

INTRODUCTION

- Commercial fishing is one of the leading occupational sectors that lead to fatal and non-fatal injuries [1].
- Personal flotation devices (PFDs) are life-saving devices essential for commercial fishing work that include heavy workload.
- However, adoption and regular use of appropriate PFD is still not followed for various concerns such as restriction of mobility and comfort [2].
- The purpose of the study was to assess the impact of two different types of PFDs on physiological responses and perceived comfort while exposed to a simulated physical workload.

METHODS

- Ten healthy participants (7 males and 3 females; 23±4 years; 78±14 kg; 176±9 cm) were assessed for different measures of heart rate (HR) and perceived subjective comfort and mobility, while wearing no PFD, an automatic minimalist PFD, and a traditional dual PFD, and performing a physical workload task of repeated lifting and placing boxes (25% of body weight) for 15 minutes.
- The no PFD condition was performed first followed by a counter-balanced order of the PFDs, with 10 minutes of rest.

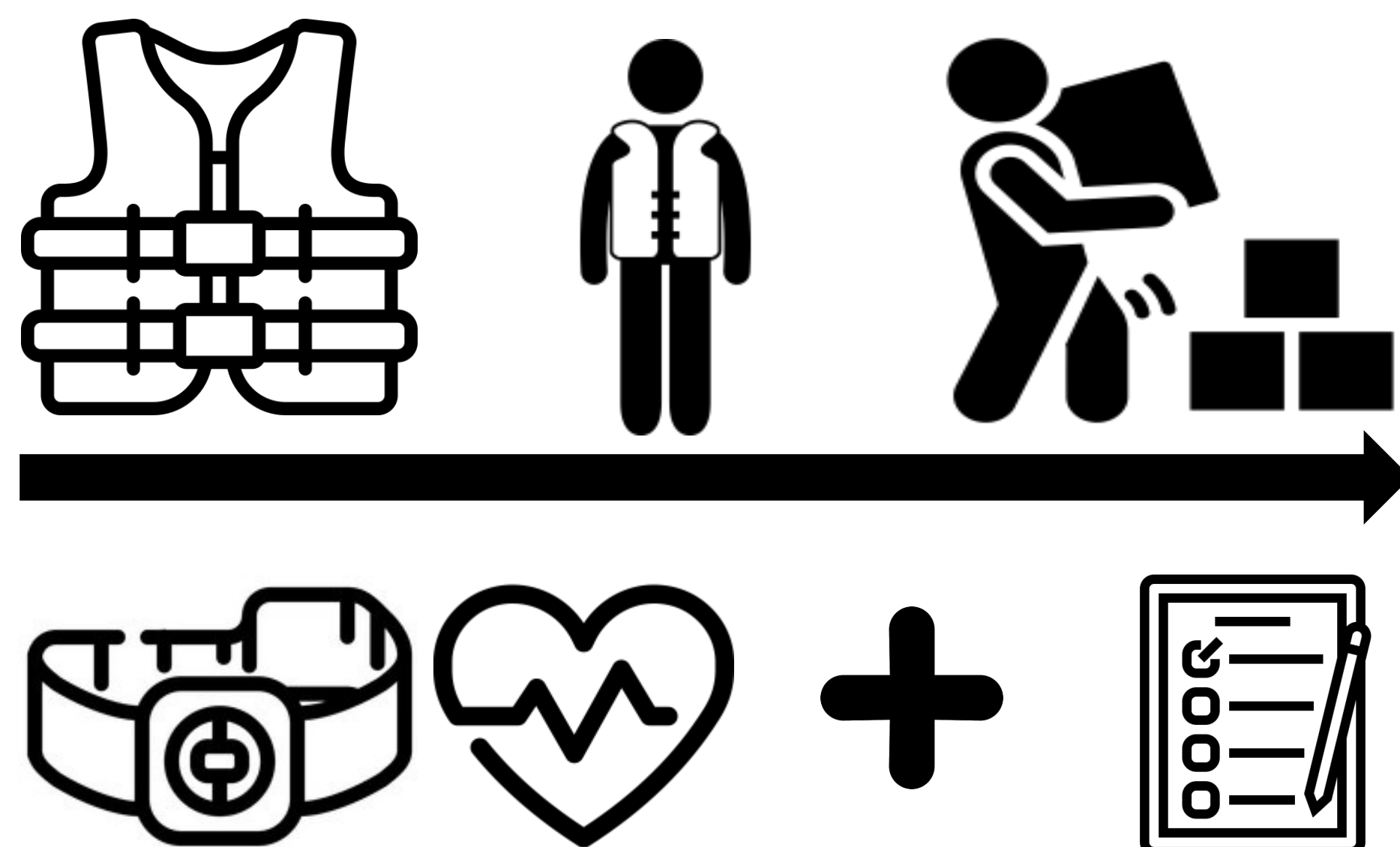


Figure 1: Experimental Procedures with PFD and workload with heart rate and comfort assessments.

METHODS



Figure 2. Traditional dual PFD (left) and an automatic minimalist PFD (right)



Figure 3. Participant performing the physical workload task of repeated lifting and placing the weighted box wearing the traditional dual PFD

- Resting, maximum, average and recovery HR in three PFD conditions were analyzed with 3×4 repeated measures ANOVA and perceived comfort and mobility scores from the questionnaire were analyzed using independent sample t-tests for the PFD conditions.

RESULTS

- Results revealed that while average and maximum HR during the workload was significantly higher than resting and recovery ($p < 0.001$), significant differences between the PFD conditions were not observed.
- While not statistically significant, the auto PFD demonstrated better comfort ratings, along with being perceived as the least restrictive for mobility.

RESULTS

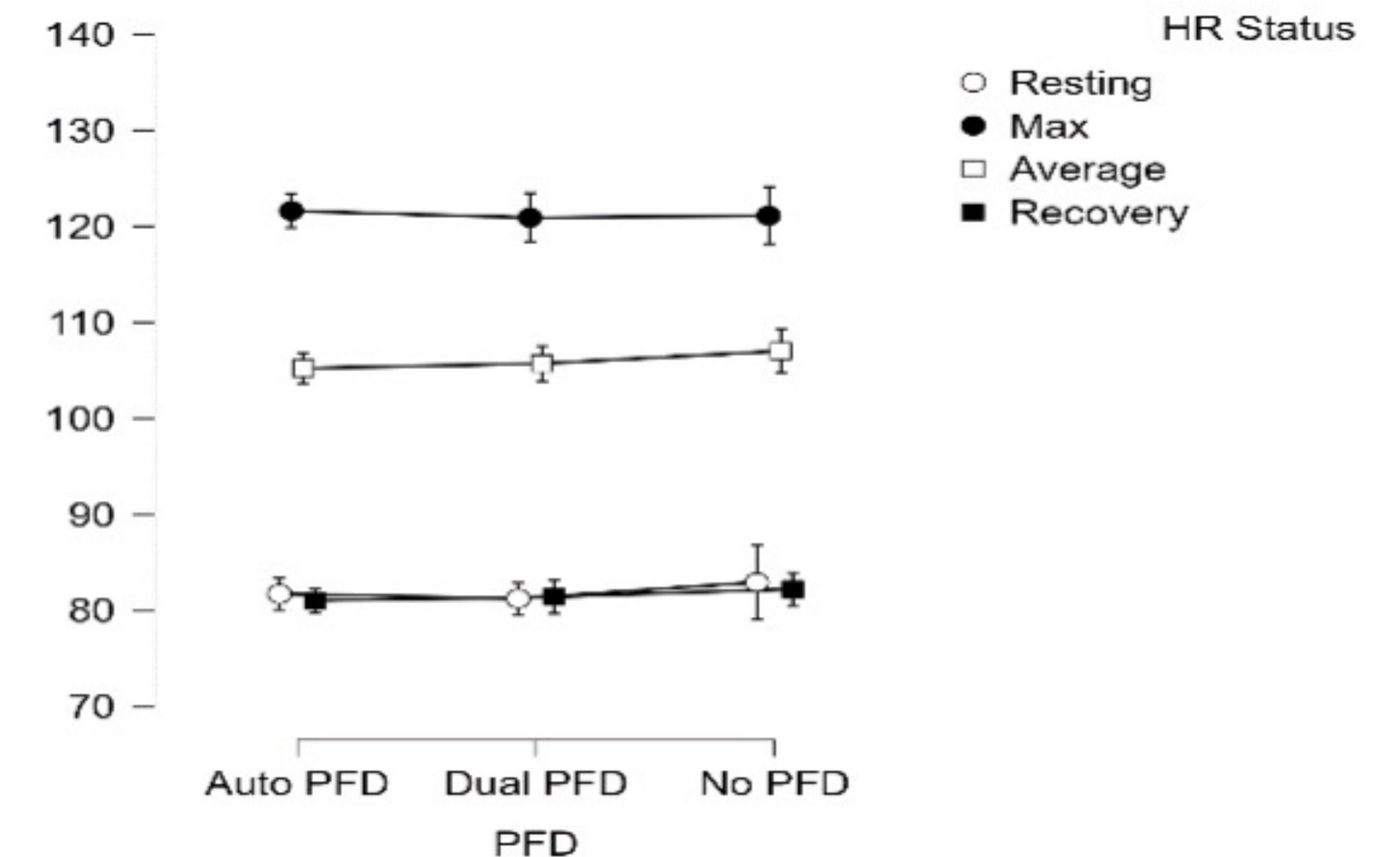


Figure 4: Heart rate data graph showing the averages of all ten participants' max, average, recovery, and resting rates.

CONCLUSION

Findings from the current study indicate that the PFDs, regardless of the type do not negatively impact HR responses when exposed to a physical workload and when compared, the minimalistic auto PFD demonstrated to be more comfortable with least mobility restriction, thus suggesting positive promotion for PFD use and adoption.

REFERENCES

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