

Sine Wave – by René Kunz 4th Dan NZ-4-51

Initially having Sine Wave as a subject to write about was somewhat daunting, it's such a hidden secret with nothing specifically mentioned about it in General Choi's Encyclopaedias (15 volume or Condensed) there are references to mass movement in the theory of Power but not much else.

It's only really found in ITF TaeKwon-Do which differentiates ITFTKD from the other Martial Arts much the same as is the twisting kick is pretty much exclusive to ITFTKD.

That's not to say other Martial Arts don't use utilize hip twist ,body shifting and movement of mass however we are best known for it ,that natural movement that occurs in our tul and allows us to accelerate as much body mass as possible in the direction of the technique , block or attack.

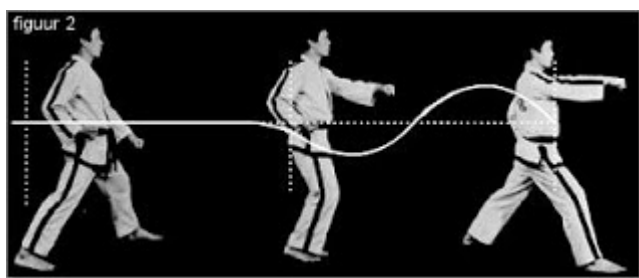
Onne, two... "siine, wave" for the down, up, down motion was how the General explained it.

So off to the Do Jang to do some personal research on how my own body moves from A-B in different aspects of TKD ,Power breaking ,patterns, Self Defence, Sparring, the proverbial Pandora's Box was opened and the more I looked into each part the further it lead me off on tangents.

Let's just say it was thought provoking and generated questions and answers.

So let's start with *what is Sine wave* to show we clearly understand what General Choi has injected into what was really Shotokan Karate movements giving the Tul a unique character of its own and therefore helping to complete the General's dream of having a distinctive Korean Martial Art removed from its Japanese roots and evolved from Taekyon (an ancient form of Korean foot fighting).

It's more complex than just a simple "Down, up down" or "knee spring" that we engage to get us from one movement to another during Tul nor is it just an important part in the generation of Power .It can be seen as the **vehicle** for the application of force, in a particular direction.



(ref. 1999 Condensed Encyclopaedia by General Choi Hong Hi)

Broken down if we look at the most basic and common technique - Walking stance middle punch as a slice of Tul. We start in our initial stance in a state of Static Stability with intent to punch with power someone 1 ½ shoulder widths distance in front of us, whilst maintaining

Dynamic Stability during the transition .To get there we have to incorporate a large basket of ingredients to perform the perfect recipe of this one technique

<https://www.youtube.com/watch?v=9gEU3cxTpDs>

Firstly we relax the body when moving forward , breathing in through the nose and taking the air to our core ,our eyes focused on our destination vital spot with the mental intent of what we want to achieve ,we bend the knee and thereby starting our movement of mass towards the target as we head down toward the middle of the movement placing all our weight onto one leg and transiting our moving leg (being mindful to keep our centre of gravity in equilibrium) , at this moment our reaction force hand rises up and bends at just below shoulder level, the punching hand comes off the hip and moves in a circular motion forwards,down and backward in preparation for moving forwards with fist slightly clenched and palm upwards ,here the important loading position during the intermediate position is achieved , the foot travels one foot width away from the stationery foot in the middle of the movement on its way in an arc towards the same line from which it started. Our body rises as the knee pushes the body upwards and therefore raises the hip up to the highest point , we then accelerate from this point on to our target gaining maximum power through concentrating the elements of power (Mass, Equilibrium, Speed, Concentration ,Reaction Force and Breath Control) all carried along like a boat on a river by Sine Wave. The punch reaches the vital spot via the middle of the front two large knuckles therefore concentrating all your kinetic energy out of the small area as the breath is exhaled through pursed lips also concentrating a large amount of air through a small opening, the fist is tensed in the last few centimetres of the action and twisted at the point of impact with the hands, feet and breath finishing at exactly the same time. The body then relaxes once again into a state of Static Stability.

So you can see the many components involved in just this single technique which uses sine wave as its foundation, if the Sine wave is incorrect equilibrium of the movement & final stance is affected and therefore the technique is ineffective.

Sine wave breaks patterns into little distinct parcels, for each movement there is sine wave with very few exceptions those being;

- moving from a bend position into a straight legged stance e.g. Movement 11 to 12 in Toi-Gye, movement 9 to 10 in Yon-Gae and movement 29 to 30 in Joong-Gun.
- Shifting your blocking tool on a horizontal plane e.g. Movement 24 to 25 in Kwang-Gae , movement 6-7 in Ge-Baek and movement 34-35 in Yoo-Sin
- When kicking (there is *after* the kick, not before) e.g. Pressing kicks from one-leg stance in Kwang Gae, middle front snap kick in Do-San , sidekicks in Joong-Gun.
- Jumping & flying e.g. Movement 29 in Toi-Gye , movement 24 in Juche and movements 4 & 8 in Yon-Gae.

(ref.1999 Condensed Encyclopaedia ,2008 15 Volume Encyclopaedia set General Choi Hong Hi)

Sine Wave really is only for the controlled environment of Tul ,you will find it absent in free Sparring where you must move with the greatest speed and efficiency. It's also absent in Self Defence due to its informal nature and having to react to ad-hoc situations

However it present to some extent in a different form in Special Technique, you are jumping height and distance to break a board so the power is release twice during the movement,

once when we bend down to engage the large leg muscles to enable us to jump to our maximum ability and once to kick the board at the apex of the jump, we then fall to the ground, so Sine Wave can be applicable in a vertical form as well.

It's also present in Tournament Power Breaking in the same way as it is in Special Technique where you forego the deep sign wave in favour of developing speed, speed being the main contributing factor to Power according to Newtonian Physic $\frac{1}{2} M \times V^2$ (that's velocity squared) so we leave off that last "down movement" as can be seen in the turning kick and this slow motion side kick,

<https://www.youtube.com/watch?v=w16d7vSaKpg>

but its absent in the reverse turning kick, punch.

<https://www.youtube.com/watch?v=UwzhjEj0HP8>

There is however sine wave in the knife hand strike

<https://www.youtube.com/watch?v=uvvPW-bsS68>

I offer no commentary to these as the slow motion shows clearly the sine wave or absence of it.

So this brings us onto the various "Motions" that apply sine wave in different forms , $\frac{1}{2}$ sine wave & full.

Continuous Motion – one breath & two full sine waves eg. Movements 13 & 14 in Dan-Gun

<https://www.youtube.com/watch?v=YvE34rBB5Dw>

Fast Motion - middle punches in movements 2 & 3 in Yul-Gok , two sines wave one breath and Do-San Fast Motion punches movements 15&16

<https://www.youtube.com/watch?v=uTOXBPBIEAo>

Slow Motion – a normal sine wave but in slow motion e.g. first movement in Moon-Moo

Connecting Motion - two breathes one sine wave as can be seen in these middle hooking blocks from Yul-Gok

<https://www.youtube.com/watch?v=286eecvPuOc>

So in conclusion Sine Wave is an integral part of ITF TaeKwon-Do ,it comes in many forms and it facilitates the movement of mass from one stance to another in patterns , it is however really only found in patterns.