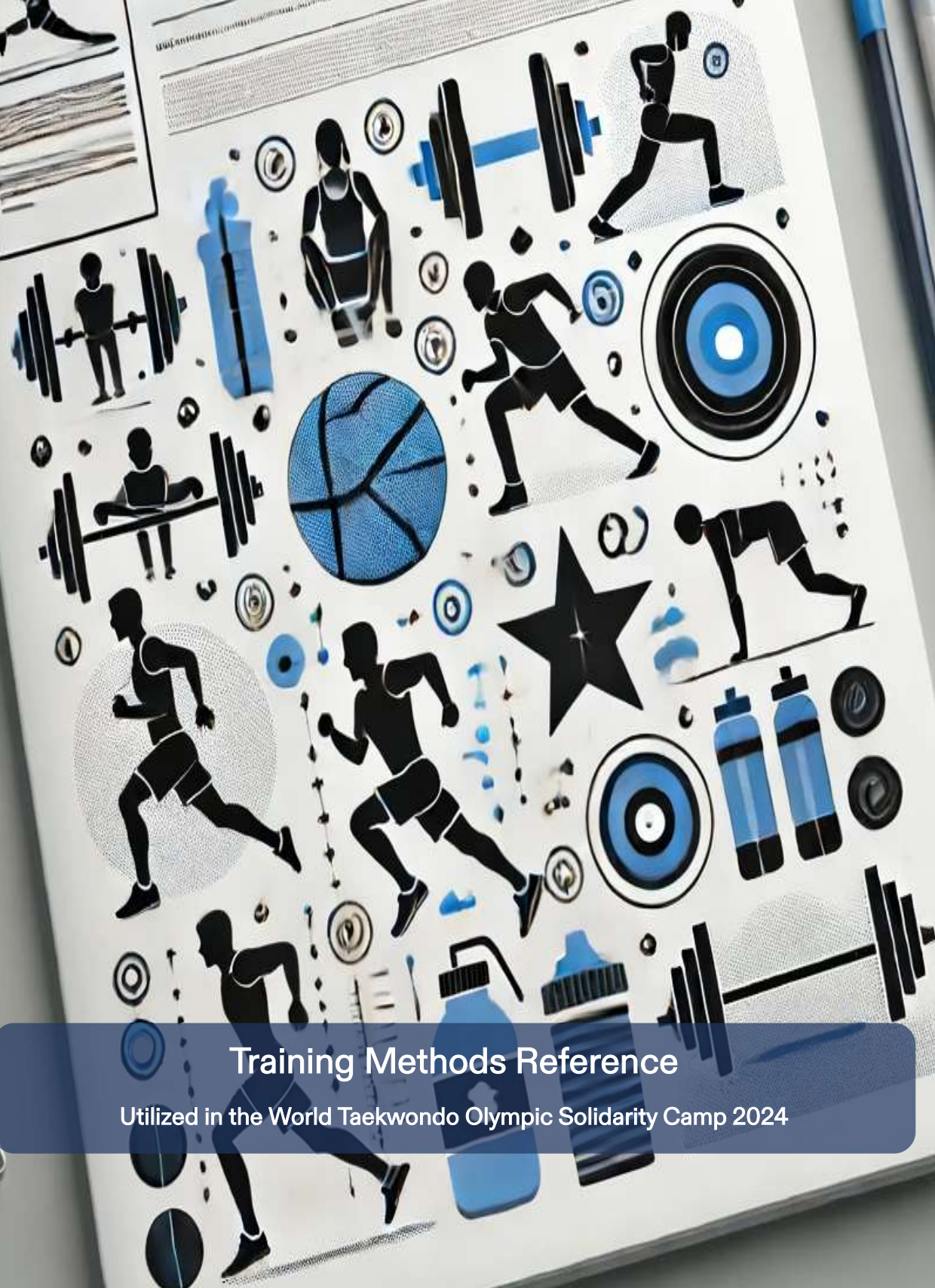


TRAINING  
METHODS  
REFERENCE

# TRAINING METHODS REFERENCE



Training Methods Reference

Utilized in the World Taekwondo Olympic Solidarity Camp 2024

# Training to improve Taekwondo performance

## 1. Purpose of Training

Training develops various human physical functions and motor abilities. It is a systematic process of improvement, and most athletes aim to increase the physical strength, skills, and mental strength necessary to improve performance through this process.

Therefore, so that athletes can have a constant sense of challenge to improve their performance, coaches must constantly strive to practice correct leadership skills and new and diverse training methods.

Coaches and players must pay special attention to the physiological, psychological and social changes that occur during their own training to formulate an appropriate training program to solve problems arising from various individual characteristics.

Training to improve performance cannot be effective through functional repetitive practice with only means and methods, and requires faithful training reasonably organized by a manager or coach with scientific knowledge of the elements that make up training. It will only be possible when it is implemented.

Training programs must have methods for specific purposes. For example, to improve muscle strength, a high-load, low-rep training method is needed, and to improve muscular endurance, a low-load, high-rep training method is needed. Therefore, training should be programmed and conducted with physical fitness components related to the athlete's sport.

The purpose of Taekwondo training may vary depending on the characteristics of the sport, but it has a primary purpose that is commonly required and a secondary purpose depending on the specificity of the sport. In other words, the primary purpose is to foster a well-rounded human being through character development in the mental aspect, and the secondary purpose is to improve performance by improving Taekwondo movements and professional skills through training. Therefore, I believe that the true purpose of training for athletes can be completed when the training is structured not only as a task-oriented program but also as a problem-solving program in which the athlete or coach must discuss and solve the problem together for a common goal

## 2. Principles of Training

Training programs must have methods for specific purposes. For example, to improve muscle strength, a high-load, low-rep training method is needed, and to improve muscular endurance, a low-load, high-rep training method is needed. Therefore, training should be programmed and conducted with physical fitness components related to the athlete's sport.

To conduct training, you need to understand the following 10 basic principles:

### 2.1. Principle of Overload

In order to improve physiological components, training should consist of a program that provides stronger stimulation than usual exercise stimulation. This can be explained by the SAID (Specific Adaptation to Imposed Demands - Logan & Wallis) principle. The SAID principle is a theory that when any stress is applied to the body, the body adapts to the stress appropriately after a certain period of time. In other words, in order for the body to adapt to strong external stimulation, the exercise stimulation of training requires a stimulation so strong that it is difficult to tolerate. This is the principle that a strong stimulation above a certain intensity of exercise must be given to the muscles. However, although stress is a very important factor in training and conditioning, the increased stress should not be such that it causes physical injury.

### 2.2. Principle of Incrementality

If you suddenly increase the exercise load during training, it can easily cause injury or damage, but if you gradually increase the load, your strength will improve. Therefore, this load should be applied only when the individual athlete has the ability to adapt to the increased exercise load. It can be effective training if you gradually increase the load and number of repetitions during training.

### 2.3. Principle of Continuity

This means that the effect cannot be achieved unless training is continued. If training is stopped for 1 or 6 months, the increased strength gradually decreases to the original strength level. Therefore, it is advisable to continue training even after the competition season ends.

### 2.4. Principle of Individuality

Everyone's physique and fitness level are different. Therefore, high-intensity training should be prescribed for those with strong physical strength, and light training should be prescribed for those with weak physical strength, to create a training program that athletes can best adapt to. Recognizing each individual's individuality is very important to increase training effectiveness.

### 2.5. Principle of Self-Awareness

You need to be able to understand your own condition, and it is effective to make a training plan and exercise according to your training purpose. On the contrary, it is not desirable to unconditionally follow the empirical methods of a coach or senior without criticism.

## 2.6. Principle of Specificity

When any form of resistance is applied to the human body, a special reaction or adaptation occurs according to that resistance. For example, to improve muscle strength, high load and low rep training is needed, and to improve muscular endurance, low load and high rep training is needed. Training must be conducted with a good understanding of the principles of this specificity.

## 2.7. Principle of Active Participation

Before starting training, you must understand the training goal and create a short-term and long-term training plan. After establishing a plan, regular evaluations motivate the athlete to achieve the training goal, and the athlete faithfully fulfils the training mission. This can be called the principle of active participation of players. Athletes' sincere and active participation during training leads to good results through interaction with coaches.

## 2.8. Principle of Comprehensiveness

Comprehensive development means including physical and mental abilities, and comprehensive development is the basic condition for constantly improving physical strength, technology, and culture. When training, plan and perform to develop physical strength elements evenly, thereby developing high-level exercise ability.

## 2.9. Principle of Diversity

The monotony of training content is a factor that can cause plateaus and slumps in athletes. Also, if you repeat the same intensity and amount, your exercise capacity will no longer increase. Therefore, you must train by adjusting the amount and intensity of training.

## 2.10. Principle of Model Ability

When practising for a game, practice with the same goal as the actual game, so that your strengths help improve your performance, and your weaknesses are complemented by practising on a different type of model. Training based on the principle of modelling can have a high effect not only on physical strength but also on psychological aspects in actual combat.

### 3. Training Prescription

Training prescription is the entire process of presenting the desired exercise type, intensity, frequency, time, etc. and improving all abilities, including physical strength and skills, through planned strengthening training. Training prescriptions must be given according to the individual's various conditions to understand the individual's adaptation and response to obtain high exercise effectiveness.

#### 3.1. Exercise Sequence

The order of exercise is very important because improving exercise ability does not involve developing just one part of the body according to the principle of comprehensiveness, but also improves all abilities of the entire body.

In general, it is best to move the exercise order from one that puts less strain on the body to one that puts more strain on the body, and it is desirable to train from large muscle exercises to small muscle exercises. Also, for each body part, an effective exercise order is to perform the exercises in the order of the thighs and waist, the back of the back and legs, the lower extremities and ankles, the occipital muscles of the shoulders and upper arms, the abdomen, and the front of the upper arms. Additionally, it is advisable to improve exercise ability by progressing from leg exercise to arm exercise, from agility exercise to endurance exercise, and from strength training to aerobic exercise.

#### 3.2. Exercise Intensity

Exercise intensity is the most important factor among training prescription factors and should be prescribed according to the individual's physical strength level, and the range of appropriate exercise intensity should be considered. You should also decide based on your personal interests and goals regarding exercise. For aerobic exercise, percentage units of maximum heart rate (HR max), heart rate reserve (HRR), and maximum oxygen intake (VO<sub>2</sub> max) are often used, and for strength exercise, units of percentage of RM (Repetition maximum) or maximum weight are prescribed. This is the typical way to do it.

#### 3.3. Exercise Frequency

Exercise frequency is a quantitative condition that refers to how frequently a program consisting of exercise intensity and exercise time will be practised per day or at what intervals during the week.

In general, three times a week is the appropriate exercise frequency, and one day of complete rest per week is recommended. However, the frequency can be increased to improve exercise effectiveness and increase exercise capacity. The frequency of exercise may vary slightly depending on the purpose or stage of exercise and the characteristics of the subject.

#### 3.4. Exercise Period

If you prescribe a program and exercise for a certain period of time, your exercise capacity will improve. In the case of strength training, after about 10 to 12 weeks, it increases by 85%

compared to the beginning of training, and cardiorespiratory endurance improves by about 30% after about 12 weeks. In the case of flexibility training, muscle elasticity improves after 8 to 12 weeks. Therefore, it takes at least 10 to 12 weeks to see training effects through intensive training.

## 4. Muscle Power Exercise Prescription

It can be said that muscle power exercise is effective in first improving muscle strength and then improving speed with speed movements. When the exercise intensity is high, the strength factor becomes the main factor and the speed factor is lowered, so only low power can be obtained and the exercise intensity is low. In this case, the speed factor becomes the main factor and the power becomes low. Therefore, the sum of speed and strength is the greatest, so the most efficient muscle power prescription is 30 to 40% of maximum strength.

When prescribing muscle power exercises, we accurately review the person's strength and speed characteristics. For people who have strength but lack speed, exercise with a weight of about 30% of maximum strength, and for people who have speed but lack strength, exercise with a weight of about 30% of maximum strength. Train with a weight of about 80% of your strength.

### 4.1. Exercise Prescription

After selecting an exercise item, check the players' 1RM, set the weight for each item, and then conduct training.

- Muscle Training Prescription Procedure:
  - I. Select the exercise item
  - II. Measure the maximum number of repetitions per rep (1RM)
  - III. Determine exercise intensity
  - IV. Determine the maximum number of repetitions at the determined weight
  - V. Calculate the number of repetitions (50-70% of 1RM)
  - VI. Calculate the appropriate number of sets (50-70%)
- Example Exercises (Item):
  - I. Squats: 60-70%, 8-10 reps
  - II. Power Clean: 50-60%, 10-12 reps
  - III. Leg Extension: 20-30%, 25-30 reps
  - IV. Deadlift: 60-70%, 6-8 reps
  - V. Power Snatch: 50-60%, 10-12 reps
  - VI. Leg Curl: 20-30%, 25-30 reps
  - VII. Pull-ups: 8-10 reps

## 5. Circuit Training Prescription

As a method aimed at physical development through an all-round system, physical development through an all-round system develops physical functions by organizing various exercise events to improve whole body strength, muscular endurance, power, and coordination.

As for the set exercise items, you can start from any exercise, so if the direction of the circuit is indicated, multiple people can perform in one set at the same time.

### 5.1. Exercise Items and Prescription

12 to 16 events are selected, and the exercise load is performed at 40 to 50% of the maximum number of repetitions for 30 seconds for each event.

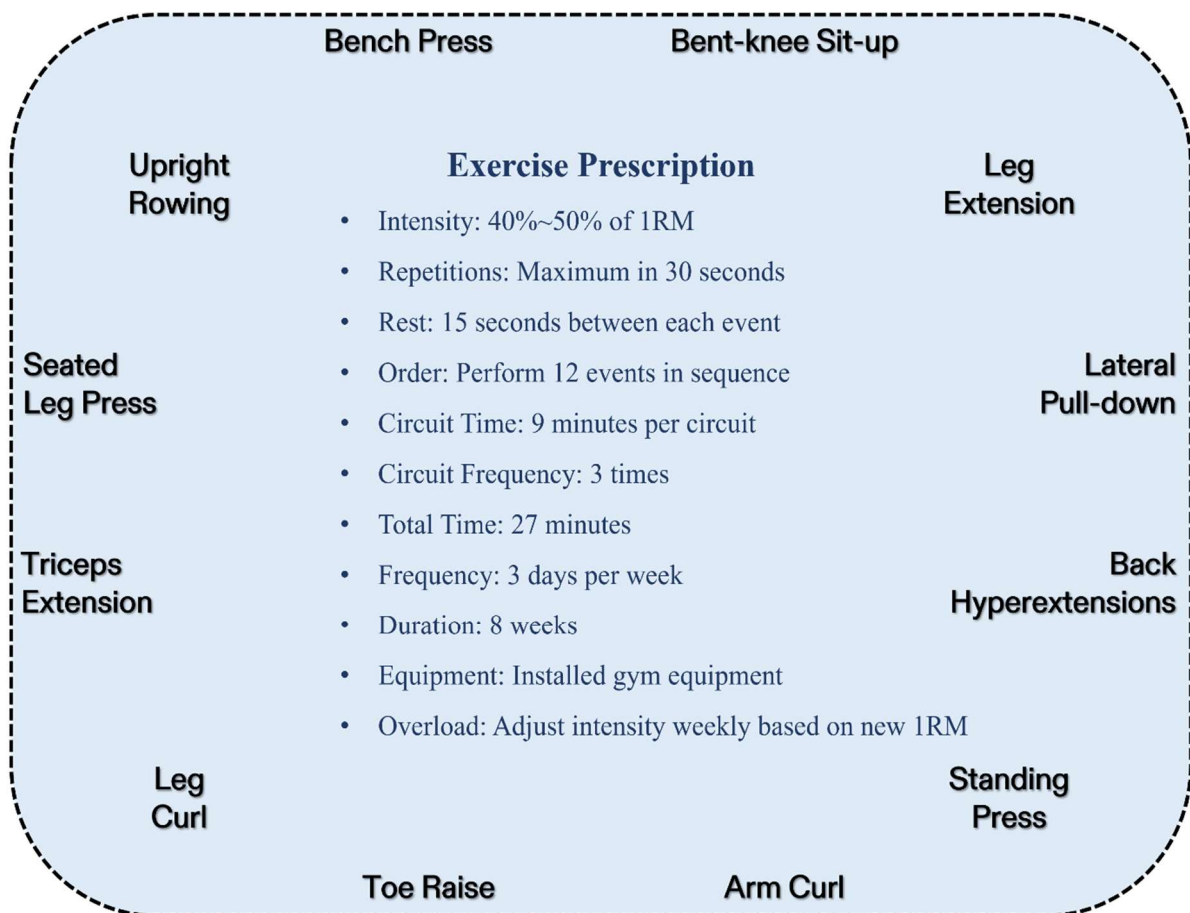
Determine the amount of load according to the individual's physical strength and apply incremental load.

➤ Circuit Event (Example 1):

- I. Upper Body Strength Push-ups: 25 reps x 1 second each, 25 seconds total
- II. Lower Body Endurance Half Squats: 45 reps x 1 second each, 45 seconds total
- III. Upper Body Strength Cable Cross: 10 reps x 2.5 seconds each, 25 seconds total
- IV. Full Body Exercise Pitching: 45 seconds
- V. Lower Body Strength Full Squats: 10 reps x 2.5 seconds each, 25 seconds total
- VI. Upper Body Endurance Bench Press: 30 reps x 1.5 seconds each, 45 seconds total
- VII. Lower Body Strength Leg Curls: 18 reps x 1.5 seconds each, 27 seconds total
- VIII. Full Body Exercise Burpee Test: 18 reps x 2.5 seconds each, 45 seconds total
- IX. Upper Body Strength Seated Chest Press: 10 reps x 2.5 seconds each, 25 seconds total
- X. Lower Body Endurance Leg Extension: 18 reps x 2.5 seconds each, 45 seconds total
- XI. Upper Body Strength Lat Pulldown: 10 reps x 2.5 seconds each, 25 seconds total
- XII. Full Body Exercise Jump Rope: 90 reps x 0.5 seconds each, 45 seconds total
- XIII. Lower Body Strength Dumbbell Lunge: 10 reps x 2.5 seconds each, 25 seconds total
- XIV. Upper Body Endurance Dumbbell Curls: 45 reps x 1 second each, 45 seconds total
- XV. Lower Body Strength Leg Press: 18 reps x 1.5 seconds each, 27 seconds total
- XVI. Full Body Exercise PT Gymnastics: 25 reps x 2 seconds each, 50 seconds total



- Total Times:
  - I. Time for each event: 9 minutes 29 seconds (569 seconds)
  - II. Movement time between events: 15 seconds
  - III. Total circuit time: 9 minutes 44 seconds (584 seconds)
  - IV. Circulation time: 9 minutes 45 seconds (585 seconds)
  - V. Rest time between sets: 15 seconds
  - VI. Total time for 3 sets: 29 minutes 59 seconds (1799 seconds)
  
- Circuit event (Example 2)



## 5.2. Exercise Time

- Train 12 to 16 events in sequence.
- Perform 1 cycle x 3 sets, 2 cycles x 3 sets, or 3 cycles x 3 sets.
- Rest until the pulse rate reaches 120 beats per minute after completing one cycle.
- Exercise frequency: twice a week.

## 6. Interval training

Interval training is training that increases speed, improves sustainability, cultivates maximum oxygen intake capacity, and is aimed at improving whole-body endurance. Therefore, since the intensity of the exercise is high, rest is naturally required between exercises, but in the sense of increasing the ability to sustain, there is an unstable rest during the rest period.

The intensity of exercise is determined by the heart rate response that occurs during exercise, and the goal is to exceed 180 beats per minute.

### 6.1. Exercise Method

- This is a training method that involves sprinting 200 to 400 meters with repeated incomplete rest.
- the typical number of times is 3 x 3 sets.
- After measuring the 400m section record, it is performed repeatedly while maintaining the record within 70% of the calculated record.

## Acknowledgements

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