Sine Wave In ITF TKD

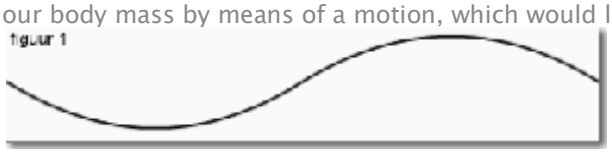
SINEWAVE

Motions

Sinewave motion is a movement unique to original Taekwon-do to create maximum force in every moment according to the theory of power. In almost every moment this sinewave is utilized. Sinewave is natural and simple, and often I heard an instructor say: **"Simple and natural = beautiful"**.

During class and in seminars Taekwon-do practicioners are being taught to use "sinewave" in their techniques.

What we actually do by performing this sinewave in Taekwon-do techniques is moving the center of our body mass by means of a motion, which would look like a sinus wave if we would draw it.

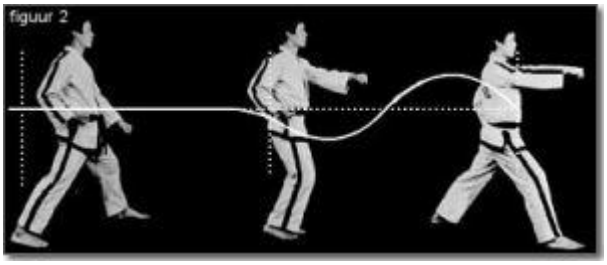


There are some key benefits to using sine wave that are linked to the training secrets of Taekwon-Do. Moving our center of mass in the motion of a sine wave requires us to keep our arms and legs bent while the body is in motion. To keep the arms and legs bent during motion we need to be relaxed. Relaxing the body adds speed to a technique because we are not all tensed up with one part of the body working against another. Small increases in speed produces large increases the power of a technique.

Secondly, when employing a sine wave we have to use the knee spring properly. That is to say bending the knee is what moves our body up and down as we move forward. Using the knee spring while our body is in motion allows our center of mass to travel along a curve, which by definition is another form of acceleration, which then helps us accelerate into a target.

Finally, when using sine wave we are dropping our body downwards at the end of the technique with helps us use gravity to our advantage and keep our acceleration building until the point of impact.

To correctly apply the sine wave to Taekwon-Do we need to modify the wave shape before we can achieve maximum power. In other words the sine wave is not a uniform curve as shown in the previous figure. The sine wave is modified so that the body drops as it passes the half way point of the technique, and rises to the maximum height at about the point and then drops rapidly at the end. The rapid drop at the end of the technique helps accelerate our mass into the target using gravity to our advantage



How much of a sine wave should there be in a Taekwon-Do technique? The displacement that the center of mass moves from the zero line to get to the bottom and top of the sine wave this is called the amplitude. Using too much sine wave defeats a technique because all the body's energy and motion would be dedicated to moving along the sine wave rather than accelerating into the target

MOTIONS

The basics of sinewave is down-up-down, in other words there is always a downward motion first, followed by an upward motion, and ending in a downward motion. There are however variations on sinewave, which are related to the motion, combination and speed of the techniques used.

In traditional Taekwon-do, the fundamental exercises and the tuls there are five different motions:

- Normal motion
- Continuous motion
- Fast motion
- Connecting motion
- Slow motion

Normal motion (1-1-1)

In saju jirugi, saju makgi and Chon-Ji tul the Taekwon-do student learns the normal speed of following movements. This is the first "motion": normal motion. Movements are performed in normal speed, with a complete sinewave in one breath.

Continuous motion (2-2-1)

In Dan-Gun the Taekwon-do student learns the second motion: continous motion. Two movements are consecutively performed, with two sinewave during one breath.

Fast motion (2-2-2)

Do-San learns the student another motion: fast motion. Two movements are performed consecutively in fast speed, with two

Breath Control – Hohup Jojul

Controlled breathing not only affects one's stamina and speed but can also condition a body to receive a blow and augment the power of a blow directed against an opponent. Through practice, breath stopped in the state of exhaling at the critical moment when a blow is landed against a pressure point on the body can prevent a loss of consciousness and stifle pain. A sharp exhaling of breath at the moment of impact and stopping the breath during the execution of a movement tenses the abdomen to concentrate maximum effort on the delivery of the motion. Slow inhaling helps the preparation of the next movement. An important rule to remember is to never inhale while focusing a block or blow against an opponent. Not only will this impede movement but it results in a loss of power. We should also practice disguised breathing to conceal any outward signs of fatigue because an experienced fighter will certainly press an attack when he realizes his opponent is at the point of exhaustion. One breath is required for one movement with the exception of a continuous motion.

sinewave and two breaths.

Connecting motion (2-1-1)

In Yul-Gok there is another new motion: connecting motion. Two movements are performed in one sinewave and one breath.

Slow motion (1-1-1)

Joong-gun completes the fifth and final motion: slow motion. In slow motion the movement is performed slowly, but according to the theory of power there has to be a slight acceleration at the end of the movement. There is one (slow) movement, one sinewave, in one breath. Slow motion techniques are meant to learn the student body control and balance.

These five motions influence the sinewave, of which there are three variations:

- Full sinewave
- 2/3 sinewave
- 1/3 sinewave

Only in normal motion, continuous motion and slow motion there is a full sinewave (down-up-down).

In fast motion there is 2/3 sinewave, as there is only an upward and downward movement. An example is found in do-san tul: the two punches following the apcha busugi. (movements 15 & 16 and 19 & 20)

In connecting motion there is 1/3 sinewave, as there is only a downward movement. An example is found in yul-gok tul: the punch which follows the second hooking block (movements 16 & 17 and 19 & 20)