

SUMMARY - TO EXPLAIN TRADITIONAL KARATE EFFECTIVENESS WITH SCIENTIFIC PRINCIPLES



I - TRADITIONAL KARATE

KIME (Explosive Attack)

1. CORRECT APPLICATION OF POWER
2. SPEED OF TECHNIQUE
3. BODY EXPANSION AND CONTRACTION
4. KI (ENERGY, FOCUS)

II - PHYSICS

1. SYSTEM IN EQUILIBRIUM:

- a. ENERGY IS NOT CREATED NOR DESTROYED (WITHOUT WORK INPUT)
- b. ENERGY IS THUS TRANSFORMED OR DISSIPATED FROM WORK INPUT

2. MOMENTUM IS A CONSERVED QUANTITY ($P=MV$, $F=P/t$)

- a. LARGE FORCE IN A SMALL OF AMOUNT OF TIME WILL EQUATE SAME

MOMENTUM AS A SMALL FORCE OVER LONG TIME BUT SUDDEN ENERGY TRANSFER (LARGE F) CAN YIELD TO DEFORMATION

3. LAWS OF PHYSICS DESCRIBE FORCE, MOMENTUM AND DEFORMATION ENERGY PER UNIT AREA

- a. THEREFORE THE SMALLEST TARGET AREA YIELDS THE BIGGEST IMPACT

4. LAW OF MOTION

- a. FOR EVERY ACTION THERE IS AN EQUAL AND OPPOSITE REACTION. 

III - OPTIMAL ENERGY TRANSFER IN KARATE

- EXECUTE TECHNIQUE WITH KIME LEADS TO THE HIGHEST ENERGY LEVEL
- BODY CONNECTION INCREASES MASS OF STRIKE – INCLUDES PART OF THE ARM
- WEIGHT OF KARATEKA IS NOT AS CRITICAL AS THAT OF THE EFFECTIVE MASS OF THE PUNCH OR STRIKE
- TWO KNUCKLE PUNCH YIELDS HIGHER IMPACT TO GIVEN AREA (N/SQ M)
- SPEED IS CRITICAL, SQUARE OF SPEED AFFECTS ENERGY YIELD ($E = \frac{1}{2}mv^2$)
- HIGHEST SPEED IS AT 75% OF ARM EXTENSION => MUST FOCUS FIST PAST TARGET

Gitustu yori shinjutsu

“Spirit and mind are more important than technique”

Notes:

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