

Hand Techniques and Multilingual Translation (Japanese, English, Korean and Chinese) of Karatedo Science

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Abstract

The birthplace of karate is China. At the late 14th century, the Chinese martial arts called kempo was propagated into Ryukyu Kingdom, present Okinawa. Karate-do is a system of self-defense in which the main emphasis is using the body to the greatest effect to defeat an adversary, by precise kicking and striking techniques. Karatedo are traditional Japanese martial arts which today are practiced as sports. A recent Karate theory is loved by many people of any sex and woman, and has been internationalized. There are three features of this thesis. First of all, translation with the original collections of Hand Techniques (Tewaza) of four national languages (English-Japanese South Korea and China) were completed. Next, the model and the photograph of Hand Techniques were collected.

Key Words : *Karate-do, Karate Technique, Model and Terminology of Karate*

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1. INTRODUCTION

The birthplace on the Karate theory is China. Kempo of China was spread to a Ryukyu country (Present: Okinawa Prefecture) at 14th century end. The Karate road is the one to prevent the body by effectively using each part of the body for the subject. And for the technique controlling the other party to decide as for the prick of the hand and the kick of the foot. The Karate road is the one to prevent the body by effectively using each part of the body for the subject, and for the technique controlling the other party to decide as for the prick of the hand and the kick of the foot.

It is familiar now though the Karate road is traditional martial arts in Japan as sports. Recently the number of Foreigner's who love Karate has been increased very much recently, too. The Karate is military arts that changes from Kempo that transmits from "It is called the Karate and the Tang Dynasty hand" China to Okinawa and develops.

It doesn't have arms, and the 3 method of piercing, the kick, and receiving by hands and feet is assumed to be basic. The activity is admitted in and out, and it has grown up to "Karate in Japan and the world" because of "Karate of Okinawa". Each part of the human body that sustains life can classify it upper level, middle level, and the lower level including the vital point. The name concerning the training of a basic technique of the attack can be classified into four kinds (how to punch it, how to strike it, how to apply it, and how to kick it). In this text, to understand the most important technique of the most important structure of the hand technology, the characteristic, and the hand organization, the correlation with the vital point where the basis of the hand technique was made a center and the correlation model were designed. In addition, the design also did the relation and the model concerning upper level, middle level and low level including the vital point.

2. System of Arm and Hand Technology

2.1 Terminology of Forearm and Palm of Hand

Table 1 Terminology of Forearm and Palm of Hand

	日本語・Japanese			英語	韓国語	中国語 簡体字(大陸)
	漢字	読み	ローマ字	English	慶熙嬢 Korean	Chinese
1	弧手	こて	<i>Kote</i>	<i>Arc Hand</i>	醬榎謝	弧手
2	腋窩	えきか	<i>Ekika</i>	<i>Armpit</i>	移球櫛	腋窩
3	脇影	わき かげ	<i>Waki Kage</i>	<i>Armpit</i>	移球櫛	腋影
4	背腕	はい わん	<i>Hai Wan</i>	<i>Back Arm</i>	壕刃	背腕
5	裏拳	うら けん	<i>Uraken</i>	<i>Back Fist</i>	去爽股,威映	里拳
6	背手	はいしゅ	<i>Haisyu</i>	<i>Back Hand</i>	壕呪	背手、手背
7	裏手刀	うら しゅとう	<i>Ura Shutou</i>	<i>Back Hand Sword</i>	去 呪龜	里手刀
8	手甲	しゅこう	<i>Shukou</i>	<i>Back of Hand</i>	呪逢	手甲、手盞
9	外尺沢	がい しゃく たく	<i>Gai Shaku Taku</i>	<i>Back of the Wrist</i>	須 謝鯉	外尺泽
10	腕馴	うで なれ	<i>Ude Nare</i>	<i>Back Side of Forearm</i>	独獄鼎	臂驯
11	後ろ手首	うしろてくび	<i>Ushirotekubi</i>	<i>Back Wrist</i>	去独鯉	背后手腕
12	熊手	くまて	<i>Kumate</i>	<i>Bear Hand, Rake</i>	枢呪,印謝	熊手
13	鶴刀	かく とう	<i>Kaku Tou</i>	<i>Bent Wrist</i>	俳龜	鹤刀
14	鉄槌	てつつい	<i>Tettsui</i>	<i>Bottom Fist, Iron Hammer</i>	旦蓄	铁槌、铁锤
15	有頭骨	ゆうとう こつ	<i>Yuto Kotsu</i>	<i>Capitate Bone</i>	政砧茨	有头骨、头状骨
16	手根骨	しゅこん こつ	<i>Shukon Kotsu</i>	<i>Carpal Bone</i>	呪悦茨	手根骨
17	中高拳	ちゅうこうけん	<i>Chukou Ken</i>	<i>Center-High Fist</i>	搔恣映,搔走映	中高拳
18	鶏頭拳	けいとう けん	<i>Keitou Ken</i>	<i>Chicken Head Wrist</i>	域砧映	鸡头拳
19	鶏口拳	けいこう けん	<i>Keikou Ken</i>	<i>Cock-mouth Fist</i>	域姥映	鸡口拳
20	末節骨	まつせつ こつ	<i>Massetsu Kotsu</i>	<i>Distal Phalanx</i>	源箭茨	末节骨、末节趾骨
21	手の甲	ての こう	<i>Te no Kou</i>	<i>Dorsum of Hand</i>	謝去	手背
22	猿臂(肘)	えんぴ	<i>Empi</i>	<i>Elbow</i>	据搾	猿臂(肘)
23	肘(エンピ)	ひじ (エンピ)	<i>Hiji (Empi)</i>	<i>Elbow</i>	独嘩帖	肘
24	後ろ猿臂	うしろ えんぴ	<i>Ushiro Empi</i>	<i>Elbow Attack to Rear</i>	及 据搾	背后猿臂
25	指	ゆび	<i>Yubi</i>	<i>Finger</i>	謝	指、手指
26	手の指	ての ゆび	<i>Te no Yubi</i>	<i>Finger</i>	謝垂喰	手指
27	指鋏	しきょう	<i>Shikyou</i>	<i>Finger Scissors</i>	走漠,謝 郊是	指剪刀
28	平拳	へいけん	<i>Heiken</i>	<i>Flat Fist</i>	汝映,暇爽股	平拳

29	平鉞	ひら きょう	<i>Hira Kyou</i>	<i>Flat Scissors</i>	汝漢	平剪
30	正拳	せいけん	<i>Seiken</i>	<i>Fore Fist</i>	舛映	正拳
31	平拳	ひら けん	<i>Hira Ken</i>	<i>Fore Knuckle Fist</i>	汝映	平拳
32	小手	こて	<i>Kote</i>	<i>Forearm</i>	謝魁	小手
33	前腕	ぜん わん	<i>Zen Wan</i>	<i>Forearm</i>	刃槍	前腕、前膊
34	四本拳	よんほん けん	<i>Yonhon Ken</i>	<i>Four Fists</i>	紫沙映	四个拳
35	孤拳	こ けん	<i>Ko Ken</i>	<i>Fox Fist</i>	裕映	孤拳
36	有鉤骨	ゆうこう こつ	<i>Yuko Kotsu</i>	<i>Hamate Bone</i>	政姥茨	有钩骨、钩骨
37	拳槌(鉄槌)	けんつい	<i>Kentsui</i>	<i>Hammer Fist</i>	映蕃, 古爽股	拳槌(铁锤)
38	手	て	<i>Te</i>	<i>Hand</i>	謝	手
39	手峯	しゅほう	<i>Shuhou</i>	<i>Hand Peak</i>	呪婆	手峰
40	掛手	かけて	<i>Kakete</i>	<i>Hooking Hand</i>	吋呪	挂手
41	上腕骨	じょう わん こつ	<i>Jyo Wan Kotsu</i>	<i>Humerus</i>	雌刃茨	上臂骨、上腕骨
42	小指球	しょうし きゅう	<i>Shoshi Kyu</i>	<i>Hypothenar Eminence</i>	社走姥	小指球
43	母指球	ぼし きゅう	<i>Boshi Kyuu</i>	<i>Hypothenar Eminence</i>	乞走姥	母指球
44	内腕	ない わん	<i>Nai Wan</i>	<i>Inner Forearm</i>	鎧刃	内臂
45	肘詰め	ひじ つめ	<i>Hiji Tsume</i>	<i>Inner Side of Elbow</i>	独嘩帖 眼製	肘夹击
46	内手首	ない てくび	<i>Nai Tekubi</i>	<i>Inner Wrist</i>	照謝鯉	内手腕
47	内尺沢	ない しゃく たく	<i>Nai Shaku Taku</i>	<i>Inner Wrist</i>	照謝鯉	内尺泽
48	内横拳	うち よこ けん	<i>Uchiyoko ken</i>	<i>Inside Horizontal Fist</i>	鎧半 爽股	内横拳
49	内横拳	ないおう けん	<i>Naiou Ken</i>	<i>Inside Horizontal Fist</i>	鎧新 爽股	内横拳
50	手刀	しゅとう	<i>Shutou</i>	<i>Knife Hand</i>	呪亀, 謝劾	手刀
51	水平拳(背刀)	すいへい けん	<i>Suihei Ken</i>	<i>Level Fist</i>	呪汝映	水平拳(背刀)
52	雷紋	らいもん	<i>Raimon</i>	<i>Lightning</i>	逐差採	雷纹
53	中手骨	ちゅうしゅ こつ	<i>Chushu Kotsu</i>	<i>Metacaryal Bone</i>	搔呪茨	掌骨
54	指間球	しかん きゅう	<i>Shikan Kyu</i>	<i>Metacarpophalangeal Bulb</i>	走娃姥	指间球
55	中立て一本拳	なかたて いっぼん けん	<i>Nakatate Iypon Ken</i>	<i>Middle Finger One Knuckle Fist</i>	搔脊 析沙映	中立一个拳
56	中指一本拳	なかゆび いっぼん けん	<i>Nakayubi Iypon Ken</i>	<i>One Middle Finger Knuckle Fist</i>	搔走 析沙映	中指一个拳
57	親指一本拳	おやゆび いっぼん けん	<i>Oyayubi Iypon ken</i>	<i>One Thumb Fist</i>	暈走 謝 析沙映	大拇指一指拳
58	外腕	そと うで	<i>Soto Ude</i>	<i>Outer Wrist</i>	郊甥 独鯉	外臂、外手臂
59	外腕	がい わん	<i>Gai Wan</i>	<i>Outside Forearm</i>	須刃	外手臂
60	外横拳	そと よこ けん	<i>Soto Yoko ken</i>	<i>Outside Horizontal Fist</i>	須簾 爽股	外横拳
61	手のヒラ	て の ヒラ	<i>Te no Hira</i>	<i>Palm</i>	謝郊韓, 呪舌	手掌
62	掌底	しょうてい	<i>Shoutei</i>	<i>Palm Bottom, Palm Heel</i>	舌煽	掌底

63	底拳	てい けん	<i>Tei Ken</i>	<i>Palm Fist</i>	郊伝謝	底拳
64	底掌(掌底)	ていしょう	<i>Teisyo</i>	<i>Palm Heel</i>	煽舌	底掌(掌底)
65	指骨	し こつ	<i>Shi Kotsu</i>	<i>Digital Phalanges</i>	走茨	指骨
66	指節骨	し せつ こつ	<i>Shi Setsu Kotsu</i>	<i>Phalanx</i>	走箭茨	指节骨
67	抜き拳	ぬき けん	<i>Nuki Ken</i>	<i>Pincers Fist</i>	増惟爽股	抽拳
68	豆状骨	とうじょう こつ	<i>Tojyo Kotsu</i>	<i>Pisiform Bone</i>	砧雌茨	豆状骨
69	基節骨	きせつ こつ	<i>Kisetsu Kotsu</i>	<i>Proximal Phalanx</i>	奄箭茨	基节骨
70	橈骨	とう こつ	<i>Tou Kotsu</i>	<i>Radius</i>	推茨	桡骨
71	逆手刀	ぎやく しゅとう	<i>Gyaku Shutou</i>	<i>Reverse Knife Hand</i>	謝劾去	逆手刀
72	背刀	はいとう	<i>Haito</i>	<i>Ridge Hand</i>	壕亀,触呪亀	背刀
73	舟状骨	しゅうじょう こつ	<i>Shujyu Kotsu</i>	<i>Scaphoid Bone</i>	爽雌茨	舟状骨
74	鋏爪先	はさみ つまさき	<i>Hasami Tsumasaki</i>	<i>Scissors Spear Finger</i>	郊是謝魁	剪子脚尖
75	横猿臂	よこ えんぴ	<i>Yoko Emypi</i>	<i>Side Elbow</i>	新 据搾	横猿臂
76	手腕	しゅわん	<i>Shuwan</i>	<i>Skill</i>	呪刃	手腕
77	貫手	ぬきて	<i>Nukite</i>	<i>Spear Hand</i>	淫呪	贯手
78	四本貫手	よんほん ぬきて	<i>Yonhon Nukite</i>	<i>Spear Hand</i>	紫沙 淫呪	四个贯手
79	刀峰	とうほう	<i>Touhou</i>	<i>Sword Ridge</i>	亀裘	刀峰
80	小菱形骨	しょう りょうけい こつ	<i>Syo Ryokei Kotsu</i>	<i>Trapezoid Bone</i>	社管莫茨	小菱形骨
81	三角骨	さんかく こつ	<i>Sankaku Kotsu</i>	<i>Triangular Bone</i>	誌唾茨	三角骨
82	二本貫手	にほん ぬきて	<i>Nihon Nukite</i>	<i>Two Finger Spear Hand</i>	威沙 淫呪	二个贯手
83	尺骨	しゃく こつ	<i>Shaku Kotsu</i>	<i>Ulna</i>	担茨	尺骨
84	底手首	てい てくび	<i>Tei Tekubi</i>	<i>Under Side Wrist</i>	購独鯉	底手腕
85	上腕	じょう わん	<i>Jyo Wan</i>	<i>Upper Arm</i>	雌刃	上臂、上膊
86	上肢	じょう し	<i>Jyo Shi</i>	<i>Upper Extremity</i>	雌走	上肢
87	上脣	うわ まぶた	<i>Uwa Mabuta</i>	<i>Upper Eyelid</i>	雌伊	上眼睑
88	水拳	すい けん	<i>Sui Ken</i>	<i>Water-Fist</i>	弘 爽股	水拳
89	振り拳	ふり けん	<i>Furi Ken</i>	<i>Way Fist</i>	遭 爽股	挥拳
90	指尖球	しせん きゅう	<i>Shisen Kyu</i>	<i>White Nail Bulb</i>	走歎姥	指尖球
91	手首	て くび	<i>Te Kubi</i>	<i>Wrist</i>	謝鯉	手腕子、腕子、手脖子
92	手首の関節	てくび の かんせつ	<i>Tekubi no Kansetsu</i>	<i>Wrist Joint</i>	謝鯉 淫箭	手腕的关节
93	腕刀	わんとう	<i>Wan Tou</i>	<i>Wrist Sword</i>	刃亀,独	腕刀

2.2 Photograph and Glossarial Theory of Frame of Right Hand (Back Side)

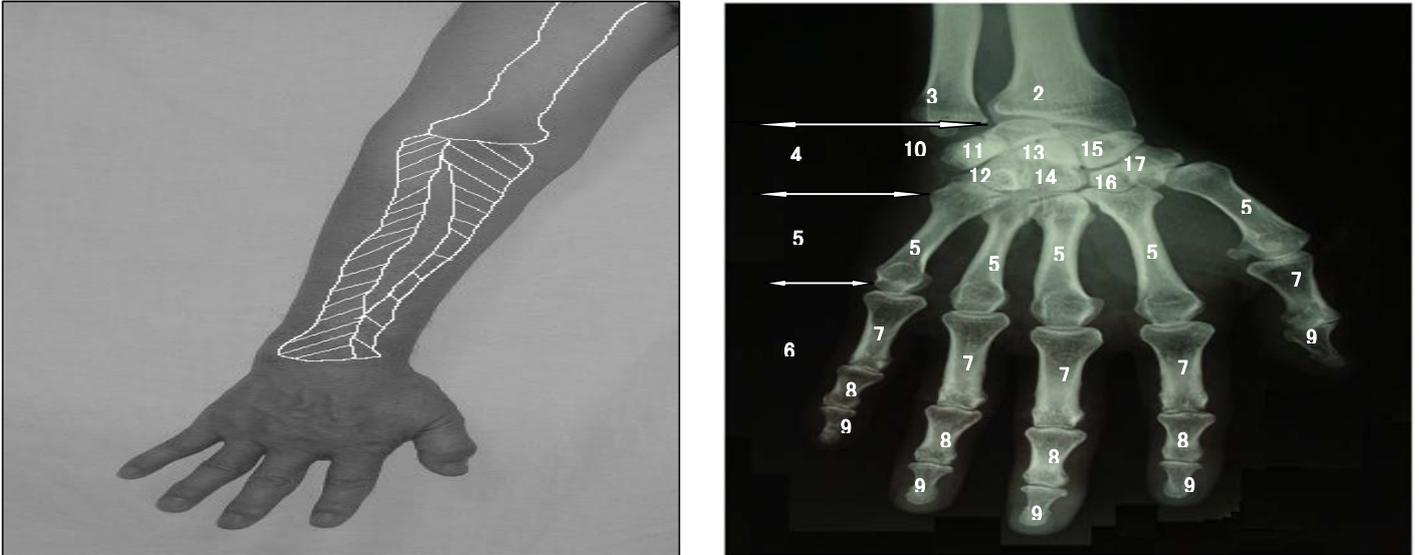


Fig. 1 The Photograph of Skeleton Back Aspect) of Right Hand

1 *Jyo Wan Kotsu:Humerus*

Humerus is a columnar bone which located at upper arm bones. Bone head of the upper arm makes shoulder joints between shoulder blades. The center part of the humerus is cylindrical and the both ends of the upper and lower sides will swell. There are upper arm pulley and upper arm bone head at the bottom part of the humerus, and it makes joints with forearm bone.

2 *Tou Kotsu:Radius*

Radius is a bone located at the forearm , it is a narrow bone outer side of ulna. Radius works together with the ulna. The upper end of radius forms joints of elbow and its bottom ends have thickened. The bottom end of the radius is located between carpal bones and it makes joint of the wrist between wrist joints.

3 *Shaku Kotsu:Ulna*

Ulna is a long pipe bone at the little finger side of the forearm, and its center shows a shape of triangular prism. The bottom ends are narrow and upper ends become elbow head and makes joints with projected humerus. The name of the standard measurement of length was born. It works with thumb side of the radius.

4 *Shukon Kotsu:Carpal Bone*

Carpal bone is a bone at the wrist and eight short bones are arranged in two rows by four pieces, and it is firmly connected by the ligament. Carpal bone is located between capitate bone, scaphoid bone and trapezoid bone, and has connected with scaphoid bone.

5 *Chushu Kotsu:Metacarpal Bone*

Metacarpal bone is five choudahone at the palma manus and connected to six rows of digital phalanges.

6 *Shi Kotsu:Digital Phalanges*

Digital Phalanx is a bone which connected to metacarpal bone including distal phalanx, proximal phalanx, and middle phalanx.

7 *Kisetsu Kotsu :Proximal Phalanx*

Proximal phalanx is the bone between metacarpal bone and middle phalanx. It is between metacarpal bone and middle phalanx in a thumb.

8 *Chusetsu Kotsu:Middle Phalanx*

Middle phalanx is the bone between proximal phalanx and distal phalanx. It does not exist in the thumb.

9 *Massetsu Kotsu:Distal Phalanx*

Distal phalanx is the bone which is consecutive from proximal phalanx and the middle phalanx at the very end.

10 *ToJyo Kotsu:Pisiform Bone*

Pisiform bone is a triangular bone at the palm.

11 *Sankaku Kotsu:Triangular Bone*

Triangular bone is a bone located between hamate bone and lunate bone and it is located on the back side of pisiform bone.

12 *Yuko Kotsu:Hamate Bone*

Hamate bone is located between fourth metacarpal bone, the fifth metacarpal bone, capitate bone and triangular bone.

13 *Getsujyo Kotsu:Lunate Bone*

Lunate bone is located between scaphoid bone and triangular bone.

14 *Yuto Kotsu:Capitate Bone*

Capital bone is a bone located between third metacarpal bone and scaphoid bone, and it is located at the center of the carpal bone.

15 *Shujyu Kotsu:Scaphoid Bone*

Scaphoid bone is located between lunate bone, trapezium bone, and trapezoid bone.

16 *Syo Ryokei Kotsu:Trapezoid Bone*

Trapezoid bone is located at second metacarpal bone, scaphoid bone, trapezium bone and capitate bone.

17 *Dai Ryokei Kotsu:Trapezium Bone*

Trapezium bone is located between the first metacarpal bone and scaphoid bone.

2.3 Photograph and Glossarial Theory of Arm Right Side Front and Hand (Palm Side)

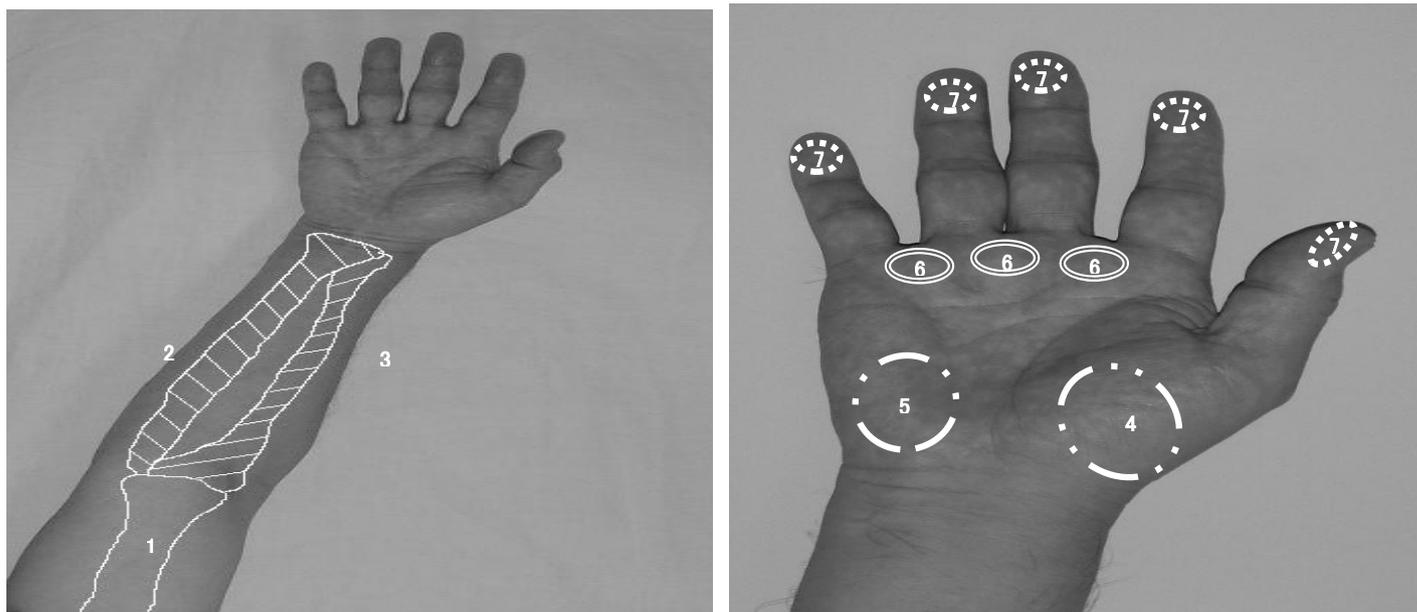


Fig. 2 The Photograph of the Right Forearm and Hand (the Palm Aspect)

1 *Jyo Wan:Upper Arm*

Upper arm is a long arm at the axis of the upper arm. The top end of the upper arm hold outs spherical humeral capitulum and builds shoulder joint between outer sides of scapula. The bottom end of upper arm divides into three joint sides, and is located between ulna and radius.

2 *Tou Kotsu:Radius*

Radius is one of the two bones of a forearm. It is long and thin bone at outer side of ulna and it comes as a pair with ulna. The top of radius forms elbow joint and lower the bone, it get thicker. The bottom end of radius makes joint for the wrist between carpal bone and wrist joint.

3 *Shaku Kotsu:Ulna*

Ulna is a long and slender bone in the little finger side of a forearm, and it comes with a pair with radius of the thumb side. The lower part of ulna is a long and slender bone, and its upper part is thick and has mainly achieved the leading role to connection to umerus. The upper row rear surface of projected unla is called elbow head. By now, the name of the measurement standard for the length was born.

4 *Boshi Kyuu:Hypothenar Eminence*

Hypothenar eminence is located in the outer side of palm line, called "Lifeline" in the western palm reading study. Hypothenar eminence is a portion containing scaphoid bone and trapezoid bone which are connected with the thumb and trapezium bone

5 *Shoshi Kyu:Hypothenar Eminence*

Hypothenar eminence is at the outer side of the health and success line in the western palm reading study. Hypothenar eminence is a portion containing hamate bone connected with a little finger and Lunate bone.

6 *Shikan Kyu:Metacarpal Phalangeal Bulb*

Metacarpal phalangeal bulb is called wing blade means separation line in the oriental palm reading study. On the other hand, it is called girdle of venus in the western palm reading study. Metacarpal phalangeal bulb is a portion containing hamate bone, capitate bone, and trapezoid bone.

7 *Shisen Kyu:White Nail Bulb*

White nail bulb calls the thumb as the ancestor, an index finger as father, a middle finger as mother, a third finger as wife, and a little finger is called as child in the oriental palm study. White nail bulb contain a part of the middle phalanx.

2.4 Photograph and Glossarial Theory of the Fist Department (the Attack Technique and Defense Technique)

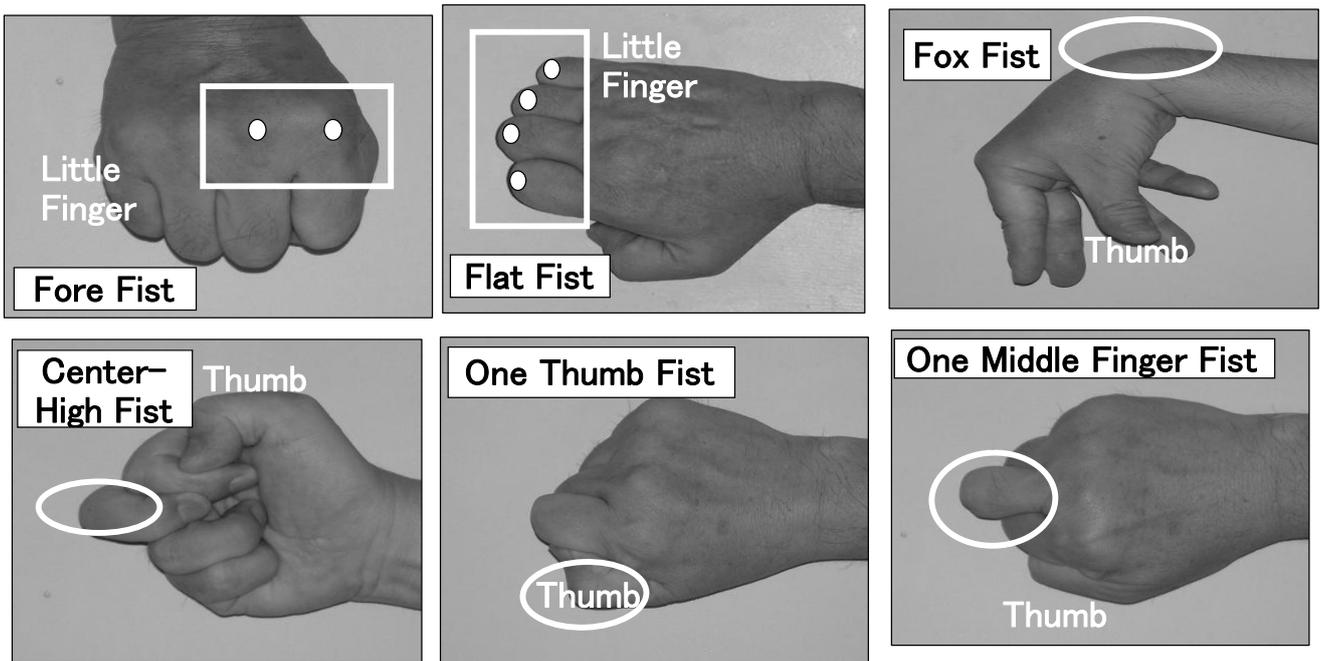


Fig. 3 The Photograph of the Fist Department (the Attack Fase and Defense Fase)

1 *Seiken:Fore Fist*

[EXPLANATION] SEIKEN, a Fore First is a technique which is used in the karate. It is applied to the root of middle finger and fore finger (radical joint) where mainly at the phalanx proximalis, the basic joint bones.

[PROCEDURE]1, open the hand. 2, grab from the little finger to the third finger. 3, grab the middle finger and the index finger. 4, firmly press them by the thumb. Here, the arm and the wrist must keep straight and to concentrate on cobshitou. 5, if the arm and wrist is not straight at this point it will increase the possibility of wrist sprain, so it is necessary to train thoroughly.

[RELATED TERM] fist upper level punch, fist lower Level punch, fore fist straight punch.

[ATTACK TARGET] (Upper Level) bridge of nose, glabella, dimple, ella, chin, philtrum, temple. (Middle Level) abdomen, floating ribs, inner wrist, kidney, scapular, upper back, small of back, solar plexus. (Lower Level) hollow of knee

2 *Heiken: Flat Fist*

[EXPLANATION] HEIKEN, the Flat Fist is an attack technique by applying finger to its roots.

[PROCEDURE] 1, open the hand. 2, straighten 5 fingers except the thumb. 3, the thumb is grasping firmly, bending on the side of an index finger.

[RELATED TERM] fore knuckle fist punch

[ATTACK TARGET] [Upper Level] philtrum, cheek, ear, throat, temple, nose under.

3 *Ko Ken:Fox Fist*

[EXPLANATION] KO KEN, Fox fist is an attacking technique by using wrist

[PROCEDURE] 1, spread our the palm. 2, bend wrist to downward. 3, bend thumb and little finger to the wrist side firmly. 4, when striking, firmly tight the arm. It is effective technology at the case of a combat at the close distance. When look at this technique posture from the front or side, the ring finger and middle finger's point looks like an icicle form.

[ATTACK TARGET] (Upper Level) face, jaw. (Middle Level) underarm abdomen.

4 *Chukou Ken:Center-High Fist*

[EXPLANATION] CHUKOU KEN, Center-high fist is an attacking technique with the state of taking out only middle finger.

[PROCEDURE]Center-high fist is the same way as fore fist. 1, open the hand. 2, grasp five fingers from the little finger to the ring finger. 3, Grasp while projecting the middle finger 4, press down fingers firmly except the middle finger. 5, the center-high fist strikes a small vital part. It is used at the similar purpose as the ippon ken, one fist.

[ATTACK TARGET] (Upper Level) adam's apple, base of cerebelum, bridge of nose, philtrum. (Middle Level) armpit, floating ribs, inner wrist, kidney, small of back, solar plexus, windpipe. (Lower Level) hollow of knee.

5 *Oyayubi Ippon ken:One Thumb Fist*

[EXPLANATION] OYAYUBI IPPON KEN, one thumb fist is an attacking technique by taking out the thumb attached to the index finger and shakes the hand while grasping the joint portion of the middle finger.

[PROCEDURE] 1, spread out the palm. 2, grabs the four fingers from little to the third finger tightly. 3, Grasp while projecting both thumbs. 4, press down fingers firmly except the thumb.

[ATTACK TARGET] (Upper Level) temple. (Mddle Level) neck muscle.

6 *Nakayubi Ippon Ken:One Middle Finger Fist*

[EXPLANATION] NAKAYUBI IPPON KEN, One middle finger fist is an attacking technique by taking out the middle finger to the front and shakes the hand while grasping the joint portion of the middle finger.

[PROCEDURE] 1, spread out the palm. 2, grab tightly four finger from little to the third finger. 3, Grasp while projecting both middle fingers. 4, press down fingers firmly except the middle finger.

[ATTACK TARGET] (Upper Level) temple. (Middle Level) neck muscle.

2.5 Photograph and Glossarial Theory of the Spear Hand (the Attack Technique and Defense Technique)

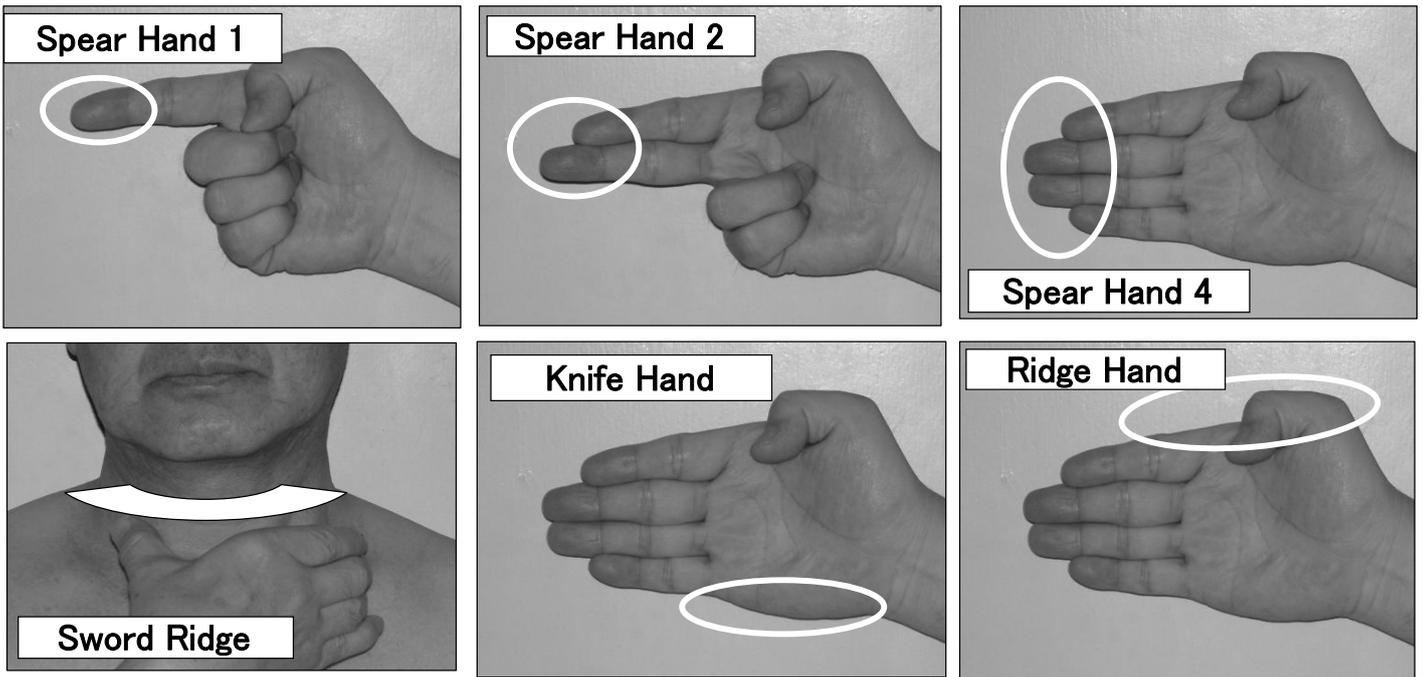


Fig. 4 The Photograph of the Spear Hand (the Attack Fase and Defense Fase)

1 *Nukite(ippon):Spear Hand*

[EXPLANATION] NUKITE IPPON, Spear Hand is also called as an index finger spear hand. When seiken(fore fist) is called as stick's head, this nukite ippon is called a spearhead.

[PROCEDURE] 1, Open the hand . 2, Stick out and stay the index finger as its position . 3, Make other finger's nail part bent lightly. 4, Look out for the bent knuckle not to be straight line as the extended arm.

[ATTACK TARGET] (Upper Level) bridge of nose, philtrum.

2 *Nukite(nihon):Spear Hand*

[EXPLANATION] NUKITE NIHON, Two Spear Hand is also called as an index finger and a middle finger spear hand.

[PROCEDURE] 1, Open the hand. 2, Stick out and stay the index and the middle finger as its position. 3, Make other finger's nail part bent lightly. 4, Press down firmly such pinky and third fingers by the thumb. 5, When The seiken(fore fist) is called as stick's head, this nukite ippon is called two spearhead.

[ATTACK TARGET] (Upper Level) bridge of nose.

3 *Nukite(yonhon):Spear Hand*

[EXPLANATION] NUKITE YONHON, Four Spear Hand is also called as four finger spear hand other than the thumb.

[PROCEDURE]1, Open the hand. 2, Extend four fingers as its position. 3, Make thumb's nail part bent lightly. 4, Extend the arm and slightly bent the elbow. 5, Press down firmly such pinky and third fingers by the thumb. 6, Spear hand will become powerful arms if the length at the tip of the middle and the third finger is in order.

[ATTACK TARGET] (Upper Level) adam's apple, philtrum. (Middle Level) solar plexus, windpipe.

4 *Touhou:Sword Ridge*

[EXPLANATION] TOUHOU, the Sword Ridge, put the thumb and forefinger on the powerful point. At the same time, pinky finger should be slightly bent.

[PROCEDURE] 1, Open the hand. 2, bent the thumb. 3, Make circle inside of the thumb and the forefinger. 4, The aim of the sword ridge is the vital point of the neck, called "Adam's Apple". 5, For example, its is called the work of the "Throat Attack" of the sumo wrestling.

[ATTACK TARGET] (Upper Level) adam's apple.

5 *Shutou:Knife Hand*

[EXPLANATION] SHUTOU, the Knife Hand is the other side of ridge hand, mainly use the pinky finger side. Therefore, it is a technique similar to the technique of karate chop, "the hand knife strike" of the professional wrestling.

[PROCEDURE] 1, Extend the five fingers as in order. 2, The first joint of the thumb is bent. 3, Make sure to keep thumb and index finger to parallel. 4, The pinky side become lower position.

[RELATED TERM] knife hand block, knife hand strike, knife hand profile strike.

[ATTACK TARGET](Upper Level) temple. (Middle Level) clavicle, underarm abdomen. (Lower Level) groins, testis.

6 *Haito:Ridge Hand*

[EXPLANATION] HAITOU, the Ridge Hand is oppose to knife hand, It uses mainly the side of the thumb.

[PROCEDURE] 1, Extend the five fingers as in order. 2, Stay the root of the index and third finger where it belongs. 3, The state of the root is approached. 4, Do not use bent joint of thumb. 5, Since four fingers are at the horizontal position, it becomes parallel to the thumb therefore the feature might looks the same.

[RELATED TERM] ridge hand block, ridge hand strike.

[ATTACK TARGET] (Upper Level) temple, bridge of nose. (Middle Level) carotid artery of neck, vital point of arm.

2.6 Photograph and Glossarial Theory of the Forearm (the Attack Technique and Defense Technique)

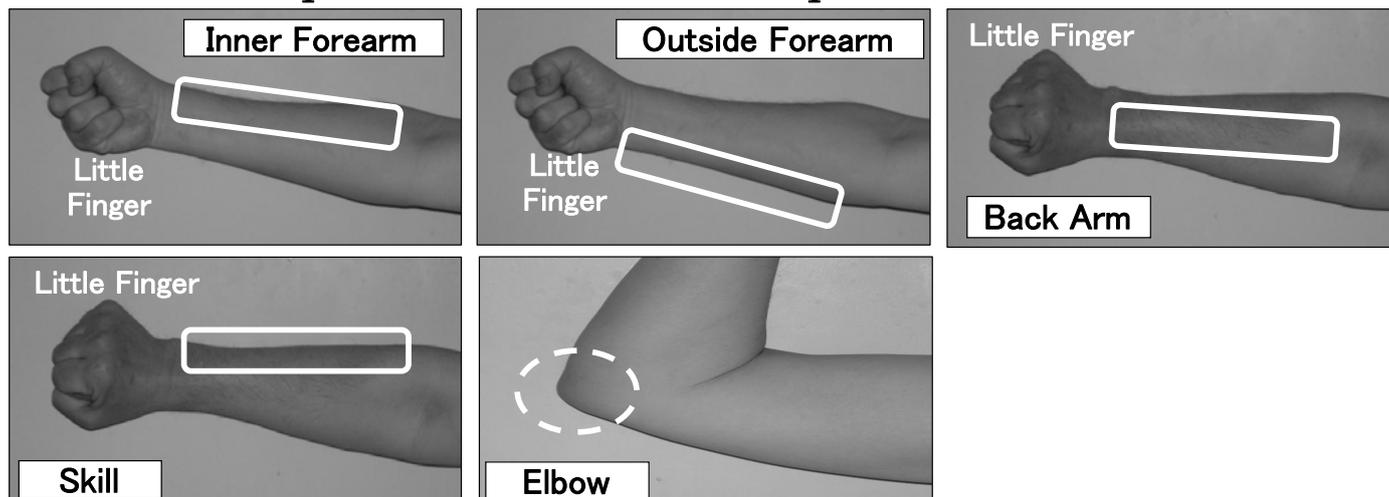


Fig. 5 The Photograph of the Forearm (the Attack Fase and Defense Fase)

1 *Nai Wan: Inner Forearm*

[EXPLANATION] NAIWAN, the Inner Forearm is also called arm stick, mainly use as block techniques for the defense. The arm can categorize into inner forearm, outside forearm, elbow and outside forearm of the hand. Since inner forearm is the little finger side portion of the arm, when the back of a hand is raised, it is located at the outside of the arm at the side of the four fingers.

[ATTACK TARGET] Inner Forearm is an effective portion as the repeated techniques in the close quarter combat. As the result, the fighting conscious of the opponent will disappear.

2 *Gai Wan: Outside Forearm*

[EXPLANATION] GAIWAN, Outside Forearm is the thumb side portion of the arm. When the back of a hand is raised, it is the inner side of the arm, which is the opposite side of inner forearm.

[ATTACK TARGET] Outer Forearm is an effective and destructive technique in the close quarter combat.

3 *Hai Wan: Back Arm*

[EXPLANATION] HAIWAN, Back Arm is also called “small hand”, located at the inner side of the arm of the four fingers side, where the part of the arm jointed from the wrist.

[ATTACK TARGET] Back Arm is an effective as the return technique at the close quarter combat, when the attack has received.

4 *Shuwan: Skill*

[EXPLANATION] SHUWAN, Skill is also called as “small hand”, located at the little finger side.

[ATTACK TARGET] The place to apply is the joint of between middle and index finger’s root. It is effective as the return technique at the close quarter combat when the attack has received. The second joint is unrelated to this technique.

5 *Empi: Elbow*

[EXPLANATION] ENPI, Elbow is the portion connected with upper arm and fore arm, and when elbow is bent, it is the bone of the joint. Elbow is also called “Elbow gun”, because it is hard, and has powerful power. Elbow is the effective portion with the destroy.

[ATTACK TARGET] (Middle Level) armpit, floating ribs, kidney, scapular, upper back, solar plexus. (lower level) hollow of knee.

[RELATED TERM] elbow strike, elbow side strike, side wrist strike.

[ATTACK TARGET] (Middle Level) armpit, floating ribs, kidney, scapular, upper back, solar plexus. (Lower Level) hollow of knee.

Model 1 Relation Model between Vital Spots and Hand Tecknology

Vital Spots and Hand Tecknology	Back Fist	Upper Level	Bridge of Nose	Philtrum	Temple				
		Middle Level	Floating Ribs	Solar Plexus	Kidney	Small of Back	Scapular, Upper Back	Inner Wrist	
		Lower Level	Hollow of Knee						
	Bear Hand	Upper Level	Chin	Temple					
		Middle Level							
		Lower Level	Hollow of Knee						
	Bottom Fist	Upper Level	Temple	Skull					
		Middle Level	Floating Ribs	Solar Plexus	Kidney	Clavicle	Small of Back	Windpipe	
Lower Level		Hollow of Knee							
Fore Fist	Upper Level	Bridge of Nose	Side of Neck	Philtrum	Chin	Temple			
	Middle Level	Abdomen	Floating Ribs	Inner Wrist	Kidney	Scapular, Upper Back	Small of Back	Solar Plexus	
	Lower Level	Hollow of Knee							
Knife Hand	Upper Level	Side of Neck							
	Middle Level	Clavicle							
	Lower Level	Groin, Testes							
Center-High Fist	Upper Level	Adam's Apple	Base of Cerebelum	Bridge of Nose	Philtrum				
	Middle Level	Armpit	Floating Ribs	Inner Wrist	Kidney	Small of Back	Solar Plexus	Windpipe	
	Lower Level	Hollow of Knee							
Spear Hand	Upper Level	Adam's Apple							
	Middle Level	Solar Plexus	Windpipe						
	Lower Level	Hollow of Knee							
Elbow	Upper Level								
	Middle Level	Armpit	Floating Ribs	Kidney	Scapular, Upper Back	Small of Back	Solar Plexus		
	Lower Level	Hollow of Knee							

Hand technology is classified into eight terminologies, back fist, bear hand, bottom fist, fore fist, knife hand, center-high fist, spear hand and elbow. Such techniques of back fist, bottom fist, fore fist, knife hand, center-high fist, spear hand are effective for the vital spots of upper, middle and lower level. Bear hand is effective to attack the vital spots of upper and lower level. On the other hand, elbow is effective for the middle and lower level.

4. The Correlation Model between Punching, Striking and Blocking Techniques and Upper Extremity

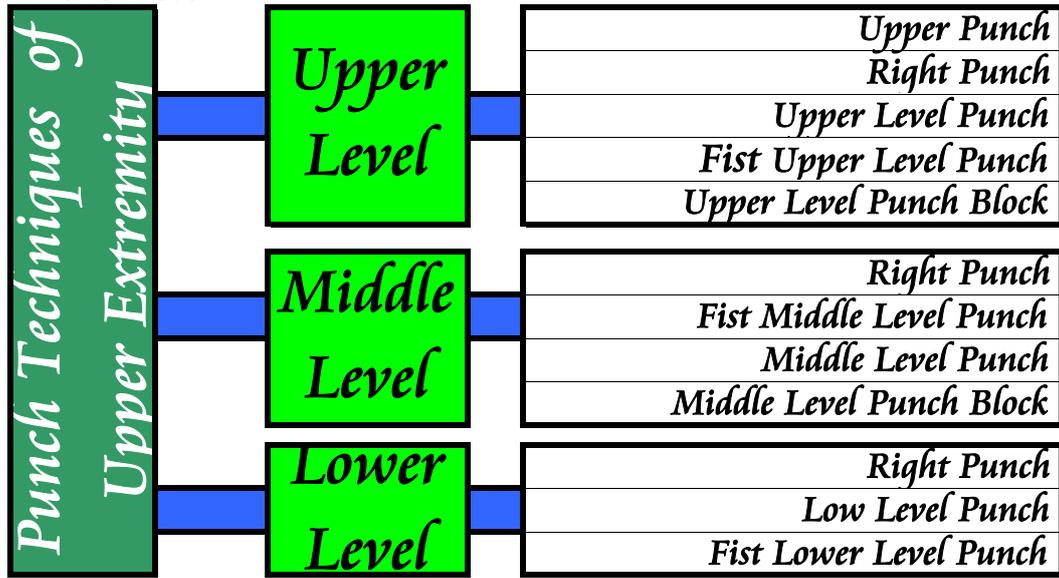
Model 2 Relation Model between Punching, Striking and Blocking Techniques and Upper Extremity

Hand Techniques of Upper Extremity	Punching	<i>Back Fist Punch</i>	<i>Right-left Punch</i>
		<i>Back Hand Punch</i>	<i>Ring Punch</i>
		<i>Close Punch</i>	<i>Rising Punch</i>
		<i>Cocking Attack</i>	<i>Shaking Out Punch</i>
		<i>Flat Fist Punch</i>	<i>Straight Punch</i>
	Striking	<i>Back Fist Strike</i>	<i>Hand Peak Strike</i>
		<i>Bottom Fist Strike</i>	<i>Horizontal Strike</i>
		<i>Elbow Raises Strike</i>	<i>Jaw Strike</i>
		<i>Hammer Fist Strike</i>	<i>Knife Hand Strike</i>
	Blocking	<i>Back Arm Block</i>	<i>Inside Block</i>
		<i>Bent Wrist Block</i>	<i>Knife Hand Block</i>
		<i>Bottom Fist Block</i>	<i>Ring Block</i>
		<i>Double Fist Block</i>	<i>Rising Block</i>

There are three ways of upper extremities in punching, striking, and blocking techniques respectively. This illustration above is the application model of practical use of upper extremity in each technique.

5. The Correlation of Punching Techniques between Upper, Middle, and Lower Level

Model 3. Relationship Model of Punching Techniques with Upper, Middle and Lower Level



The activity of punching techniques can be classified into three levels, upper, middle and lower. This illustration above is the application model of practical use of punching techniques.

6. The Correlation Model of Blocking Techniques between Upper, Middle and Lower Level

Model 4 The Correlation Model between Blocking Techniques for Upper, Middle, and Lower Level

Block Techniques	Upper Level	Knife Hand Block at Head Level	Upper Level Forearm Block	Upper Level Repetition Block
		Upper Level Difference Block	Upper Level Fox Block	Upper Level Ring Block
		Upper Level Double Up Block	Upper Level Punch Block	Upper Level Scissors Block
		Upper Level Empty Block	Upper Level Raises Block	Upper Level Transverse Block
	Middle Level	Middle Level Back Block	Middle Level Fox Block	Middle Level Scissors Block
		Middle Level Block	Middle Level Hand Sword Block	Middle Level Scoop Block
		Middle Level Elbow Block	Middle Level Large Reverse Block	Middle Level Side Block
		Middle Level Elbow-branch Block	Middle Level Palm Bottom Block	Middle Level Ward-off Block
		Middle Level Fist-branch Block	Middle Level Punch Block	
	Lower Level	Lower Level Hand Sword Block	Lower Level Ring Block	Lower Level Scoops Up Block
		Lower Level Knee Return Block	Lower Level Scissors Block	Lower Level Shake Throw Block
		Lower Level Knife Hand Block	Lower Level Scoops Up and Stop Block	Lower Level Ward-off Block

The Blocking technique activities can be classified into 3 levels, upper, middle and lower. This illustration above is the application model of practical use of blocking techniques.

7. SUMMARY

Each part of the human body which sustains life can classify into upper, middle and lower level, including vital points. The name concerning the training of the basic attack techniques can be classified into four categories, Punch, Strike, Block and Kick.

1) Multilingual translation (Japanese, English, Korea and Chinese) with technical terminologie of the forearm and the palm of hand that related to the Karate was compiled.

2) To show and to help to understand the most important technology of the hand structure, the x-ray pictures of the right hand, right forearm and the palm aspect is provided with explanation and terminologies.

3) Correlation model concerning correlation and the vital point (upper level, middle level, and upper level) with the vital point where the basis of the hand technique had been made a center was designed.

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References

- 1) M. NAKAYAMA: Best KARATE 1 Comprehensive, Kodansha American (1977)
- 2) M. NAKAYAMA: Best KARATE 2 Fundamentals, Kodansha American (1978)
- 3) R.TOMOYORI: The concept of the textbook-karate martial art of karate-do, training, and Kansai University Kansai University Press (in japan) (1991)
- 4) H.NISHIYAMA · R.C.BROWN: KARATE The Art of "Empty-Hand" Fighting, Tuttle Publishing (2000)
- 5) J.M. FRAGUAS: KARATE Masters, Unique Publications (2001)
- 6) T. KUBOTA: Fighting KARATE, Unique Publications (2002)
- 7) Kenei MABUNI: Invitation to Budo Karate, Sanko-sha (in japan) (2003)
- 8) J.BREASLEY: Mastering KARATE, Human Kinetics (2003)
- 9) Isao SAWA, Kenzo MABUNI, Toyoji HIGUCHI and Masao OSADA: Corelation Model of Vital Points and Hand Techniques by IT and History of Abbreviation in Karate-Do, The Review of osaka University of Economics and Law No.88 (2004)
- 10) Isao SAWA, Kenzo MABUNI, Toyoji HIGUCHI and Masao OSADA: Corelation Model of Vital Points and Leg Techniques of Karate-Do by IT, The Review of osaka University of Economics and Law No.89 (2005)