

Diaphragmatic Breathing vs Control to Improve Blood Pressure Rechecks: an RCT

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Disclosures

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The Research Question

- Could brief, pragmatic video instruction in diaphragmatic breathing, result in a greater reduction in second blood pressure measurement than control or usual care?

Research Design and Method

- Pragmatic, workflow-sensitive, randomized controlled trial
- Subjects: Patients with initial elevated BP on arrival for visit
- Exclusions: Age < 18 , non-English speaking, pregnancy, respiratory distress, rooming staff judgment of clinical instability, clinician veto
- Intervention:
 - 2-minute video - guided instruction in diaphragmatic breathing (KD)
- Controls/Comparators:
 - 2-minute video (KD) hypertension education
 - Propensity-score matched "usual care" controls from the period of study
- Used clinic protocol and rooming staff for BP measurement.
- REDCap via iPad for consent, randomization, video delivery
- Power calculation
 - alpha .05, repeated measures correlations of 0.5, power of 80%, estimated effect size f of 0.25 (a medium effect),
 - 98 participants (49 in each group) required to detect a significant effect of group in the mixed ANOVA for systolic BP.
- Analysis by t-test, one-way ANOVA, Pearson's chi-squared as appropriate
- This study was approved by the Institutional Review Board of Carilion Clinic (#IRB-23-2074)

What the Research Found

- 145 patients were consented, 136 participants had at least 2 blood pressure readings and survey responses. Intervention patients matched with usual care controls.
- No significant demographic differences between three groups.
- No significant differences in 1) change in systolic or diastolic BP or 2) attainment of goal systolic or diastolic BP between groups.
- No differences when stratified by initial BP.

What this means for Clinical Practice

- Resting BP levels can be attained by simply resting/waiting, no advantage seen for point-of-care, brief education in diaphragmatic breathing.
- Diaphragmatic breathing shown to work better for longer term control of BP when used consistently.