY OF THE ATHLETE?	83
1.5. FORMULATING THE SHOCK METHOD	84
1.5.1. THE ESSENCE OF SHOCK METHOD	85
1.5.2. THE TRAINING EFFECT OF SHOCK METHOD	86
1.5.3. THE MAIN CONDITIONS FOR OBTAINING THE TRAINING EFFECTS OF THE SHOCK METHOD	87
1.5.4. SHOCK METHOD AS MEANS TO INTENSIFY THE TRAINING	88
1.5.5. PLACING SHOCK METHOD IN THE TRAINING PLAN	90
2. SHOCK METHOD EXERCISES AND RULES FOR THEIR APPLICATION	93
2.1. DEPTH JUMP	93
2.1.1. UNDERSTANDING THE KEY ELEMENTS OF THE DEPTH JUMP	93
2.1.2. THE EXECUTION TECHNIQUE OF THE DEPTH JUMP	95
2.1.3. HOW TO TEACH THE ATHLETE THE CORRECT EXECUTION TECHNIQUE OF THE DEPTH JUMP	100
2.1.4. THE DOSAGE OF TRAINING LOAD WHEN APPLYING THE DEPTH JUMP	101
2.1.5. THE PLACEMENT OF DEPTH JUMPS IN THE PREPARATION PERIOD	106
2.1.6. ROLE AND ALLOCATION OF DEPTH JUMPS WITHIN THE TRAINING MEANS OF SPECIAL STRENGTH TRAINING	108
2.1.7. IN WHAT CASES SHOULD DEPTH JUMPS BE AVOIDED?	114
2.2. OTHER MEANS OF APPLYING THE SHOCK METHOD	116
2.2.1. VARIATIONS OF THE DEPTH JUMP	116
2.2.2. THE DROPPING SHOCK METHOD EXERCISES FOR THE UPPER BODY	117
2.2.3. SHOCK METHOD EXERCISES WITH SPECIAL EQUIPMENTS	119
2.2.4. GENERAL CONSIDERATIONS FOR APPLYING THE SHOCK METHOD EXERCISES	122
3. SHOCK METHOD TRAINING PROGRAMS	125
3.1. TRAINING PROGRAMS FOR TRACK & FIELD JUMPERS AND SPRINTERS	126
3.1.1. PROGRAM FOR MIDDLE LEVEL LONG AND HIGH JUMPERS	126
3.1.2. PROGRAM FOR INCREASING THE SPEED OF STARTING ACCELERATION IN SPRINT RUNNING	128
3.2. UNIVERSAL PREPARATORY PROGRAMS FOR IMPROVING JUMPING ABILITY	131

3.2.1. FIRST VERSION..... 132

3.2.2. SECOND VERSION..... 133

3.2.3. THIRD VERSION 134

3.3. TRAINING PROGRAMS FOR HIGH LEVEL WEIGHTLIFTERS 136

 3.3.1. BASIC PROGRAM FOR THE PRE-COMPETITION PERIOD 136

 3.3.2. ADVANCED PROGRAM FOR THE PREPARATION PERIOD 140

 3.3.3. ADVANCED PROGRAM FOR THE PRE-COMPETITION PERIOD 141

3.4. TRAINING PROGRAM FOR HIGH LEVEL GYMNASTS 143

3.5. TRAINING PROGRAM FOR HIGH LEVEL ROWERS 147

3.6. TRAINING PROGRAMS FOR VOLLEYBALL PLAYERS. 151

 3.6.1. PROGRAM FOR MIDDLE LEVEL ATHLETES 151

 3.6.2. PROGRAM FOR THE PREPARATORY STAGE OF HIGH LEVEL ATHLETES 152

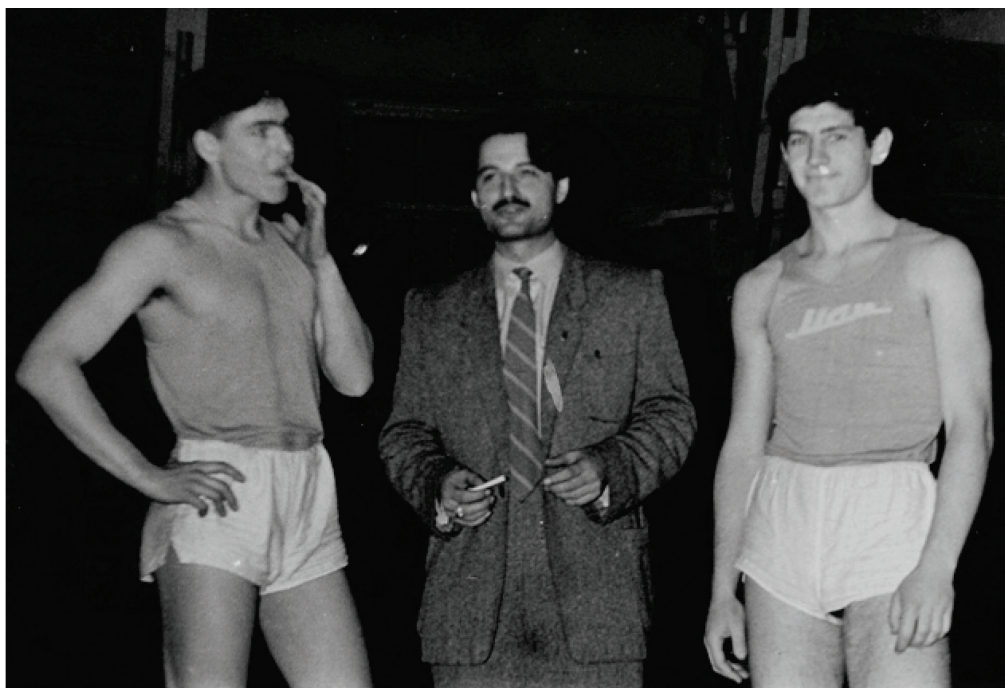
 3.6.3. PROGRAM FOR THE PRE-COMPETITION STAGE OF HIGH LEVEL ATHLETES..... 154

3.7. TRAINING PROGRAM FOR WATER POLO PLAYERS 156

3.8. TRAINING PROGRAM FOR ICE HOCKEY PLAYERS..... 160

3.9. TRAINING PROGRAM FOR HIGH LEVEL AMERICAN FOOTBALL PLAYERS 162

PREFACE OF YURI VERKHOSHANSKY



At the end of the 1950's, I worked as a Track & Field coach at the Moscow Aeronautic Institute and trained a promising group of long, triple, and high jumpers. It was with them that I first tried to apply training exercises with a barbell. We enthusiastically practiced with a barbell and vividly felt the benefit of this work. Nevertheless, we wanted more. At that time, I was studying the biomechanics of the triple jump and I discovered that the magnitude of force effort applied in the final push off reaches a level of 300kg. None of my pupils were able to lift such a heavy weight in the Barbell Squat and they tried, at all costs, to get closer to that goal.

Once, I remember, I said to my athletes: "We usually use full barbell squats, with complete flexion of the legs, but what if we performed it differently, not squatting to full depth? The Half-Squat allows us to lift a heavier weight, therefore, in this way, it would be possible to increase the effect of training."

So, we started to implement this "genius" idea... and a miracle happened! The athletes, who had barely been able to cope with a barbell of 120-130kg (which wasn't bad for us in those times), began easily squatting a barbell of 180-200kg. Although I noticed that their spines bent in various directions, nobody gave this great importance: Do you need to pay attention to such trifles when you make an important step towards sporting success? How-

ever, the backbones of the athletes did not share our enthusiasm... The next day none of the athletes came to train; All suffered back pain and could not return to training until the end of the following week.

I understood that a heavy barbell and the spines of my lanky guys are two incompatible things. So, what should we do? I immediately invented a new exercise: lifting a barbell with the legs while in a supine position. At that time, we did not have special equipment for this exercise, so the barbell was placed on the feet and pressed vertically while two assistants prevented the barbell from falling. The guys tried to do it and discovered that they were able to lift much heavier weights than in the Half Squat. However, this also was trouble: the assistants of the athlete who performed the exercise had great difficulty holding the barbell on his feet and this was very dangerous.

And then I remembered another thing that surprised me in the biomechanics of the triple jump: the magnitude of force effort applied in the final push off reaches the level of 300kg in only 0.125 sec. Trying to figure out what provides such a high level of explosive strength expression, I discovered that during the landing-take-off movement, the flexing-extending leg assures the rotation of the body's displacement vector at 28-30°, while the speed of horizontal body displacement, before this rotation, arrives at 9.5 m/s (20-21 km/hour). Therefore, what assures the colossal load that acts on the athlete's leg is the kinetic energy accumulated by the athlete's body during the run-up.

In that moment, a new idea came to me: why not try to use a training exercise in which the kinetic energy of the falling body will be applied as the external load instead of a barbell?

Thus, the Shock Method was born.

In the early 1960s, my first publications about the Shock Method were adopted with skepticism that eased my enthusiasm and strengthened the doubts. However, the publications did their work. While I indulged doubts, my first Shock Method exercise, the Depth Jump, began to be successfully used in the training of leading soviet athletes in many sports.

Later, Depth jumps were introduced in Europe, then in America, in Japan and in Australia and, finally, through Finland and Italy, returned to Russia, but with another "nationality." Our sports journalists enthusiastically described its advantages as the "achievement of foreign specialists." Truly, "no man is a prophet in his own country."

By the time of the "great return home" of the Depth Jump, I was wholly involved in scientific work on issues that go far beyond any problem of applying a certain training method. However, I noticed that most of coaches and sport scientists considered my Shock Method only as applying the Depth Jump. The possibility of successful application of this method for the upper body was not appreciated. In addition, in the rules of applying

Depth Jumps, there were so many misunderstandings that it could nullify all the benefits of this excellent exercise.

I was so worried by these circumstances that I decided to write this book.

Recently, one of my friends from Memphis, knowing that I am going to write a book about the Shock Method, exclaimed with surprise: “How is it possible to write a whole book about it?” I admit, I was somewhat taken aback by this question, but one recollection made me smile in response.

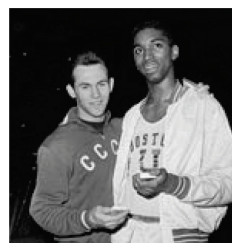
...It was in the late 1960's: the time of the first Track & Field meets between the USSR and the USA. We were sitting on the tribune of Moscow's stadium “Luzhniki.” There were three of us: A Great Coach, my Great Mentor, and my great friend: Professor Vladimir Dyachkov, the magnificent John Tomas, who, at that time, was the best high jumper in the world, and I, a young coach and the pupil of Dyachkov. Certainly, we were talking about Track & Field high jumping. When Dyachkov casually mentioned his book dedicated to high jumping, Tomas had exclaimed with unconcealed surprise: “How is it possible to write a whole book about this?” Then I said to John Thomas, “Yes, to tell ALL about the high jump, you really need to write a whole book.”

Now, I can answer the question from my friend in Memphis the same way: “Yes, to tell ALL about the Shock method, you really need to write a whole book. Believe me, the Shock Method deserves it.”

I hope this book will help coaches objectively evaluate the possibilities of the Shock Method and successfully utilize its incredible training potential in their practice.

Sincerely yours,

Rome, 1997

PREFACE

EDITOR'S NOTE:

The preface has been integrally translated from the Italian book “Tutto sul Metodo d’Urto” (Yuri Verkhoshansky - 1997, Società Stampa Sportiva).

The following chapters have been translated from the original Russian manuscript of the author and integrated with the content of the Italian book.