



# Qualitative exercises for the different movements of the feet and their impact on some technical movements, motor parts and Unsu Kata in Karate

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## Abstract

The karate player, from the beginning of the kata to its end, is either in a permanent movement or relative stability in some different stances or pivots, according to the technical content of the Kata itself. Specific to the school to which the kata belongs, or as mentioned in the Karate Law (Ryu Ha), which means the actual application of the spirit and philosophy of the school to which the kata belongs and not deviating from its own performance style or conformity and conformity of performance with the requirements of the school to which the kata belongs or expressing the method and style of movements The kata performed by the player about the direction or method of work of the school to which he belongs, It is imperative to keep the upper body free of any movement, especially upward movement, Marc de Bremaeker and Roy Faige (2010) confirmed that; The feet are moving very close to the floor, there is no jumping or hopping; only sliding.

## Key words

Tai Sabaki – kata – suri Ashi – technical analysis - karate

## 1- Introduction and importance of the study:

Richard Thomas (2017) refers to – about (Nakayama 1987, 12) That Shotokan katas are divided into two groupings. The first, Shorin-ryu, is characterized by light quick movements with the purpose of developing fast reflexes and agility the second, Shorei-ryu, uses strong and powerful actions that improve

physical conditioning through repetition. (17: 18), (13: 12)

"[Understanding] the concept of tai sabaki is very simple. [The] attack is coming to you; there's two ways to avoid it. The first way is if the attack comes, you move the attack out of your way." second when the attack comes you block it.

The Role of Ayumi Waza in Tai Sabaki is Developing your Karate Moves and transitional; "Ayumi



waza” simply means stepping,” It's pretty simple, It's a step. If you practice karate, the first form that you have is called “Heian Shodan”, According to Joe Mirza 2013, the “Heian Shodan” contains the Tai Sabaki element of Ayumi Waza, or stepping in a very simple and easy performing way. (8:21)

Ed Hudson (2015) mentions that, unfortunately, the art of body shifting (tai sabaki) and foot movements (ashi sabaki) has been lost in most (Do jo) s.

Historical evidence has shown the historical lineage of Japanese karate from Okinawa back to China the Chinese martial arts are replete with the importance of body shifting and footwork. In some instances, Chinese forms advocate that their specific forms are based on this entire principle. This emphasis on body shifting and foot work can be found in many other forms of martial arts. The importance of foot work is also a foundational plan in western boxing. If such a diverse range of martial arts acknowledge the importance of foot work and body shifting,

Various trainers do not teach Tai Sabaki in the first place, were taught it but have now forgotten it, were taught it but have decided not to practice it.

Most karate practitioners acknowledge that kata holds the keys

to self-defense, Kata encapsulates effective self-defense techniques to common faros of physical aggression. Kata can be practiced individually without the need for a training partner.

However, kata is not a dynamic representation of a real-life encounter. Kata represents in a stylistic way what one could do in a certain situation. Tai sabaki shows one how this works in reality. (10:1)

Tai Sabaki in kata also means how to move and transition between stances and postures while performing the kata and that process have 3 methods (Suri Ashi – Okuri Ashi - Tsugi Ashi) Suri Ashi is applied by moving the leg that is nearest to the direction I want to go then the other follows, with taking care of the leg moves very close of the ground Okuri Ashi is applied by the same way but with rising the leg like a frog or by leaping slightly on the ground, Tsugi Ashi is the opposite of Suri Ashi, the back leg moves first towards the direction I want to go. And the most common type of Tai Sabaki in kata is Suri Ashi. The kata contains movements in multiple and different directions, including the front straight, the lateral diagonal, and the rotation at different angles 45 degrees, 90 degrees, 180 degrees and 360 degrees during jumps that require speed,



accuracy and strength in execution with the player's readiness and willingness to repeat more than once during the performance of the kata according to its technical content and the technical skill methods it includes.

Through the researcher's work in the field of training and being a faculty member specializing in Karate, the researcher found that the movements of the feet may contain some common mistakes such as ascent and descent, bending of the trunk in different directions, interruption of performance and sometimes imbalance during the transition from one movement to another or the use of shoulders or what is called incantations, including Also, the extra movements or the movement of the two arms during the transition, especially the hand responsible for the (hiki ti) movement gathering, which definitely affects the degree of performance given by the referees and influences the match result too, where one of the signs of a good kata player is that his head and shoulders are fixed and do not move during the performance of any skill technique or transitional movement during the kata and his waist is fixed without any inclination to forward Neither the sides nor the back, and the middle is in one horizontal plane during the transition from one movement to another or during the movements of the feet.

The player, from the beginning of the kata to its end, is either in a permanent movement or relative stability in some different stances or pivots, according to the technical content of the Kata itself. Specific to the school to which the kata belongs, or as mentioned in the Karate Law (Ryu Ha), which means the actual application of the spirit and philosophy of the school to which the kata belongs and not deviating from its own performance style or conformity and conformity of performance with the requirements of the school to which the kata belongs or expressing the method and style of movements The kata performed by the player about the direction or method of work of the school to which he belongs, It is imperative to keep the upper body free of any movement, especially upward movement, Marc de Bremaeker and Roy Faige (2010) confirmed that; The feet are moving very close to the floor, there is no jumping or hopping; only sliding.( 12:22)

We also find that the movements of the feet in the kata have a great importance, as the Karate rules stipulate in the arbitration clauses and the technical evaluation of the kata as shown: -

Criteria for evaluation of Kata Performance

## **1. Technical performance**



- a. **Stances**
- b. **Techniques**
- c. **Transitional movements**
- d. **Timing**
- e. **Correct breathing**
- f. **Focus (KIME)**
- g. **Conformance: Consistence in the performance of the KIHON of the style (Ryu-ha) in the kata.**

## 2. Athletic performance

- a. **Strength**
- b. **Speed**
- c. **Balance**

(transitional movements or kinetic transfer – and stances or postures - **Conformance** or congruence or conformity) and with a closer look at the three determinants, we find that they are very closely linked and are almost inseparable from one another. The transitional movements or kinetic transfer is where the player is in a specific stance or position and then moves or moves from one point to another to reach another stance or position. During this process, he must fulfill the condition that this transition matches the specified kinetic path and the philosophy of the school in which he performs his kata, whether the move is fast or slow, or in a certain way, such as moving the front foot first, moving the back foot first, stable or rooted on one foot then, turning, jumping, or other moves related to the feet.

The importance of the movements of the feet is also evident

in the kata, as we find, for example, in the Shotokan school, some names that were given to the kata bear the number of its own steps, such as (Ni Ji Shiho), which means (24 steps), and this Kata already contains 24 movements or a steps or position, moving from one to the other in a specific manner and time, and with technical performance characterized by superiority and physical excellence in terms of speed, strength, compatibility, agility, balance; And (Go jo shiho sho), which means (54 small steps), where the kata movements contain short or high-stances, which is the niko ashi dachi or the cat's stance, then moves between the stance or stances and each other in a specific way and in a specific way and in motor paths Also fixed and specific, and the Kata (Go jo shiho dai), which means (54 big steps) and is considered the older sister of the previous kata, which performs most of its movements from the stances or postures of legs wide space, with a relatively broad base such as koktsu dachi and kiba dachi, and from the above it is clear the importance of the movements of the feet in The kata of Karate, and the player must master these movements in their different directions and their different distances and in the form of combs of the feet, which distinguishes every stance or position of the legs from the other, which requires the availability of many physical requirements or special motor abilities



represented in endurance performance, endurance of strength, maximum speed, power, flexibility, agility, coordination and balance.

Which prompted the researcher to conduct this research, as this research aims at a technical analysis of (Tai Sabaki) or the movements of the feet in the kata as a basis for setting qualitative exercises to develop the level of kata performance of the karate players through creating of qualitative, special or functional exercises that are derived from the nature of motor performance in the most frequent kata in tournaments.

## **2- Objectives of the study:**

The study aimed to identify:

- The technical analysis of Tai Sabaki and Unsoku in kata
- creating a qualitative exercise based on the technical analysis of t
- The effect of the qualitative exercises on performance level of kata players.

## **3- Study hypotheses:**

a- There are significant differences between the pre- and post-serving a specific purpose to enhance or heal

- **Unsoku:** foot work in kata, or leg movements. (procedural)
- **Ayomi Ashi:** walking forward and backward. (procedural)
- **Fumikae-Ashi:** pulling the front leg back and the other goes forward. (procedural)

measurements values for the benefit of post-measurements of skill performance level of some skills of kata for the research sample.

- b- There are significant differences between the pre and post measurements values for the benefit of post measurements by using the qualitative exercise of speed, performance endurance, and strength

## **4- Research terms :**

- **Technical analysis:** it's the analysis of the skill movements of a certain sport from the technical aspects such as kinetic paths, body transitional, and performance nature or condition. (procedural)
- **Skill performance level:** it's the score given by the judges to a player who performs a kata according to w.k.f criteria rules. (Amr Gaafar 2018)
- **Tai Sabaki:** moving the body through karate, by steps made with a specific and technical way. (procedural)
- **Qualitative exercises:** activities or exercises made especially for some issue of performance. (procedural)
- **Yori-Ashi:** stepping forward by the leg in front then the back leg follows it. (procedural)

## **5- Procedures followed during the study:**

- **Methodology:** The experimental method - one group and the



descriptive methodology for technical performance.

- **fields of study:** -

- **Sample and Human field:** The study sample was selected purposively as follows:

- 20 kata players aged (13 , 14) years old of Al Ahly club, divided into 5 players as a surveys sample for scientific coefficients and 15 players as a main sample for applying the training program for them. Table (1)

**Table (1)** Research sample description

Variables	Surveys sample	Main sample	Total sum
Players	10	10	20
Purpose	Surveys studies	Main study	

All participants were fully informed about the aims of the study, the procedures and the training, and gave their voluntary consent before participation. The experimental procedures were in agreement with the ethical human experimentation.

- **Geographical and time domain:** Main and surveys studies were carried out in karate training hall at Al Ahly sports club, has been scoping study as followed

**Table (2)** shows the time domain of research procedures

Date	Purpose
1-7 June 2019	Technical analysis and creating qualitative exercises
8 June 2019	gathering data and Pre measurements
15 June 2019	Re-test
From: 17 June 2019 To: 8 August 2019	Applying the training program
10 August 2019	Post measurements

## **6-Measurements used in the study:**

### **a- Physical measurements**

- speed. (repeating the movements in 10second as fast as possible) (1:556)
- performance endurance. (repeating the movements in 45second as fast as possible) (1:557)
- power. (long jump of basic stances) (researcher designing)

### **b-Technical measurements**

- skill performance level evaluation according to the criteria of WKF competition rules for kata with accredited 3 Jury of Egyptian karate



## federation. (Go jo shiho shu - Jankaku- Unso – Kanku Shu)

And those measurements for measuring some of the karate techniques were chosen because of:

- Existence among kata table mentioned in WKF coemptions rules
- Variety of techniques of each kata.
- Variety of postures or stances.
- A variety of directions of application.
- A variety of transitional speed of movements
- Most performed kata through championships.
- Variety of Taisabaki and Unsoku techniques

### **7- Experiments exploratory:**

That experiments have been on three stages:

***The first stage:*** In order to determine the katas which is more related to the subject under study and that were done by choosing kata with plenty of Tai Sabaki and Unsoku different techniques. Also, the most familiar and common kata performing during championships for this stage of age.

***The Second stage:*** in order to ensure the scientific processing of the tests used during the study (validity - stability)

The validity factor tests use the square root of stability, and the stability was done through test and retest method, validity ranging

transactions between (0.874- 0.675) which refers to the enjoyments of high credibility which permits using the applied measurements as an evaluation tool of the study, as has been the stability tests account through the use of application of the test-retest method, taking into account the time difference of "7" days between both applications, and ranged stability coefficients for the tests mentioned between (0.912 – 0.789) which refers to the enjoyments of high stability which permits using the applied measurements as an evaluation tool of the study.

### ***The Third stage:***

In order to plan for the content of the proposed training programs for the sample under study. Tables (4,5 and 6)

It has been conceived for the content of qualitative exercises created depending on the technical analysis of Tai Sabaki and Unsoku of the kata chosen to be applied for, which contained different techniques and skills, variety of directions of application, variety of transitional speed of movements and it also most performed kata through championships among players in this stage of age.

### ***The fourth stage***

Analysis of kata movements under study Taisabaki and Unsuko in order



to suggest The qualitative exercises focused on including a Speed exercises and techniques for developing Initiation Speed, Alteration Speed, speed of rotation and speed of transportation, as well as the selection of specific exercises and also arranging the sequence of

implementation during the daily training unit, plus selecting training methods and dynamic loads distribution, characteristics and determining intensity levels, taking into account the individuality of research sample as possible.

**Table (3)** Analysis of kata sections Tasabaki and Unsoku

Kata section	Taisabaki and Unsoku Techniques		
	<i>Ayomi- Ashi</i>	<i>Fumikae- Ashi</i>	<i>Yori- Ashi</i>
<b>Unso</b>	*	*	
<b>Go jo shiho shu</b>	*		*
<b>Jankaku</b>	*		
<b>Kanku shu</b>	*		

## **8- Basic experiment:**

pre measurements were conducted for the requirements under study, and have been implemented over the proposed 24 unit of training, and post measurements has been telemetric

after the completion of the last training unit No. 24, and by following the same sequence and conditions followed in the pre measurements. table (4)

**Table (4)** Timing measurements during the study

Pre measurements	Post measurements	Measurements done
8/06/2019	8/8/2019	Special motor abilities And kata evaluation

## **9- program planning:**

Researcher planned the program after reviewing some of thesis and by analyzing the ways and systems and training methods followed in it, and by considering

training principles such as individuality, specialty and gradation.

The program included 8 weeks, 24 training units, 3 per a week and two basic measurements one before applying the program proposed





and the second after applying the program. Table (5)

In order to achieve the best improvements and efficiency - researcher point of view - the **Table (5)** General program planning

researcher divided the training unit into sections in purpose to be more appropriate to apply the contents of proposed training program of specific motor skills exercises. Table (6)

Program Temporal Distribution	Data
Weeks of the program	<b>8 weeks</b>
Program total time	<b>1500 minutes</b>
Training units per program	<b>24 training units</b>
Training units per week	<b>3 training units</b>
Training unit period	<b>60-70 minute</b>
Number of measurements	<b>Before experiment After experiment</b>
Rest between training sets	<b>(1 : ½) (1 : 1½) “ work- rest”</b>
Rest between training cycle	<b>(1:2), (1:3)“ work- rest”</b>
Load cycle per unit	<b>(1:1), (2.1)</b>

**Table (6)** Program planning and total program time distribution

variables	%	Time minutes	per Per hours	
Warm up	% 10	150 minutes	2.5 hours	
Technical and Transitional basics	% 20	300 minutes	5 hours	
physical preparation	Qualitative exercises	% 40	600 minutes	10 hours
	Skill combinations	% 25	375 minutes	5.25 hours
Cool down	% 5	75 minutes	1.25 hour	
total	% 100	1500minutes	25 hours	

**Table (7)** Unit time distribution per minutes

variables	%	time	
Warm up	% 10	5-8 minutes	
Technical and Transitional basics	% 20	13-15 minutes	
physical preparation	Qualitative exercises	% 40	25-28 minutes
	Skill combinations	% 25	14-18 minutes



Cool down	%5	3-5 minutes
total	%100	50-70 minutes

### **10- Statistical processing methods used:**

Average - standard deviation - median- Skewness - T test - Improvements percentage – Square root

**(8) Table**  
measurements of research Shows the differences between pre and post  
N=10 performance level of some skills of kata and its physical skill sample in  
aspects

Single technical moves		Rep.	Pre Measurements		post Measurements		Mean difference	T value	Improvement
			Mean	Std.	Mean	Std.			
ippon-nukite neko-ashi-dachi	speed	10 sc	3	0.653	13	0.745	5	4.632	%63
	performance	45 sc	28	0.698	36	0.963	8	3.621	%29
	Skill performance level	Score	5.4	1.025	7.2	0.987	0.8	5.021	%13
keito-kake-uke / koho-teisho-uke	speed	10 sc	16	0.659	22	0.754	6	5.523	%38
	performance	45 sc	31	1.326	34	0.421	3	2.985	%10
	Skill performance level	Score	5.6	0.985	7.6	1.652	1	3.021	%15
tate-shuto-uke fudo-dachi	speed	10 sc	16	0.154	23	0.879	7	7.365	%44
	performance	45 sc	44	1.033	51	1.951	7	3.234	%16
	Skill performance level	Score	5.2	0.654	5.8	1.265	0.6	3.874	%10
tobi-geri / ushiro-kekomi- tobi-geri	speed	10 sc	4	0.785	5	0.753	6	2.326	%25
	performance	45 sc	11	0.895	13	0.963	9	3.652	%18
	Skill performance level	Score	5.4	0.651	7.4	1.36	1	4.623	%16

scheduled t value at degree of freedom (8) at significant level of (0.05) is (1.833)

### **11- Results and discussion**

- Discussion of the hypotheses A&B:



As evident of table (7) there were significant differences between pre and post measurements of research sample in the variables of this study for the sake of post measurements in all of the research sample technics, the measured T value ranged between (6.021- 2.694) and that was for skill performance level for Unso kata determined kihon, and power of Kiba dachi for the lower one, and that was higher than tabled T value (1.833) which evident that there is a significant differences for the sake of the post measurements.

Although, the improvement percentage ranged between (63% - 4%) while

**(9) Table**

measurements of research Shows the differences between pre and post  
N=10 performance level of some skills of kata and its physical skill sample in  
aspects

Single technical moves			Pre		post		Mean difference	T value	Improvement
			Measurements		Measurements				
			Mean	Std.	Mean	Std.			
Motor part 1 From (1-14)	1 performance endurance	mark	5	0.653	6.6	0.745	5	4.632	%10
Motor part 2 From (15-21)	2 performance endurance	Score	6.2	0.698	6.5	0.963	8	3.621	%5
Motor part 3 From (22-27)	3 performance endurance	Score	6.1	1.025	7	0.987	0.8	<b>6.021</b>	%15
Motor part 3 From (28-37)	3 performance endurance	Score	6.2	0.659	6.5	0.754	6	5.523	%5
Unso Kata	performance endurance	Score	6.3	1.326	6.8	0.421	3	2.985	%8

scheduled t value at degree of freedom (9) at significant level of (0.05) is (1.833)

higher score was for variable speed for Unso kata determined kihon, and the lower one was for power of Kiba dachi for the lower one.

The researcher refers that improvement for the qualitative exercises put and applied for the research sample, the planning and designed training loads and for the training unit exercises distribution.

And that comes with the agreement of the results of studies (6), (9), (16), (17)

## 12- Conclusions :

1 -Technical analysis is considered one of the best and least expensive methods of designing qualitative exercises.

2 -The art of moving the body (Tai sabaki waza) and the art of moving the feet (Unsko waza) is considered one of the most important arts of karate.



- 3 -The movement in the kata is done in different ways, but they are consistent in performance so that the movement is done by raising the foot very slightly from the ground.
- 4 -The most common movement technique in kata is Ayumi Ashi.
- 5 -In the kata there may be more than one method of movement, especially advanced motor sentences

### **13 - Recommendations:**

According to research results and through the applying of the training program designed for technical speed and special kinetic abilities in an attempt to improve and enhance technical performance of kata

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