

# Efek latihan pernapasan sebagai adjuvan latihan fisik terhadap jarak 6 minutes walk test pasien pascabedah pintas arteri koroner yang menjalani rehabilitasi kardiovaskular fase II = The Effect of respiratory training as adjuvant exercise training in improving 6 minutes walk test distance among patients undergoing second phase cardiovascular rehabilitation after coronary artery bypass graft surgery

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## Abstrak

Latar belakang: Pasien pascabedah pintas arteri koroner (BPAK) mengalami penurunan fungsi paru akibat inflamasi perioperatif sehingga terjadi ketidakcocokan ventilasi/perfusi dan kelemahan otot pernapasan. Akibatnya saat beraktivitas, terjadi keterbatasan oksigen sehingga terjadi kelelahan otot lebih cepat dan kapasitas fungsional rendah. Latihan pernapasan diharapkan membantu memperbaiki kapasitas fungsional melalui perbaikan fungsi paru.

Tujuan: Membuktikan manfaat latihan pernapasan terhadap kapasitas fungsional yang diukur dengan 6 Minutes walk test (6MWT) pada pasien pasca-BPAK yang menjalani rehabilitasi kardiovaskular fase II.

Metode: Uji klinis dengan merandomisasi subjek pada kelompok perlakuan yang mendapat adjuvan latihan pernapasan atau menjalani program rehabilitasi standard. Diukur kapasitas inspirasi dan 6MWT pada awal dan akhir rehabilitasi fase II.

Hasil: Dua puluh delapan subjek dirandomisasi menjadi 14 kelompok perlakuan dan 14 kelompok standard. Setelah menjalani program rehabilitasi, kelompok perlakuan dan standard mengalami peningkatan jarak 6MWT yang tidak berbeda bermakna ( $67 \pm 62.9$  meter VS.  $53 \pm 65.7$  meter;  $p = 0.556$ ) walau kelompok perlakuan mengalami peningkatan kapasitas inspirasi lebih baik daripada kelompok standard ( $1357 \pm 691.4$  mL VS  $589 \pm 411.5$  mL;  $p = <0.001$ ).

Simpulan: Latihan pernapasan sebagai latihan adjuvan rehabilitasi kardiovaskular fase II pasca-BPAK tidak memperbaiki jarak 6MWT secara bermakna dibandingkan program rehabilitasi standard, hanya mempercepat perbaikan fungsi paru.

.....Background : Patients undergoing coronary artery bypass graft (CABG) surgery develop pulmonary dysfunction due to inflammation and respiratory muscle weakness, hence ventilation/perfusion mismatch occurs then leads to low functional capacity. Respiratory training has been identified to improve functional capacity by recovering pulmonary function faster.

Objectives : To study respiratory training benefit as adjuvant training in 2 phase of cardiovascular rehabilitation program after CABG for improving functional capacity measured by 6 minutes walk test/6MWT distance.

Methods : This single blind clinical trial randomized subjects into intervention group or standard group. Intervention group received respiratory training up to 60% of maximum inspiratory volume (MIV) as an adjuvant to the standard program. Then MIV and 6MWT distance were evaluated.

Result : Twenty eight subjects participated, 14 subjects were in intervention group and others were in standard group. Six MWT distance improvement is not significantly different between groups ( $67 \pm 62.9$  VS.  $53 \pm 65.7$  meters respectively;  $p = 0.556$ ). However, intervention group experienced better MIV

improvement compared to standard group ( $1357 \pm 691.4$  VS.  $589 \pm 411.5$  mL;  $p = <0.001$  ).

Conclusion : Respiratory training as adjuvant training did not improve 6MWT distance among patients undergoing CABG surgery significantly.