

To AJKA-International
AJKA-I of PA
Instructor Trainee's Report #13

Subject: **“Body Vibration Power in Karate”**

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Both Eastern and Western thoughts on the martial arts and body physics agree that a person's gravitational center ("tanden" or "seika tanden") is located inside the body in your abdomen (hara) area. It is located at least two finger widths down from the bellybutton for a male (55%) and three fingers for a female (56%). The center of the body is the engine that creates power.

In karate, there are three ways to make power, that is, to transfer force into the target: body vibration, body rotation, and body shifting. Of the three ways to generate power, body vibration covers the least distance and provides the least power of the three. However, while this method of making power is not as powerful as rotation or shifting, it helps to quicken the delivery of the techniques since it can be used when the opponent is very close and the karate-ka is unable to take the strong stance necessary for shifting or rotation applications

In addition, body vibration, unlike body shifting and body rotation, does not require proper posture or stability of stance. It does not even require that the hips be under the spine. What it does require, however, is tension in the body's core abdomen muscles so that they can move in unison and mutual support when executing the very quick rotation and reversal back to origin.

The abdomen muscles are made up of two types of Striated muscles fibers: slow-twitch (type I) and fast-twitch (type II). Slow twitch fibers give you stamina, not explosiveness. Slow-twitch muscles help enable long-endurance feats such as distance running. They have a high capacity for aerobic energy production and can remain active for a long time while producing relatively small amounts of lactic acid.

Fast twitch gives you explosiveness but they do not have good stamina. Fast twitch muscles are used in powerful bursts of movements like sprinting. Fast twitch fibers have a great capacity for anaerobic energy production, which allows them to produce intense power and speed of contraction. This intensive work also causes them to accumulate large amounts of lactic acid and fatigue quickly.

Fast-twitch muscles break down into two categories: moderate fast-twitch (type IIa) and fast-twitch (type IIb or IIx). Moderate fast-twitch muscles are thicker, quicker to contract, and wear out more rapidly than slow-twitch. Fast-twitch, the most powerful and lowest in endurance and are activated when the body nears maximum exertion. During aerobic exercises such as running or swimming, slow-twitch fibers are the first to contract. When the slow-twitch fibers become tired, fast-twitch fibers begin to take over.

The proper firing order of the muscles is important. In order to achieve maximum force in a technique within a given space, each body segment should be used to the fullest, and then next segment smoothly add force. In karate we want to move from the center out, in order to move from the center out we must have a stable center first.

Hip vibration consists of a short sharp back and forth action of the hips while in a stationary position. This type of body action is generally used for in-close situations where the physical movement of the body weight is restricted and the use of a larger body action such as shifting or rotation is not practical. Hip vibration develops the least amount of momentum of the body actions but it develops that momentum in the shortest period of time. While Hip vibration does not provide a lot of body mass to the technique it does create a very strong shock at the initiation and it allows one to use maximum potential force in situations with very limited maneuverability.

The quick return or recoil of the motion gives power even though the distance of the hip snap movement may be very small. Using body vibration, power transfer into the target is timed so that the technique initiated by the vibration reaches its end-point at the same time the body returns to its original orientation. When vibration action stops the body stops on the outside but internally continues vibration, like waves of energy. Sensei DeAngelis says that this is analogous to a tuning fork.

Not only can this motion be used where the karate-ka is unable to make large body motions, the speed and easiness of the motion allow it to be used to make filler or covering motions between larger techniques and in conjunction with these techniques may be made quicker. An example is Sambon Zuki. The three punch combination uses all three power sources: body shifting, rotation and vibration. The double punch generates vibration power which is transferred to the target. Another example would be a step in punch (oizuke) with body shifting back hand (uraken) with hip vibration, and counter punch (gyaku zuke) with hip rotation.

Practicing techniques with vibration power helps the karate-ka to learn to use the body as a whole complete unit – which after all is one of the major goals of karate. It teaches them to grip the floor with the feet, thereby helping stance training, and the action comes naturally from the hips and helps prevent the karate-ka from using an incorrect power order, as in using shoulder power and not tanden power. The Tekki kata series are specialized forms of training for hip vibration.

AJKA-I of PA
Instructor Trainee #E027
Andrew Spivack