

AN INVESTIGATION INTO DIFFERENCES IN MODIFIED STORK BALANCE ABILITIES BETWEEN EXPERIENCED AND INEXPERIENCED KARATEKAS AT KENYATTA UNIVERSITY

J.W. KINOTI, W.W.S. NJORORAI AND G.M. KIGANJO
MOI UNIVERSITY, BOX 3900, ELDORET; EGERTON UNIVERSITY, 536
NJORO; AND KENYATTA UNIVERSITY, BOX 43844, NAIROBI, KENYA

ABSTRACT

Karate is a martial art sport whose main objective is to develop techniques and tactics for self-defense without the use of weapons. The ability to balance determines how well an individual can perform in this sport. The body's balance is maintained at the hips where the mass of the body is concentrated. A one case shot study was carried out on twelve experienced and twelve inexperienced male karatekas. The subjects were tested on modified stork balance. The two groups were compared using the t-test. Among other findings, it was established that the experienced karatekas had a mean of 111.42 seconds compared to 58.08 seconds for the non-experienced group. The difference in balancing ability was significant at $p \leq 0.05$ level in favour of experienced karatekas. It was evident that the more one engaged in the sport the more one became competent in the balancing abilities. Training and persistent practice are, therefore, vital if one is to perfect the much needed balancing abilities.

Key words: *Modified stork balance, karatekas, self-defense.*

INTRODUCTION

Balancing ability is a major requirement for human movement (Bucher, 1971; Corbin, 1976). The body is held in an upright position through neuromuscular coordination. The Labyrinthine receptors together with the righting reflexes generate impulses that hold the back in an upright position (Schmidt 1988). The equilibrium reflexes are aided by the stretch reflex and other information provided by the muscle spindles of the antigravity muscles of the trunk and lower extremity that counteract the force of gravity and prevent the body from collapsing or tipping over (Guyton, 1974; Cureton, 1985). Through neuromuscular coordination, there is pressure created on the soles of the feet. This is actually the supporting surface, which maintains tension in the extensor muscles through the extensor thrust reflex. These antigravity muscles prevent the body weight from reflexing. Once the body is assembled and maintained over the base of support, a state of equilibrium or balance exists (Guyton, 1974; Kreighboun and Bathels, 1985; van De Graaff, 1986). The shape of the body can be changed as in the case of karate, and balance be retained as long as the center of gravity remains near enough to the vertical

over the center of the base. In karate, stork balance is used both as a technique and a tactic. The attacker mainly utilises the moments when the opponent is off-balance. This is demonstrated by the "sweeping - kick" which takes an opponent off the ground. As a technique stork balance is used as a basic skill in producing fast and powerful kicks, i.e. front kick "Mae-geri", sidekick "yoko-geri", back kick "ushiro-geri" and roundhouse kick "mawashi-geri" (Monkerud 1980). Karate is a popular sport in Kenya hence the necessity to investigate on the techniques and tactics in order to develop it. This study, therefore, set out to examine whether or not there are differences in modified stork balance abilities between experienced male karatekas (green belt holders) and non- experienced male karatekas (no belt holders) at Kenyatta University, Nairobi, Kenya.

SUBJECTS AND METHOD

A total of twenty-four male karatekers at Kenyatta University participated in this study. A one case shot study was carried out on 12 experienced male karatekas and 12 inexperienced male karatekas. Each subject was tested separately. The subject stood on one leg and lifted the other leg until the knee and the trunk formed a right angle at the hips, with hands held on the sides (Johnson and Nelson, 1979). The subject held to this position for as long as he was comfortable while time was taken in seconds. Each subject was given four trials. The cut-off point for the subject who could hold on the position for a long time was 180 seconds while a subject who could not balance at all scored zero seconds. The final score was the average (seconds) of the four trials. Both descriptive statistics and a two-tailed t-test were used to analyse the data.

TABLE 1: RESULTS OF MODIFIED STORK BALANCE ABILITIES

DESCRIPTIVE STATISTICS	EXPERIENCED KARATEKAS (N = 12)	INEXPERIENCED KARATEKAS (N = 12)
MEAN	111.42 Sec.	58.08 Sec.
Standard deviation (SD)	24.39 Sec.	28.53 Sec.
Median	105.5 Sec.	58 Sec.
Mode	-	81 Sec.
Range	91 Sec.	73 Sec.

Table 1 shows the results of modified stork balance abilities. Experienced male karatekas performed better (111.42 ± 24.39 secs) when compared to inexperienced karatekas (58.08 ± 23.53 secs.). These results were significant at $p \leq 0.05$ level. This indicates that there were differences in modified stork balance abilities between experienced male karatekas and inexperienced

karatekas. Findings also indicated better performances in the experienced group.

DISCUSSION

Balancing ability can be improved through practice (Gilliam, 1970; Dauer and Pangrazi, 1979; Freedson, 1985). Good balance is important because it is involved in one form or another in virtually all games, sport and dance (Larson 1976; Hall, Sweeny and Esser, 1980; Jensen and Hirst, 1980; Kirchner, 1985). This study indicates that experienced male karatekas performed better in modified stork balance abilities than inexperienced karatekas. This indicates that through karate training this skill can be improved (Monkerud, 1980). However, further detailed research is needed to establish the relationship between karate and balancing abilities.

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