THE EFFECT OF SUPPORTING PIVOT OF FOOT MALLEOLUS UPON THE VELOCITY OF ROWING

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Does foot malleolus' supporting pivot, except the hip, play an important role on the forward velocity of rowing when human beings sit on sea boats? Distracting those who either could not join the tests or were not health, there were 20 subjects (average 20.7 years). Meanwhile, P-t test (paired-t test) was performed in couples. The result shows that increase the foot malleolus' supporting pivot will promote the efficiency of rowing velocity. There are two suggestions. The first is to increase the foot malleolus' supporting pivot to promote the efficiency and velocity of rowing when playing the canoe. The second is that the instructors should teach the beginners how to keep the boat in a steady state, overcome fear and promote the velocity of rowing by increasing the area of supporting pivots. The results proof that students can make profit from the theories and field skills. Also, they can contribute to skills of leisure canoes and instruction performance. In addition, they can apply to related fields, manpower boats, for example.

KEY WORDS: sea boat, rowing velocity, beginner

INTRODUCTION:

In ancient, canoe was the vehicle for hunting, finishing, trading and sight-seeing on water (Derek, 2003). In the high-tech society, the material of canoe has been changed to fiber-glass and plastic, which increase the endurance and fitness of canoe. In this case, canoe is name of light canoe in Chinese today. In the 21st century, it is still applied on hunting, fishing, transportation, and traveling. Since the sport of canoe was one of the competitions in Berlin Olympic Games, it has been launched and populous gradually. In recent years, for the sake of sight-seeing, the prohibit laws of coast were lift. Based on the policies of ocean to launch every kind of marine sports, Penghu has the benefit to develop and launch marine sports since it is consist of 90 islands and has broad and abundant landscapes and natural resource. The plenty of natural resource is the advance to launch marine sports. Also, based on the protection of natural resource, biology and the leisure activities on water, the island to island rowing and the exploration of nature are the major activities for sight-seeing industry.

After the beginners know how to row, the effects of rowing speed and interesting on water upon the progress of advanced learning of beginners are so important. The hip is the major supporting pivot when rowing on a canoe. However, whether it can increase the velocity of canoe, and the motivation and effects or not when the supporting pivots of foot malleolus are increase.

METHOD:

Subject: There were 20 volunteers, who were the beginners of canoe. Basically, the non-supporting pivot and supporting pivot were measured randomly.

Measurement: The subjects were the beginners of sea boat and two types of test were measured. The first was the test that the beginners rowed without the supporting pivots of foot malleolus. The other was that the beginner rowed with the supporting pivots of foot malleolus. There were three times for each of the tests and each time took place every two days, which means the second day is for test. Also, the best score was recorded and average the records of the three times.

Data analysis: The values were measured in dependent subjects and paired-t test was performed.

RESULTS:

The values were measured from the effect of non-supporting pivot and supporting pivot upon velocity of boat in dependent subjects. The results showed that there was difference between

non-supporting pivot and supporting pivot. In other words, the speed with supporting pivot was higher than the speed of non-supporting pivot (see table I, II)

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Table I: Values of mean and stander deviation on non-supporting pivot and support pivot

	Mean	N	SD
Non-supporting Pivot	14.5430	20	3.41666
Supporting Pivot	13.2555	20	3.13211

Table II: Paired-t test of Non-supporting pivot and supporting pivot

	Mean	N	SD	df	Sig
Non-supporting pivot— Supporting pivot	1.28750	20	0.95854	19	.000

Significant difference $p<0.05$

DISCUSSION:

The results indicated that there was a significant difference between the two tests when the subjects rowed forward. The records were on table I, II. As far as the beginner is concerned, increasing the velocity plays an important role to induce the beginners interested in sea boat. The muscle performance and power are the factors influencing the rowing performance during the competitions (Yoshiga & Higuchi, 2003). The researches indicated that the major power is coming from the pushing of foot when rowing the oars (Hagerman, 1984; Gerberger et al., 2003; Kleshnev, 2000). In the process of rowing oars, the power is coming from the stretch of lateral and medial malleolus, and knee join (Hagerman, 1984). Also, the result indicated that not only rowing needs the power coming from the stretch of foot but also canoe does. Meanwhile, the stretch of foot is no less than the rowing competitions and indicates that the power of foot stretch is the major factor to push canoe forward when rowers push off. The power of push away can generate force of the lower foot.

According to the findings, increasing the supporting of foot malleolus is equivalent to increase the area of balance. In this case, increasing the area of balance is to increase the steady state of the canoe and it is not too totter to capsize. Undoubtedly, the more steady state it is, the more safety the beginner has. Also, it is able to overcome fear and increase the velocity of the canoe.

CONCLUSION:

There is a significant difference between non-supporting pivot and supporting pivot in the velocity of canoe. It is an undeniable fact that supporting pivot plays an important role in balance and speed of sea boat. Also, it can increase the confidence and interests of new comers on the practice of canoe. Furthermore, it can be applied on canoeing education at schools. The proper posture on canoe can increase the speed of canoe; on the contrary, the improper posture can decrease the velocity of canoe. It can make students understand the difference between proper posture and improper posture on the speed of canoe.

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