INTRODUCTION

Massive research has been produced throughout the last decades in order to better understand the role of head-out aquatic exercises in populations’ health (Barbosa et al., 2009). Indeed, such studies aimed to assess the effectiveness of music cadence in achieving a 4 mmol.l\(^{-1}\) of body mass in healthy adults. Six non-pregnant, clinically healthy and asymptomatic females aged 23.67 ± 0.52 y-old; (136 ± 15 b.min\(^{-1}\)) were voluntarily involved in this study (23.67 ± 0.52 y-old; 150 b.min\(^{-1}\), 165 b.min\(^{-1}\) -1, 150 b.min\(^{-1}\)). No significant relationships were found between the angular velocity and the cadence but significant only for the left limb. Six non-pregnant, clinically healthy and asymptomatic females aged 23.67 ± 0.52 y-old; (136 ± 15 b.min\(^{-1}\)) were voluntarily involved in this study (23.67 ± 0.52 y-old; 150 b.min\(^{-1}\), 165 b.min\(^{-1}\) -1, 150 b.min\(^{-1}\)). No significant relationships were found between the angular velocity and the cadence but significant only for the left limb. Six non-pregnant, clinically healthy and asymptomatic females aged 23.67 ± 0.52 y-old; (136 ± 15 b.min\(^{-1}\)) were voluntarily involved in this study (23.67 ± 0.52 y-old; 150 b.min\(^{-1}\), 165 b.min\(^{-1}\) -1, 150 b.min\(^{-1}\)). No significant relationships were found between the angular velocity and the cadence but significant only for the left limb.

METHODS

Six non-pregnant, clinically healthy and physically active young women holding a graduation degree in Sports Sciences and at least one year of experience conducting head-out aquatic classes volunteered to participate in this study (23.67 ± 0.52 y-old; 57.4 ± 4.78 kg of body mass; 1.64 ± 0.07 m of height; 22.37 ± 2.06 kg.m\(^{-2}\) of body mass indeed). The protocol consisted of five blocks of 16 repetitions performing the basic head-out aquatic exercise “sailor’s jigs” (Figure 1) at the “water tempo” immersed to the xiphoid process (i.e., breast). Bouts intensity were 80% 90%, 100%, 110% and 120% of the cadence reported by Barbosa et al. (2010) to achieve a 4 mmol.l\(^{-1}\) of blood lactate, representing respectively 120 b.min\(^{-1}\), 135 b.min\(^{-1}\), 150 b.min\(^{-1}\), 165 b.min\(^{-1}\) and 180 b.min\(^{-1}\) cadences. Musical cadence was controlled electronically by a metronome (Korg, MA-30, Tokyo, Japan) connected to a sound system. Data analysis was conducted as reported by Oliveira et al. (2010). The protocol was videotaped in sagital plane with a pair of cameras providing a dual projection from both underwater (GR-SXM25 SVHS, JVC, Yokohama, Japan) and above (GR-SX1 SVHS, Panasonic, Osaka, Japan) connected to a sound system. The images of both cameras were recorded independently. The study comprised the kinematic assessment at the centre of mass in butterfly stroke. Eur J Appl Physiol. 50, 1-18, Church Falls.

RESULTS AND DISCUSSION

It was evaluated that: (i) cycle period; (ii) 2D angular position ranges (foot, hand and trunk); (iii) 2D angular velocity ranges (foot, hand and trunk). The normality of the distributions was assessed with the Shapiro-Wilk test. Linear regression equations models and its coefficients of determination were used to describe the relationships between musical cadence and biomechanical variables. The level of statistical significance was set at P < 0.05.

Figure 2. Simple scatter gram from the cycle period according to the musical cadence imposed. Figure 3. Overlay scatter gram from 2D angular position ranges according to the cycle period. Figure 4. Overlay scatter gram from 2D angular velocity according to the musical cadence imposed.

KINEMATICAL CHARACTERISATION OF THE BASIC HEAD-OUT AQUATIC EXERCISE “SAILOR’S JIGS”

CONCLUSION

On overall, no significant relationships have been verified between movement velocity and the cadence. So, range of motion seems to decrease with increasing cadence when performing the “Sailor’s jigs” exercise.

REFERENCES


