

## USING ERGOMETERS IN SPORTS TRAINING OF SAILING ATHLETES

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**Abstract.** Under contemporary conditions it is necessary to find new methods and means of training for qualified athletes in sailing. This method today is the use of the training on the Concept II. Such training can effectively improve the sailors’s physical and functional preparation, considering each athlete’s class of yachts.

**Key words:** sailing, training intensification, ergometer.

**Introduction.** The Olympic sailing program undergoes regular changes. Today the Olympic format consists of eight yacht types combined into 10 so-called events with total 15 sailors (male and female) in a complete national Olympic delegation. The yachts have different requirements with respect to handling, and moreover, each sailor plays a specific role when sailing. Therefore physical demands remain heterogeneous for Olympic sailors [1]. Accordingly, physical training in the training system of a qualified yachtsman continues to occupy one of the main places. The physical training of a yachtsman is aimed at cultivating physical qualities and developing functional capabilities, which create favorable conditions for improving all aspects of training. However, the conditions in which Ukrainian athletes find themselves today due to Russian aggression significantly limit the possibility of training in the waters of Ukraine. Consequently, the importance of training using various exercise machines and ergometers increases in order to maintain good physical fitness of an athlete [2, 3]. The yachtsmen from many countries use the Concept 2 Indoor Rower to test fitness and to develop the power, strength and aerobic fitness needed to meet the physiological demands of competitive sailing [4].

The aim of this work is to develop practical recommendations for the use of an indoor rowing ergometer in the process of physical training of qualified athletes in sailing.

We used the following research methods: analysis of literature and Internet resources, morphometric measurements, rowing on the concept 40 sec. sprint performance Peak Power, methods of mathematical statistics

Results. An analysis of our own and literary data allowed us to compile a morphological characteristic of an athlete in each class of yachts and determine the power indicators expended by an athlete in the process of passing the competitive distance (Table 1) [5, 6].

Table 1 – Morphological and functional profile of elite sailors in Olympic classes boats

<b>Class yachts</b>	<b>Body weight, kg</b>	<b>Height, cm</b>	<b>Sum of 6 skinfolds, mm</b>	<b>Estimated body fat, %</b>	<b>40 sec. sprint performance Peak Power, watts</b>
Finn	95–106	180–196	70–120	12–20	701–978
470 male helm	65–67	171–179	31–55	9–11	397–650
470 male crew	70–72	177–183	35–49	9–11	373–414
470 female helm	54–60	160–170	84–89	16–18	408–457
470 female crew	67–72	170–179	79–83	13–19	555–631
49-er male helm	68–76	172–180	46–60	8–12	420–706
49-er male crew	72–80	174–182	43–63	8–12	620–798
RsX male	71–75	176–186	35–50	9–12	640–680
RsX female	56–62	164–170	68–96	14–20	520–550
LaserStandard	78–82	178–188	48–85	10–16	558–699
Laser Radial female	66–68	166–176	90–110	17–22	500–640
ILCA 6	62–70	166–176	80–100	16–20	500–640

Experts makes the following recommendations for the quality and quantity of training needed for developing and maintaining sportsmen’s cardio-respiratory fitness:

- The activity should be one that uses large muscle groups, and is maintained continuously and is rhythmical or aerobic in nature;
- The duration should be from 20-60 minutes of continuous exercise;
- Training should be regular: 3 to 5 times per week;
- The intensity of the exercise should raise the heart rate to between 60-85% of maximum heart rate;

- Strength training of moderate intensity should be added twice a week [7].

Rowing satisfies these recommendations and for yachtsmen it has a number of advantages over other forms of training:

1. Rowing is a non-impact exercise that especially important for combating over- use injuries.

2. The rowing machine provides a fitness workout that utilizes every major muscle group in the body as well as the heart, lungs and circulatory system work through a complete range of fitness. It can provide excellent power/strength workouts that will develop the physiological qualities.

3. It offers a time-efficient method to improve aerobic capacity and reduce body fat.

4. Rowing can be done indoors anytime, important when you are not able to get out sailing due to inclement weather.

5. It is a safe and effective way of training while recovering from certain injuries.

6. Rowing on the Concept 2 provides an accurate means for monitoring his/her level of conditioning, and offers constant feedback whilst rowing. For example, you can train, using the heart rate monitor interface (Polar PM3/PM4 and/or Suunto on the latest PM4 monitor) in heart rate training zones that are clearly defined and applicable to you [8].

There table 1 showed that 40 sec. sprint performance Peak Power of qualified sailors from different classes of the Olympic boats is within the range: for men – 420–978 watts and women – 373–640 watts. Training on the Concept II for the athletes must consider the load capacity range.

Scientists developed training programs five levels of training (low, medium, higher than the average, high, very high) for yachtsmen. They determine the level of yachtsmen’s preparedness choosing the appropriate training program [4].

Conclusion. A methodology for using the Concept 2 ergometer to maintain the level of general and special physical fitness of qualified yachtsmen, taking into account the class of yachts in which they specialize, has been

defined. It is proposed to perform physical exercise at recommended peak powers, taking into account the gender characteristics of athletes.

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