NOTATIONAL ANALYSIS OF OLYMPIC TAEKWONDO COMPETITIONS
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Introduction
Taekwondo, an ancient Korean martial art, became an Olympic sport in 2000. To score points during competition, the athlete have to kick the torso or the head of his/her opponent while punches are allowed only when directed to the torso. Although success in taekwondo competition results from a combination of several technical, tactical, physiological, and psychological aspects, scant information is available regarding the different techniques the athlete uses during competition (Kazemi et al., 2006). Thus, the aim of the present study was to analyze the technical and tactical aspects of taekwondo competitions.

Methods
A notational analysis was performed from 10 VHS recordings of 13 elite Italian Taekwondo athletes during the 2006 National Taekwondo Championship. Sixteen kicking techniques were identified, equally divided in attack and defence actions. For each action, the lower limb involved in the technical kick (i.e., anterior or posterior) was recorded. Thus, for the four conditions in the different rounds (first, second, third plus eventually Golden Point) the frequency of occurrence of the number of kicks and the most used technique were recorded. Then, a 2 Achievement (i.e., winner or loser) x 3 Level of Competition (i.e., round, semifinal, final) chi-square was applied with an alpha level of 0.05.

Results
During finals, two matches resolved in golden points. A total of 336 actions were performed, with a significantly (p<0.001) higher involvement of the posterior lower limb (winners: n=79%; losers: n=78%) than the anterior one (anterior kick: winners=21%; losers: n=22%). The most frequently used techniques were bandalchagi for posterior attacking limb, and bandalbadochagi for posterior defending limb. Significant differences (p<0.001) between winners and losers emerged for number of attack (winners=58%; losers=78%) and defence (winners=42%; losers=22%) actions. Winners showed a significant difference (p<0.001) between rounds only for attacking actions, performing more kicks with the posterior limb during the second (75%) and third (96%) rounds with respect to the first one (54%). Instead, losers showed a significant difference (p<0.001) between rounds only for defending actions, performing more kicks with the posterior limb during the first (92%) and third (90%) rounds with respect to the second one (45%).

Discussion/Conclusions
The present data suggest that female taekwondo athletes strongly rely on the use of kicks performed with the posterior limb. Furthermore, the success of their competition depends on the defensive skills of the athlete. In fact, winners tend to reduce their attacks in favour of defensive kicks.

References
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