

## **Basic Principles Underlying Ateimi (Striking) Techniques**

**Tsuki (punching), uchi (striking), keri (kicking), and uke (blocking), are the fundamental karate techniques. They are at once the beginning and the final goal of karate. Students can easily learn to perform these basic movements in little more than two months, but perfection in their performance may be impossible. Therefore, students must practice regularly and employ maximum concentration and effort in the performance of each movement. However, practice will not achieve its object if it is undertaken incorrectly. Unless students learn techniques on a scientific basis, under an instructor employing a systematic and properly scheduled training system, their efforts will be in vain. Karate training can be considered scientific only when it is conducted on the basis of correct physical and physiological principles.**

Surprisingly, an examination of the karate techniques which our predecessors created and refined through continuous study and practice reveals that these techniques accord with modern scientific principles. However, further refinement is always possible. We must try to analyze our techniques in an unceasing effort to improve.

The following points are of primary importance in the study of karate.

### **Form, Balance and Center of Gravity**

Karate is not the only sport that concentrates on the optimum utilization of the human body or embraces principles taught in physics and physiology. All the martial arts and most other sports depend on correct form for the effectiveness of their techniques. In baseball, good batting form is necessary to attain a high batting average. A fencer spends years perfecting movements which, to the layman, look easy. Such practice results in body movement, or form, which is physically and physiologically correct. Correct form is especially important in karate. All parts of the body must harmonize to provide the stability necessary to sustain the shock of delivering a kick or punch.

The karate student must often stand on one foot to attack or defend. Thus, balance is of prime importance. If the feet are placed far apart, with a consequent lowering of the center of gravity, a kick or punch will be stronger. However, it is easier to move if the center of gravity is somewhat higher and the feet closer together rather than spread to the maximum possible extent. Therefore, although stability is important, there is a point beyond which it is not worth going. If the student is overly concerned with stability, he will lose elasticity. If he bends his knees too much to maintain balance, his kick will not be effective. Thus, the position of the body and, consequently, the center of gravity, depends upon the circumstances.

The center of gravity is always shifting. Sometimes body weight is evenly distributed between both feet, and sometimes there is more on one foot than on the other. When performing yoko-geri (side kick), the weight is completely shifted to one foot. In this case, the student must stand firmly on one leg, otherwise the shock of delivering the kick will upset his balance.

However, if he stand on one foot for too long, his opponent can easily attack. Therefore, his balance must be shifted constantly from one foot to the other. His center of gravity must shift quickly from right to left and back again to avoid giving the opponent an opportunity to attack. At the same time, the student must constantly look for an opening in his opponent's defense.

### **Power and Speed**

The possession of muscular strength alone will not enable one to excel in the martial arts or, for that matter, in any sport. The effective use of strength is important. The application of power to any movement depends on a number of factors. One of the most important of these is speed.

The basic punching and kicking techniques of karate achieve their power by the concentration of maximum force at the moment of impact. This concentration of force depends greatly upon the speed will result in increased power. The punch of an advanced karateka can travel at a speed of 43 feet per second, and generate power to destroy equal to 1,500 pounds.

Speed is an important element in the application of power, but speed cannot achieve its greatest affect without good control.

The kind of movement needed in fundamental karate techniques is not one which will move a heavy object slowly, but one which will move a light object with maximum speed. Thus, the strong but slow exercise of power necessary to lift a barbell is not as effective in karate as the power developed by hitting the punching board (makiwara) with great speed.

Another principle to remember is that greater speed can be generated if power travels a longer route to its target. For example, in kicking, the knee of the kicking leg should be bent as much as possible and the body so placed in relation to the target that the leg will be fully stretched at the moment of impact. The longer the course the leg travels to the target, the stronger the kick will be.

In order to increase power and speed, it is necessary to practice responding to sudden and unrehearsed attacks. Such practice, together with an understanding and application of the dynamics of movement, will help shorten reaction time.

### **Concentration of Power**

A punch or kick will be weak if applied with the arm or leg alone. To achieve maximum power it is necessary to use the strength of all parts of the body simultaneously. When punching or kicking, power moves from the center of the body, the major muscles, to the extremities, ending in the hand or foot. This power moves from one part of the body to the next at a speed of 1/100 of a second. The whole movement from beginning to end takes only .15 to .18 of a second if the momentum possible in this action is correctly exploited. Training should be conducted so that all available strength is focused in the foot when kicking or in the hand when punching.

It is important that the various muscles and tendons are kept loose and relaxed to permit instant response to changing circumstances. If the muscles are already tense, they cannot be further tensed at the moment of focus.

Power concentrated at the time of focus must be instantly released to prepare for the succeeding action. Constant training in alternately tensing and relaxing the body is very important to acquire proficiency in the application of karate techniques.

### **Role of Muscular Power**

Power to the body is supplied by the muscles. Well-trained, powerful, and elastic muscles are mandatory in karate. Even if the student is well-versed in karate theory and knows the principles of the dynamics of movement, his technique will be weak if his muscles are not strong enough. Therefore, constant training is necessary to strengthen the muscles of the body.

If karate training is to be conducted scientifically, it is also necessary to know which muscles are employed in the execution of a particular technique. When practicing a new technique, students sometimes use unnecessary muscles or muscles which actually hinder the performance of the technique. Therefore, beginners must carefully follow the advice of their teachers. When the proper muscles operate fully and harmoniously, the technique will be strong and effective. On the other hand, if unnecessary muscles operate there will result, at the very least, a loss of energy, and at worst an ineffective technique.

Finally, the speed of muscular contraction is important, because the faster a muscle is tensed the greater will be the power produced.

### **Rhythm**

An essential element in the performance of techniques in the martial arts and other sports is rhythm. The proper execution of a series of movement in any sports is impossible without rhythm. Also, the rhythm evident in the movements of athletes is more complicated than, and cannot be expressed in terms of, musical rhythm. It is essential for the karate student to learn correct rhythm in both the basic techniques and in the more advanced sparring (kumite).

Rhythm is especially necessary in the performance of formal exercise (kata). We have been taught since early times that the three most important elements in kata performance are the application of strength at the correct time, the control of speed in techniques and from technique to technique, and the smooth transition of the body from one technique to the next. These requirements cannot be fulfilled without rhythm. The kata performance of the person advanced in karate is powerful, rhythmical, and consequently, beautiful.

### **Timing**

Correct timing is of utmost importance in applying techniques. If timing is faulty, the technique will fail. A kick or punch which is directed at the target either too early or too late is often fruitless.

The start of a technique is of first importance in any consideration of timing. To start their particular movements more effectively, baseball players and golfers condition their swings with practice swings. However, there is not opportunity for anything like a practice swing in karate, where the outcome can be decided in an instant. A failure in timing could be disastrous.

The attack in karate must be launched with the hands and feet in the usual position of readiness or defense. Obviously, the hands and feet must always be positioned so that techniques can be easily and quickly applied. Immediately after the application of a technique, they must be returned to their former position, ready for the following movement. Moreover, during the course of these movements the body must be kept relaxed, but alert, with the muscles full of energy and ready for any eventuality.

### **Lower Abdomen and Hips**

Coaches of modern sports constantly stress the role of the hips in furnishing maximum power to any movement. For example, they say, "Hit with your hips," or "Throw with your hips," or "Get your hips into it."

In Japan the importance of the tanden has been taught from early times. Teachers of the martial arts, and those of other arts and disciplines, have constantly emphasized the importance of the tanden in achieving competence. This region was emphasized because it was felt that here was centered the human spirit, and that this area provided the basis of power and balance.

The tanden actually is that area behind the navel, in the center of the body. When standing erect, the body's center of gravity is located here. If the stance is correct in karate, the center of gravity will be found in the tanden. A correct stance will enable the student to maintain the balance of both the upper and lower parts of his body, resulting in harmonious interplay of the muscles and a minimum loss of energy.

If the power concentrated in the tanden is brought into play in executing karate techniques, the pelvic and hip bones will be firmly supported by the thighs, and the trunk by the spine. This interlocking will produce strong techniques.

The center of the body, i.e., the lower abdominal area and the hips, plays a great part in our various movements. Therefore, try to punch with the hips, kick with the hips, and block with the hips.