**THE EXPRESSION OF KI IN THE MARTIAL ARTS**

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WHAT IS KI?

Aiki no Michi

Ki or chi is a Chinese term, which means *energy* and in some cases *flow of energy*. I am not sure if this is the original meaning but I propose it as a working definition. A complete definition of ki is illusive, but I can relate some experiences from karate and aikido that will show it in action.

Ki flows from the center of gravity. Why, because all the mass of the body can be represented by one point located at the center of gravity. You can express your ki by ensuring that your muscles provide a firm link between your arms and your center of gravity.

WHAT IS THE CENTER OF GRAVITY (CG)

A person wanting to transmit his energy with a strike (i.e. kick, punch, grab, etc.) has to do it by moving his body. The body can be represented by the CG.

*What is the CG? It is that point at which if the body were suspended it would be perfectly balanced in all positions.*

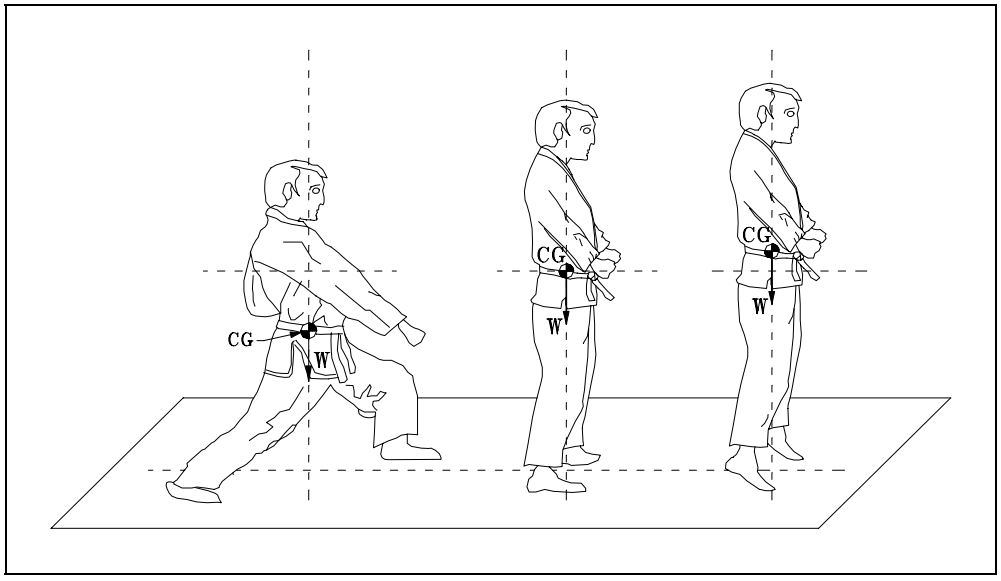


*Figure 1 The changing position of the CG depending on body posture*

The location of the CG for a person standing upright with arms down is at the height of the navel and in the middle of the body (see Figure 1). If your body was deformed and you had very large legs, your center of gravity would shift downwards towards the height of your hip joint. If you were top heavy with big shoulders and a huge head, then the CG would shift upwards. A body is a complicated shape, we have small hands, larger arms and big torsos. A single point located at the CG can represent this shape.

How does this apply when striking someone with an extended arm? If the arm is properly connected to the body, then the energy associated with the whole mass of the body will be transferred to the target, not just the energy of the arm. The arm can be treated as an extension of the CG. A 200-pound man has only a 15-pound arm, if you maintain a solid connection between your body and your arm then the whole mass of the body can be used.

THE EXPRESSION OF KI IN AIKIDO

Aikido is the martial art that does not confront the opponent's energy. There is a saying by Morihei Ueshiba, the founder of aikido, that describes the guiding principles of the art:

*In the old days, a swordsman would let an enemy slice the surface of his skin in order to cut into his enemy's flesh; sometimes he would even sacrifice his flesh in order to slash through the enemy's bone. In Aikido, such an attitude is unacceptable. We want both attacker and defender to escape unharmed. Rather than risk injury to attain victory, you must learn how to lead the attacker. Control your opponent by always putting yourself in a secure, safe place.*

In aikido, the energy of the attack is met by evasion, while simultaneously making contact with some part of the opponent's body (often the wrist). If left to himself, the attacker will stop his movement and his energy will dissipate as he realizes that there will be no contact. Rather than letting the energy of the attack be dissipated, aikido seeks to redirect the movement of the attacker to a position of instability, at which point various techniques are used to immobilize or project the opponent. If the opponent is static and has hold of your wrists, then the task is to move your body and arms in such a way as to get the opponent off balance, at which point the opponent can again be projected or immobilized.

These techniques (static or dynamic) are accomplished by ensuring that the arm(s) are connected to the body and that your CG is close to the opponent's CG. When these two actions are taken, techniques can be executed with a minimum of effort. The aikido sensei (teacher) is always careful to point out to students that a very small amount of energy is required to accomplish the technique. **The use of force impedes the flow of ki.** I believe this is because most of the aikido movements involve subtle redirection of the opponent's momentum and the sudden application of force during this process is disruptive.

What is momentum? It is the product of mass times velocity or speed. Momentum can be large or small depending on the mass and velocity; it also has a direction which is the same at that of the CG. The interesting thing about momentum is that it wants to be conserved. There is a physics principle that says that energy is conserved, this also applies to momentum. When a opponent attacks, he is seeking to transfer the momentum of his body through impact. When the impact does not occur, this is the ideal time to allow his momentum to be preserved and redirected. This redirection will normally be towards a location where his instability is augmented. At the point where he is fully unstable, many techniques can be executed with a minimum of force.

Ki is not only associated with large flowing movements. There is an exercise in aikido called kokyu ho where small movements are used, it is a pure exercise of ki. It consists of 2 people sitting in seisa (kneeling and resting on the back of the feet) position, face to face and knees touching with one person grabbing both wrists of the partner. Both people have their palms up.

The exercise consists in lifting the partner's arms upwards in such a way that his elbows go out. This effectively disconnects his arms from his CG, and provides you with a lot of leverage. At this point the partner can be rotated and made to fall to the side. When done properly, it requires little or no force regardless of the opponent's intensity. This exercise starts with 2 people in very low, stable positions; it is interesting to see that a person in that position can be projected. It is a remarkable way to demonstrate the flow of ki with a minimum of movement.

## THE EXPRESSION OF KI IN KARATE

Ki in karate is most evident at the moment of impact. To help resist the reaction force of the impact, the karateka (karate student) has to tense the muscles of the arm and legs providing a connection between the striking part of the body and the CG. Note that the muscles should only be tensed at the moment of impact, tensing them at any other time wastes energy. Also relaxed muscles provide a greater striking speed and therefore more energy at the impact. In karate, proper technique and posture allows ki to be expressed efficiently. The karateka starts by learning the basic position of the body and limbs for all the various techniques. An example of this is the karate straight punch which starts with a closed fist located on the hip palm upward. The fist is then moved forward keeping the elbow close to the body and extending the arm in such a way that the elbow remains directed downwards. Just prior to the impact the wrist is turned so that the palm is facing downwards and the first two knuckles contact the target. Nobody punches this way naturally. This has to be learned and practiced over a period of years until it becomes automatic. This strike is improved by rotating the upper body therefore adding the upper body's mass and energy to the arm. It is further improved by rapid rotation of the upper body. A final improvement is added when the muscles are tensed at the split second of impact. When all these conditions come together, the flow of ki has been maximized. At all times, the CG must be kept low and stable.

In aikido, ki or the ability to connect the limbs with the CG is taught to students from the start. It has to be, since it is the foundation of all aikido moves. In karate, basic positions and movements have to be learned first, ki is then added. Karate is not only concerned with the execution of fast linear impact techniques. Many techniques depend on the smooth execution of circular movements, and this requires an expression of ki similar to aikido's. In karate or aikido, making sure that your own stability is maximized is important. This is best accomplished by keeping the CG low and stable. While executing a technique, avoid upward movement of the CG and keep your back straight, this will enhance your stability.

## SO WHAT IS KI?

In aikido, it is the use of the center of gravity or the body's whole mass which allows you to influence the position and momentum of the attacker. The large flowing movements serve to position the body close to the attacker thereby putting yourself in a position to affect the position of his CG with a minimum of effort. Avoid moving your CG upwards, this disrupts your effort and is wasteful of energy. Often, the attacker's own energy or momentum can be used against him by altering slightly its direction thereby decreasing his stability. Aikido projections are often spectacular, this is because the opponent's momentum is used as the basis of the energy required for the projection.

It might be said that ki is the intelligent use of body mass coupled with the knowledge of how to decrease the opponent's stability while maintaining your own.

In karate, there is the element of impact which is not present in aikido. The same principles mentioned previously apply, tensing the muscles at the moment of impact improves ki.