

# **METAL ROD EXERCISES**



# **METAL ROD EXERCISES**

*A Unique Collection of Exercises for Developing Physical Strength*

by Lawrence Whitmore

Essential Fitness Concepts

Published by Essential Fitness Concepts, Cambridge, UK  
www.efconcepts.net

Copyright © 2004 Lawrence Whitmore

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means without the prior written permission of the copyright owner.

ISBN 0-9545345-0-6

As this is a first printing there are likely to be mistakes in the text. We have given much care to minimise these, and we apologise for any that may have been missed.

### **About the Author**

Lawrence Whitmore was born in London in 1967. He graduated with a Ph.D. in Physics in 1994 and has been involved with the study and practice of sport, philosophy and kung-fu for many years, performing at an amateur level nationally and abroad in cycling since 1985. He shares a strong belief that the potential within each person is enormous and that training is a major way of helping to bring this out. He has found that the metal rod exercises provide a unique form of training not previously developed in the fields of sport and martial art; simple yet advanced, they can be used to build strength, endurance and mental toughness, which can aid in personal maintenance and can facilitate many endeavours sporting or otherwise.

Front cover with images of two of the routines described in the book  
Back cover design with nine kanji characters also included in the text. Kanji characters in the book are subtitled with the English translation and pronunciation.

Original photography by Kamara Photographic Studios  
Printed in Hong Kong by Regal Printing

Rods and more information available at the Metal Rod Exercises web site  
[www.metalrodexercises.com](http://www.metalrodexercises.com)

This book is dedicated to all those interested in training

# Safety and Legal Notice

---

Much effort has been made to ensure the safety of these routines. However, the final safety of any exercise is dependent upon many factors and is ultimately the responsibility of the trainee. By keeping to the safety guidelines throughout the book, and by proceeding carefully at your own pace these risks are minimised but not eliminated.

The Metal Rod Exercises are a serious workout for building strength, and as with all strength workouts there are risks involved. Care is required for all aspects of the training. It is therefore recommended that only those adults of a good physical condition and preferably with prior experience in strength training should use these exercises. It is advised that you consult a qualified sport science practitioner or physical trainer prior to using these exercises.

Due to the strenuous nature of the exercises, please be sure to read the ‘Safety’ section on page 28. Other sections also give information regarding safe practice and precautions, especially ‘Posture and Stance’ and ‘Holding the Rod’. **It is strongly advised that you consult your physician before engaging in this or in any other physical exercise programme.** The rods are advised for the sole application of the Metal Rod Exercises and no additional use is intended nor implied.

The author accepts no liability whatsoever for any injury, damage, or loss of earnings or status, caused while using the exercises or any information in the book. No guarantee is made that the exercises work or give any particular results. All views expressed in this book are solely those of the author unless stated otherwise.

# Preface

---

Strength is a fundamental and absolutely necessary quality of all forms of life. Without strength we cannot survive, but with strength we can tackle challenges, overcome hardship and maintain our integrity.

The idea of using a metal rod to train for strength began early in 2002. During that year and the next, the background and principles were researched, and a large number of exercises were developed to give full body training. They are designed to build thorough, balanced strength and to train the deep postural muscles and the prime mover muscles to an equal extent.

Training with the metal rod also helps to develop mental toughness, strengthen and improve the posture, and improve the concentration and transfer of physical power and force. The fundamental nature of strength gives the exercises potential for application across a large range of interest from general health and fitness, to dance and theatre, personal development, martial art, and many if not all sports.

The method has developed from practice and studies of endurance sports, weight training and kung-fu, and combines the principles, grip, stance and load, with rod handling techniques. Although previous experience in physical training would be an advantage in approaching the exercises, it is not essential. They are carefully structured to encourage safe and effective progress, and are accompanied by a detailed section on safety in handling and using the rods. A basic grasp of the key aspects of sport physiology would help in appreciating the technical content of the manual.

An attempt has been made to consider the broader ideas of training and well being so as to give the exercises the added benefit of the possible larger context and the related background. This is then developed to include several areas that relate to health and fitness as well as ways in which the mind and mentality can help in training.

There seems to be no account of a physical training system using a metal rod in this way, and so it is presented here as an original set of exercises, and it is hoped that they are found to be useful. Kanji characters, the equivalent in Chinese of our words, have been included in the book. At first these were included to add variety and interest and for their decorative value, but later it became clear that each one also has a place inside of the training psychology.

Lawrence Whitmore  
Cambridge  
England  
2004

# Acknowledgements

---

The Metal Rod Exercises have been inspired by the classic Chinese writings *Journey to the West* and *Outlaws of the Marsh*, and by the philosophical and scientific works of the Template Foundation.

Thank you to Quincy Rabot of the Jing Song Academy of Internal Martial Arts, a practitioner of complimentary medicine by profession, for his help in understanding the physiology of the exercises, and for his encouragement.

Thank you also to all those others, so kind in their support, that have in some way helped to make this book possible.

# Contents

---

<b>SAFETY AND LEGAL NOTICE</b>	vi
<b>PREFACE</b>	vii
<b>ACKNOWLEDGEMENTS</b>	viii
<b>CONTENTS</b>	ix
<b>INTRODUCTION</b>	1
Metal Rod Exercises	2
<b>BACKGROUND</b>	5
Overview	6
Internal and External Resistance Training, and the Principle of Trainability	6
Training Without Straining	7
Dynamics of the Moving Rod	8
Art of the Staff	9
Training for Maintenance and Survival	10
A Basic Physiology of Strength	11
Muscle Contraction and the Nervous System	11
Muscle Roles - Tonic and Phasic	12
Structural Stability of the Pelvis	13
Core Stability	14
Coordination	15
Physical Strength	16
Tonic Strength • Phasic Strength	16
Bilateral Training	19
Posture • Movement • Strength	20
Dexterity	21
Applications and Benefits of the Exercises	22
Sports • Health and Fitness	22
Table of Sports Applications	23
Martial Arts	24
Dance • Physique • Posture and Stability • General	25
<b>TRAINING ISSUES</b>	27
Safety	28
General Rod Handling • Precaution in Case of Injury	28
Structure and Method	29
Phase I	29
Phase II • Phase III	31
Beyond Phase III • Repetitions	32

Training Environment • Recovery Times . . . . .	34
Posture and Stance . . . . .	35
Foot Placement . . . . .	35
Learning a Strong Stance . . . . .	36
Starting Stance . . . . .	38
Speed and Fluidity . . . . .	40
Breathing and Intensity . . . . .	41
Breathing and Core Stability . . . . .	41
Intensity . . . . .	42
Selecting a Rod . . . . .	43
Material • Weight and Size . . . . .	43
Holding the Rod . . . . .	45
Holding the Rod With One Hand . . . . .	45
Holding the Rod With Two Hands . . . . .	46
Holding the Rod When One End is on the Ground . . . . .	47
<b>PREPARATION</b> . . . . .	<b>49</b>
Preparation . . . . .	50
Preparing the Rod • Preparing the Room • Warm-up and Cool-down . . . . .	50
Stretching . . . . .	51
Stretch Combo 1 . . . . .	52
Stretch Combo 2 . . . . .	54
Stretch Combo 3 . . . . .	56
Stretch Combo 4 . . . . .	58
Stretch Combo 5 . . . . .	60
<b>METAL ROD EXERCISES      PHASE I</b> . . . . .	<b>63</b>
Routine I-1      Gripping the Rod . . . . .	64
Routine I-2      Holding the Rod . . . . .	66
Routine I-3      Placing the Rod . . . . .	68
Routine I-4      Lifting the Rod . . . . .	70
Routine I-5      Passing the Rod . . . . .	72
Routine I-6      Turning the Rod . . . . .	74
Routine I-7      Pressing the Rod . . . . .	76
Routine I-8      Lying Pass . . . . .	78
Routine I-9      Balancing the Rod . . . . .	80
Routine I-10      Squatting . . . . .	82
Routine I-11      Driving the Rod . . . . .	84
Routine I-12      Finger-Training . . . . .	86
<b>METAL ROD EXERCISES      PHASE II</b> . . . . .	<b>89</b>
Routine II-1      Side Circling . . . . .	90
Routine II-2      Lift to the Shoulder . . . . .	92
Routine II-3      Pulling the Rod . . . . .	94
Routine II-4      Swinging the Rod . . . . .	96

Routine II-5	Deep Knee Bend	98
Routine II-6	Side to Side	100
Routine II-7	Paddling	102
Routine II-8	Rope Climb	104
Routine II-9	Circulating the Rod	106
Routine II-10	Upper Thrust	108
Routine II-11	Raising the Rod	110
Routine II-12	Behind the Neck Press	112
<b>METAL ROD EXERCISES      PHASE III</b>		<b>115</b>
Routine III-1	Reaching with the Rod	116
Routine III-2	Single Turn Above the Head	118
Routine III-3	Cross-legged Raise	120
Routine III-4	Forward Turning	122
Routine III-5	Forward Bow	124
Routine III-6	Passing Down the Back	126
Routine III-7	Passing Up Across the Back	128
Routine III-8	The Metronome	130
Routine III-9	Side Raise	132
Routine III-10	Rolling the Rod	134
Routine III-11	Single-leg Squat	136
Routine III-12	Touching the Ground	138
Routine III-13	Cross-back Raise	140
Routine III-14	Semi Crouch	142
Routine III-15	Raising the Bar	144
Routine III-16	Whirling the Rod	146
<b>TRAINING AND WELL BEING</b>		<b>149</b>
General		150
Nutrition		151
Ecology		154
Mind		155
Training and Development		156
Mind and Mentality in Training		157
Vision • Aims, Goals and Targets • Reasons		157
Building from the Ground Up • Natural Rhythms		158
Learning • Sensitivity		159
Awareness • Order • Care		160
Mental Strength • Determination and Persistence • Sharing		161
<b>APPENDICES</b>		<b>163</b>
Questions and Answers		164
Glossary		168
Related Reading		170
Contacts and Accessories		171



Strength • *Li*

# Introduction

---

*Training can be constructive towards an enhanced fitness and well being, and the liberation of inner potential*



## Metal Rod Exercises

Physical strength is the product of most of the humans mental and physical systems acting together to cause the muscles to generate a force through contraction. Mental toughness and focus, bodily coordination, intensity, muscular endurance, muscle size, energy supply and metabolism all play a part. The aim of this book is to introduce a newly developed method of building physical strength that uses a metal rod to train these various qualities through a collection of specially designed routines.

Posture and movement are associated with two aspects of physical strength, and it is proposed that these be called **Tonic Strength** and **Phasic Strength** respectively, due to their relating to the tonic and phasic muscles. Different types of training leave a fingerprint on the trainee in terms of such things as musculature, definition, flexibility and vascularity. The physical fingerprint of the Metal Rod Exercises can be characterised by the following ten factors:

- Strength from the fingers to the core
- Well proportioned musculature
- Tonic strength, including core stability
- Phasic strength
- Grip strength
- Muscular endurance
- Large dynamic range of strength
- Bilateral dexterity
- Bodily coordination
- Flexibility

An excellent material to use for the rods is stainless steel: it stays bright, leaves the hands clean after use, and gives a weight that is suitable for strength training. A guide is given later in the manual for determining the rod size and weight (pages 43-44). It is recommended that rod weights be chosen in a graduated way so that at first, over a period of say a year, two or three rods of increasing weight are used. This makes it possible to begin at a safe weight to learn the skill of rod handling and then with practice to find a rod weight that is suitable for longer term usage. The length of a rod makes its weight more difficult to handle than, say, a dumbbell of the same weight because of leverage and momentum, and this increases the effective training load.

In order to learn the techniques and to build strength gradually and safely, 40 exercises have been chosen and arranged into three progressive sets called ‘phases’, which are graduated in difficulty. The recommended minimum time for each phase is between 5 and 6 weeks. This is purely for learning purposes, and after the third phase the 40 exercises provide the building blocks for a personalised training programme.

The first phase develops **Grip Strength** (which is mainly in the muscles of the hands and forearms) and basic handling skills. The second phase begins to develop tonic strength and phasic strength in the upper arms and shoulders. The third phase makes more complicated and demanding movements with a larger range of motion, emphasising the larger phasic muscle groups, such as the back and legs. This develops strength initially from the outside inward and then, once tonic strength and core stability have developed, from the inside outward. One to two hours of practice every other day is generally sufficient to make progress.

They make for a very simple form of training, efficient of time, and requiring only a single rod, making it possible to train with little restriction of time or place. No additional equipment is required. Combined with the stretching routines the exercises provide thorough training for flexibility and muscle tone: to concentrate purely on these aspects a lighter rod or staff can be used. As strength, muscle tone and flexibility are important for health, the exercises can also be used as part of a health and fitness improvement plan.

The exercises are especially good for developing core stability and muscular endurance, and for strengthening the fingers, hands and forearms. Back, shoulders, chest and arms, as well as the abdominal muscles are also much developed by the exercises. The crouching and lunging movements are especially good for developing strength and flexibility in the legs. The nature of the movements is to train the body as a single whole integrated unit rather than as a collection of individual muscles. The strength developed is therefore well balanced and highly transferable into everyday life bringing improvements to posture and bearing as well as lifting capabilities.

The three phases are presented with detailed descriptions and photographs of all the routines. Benefits of the metal rod training for various sports and activities are given on pages 22-25. A comprehensive series of stretches and a warm up routine are given on pages 49-61, and important training matters such as method, form, speed and breathing are related in the section 'Training Issues' on pages 27-47. Matters relating to training and well being are discussed on pages 149-161, including nutrition, ecology, mind, and the mind and mentality in training. An appendix is given on pages 163-171, and this includes a 'Question and Answer' section, a glossary, contact section and a list of further reading.

Important matters relating to safety while training with the rod are given on page 28. Due to the weight of the rods and the nature of the movements it is recommended that only people who are in good physical condition should use the exercises.



Patience • *Jên*

# Background

---

*Physical strength manifests through muscle contraction acting upon the skeleton in a coordinated manner, stabilising and causing the body to apply or resist force*



## Overview

Loaded movements build strength, and the Metal Rod Exercises use the weight, leverage and momentum of a metal rod or staff to provide the load. By varying the hand placement the effective load can be increased or decreased. Once the movements have been learned, the key ingredients of the exercises are form, combination and duration. The term ‘form’ relates in a collective sense to all practical aspects of performing the exercises, such as grip, stance and rod handling technique. Keeping good form generally increases the safety and effectiveness of the exercises.

Practically there are similarities to the various kung-fu, in that strength is built without using complicated machinery or by shifting heavy weights, but by holding stances and making movements that require intense muscular contraction. And also to those styles of kung-fu and to theatrical performance that utilise the staff and stick, so that art and skill with handling the rod are developed in addition to strength. The weight of the metal rod is of course much greater than would be used for sparring or for fast display, and this makes the exercises similar to modern day weight training or resistance training.

When one end of the rod is on the ground the technique is relatively simple to develop. When moving the rod at distance from the ground there are additional complications, with both rotational and lateral forces to deal with, and the presence of weight is generally constant. This is again very different to modern weight training which generally involves only a vertical lift and a lowering phase with gravity.

### **Internal and External Resistance Training, and the Principle of Trainability**

The general idea of resistance training is to exert one’s strength against a solid object such as a dumbbell or a loaded barbell, and to move it in some way. The weight of the object provides *external resistance*, and the heavier the object the greater its resistance. Strength is built over a period of time by gradually shifting heavier and heavier weights. Muscular endurance is built by extending the duration of loaded exercise or the number of repetitions of a lift. This takes advantage of a principle of the human ‘design’ that it will grow in strength, skill, endurance and other qualities to accommodate the nature of its application, which can be called the *Principle of Trainability*.

There is another concept of resistance that is also very pertinent to physical training. Consider a table: if the legs are of equal length and the structure is strong then the tables’ stability enables it to resist force. This works in a similar way with the human body. The postural muscles (also called tonic muscles) of the body provide *internal resistance* to maintain stability when the body is subjected to or handling external forces.

Training with the metal rod provides internal resistance training as well as external resistance training. The former develops mainly tonic strength through holding the

stance, and the latter mainly phasic strength through moving the rod. These two strengths are explained in more detail later. When a certain threshold of tonic strength has been crossed, what has been built is less prone and stands of its own internal strength, and from this point on the rod can be manoeuvred with greater freedom for creativity and style.

### **Training Without Straining**

A fundamental principle of the Metal Rod Exercise system is to *train without strain* - which means principally without straining the internal musculature of the abdomen and thorax. If a load or effort is too great or too intense the abdomen is usually the first place where strain occurs, and so by keeping this region free from strain the exercises can be kept at a safe level. As tonic strength and core stability develop, the abdominal region and the postural support muscles become stronger, and greater effort can be made without straining. This is important as strain is destructive to the body and is opposed to the fundamental principle of training that it should be constructive and conducive of well being.

In practice, *training without straining* can work through the magnitude of a feat or the number of repeated efforts. As an example, in weight training, a weight can be chosen that makes a particular exercise effective but that does not cause strain. In the Metal Rod Exercises the initial routines are designed on this principle so that with a suitably weighted rod the movements can build strength without straining, while more difficult movements are introduced later. Strength training is most effective when performed, for at least part of the time, just below the threshold at which strain occurs. With practice, strength increases and the threshold is pushed forwards.

Training within one's capability helps ensure safe and steady progression without injury or staleness. This relies on the *Principle of Trainability*, and trust can soon be developed that progress can be made without straining. The Metal Rod Exercises are performed in a different way to most modern workouts: emphasis is on making smooth and precise movements while maintaining a firm stance. The weight of the metal rod gives rise to slow movements, which tend to concentrate intensity rather than disperse it. Frequent straining in exercise can damage the whole nervous system especially the mind as it is always in a state of panic, and so training without straining is more healthy mentally and can even help develop settlement of the mind.

It is recommended that the exercises be performed along with a light aerobic exercise such as cycling, jogging, swimming or light 'bag' work. This helps clean out waste products from the muscles, blood and lungs while balancing out the moving and postural aspects of the body. Aerobic exercise helps maintain the cardiovascular system and works synergistically with strength training to help maintain a good level of overall fitness.

## Dynamics of the Moving Rod

Depending upon the length of the rod, leverage has a greater or lesser contribution to the exercises. Safe training requires that the forces are kept within the body's capability, and most routines operate within a threefold range of force (ie. 10 kg - 30 kg force for a 10 kg rod) through weight, leverage and momentum. This means that the rod can feel around three times heavier than it actually is. This is shown in the figures below where, on the left the force required to hold the rod is simply its weight (around 10 kg force for that particular rod), whereas in the picture on the right the force required is much greater (around 30 kg force for the same rod) due to leverage.

The *possible* forces encountered are much greater, and here are some extreme examples based upon a 10 kg rod, 1.8 metres in length. Lifting the rod horizontally with both hands next to each other at one end requires a force equivalent of around 100 kg (220 lb). The same rod moving linearly at 5 metres per second and being brought to rest over a period of 1/10 second requires a force equivalent of around 60 kg (132 lb). While holding the rod with hands touching at one end, a force equivalent of around half a ton is required to stop it moving laterally from 5 metres per second in 1/10 of a second.

Leverage is also effective through the arms. The 'Whirling' and 'Turning' routines for example involve holding the rod out in front of the chest, and the further out the arms are held the greater the force. As an example, a 10 kg rod held at arms length is approximately equivalent to holding a 50 kg weight close to the chest. Once again it is therefore possible to encounter very large forces through using only a single metal rod.

Initially, low leverage is required to help perform the movements. After some time, it becomes possible to employ the leverage effect to increase the load to further the development of strength. Until the dynamics of the rod are appreciated it is advisable to train very slowly and carefully.

