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Physiological development of junior windsurfers to prepare for the change of Olympic race class from RS:X to iQFoil

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INTRODUCTION:

In November 2019, the World Sailing Council has approved Starboard iQFoil to replace RS:X as the windsurfing equipment for Olympic Games from Paris 2024 [1]. After this decision was made, competitive windsurfing around the world has gradually transit their program to iQFoil focus, with the first iQFoil Senior and Youth World Championships being held in 2021. One of the main differences between iQFoil and RS:X is that iQFoil have foil instead of fin under the board which allow a faster speed in the same wind conditions [2]. Coaches and athletes have therefore applied different training strategies to adopt the changes. The aim of this study was to investigate the difference in physiological development for junior windsurfers in preparing to race in iQFoil class when comparing with the RS:X class.

METHODS:

Athletes from Hong Kong Junior Windsurfing National Team participated in fitness testing batteries twice a year, which included height and weight measurement, 20-meter shuttle run to estimate VO₂max and 1-minute modified pull up. iQFoil group consist of 17 athletes (age 14.9±0.8), whom at least participate in 1 fitness test in year 2018-19 as pre-test, and also year 2021-22 as post-test for pairwise comparison. These athletes transfer from training with RS:X to iQFoil right after the announcement of equipment change in 2019. RS:X group consist of 15 athletes with similar age (age 16.0±1.8) whom at least participate in 1 fitness test in year 2015-17 as pre-test, and also year 2018-19 as post-test for pairwise comparison. These athletes trained with RS:X equipment throughout the whole study period. Repeated measures ANOVA was used to detect changes of pre and post-test, effect sizes expressed as partial eta-squared (η^2). Significance was set at $p < 0.05$.

RESULTS:

Both iQFoil (Pre-test: 59.1±8.2 kg; Post-test: 67.3±10 kg)($p=0.00$, $\eta^2=0.66$) and RS:X (Pre-test: 63.0±5.9 kg; Post-test: 65.4±6.2 kg)($p=0.00$, $\eta^2=0.32$) groups has significant increase in body weight, with the effect in iQFoil group was twice as strong as the RS:X group. RS:X group has significant improvement in VO₂max (Pre-test: 49.9±6.9 ml/kg/min; Post-test: 53.5±5.8 ml/kg/min)($p=0.00$, $\eta^2=0.19$), but not for iQFoil group (Pre-test: 51.5±5.7 ml/kg/min; Post-test: 51.5±5.7 ml/kg/min)($p=0.98$, $\eta^2=0.00$). iQFoil group has significant improvement (Pre-test: 27.4±7.3; Post-test: 41.1±7)($p=0.00$, $\eta^2=0.59$) in 1-min modified pull up but not for RS:X group (Pre-test: 31.8±8.3; Post-test 29.2±6.1) ($p=0.39$, $\eta^2=0.02$).

CONCLUSION:

The results suggest that the physiological development of junior windsurfers have been changed, since iQFoil replaced RS:X to be the official racing equipment for Olympics. Athletes training for iQFoil has more significant increase in body mass, and significant increase in 1-min modified pull up. Athletes training for RS:X, on the other hand, has significant increase in VO₂max. However, it is still unclear if these changes affect performance with difference equipment.

1. Liam (2019) 2. Chun et al. (2022)

Topic: Training and Testing

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20825