The effect of combined resisted agility and repeated sprint training vs. strength training on female elite soccer players

S. Shalfawi, T. Haugen, T. Jacobsen, E. Enoksen and E. Tønnessen

1 The Norwegian Olympic Federation of Sports, 2Department of Physical Performance, University of Nordland

Introduction
Considering the physical skills among soccer players, research has pointed out the demands for agility, repeated sprint ability (RSA), power, and aerobic capacity, because these qualities have been reported as distinguishing performance factors between elite athletes and players of lower standard. The aim of this study was to compare the effects of in-season combined resisted agility and repeated sprint training against strength training on soccer players’ linear single sprint speed, vertical jump performance, agility, RSA, and aerobic capacity.

Methods
Twenty well-trained elite female soccer players (mean 6 SD; age: 19.4 6 4.4 years, body mass: 59.1 6 5.6 kg, and stature: 167.6 6 5.0 cm) volunteered to participate in this study. The players were randomly assigned to two different training groups. Both groups were instructed to continue the teams’ original training plan. The agility and repeated sprint training group completed 2 additional training sessions a week; 1 with resistance running band, and 1 with pure repeated sprint training. The strength training group completed 2 weekly strength training sessions in addition to the regular soccer training. All participants performed physical testing before and after the 10-week specific conditioning programs.

Results
The agility and repeated sprint training implemented in this study did not have any significant effect on the resisted sprint training group performance variables except for the beep-test performance. On the other hand, the strength training group had a significant effect on beep-test performance and squat jump performance. Between-group difference did not show any statistical significance among the measured physical variables, but the agility and repeated sprint training program had a larger effect on agility performance compared with that of strength training (d=0.7).

Discussion
The main findings in this study were that resisted agility in combination with repeated sprint training had a tendency to improve agility performance, although this did not reach statistical significance, whereas strength training had a small and positive effect on squat jump performance. Both intervention groups improved beep-test performance by a moderate margin, although there were no meaningful effects on the other physical variables. The relatively comprehensive intervention programs resulted in minor or no improvements in several of the analyzed physical variables. Therefore, the conditioning program must be well balanced and adjusted to the remaining specific soccer training because 1 type of training may result in small positive effects on certain skills, whereas other training programs may not have a positive effect. Because it has been documented that performance improvement in well-trained athletes is very small and time consuming, coaches should take total training load, intensity, duration, athletes training status, and time of year into account when designing a conditioning training program.