INFLUENCE OF FOUR DIFFERENT METHODS OF TRAINING ON THE SPECIFIC RAPIDITY

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Introduction
In Tae-kwon-do the rapidity of kick techniques is very important but hardly trainable in advanced athletes. To train this rapidity is necessary to perform the moves with a power higher than 90%max; this possibility is influenced by the warm up conditions and by the psycho-physical preparation of the athletes. We compared 4 different ways of warm-up, to verify their influence on the rapidity of the action and of specific frequency in TKD.

Methods
We conducted the experimentation on a group of TKD athletes (age 20.5±4, w.74±4, h 174±5, years of practice 10±4) of middle and high agonistic level.
The first 2 training sessions the athletes had to adapt to the tests and to the instruments.
To value the kick’s rapidity we used an integrated system of photocells and piezoelectric drug: SOK Test (Villani at all, 2004 mod.). To value the frequency speed of kick we used only the piezoelectric drug: FSK test (frequency speed of kick; n° kicks in 10).
The research protocol was based on warm up/activation – rest 3’ – SOK test – rest 3’ – FSK test. The 4 systems of warm up/activation were:
- Standard warm-up (general and specific – 13’ running drills and plyometric training with 2’ kicks with focus target).
- Intense stretching (Anderson method) – 15’
- Work of aerobic power – 5’ slow run and 10’ intense run FC=80%max)
- Explosive Squat – 1x8 (40%1RM), 1x6 (60%1RM), 2x4 (80%1RM)

To study the effects of those methods on specific rapidity and speed-endurance, we compared the results of the SOK and FSK test after four situation. We evaluated the reliability by repeating the 4 trials in 2 sessions. The objectivity was granted by a precise protocol standardization.

Results
The correlation values are very high, (r btw 0.76 and 1).
The comparison between the warm up systems showed that a hard stretching, respect to the standard warm up, has negative effects on the kick’s rapidity (-11/13%;p<0,01) and on their frequency speed (-5%;p<0.0001). An intense aerobic work has negative effects on the rapidity of -33/38% (p<0.0001) and on the frequency speed of -9% (p<0.0001). A pre-activation with heavy Squat, increases the kicks rapidity between 15 (p<0,01) and 8% (p<0,05) with an increase of frequency speed of 4% (p<0,001).

Conclusions
We can state that the performances of explosive specific strength can be negatively influenced by intense works of stretching and aerobic power. Instead, as already pointed out in our former studies (Villani et al, 2005, 2006) a maximal strength work may positively influence the specific explosive strength of TKD.

References
Villani R., Ruggieri F., Tomasso A., Distaso M. (2005), 10th Annual Congress of the ECSS, 419, Belgrade

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