

THE MOST EFFECTIVE TECHNIQUES USED BY SHOTOKAN KARATE JUNIOR FEMALE ATHLETES DURING COMPETITION

Efektīvāko metožu pielietojums Shotokan Karate sacensībās jaunietēm

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Abstract. *The aim of the research is to analyze the most effective techniques used by shotokan karate junior female athletes during competition.*

Summing up the analysis of technique actions performed by the members of the team of Lithuanian Shotokan karate junior female athletes (n=10) it can be noticed that: female athletes most frequently performed arm technique actions; Giakucuki was observed during attacks and counterattacks while mawasigeri was observed in leg technique.

Keywords: *arm and leg technique actions during competition, during attacks and counterattacks, junior female athletes, Shotokan karate.*

Introduction

Karate is a harmony of body & soul, thoughts, motion and mind (Funakoshi, 1983; Oyama, 1989; Layton, 1993 a; Nakajama, 1994; Накаяма, 1997 a, b; Liaugminas, et al., 2003). There are several karate-do styles and they differ in technique and in general principles of a fight (Liaugminas et.al., 2003; Алхасов, 2007, 2011; Gianino, Gianni, 2011); therefore, to achieve better sports performance it is important to analyse the effectiveness of every action of karate technique.

Shotokan karate technique consists of arm and leg actions. The most common arm actions are pushing actions — *giakucuki*, *kizamicuki* — and the most common leg actions are *maegeri* and *mawasigeri* (Layton, 1993 b; Okazaki, Stricevic, 1994; Karamitsos, Pejcic, 1998; Накаяма 1997 a, b; Ivaškienė, Liaugminas, 2003; Тимербаев, Павлов, 2009); however, the frequency and effectiveness of their application used by Shotokan karate junior female athletes has not been not studied in Lithuania so far.

The object of the research: Frequency and effectiveness of the arm and leg actions performed during competitions among Shotokan karate junior female athletes.

The aim of the research is to analyze the most effective techniques used by Shotokan karate junior female athletes during competition.

Hypothesis — the most effective technique actions used by Shotokan karate junior female athletes is *giakucuki* and *mawasigeri*.

Objectives:

1. To determine the actions most frequently and effectively performed during the competitions by Shotokan Karate Junior female athletes.

2. To determine the most effective techniques actions of the attacks and counterattacks.

The methods of the research: 1. Literature review. 2. The review of video material. 3. Stenography. 4. Mathematical statistics.

The reliability of the effectiveness of technique actions has been calculated with the help of χ^2 index.

Subjects of the research were Shotokan karate junior female athletes with the mastery of 4—1 kyu, aged 16—17 (n = 10).

Organisation of the research. Video material from Lithuanian Shotokan karate championships held in 2005—2006 was reviewed to study junior female athletes of Lithuanian Shotokan Karate Team. The technique of 10 female athletes was analyzed. 5 fights of each member were studied and arm and leg technique actions were registered in a special protocol.

The actions were assessed in accordance with ESKA (European Shotokan Karate Association) competition rules.

Results

It was found out that Shotokan karate female athletes selected for this research used arm actions (68.2 percent) more frequently than leg actions (31.8 percent), technique actions (respectively 120 and 56 actions) ($\chi^2 = 23.3$; $p < 0.001$) (Fig. 1). From all arm actions performed in the fight, only 15 arm actions (8.5 percent) were effective and, from 56 leg actions, only 8 leg actions (6.7 percent) were effective. However the research showed that the efficiency of arm and leg actions is equal ($p > 0.05$).

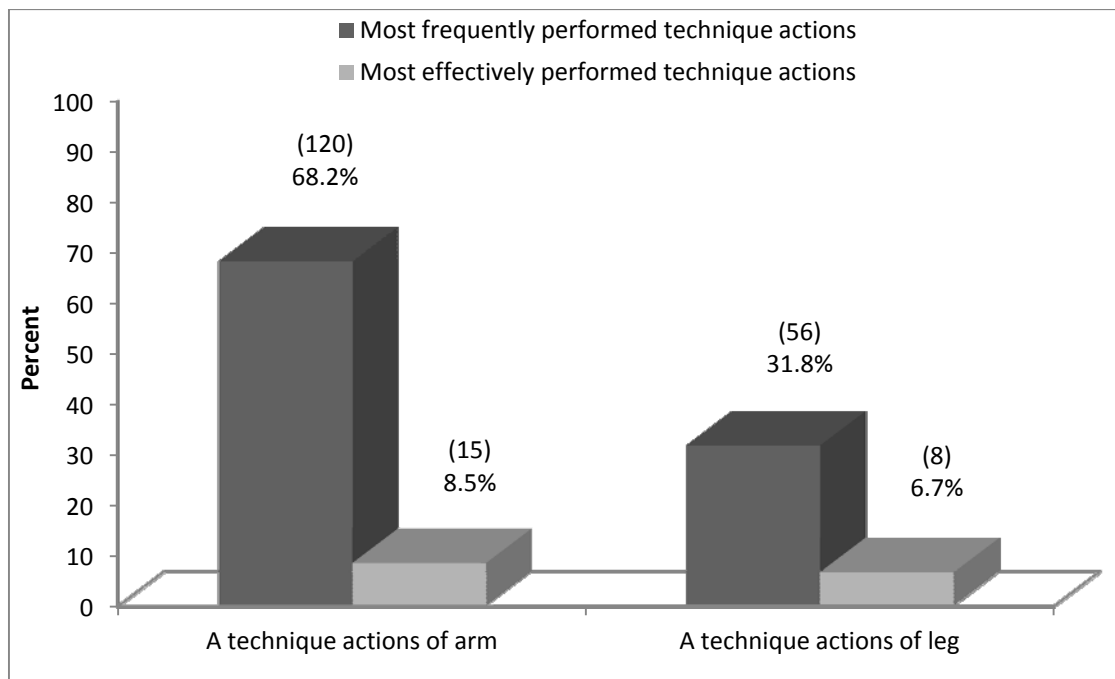


Figure 1. **Technique actions performed during competitions**

We determined that more technique actions (Fig. 2) were performed during the attacks (141 attacks) in comparison to the counterattacks (35 attacks) ($\chi^2 = 63.8$; $p < 0.001$), but technique actions in counter-attacks and attacks were of coextensive efficiency ($p > 0.05$).

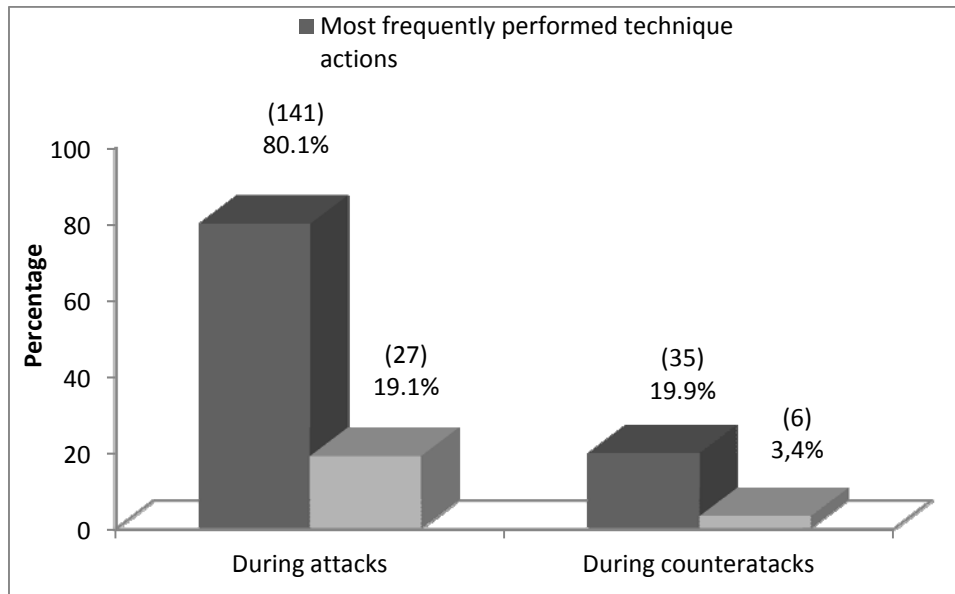
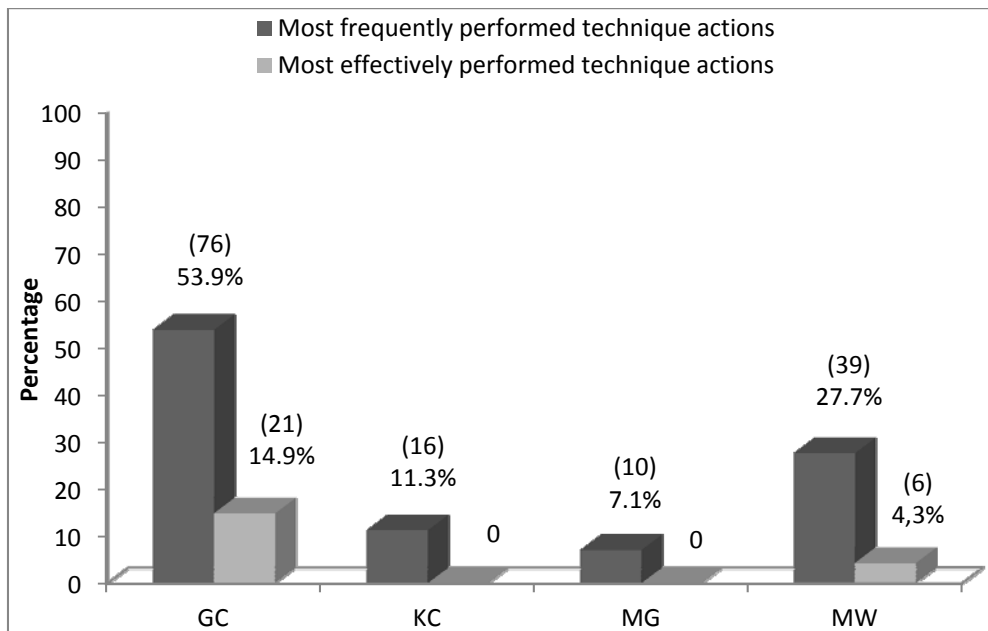


Figure 2. **Technique actions performed during the attacks and counterattacks**



Note. GC — giakucuki, KC — kizamicuki, MG — maegeri, MW — mawasigeri.

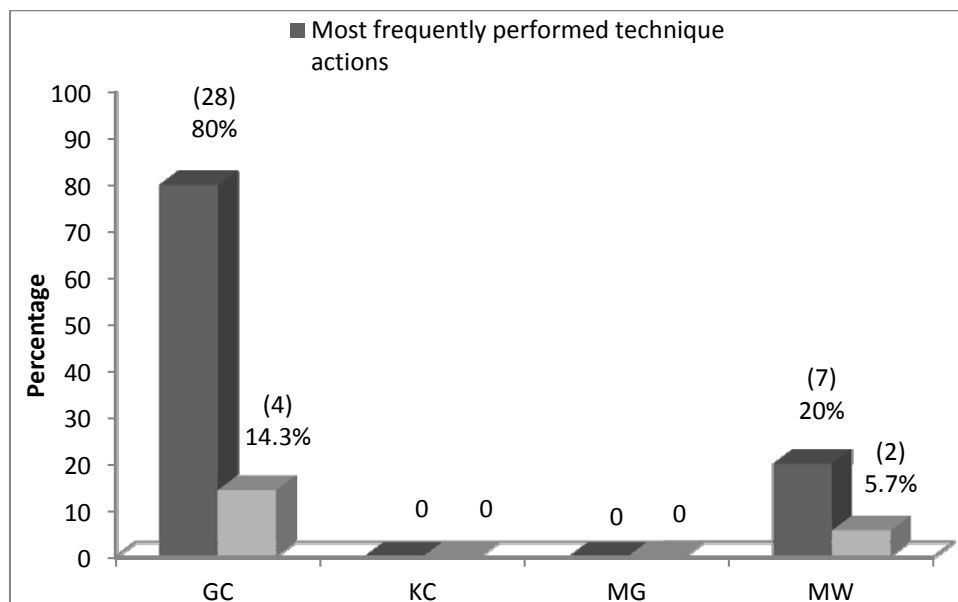
Figure 3. **Technique actions performed during the attacks**

It was registered that *giakucuki* prevailed among arm actions. This action was performed 76 times with the efficiency of 14.9 percent (Fig. 3). *Kizamicuki*

was performed 16 times, but inefficiently. Among leg actions *mawasigeri* prevailed which was performed 39 times with the efficiency of 4.3 percent. *Maegeri* was performed 10 times but inefficiently (none of the actions was high-scoring).

Female athletes executed *giakucuki* more frequently, and with higher efficiency ($p < 0.001$) than *kizamicuki*. *Mawasigeri* was performed more frequently and with higher efficiency than *maegeri* ($p < 0.05$). *Giakucuki* was chosen for attacks more frequently than *mawasigeri* ($p < 0.001$), but the efficiency was the same ($p > 0.05$).

The same actions applied for attacks were performed during counterattacks by Shotokan karate junior female athletes: *giakucuki* prevailed among arm actions (28 times), *mawasigeri* prevailed among leg actions (7 times); however, the efficiency of these actions was higher in comparison to attacks: the efficiency of *giakucuki* reached 14.3 percent and *mawasigeri* reached 5.7 percent (Fig. 4). *Giakucuki* was performed more frequently than *mawasigeri* ($p < 0.05$), but with the same efficiency ($p > 0.05$).



Note. GC — *giakucuki*, KC — *kizamicuki*, MG — *maegeri*, MW — *mawasigeri*.

Figure 4. **Technique actions performed during counterattacks**

Discussion

In comparison with studies done by other authors it was noticed that M. Oyama (1989) and N. Nakajama (1994; Накайма, 1997 a, b; Тимербаев, Павлов, 2009) indicate, that both *giakucuci* and *mawasigeri* are very high-scored actions applied during competitions. This was confirmed by the research results.

A comparison of Shotokan karate technique actions chosen by female and male athletes showed that arm actions prevail among both female and male athletes and that the most efficient (for attacks as well as for counterattacks) actions are *giakucuki* and *mawasigeri*; the efficiency of this technique is of the same level

among female and male athletes, only *mawasigeri* during counterattacks was performed with higher efficiency by male athletes (16.6 percent) (Ivaškienė, Liaugminas, 2003), than by female athletes (5.7 percent) .

The research results enable us to give recommendations to coaches how to improve the *giakucuki* and *mawasigeri* technique actions as well as versions of their performance. It is important to emphasize that *kizamicuki* and *maegeri* performed during competitions were low-scored; therefore, it is important to focus on the improvement of the technique and tactics.

Conclusions

1. Arm technique actions were most frequent among Shotokan karate junior female athletes.

2. *Giakucuki* of arm actions and *mawasigeri* of leg actions prevailed in attacks and counterattacks.

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