COMPARISON OF SWIMMING WITH AND WITHOUT BALL IN THE WATER POLO FEMALE

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ABSTRACT

Water polo is a collective sport and efforts of high intensity are made in less duration and the skill that is used for the majority of the game is swimming. The objective of this study is to demonstrate that training for water polo athletes is most effective when done always in the presence of the ball, as the ball-handling does not adversely affect the timing. Eleven well-trained competitive athletes were recruited and asked to swim the test of the 300 fastest (15 reps of 20 meters), one time with ball, and one time without ball. Results can be read in correlation to athletes' anamnesis, revealing that incidence of ball-handling is significant only in athletes who have a swimming-oriented athletic history, but there are not significant differences in times for athletes who have a water polo-oriented athletic history. Some water polo athletes realized systematically smaller times when they swim with ball. The results show as this study can help the coach to train the team for improving the analyzed skills in different mode, creating a methodological system training to enhance the performance. Coaches are suggested to carefully monitor swimming rhythm during trials, and to increment ball-handling in every training condition.

Keywords: stroke, ball-handling, video analysis, athletes' anamnesis

INTRODUCTION

The purpose of this study was to assess the impact of the ball handling on swimming times in woman's water polo, in order to obtain useful information to define training methods. Eleven high-level athletes were enrolled. Each was required to perform the 300 test speed (15 repetitions of 20 meters), once with the ball, and a second time without the ball.

For each athlete the average and standard test error was calculated with and without the ball. The analysis was carried out individually for each athlete, and in total for each test. The comparison of the results indicates a high variability, and indicates a non-mechanical incidence of ball-handling swimming times. Analysis of the data collected shows that the water polo players of the highest level (Starace, Valkai) do not have significant changes in chronometric. While, for the athletes coming from competitive swimming (Guillet and Giuliani), ball-handling has a clear and negative impact on swimming development. For the athletes coming from water polo (Anastasio, Pellegrino, De Simone), ball-handling affects swimming times in a positive way (results indicate fastest times in the tests carried out with the ball). For the other athletes the results do not show significant changes.

The results show that this study will help the coach to develop a training methodology effective in improving performance. Coaches are suggested to increase the use of ball-handling in all conditions of training.

Water polo is a collective sport and efforts of high intensity are carried out in short amounts of time. Players must swim, jump, and throw the ball with moments of rest or low intensity; it is also a contact sport where the players battles their adversaries with blockades, beatings, contacts, and pushes (Smith, 1998; Van der Wende, 2005).

In water polo, the skill that is used for the majority of the game is swimming.

"Water polo consists of high intensity bursts of sprinting, interspersed with short periods of low to moderate intensity swimming." (Hohmann & Frase, 1992).

In this perspective, swimming conditioning is obviously an important aspect of training for water polo. In swimming, conditioning training assumes a consistent role to achieve the better goals (Raiola et al, 2011). The goal of this pilot study was to establish the influence of ball handling in swimming intensity in water polo, in order to obtain useful indications in coaching.

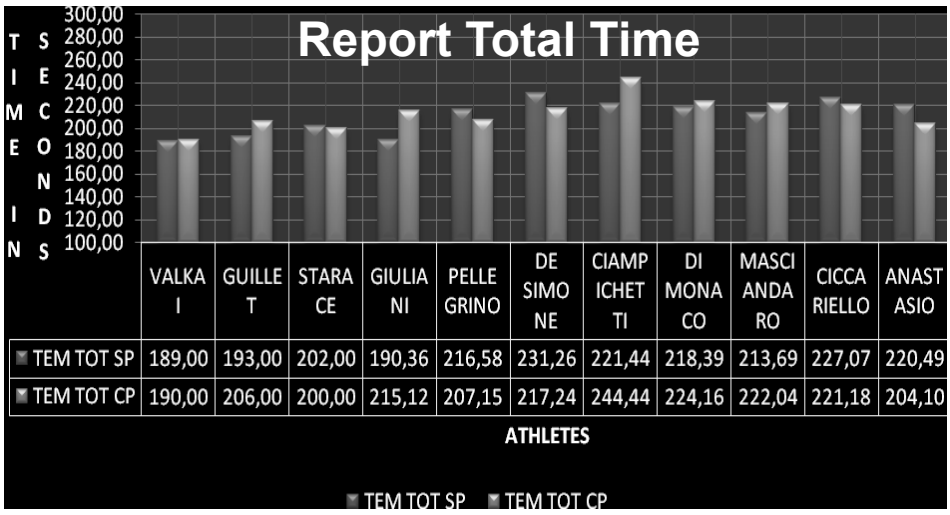
METHODS

The research method is integrated and consists of action research with coaches' contribution of training and evaluation and theoretical-argumentative to deduce a framework to define data processing.

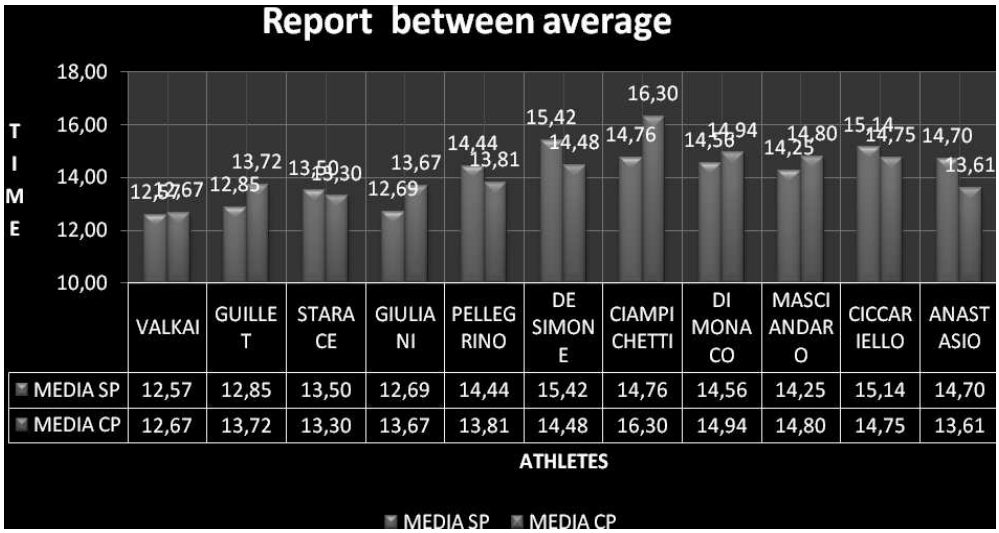
Eleven well-trained competitive athletes were recruited and asked to swim the 300 fastest tests (15 reps of 20 meters), one time with ball, and one time without ball. For each swimmer the average and standard error times per test were calculated, both with and without the ball. Analysis was conducted individually for each athlete, and in total for each test.

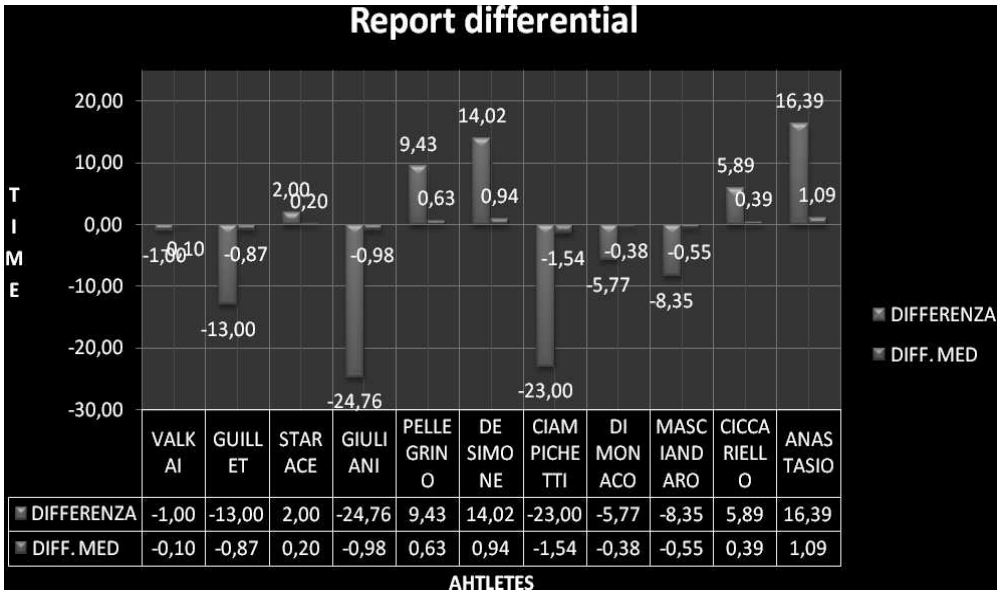
RESULTS

The following chart shows the average times for each athlete for the two tests. We can see the differences among the times achieved, in particular the results of Giuliani and Guillet (professional competitive swimmers) worsen notably with the ball. We see how Pellegrino and Anastasio (athletes having a background in water polo) achieve better results in tests with the ball. Significant data includes the results of Valkai and Starace, who so not undergo any type of variation during the tests with and without the ball.



	VALKAI	GUILLET	STARACE	GIULIANI	PELLEGRINO	DE SIMONE	CIAMPICHETTI	DI MONACO	MASCIANDARO	CICCARIELLO	ANASTASIO
TEM TOT SP	189,00	193,00	202,00	190,36	216,58	231,26	221,44	218,39	213,69	227,07	220,49
TEM TOT CP	190,00	206,00	200,00	215,12	207,15	217,24	244,44	224,16	222,04	221,18	204,10





DISCUSSION

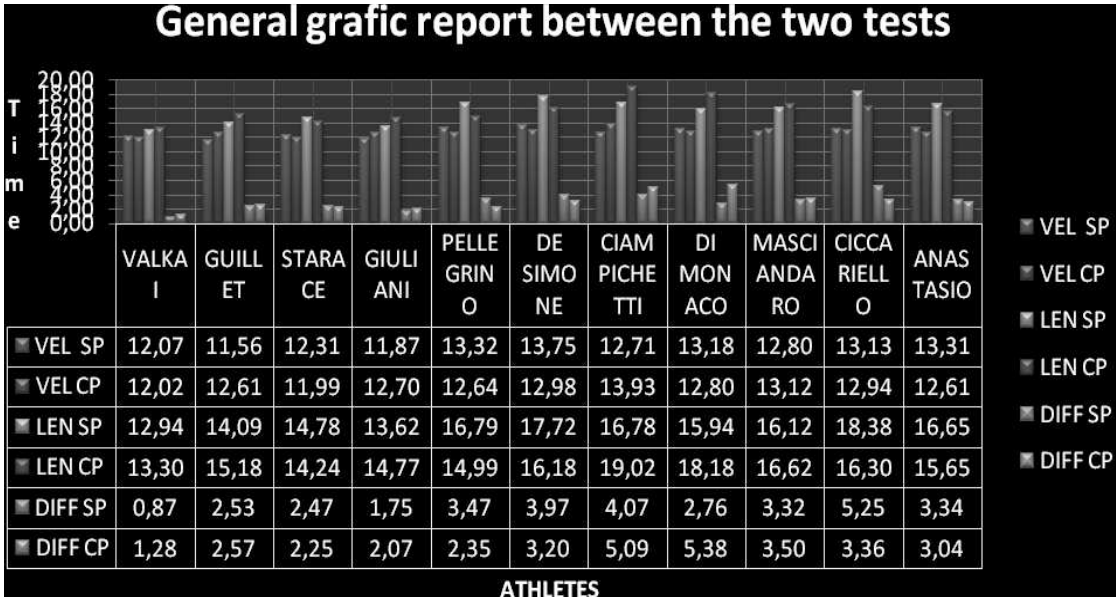
The following tables and graphs show that the average times without ball is not always smaller than those with the ball. This indicates a non mechanical influence of ball handling on swimming intensity. These results can be read in correlation to athletes' anamnesis, revealing that the influence of ball-handling is significant only in athletes who have a swimming-oriented athletic history; but there are no significant differences in times for athletes who have a water polo-oriented athletic history. Some athletes (indicated with a "<<" in table 1) achieved systematically shorter times when they swam with ball.

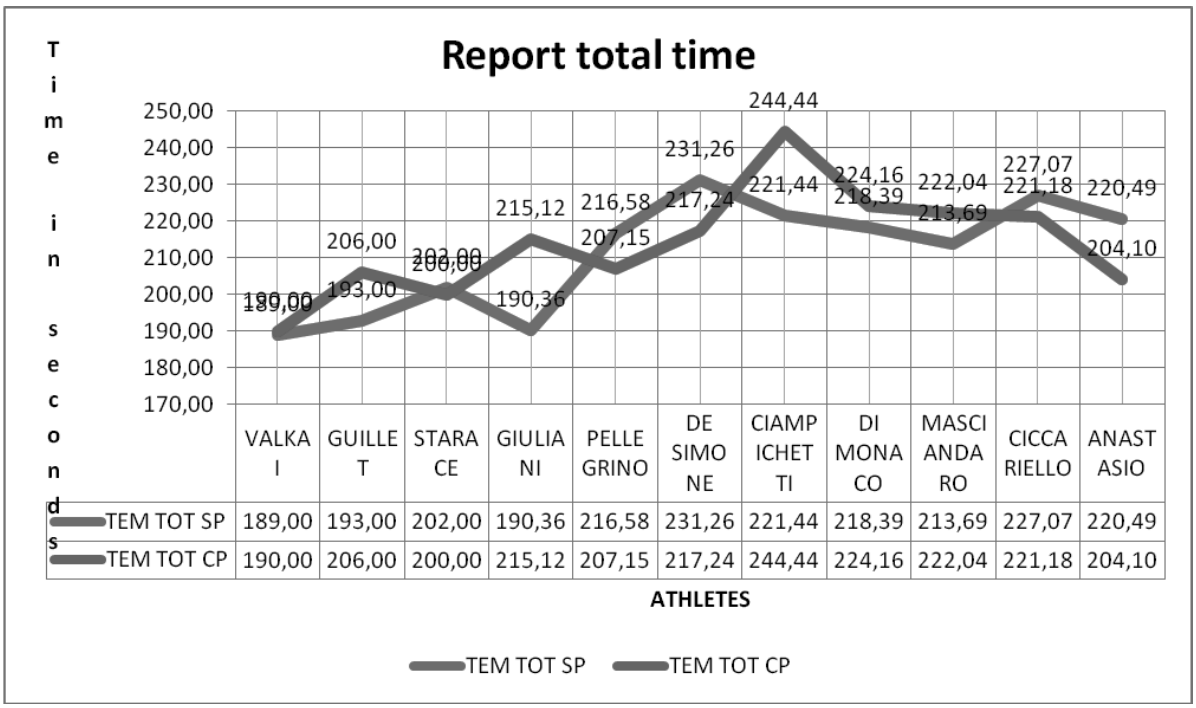
Table 1

ATHLETE	TOT TIME SP	TOT TIME CP	DIFFERENCE	AVERGAE SP	AVERAGE CP	AVERGAGE DIFF
VALKAI	**189.00**	**190.00**	**-1.00**	**12.57**	**12.67**	**-0.10**
GUILLET	**193.00**	**206.00**	**-13.00**	**12.85**	**13.72**	**-0.87**
STARACE	**202.00**	**200.00**	**2.00**	**13.50**	**13.30**	**0.20**
GIULIANI	**190.36**	**215.12**	**-24.76**	**12.69**	**13.67**	**-0.98**
PELLEGRINO	**216.58**	**207.15**	**9.43**	**14.44**	**13.81**	**0.63**
DE SIMONE	**231.26**	**217.24**	**14.02**	**15.42**	**14.48**	**0.94**
CIAMPICHETTI	**221.44**	**244.44**	**-23.00**	**14.76**	**16.30**	**-1.54**
DI MONACO	**218.39**	**224.16**	**-5.77**	**14.56**	**14.94**	**-0.38**
MASCIAN-DARO	**213.69**	**222.04**	**-8.35**	**14.25**	**14.80**	**-0.55**
CICCARIELLO	**227.07**	**221.18**	**5.89**	**15.14**	**14.75**	**0.39**
ANASTASIO	**220.49**	**204.10**	**16.39**	**14.70**	**13.61**	**1.09**

Table 2

ATHLETE	VEL SP	VEL CP	LEN SP	LEN CP	DIFF SP	DIFF CP
VALKAI	12.07	12.02	12.94	13.30	0.87	1.28
GUILLET	11.56	12.61	14.09	15.18	2.53	2.57
STARACE	12.31	11.99	14.78	14.24	2.47	2.25
GIULIANI	11.87	12.70	13.62	14.77	1.75	2.07
PELLEGRINO	13.32	12.64	16.79	14.99	3.47	2.35
DE SIMONE	13.75	12.98	17.72	16.18	3.97	3.20
CIAMPICHETTI	12.71	13.93	16.78	19.02	4.07	5.09
DI MONACO	13.18	12.80	15.94	18.18	2.76	5.38
MASCIAN-DARO	12.80	13.12	16.12	16.62	3.32	3.50
CICCARIELLO	13.13	12.94	18.38	16.30	5.25	3.36
ANASTASIO	13.31	12.61	16.65	15.65	3.34	3.04





CONCLUSION

The results show how this study can help the coach train the team, improving the analyzed skills in different ways, and creating a methodological system training to enhance the performance.

Coaches are suggested to carefully monitor swimming rhythm during trials, and to increment ball-handling in every training condition.

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