THE EFFECTS OF VOLLEYBALL ATTACKING ON SCORE POINTS: A CASE STUDY OF 2014 TVL IN TAIWAN

Chin-Chih Chiou[1], Tse-Min Lin[1], Yi-Te Liu[1], Tai-Yuan Su[1], Jong-Chang Tsai[1], Chin-Lung Pi[2]

**Department of Sports, National Changhua University of Education, Changhua, Taiwan[1]
Taiwan Police College, Taipei, Taiwan[2]**

Volleyball is a sport in which team tactical and players' attacking skills determine to score points. Therefore, an effective team tactical is achieved by main spikers' and middle blockers' skills. To name but a few, delayed spike, open spike and back-row spike are main spikers' skills, yet quick spike, and individual time-difference attack are associated with middle blockers'. Under this aspect, a case study of male teams of Taiwan Top Volleyball League (TVL) was yield out, which aimed at exploring the effects of team tactical and players attacking skills on score points. The results indicated that the attacking point ratio of main spikers and middle blockers in the champion team was higher than others. This was because the middle blockers gave cover to main spikers as attacking. By doing so, it promoted point ratio to main spikers. Furthermore, it found that to strengthen main spikers' and middle blockers' skills would increase team's attacking point ratio.

KEY WORDS: spike, blocker, ratio.

INTRODUCTION: Score-Point-Skills (SPS) and Non-Score-Point-Skills (N-SPS) (Fig. 1) are key factors to win or lose volleyball matches. On the one hand, to set, to defend and to receive are typical N-SPS which do not score points directly but they were performed to set up timing for attacking. On the other hand, to spike, to block, to serve belong to SPS which score points directly to win matches. Contrarily, opponents' error is not a skill to score points but it is also to be mentioned as SPS. Among SPS, to spike is to dominate winning or losing matches (Chiou, 2015). Chiou (2015) pointed out that in SPS, team tactical and players' attacking skills determine to score points. For instance, an effective team tactical, middle blocker's delay spike and main spiker's back-row spike are associated with score points. The above can increase powerful attacking times and score points effectively, therefore it is regarded as a criteria to evaluate a team's competence (Liu, 2006). So that, the attacking point ratio determine to win or lose matches (Chang, 2007). In this study, an attempt to explore the effects of team tactical and players' attacking skills on attacking score points was applied into the male teams of Taiwan Top Volleyball League (TVL).
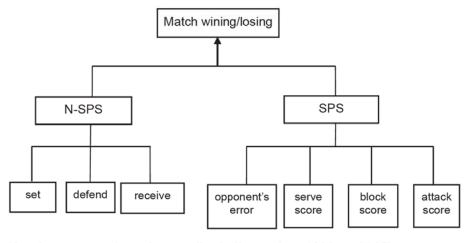

Figure 1: Key factors to win or lose volleyball matches (Chiou, 2015).

METHODS: The attacking score points of each male team and each male team's first three main spikers, whose attacking times took the first three places in the team, were collected from 60 sets of 2014 Taiwan TVL. Bulletin of Volleyball Information System (VIS) (FIVB, 2000) was employed to analysis attacking skills, which to explain team tactical and players' attacking skills. What affect team tactical were main spiker's delayed spike, open spike and back-row spike as well as middle blockers' quick spike and individual time-difference attack.

RESULTS AND DISCUSSION: Table 1 shown the score points of each male team's first three main spikers, where A's point ratio 52.78% (point/spike times) was the highest and it was the champion. To examine A's team tactical, its main spikers' attacking skills, delayed spike, open spike, back-row spike, could gain higher point ratio. A's middle blockers used quick spike, individual time-difference attack to stop opponents' blocking. As the main spikers were attacking, the middle blockers gave enough cover to them so that it promoted main spikers' point ratio.

Table 2 presented the score points of each male team, which included main spikers' and middle blockers'. A's ratio 52.06% (point/spike times) was the highest and it was the champion, too. To examine A's team tactical, its main spikers' attacking skills could gain higher point ratio and its middle blockers' skills, quick spike, individual time-difference attack, also gain higher point ratio. According to that, it promoted A's point ratio that A's team tactical was effective. However, C, as ranked 3, its main spikers and middle blockers' point ratio was affected by middle blocks' skills that most of the spiking score points were achieved by its first three main spikers' delayed spike, open spike and back-row spike (see table 1). It decreased the attacking score points and affected C's team tactical.

Table 1
Attacking Score Point of First Three Main Spikers

Ranking	Team	Set	Attack times	Point	Point Ratio (%)
1	A	88	1366	721	52.78
2	B	94	1337	581	43.46
3	C	97	1355	650	47.97
4	D	84	1396	542	38.83
5	E	89	714	269	37.68
Total		452	6168	2763	-

Table 2
Attacking Score Point of Main Spikers and Middle Blockers

Ranking	Team	Set	Attack times	Point	Point Ratio (%)
1	A	88	2209	1150	52.06
2	B	94	1967	880	44.74
3	C	97	2279	995	43.66
4	D	84	1980	750	37.88
5	E	89	1075	398	37.02
Total		452	9510	4173	-

CONCLUSION: In volleyball matches, to attack, to block, to serve and opponent's errors are Score-Point-Skills (SPS) but attacking score points determine winning or losing matches (Chang, 2007). So, for team tactical, to strengthen main spiders' and middle blockers' skills would increase team attacking point ratio.

REFERENCES:
Chang, E. C. (2007). A Correlational Study on Scoring Factors and Match Winning Percentages in Women's Volleyball Games, Universiade 2005 Izmir. *Sports & Exercise Research*, 9(2), 51-63.

Chiou, C. C. (2015). Men's volleyball specific skill analysis- division volleyball teams that have been established for 10 or above years for example. *Journal of National Cheng Kung University Physical Education Research, 47*(1). (In press)

FIVB (2000). *VIS (Volleyball Information System) STAFF Guidelines -Evaluation Criteria 2000.* Lousanne: FIVB.

Liu, L. F. (2006). *The Analysis of Timing of Arm swing motion in the air on volleyball spike.* Unpublished doctoral dissertation, National Taiwan Normal University, Taipei, Taiwan.