Title: Heuristic evaluation of the suitability and safety of Nintendo switch exercise programs for pregnant women.

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Background: Exergames are an emerging technology that uses interactive exercise games to increase physical activity behaviour. Exergames such as Nintendo switch may have the potential to overcome perceived barriers to exercise during pregnancy and engage pregnant women in regular physical activity and exercise. However, its suitability and safety has not been previously studied in pregnant women.

Aims: This study investigated the suitability and safety of Nintendo Switch exercise programs for use by pregnant women using expert's heuristic evaluation.

Methods: This evaluation of the suitability and safety of Nintendo Switch exercise programs used a set of heuristics/guidelines to ensure safety of pregnant women; whilst also evaluating potential difficulties that pregnant women might have with the game. Heuristic evaluation was undertaken by six experts with respective expertise in exercise physiology, midwifery, public health, and exergame development.

Results: The major usability problems identified were inappropriate intensity and mode of some exercises for pregnant women. Results suggest that rhythm games for legs and arms; minigames such as thigh rider, robo-wrecker, crate crasher, beginnia, and transient temple were appropriate. Further, structured exercises such as: front press, bow pull, squat, and thigh press could also be used by pregnant women.

Conclusion: This study suggested that Nintendo Switch exercise programs could be used for pregnant women, provided that specific exercises are used that are safe for each trimester and tailored to the individual. These findings have significant implications for using exergames as way to encourage and engage pregnant women in to a regular exercise program.