Risk stratification in Cardio-respiratory training: Innovation on using Polar watches via Bluetooth for simultaneous heart rate monitoring in PT gymnasium

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To enhance patient safety during cardiorespiratory training

To improve staff awareness on patient’s screening and detecting risky patients

To facilitate staff in patient monitoring in gymnasium
Fitness watch with heart rate sensor

*Risk stratification for cardio-respiratory training

**Method**

**Screening**

- Medical History
- Risk Factors of Coronary Artery Disease
- Major Sign & Symptoms (Cardiovascular, Pulmonary, Metabolic Diseases)

**Classify Patient’s risk level**

- Mild risk (Intensity 40-85% Heart Rate Reserve)
- Moderate risk (Intensity 40-60% Heart Rate Reserve)
- High risk (Intensity <40% Heart Rate Reserve)

**Calculate Target heart rate and monitor in gymnasium**

**Connection to Tablet via Bluetooth**
Exercise heart rate shown on tablet

Heart Rate during exercise

% of Target Heart Rate

Simultaneous heart rate monitoring in TV

Colour of the screen changes when heart rate reaches different ranges

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60 patients received common exercise training in PT gymnasium in one week on average.

25 of them performed cardiorespiratory training (upper and lower ergometer, recumbent stepper).

Exercise heart rate was collected with fitness watches.

4% of patients exceeded safe exercise training zone was detected and exercise was terminated.

### Staff Evaluation Questionnaire

- Simultaneous patient monitoring: 100%
- Better heart rate monitoring: 94.7%
- Easy to use: 84.2%

4% of patients exceeded safe exercise training zone was detected and exercise was terminated.
Facilitate early detection of risky patients by risk stratification and simultaneous heart rate monitoring

Enhance staff awareness on patient screening and monitoring during cardiorespiratory training

Patient Safety!!