

## Differences in Balance, Proprioception and Reaction Time in Land and Water Based Athletes - An Observational Study

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### Abstract

**Aim:** The primary objective was to evaluate and compare the differences in Balance, Proprioception and Reaction time in water and land based athletes. The secondary objective was to compare between the genders. **Method:** 72 subjects were recruited into 2 groups as swimmers (n=36) and non-swimmers (n=36). Participants were assessed for Balance, Proprioception and Reaction time. **Result:** Balance and Reaction time proved to be equal in both the groups and the gender. Significant difference was noted in Swimmers and Non-swimmers for proprioception at 30<sup>0</sup> (p=0.018) and at 60<sup>0</sup>(p=0.006). Swimmer males demonstrated better proprioception at 30<sup>0</sup>(p=0.006) and 60<sup>0</sup>(p=0.001) and reaction time (p=0.003) than non-swimmer counterparts. **Conclusion:** Training medium may have a significant impact on proprioception, with aquatic medium being better than land medium. Comparison of balance, proprioception and reaction time was done where male swimmers were better than their non-swimmer counterparts. However, no such differences were found between female athletes.

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**Key Words:** Athletes, Proprioception, Reaction Time, Balance, Physical Fitness

DOI: 10.18376/jesp/2018/v14/i2/111304

### Introduction

Fitness is the term used to describe the ability to perform physical work by individuals (Freedson et al. 2000). For the maintenance of well-coordinated balance of fitness every individual engages themselves in some type of physical activity. Physical fitness aids in improving the health of the individuals and also helps in prevention of the diseases (Haskell et al.1985). An athlete is considered to be somebody who is proficient in any form of physical activity or sports. Fitness in athletes plays a very important role as it helps in enhancing the optimal sports performance required for the athletes (Athletes and fitness 2017). An athlete is trained for overall development of his physical fitness which is specific to his sport activities in which he competes. Physical fitness is classified into primary and secondary components. Primary including the cardiovascular fitness , body composition, flexibility etc. and secondary components comprising of balance, reaction time ,agility , proprioception , power and co-ordination. All the components of fitness are interlinked and interdependent on each other (example speed is equally dependent on the interaction of reaction time and co-ordination). Lot of factors determines the performance of the athletes. The most