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Infographic. How does exercise treatment compare with antihypertensive medications?

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High systolic blood pressure (SBP) remains the major cause of premature death globally despite advances in pharmacological treatment.[1 2] The global direct medical costs associated with hypertension treatment are estimated at $370 billion/year worldwide, with the healthcare savings from effective management of this condition projected at about $100 billion/year.[3] Unfortunately, relatively little attention is given to non-pharmacological strategies, including structured exercise interventions. A recent network meta-analysis of randomised controlled trials (RCTs) published in the BJSM[4] aimed to compare the effects of exercise interventions and medications on SBP. We highlight the key findings of this network meta-analysis that are particularly relevant for clinical practice and health policy.

The study included 391 RCTs (39,742 participants), of which 197 (10 461 participants) evaluated exercise interventions (endurance, resistance, isometric exercise or a combination of endurance and resistance) and 194 (29 281 participants) evaluated antihypertensive medications. When the results from trials that included hypertensive populations (SBP > 140 mm Hg) were combined with those from trials that included populations with normal levels of SBP, all types of antihypertensive drugs, and also all exercise modalities or intensities were effective in lowering baseline SBP compared with control interventions (ie, no exercise and no drugs) (figure 1). Antihypertensive medications resulted in overall larger reductions in baseline SBP compared with exercise. When analysing hypertensive individuals (SBP > 140 mm Hg) separately, both exercise and antihypertensive medications appeared similarly effective in reducing baseline SBP. However, the results and their clinical implications should be interpreted with

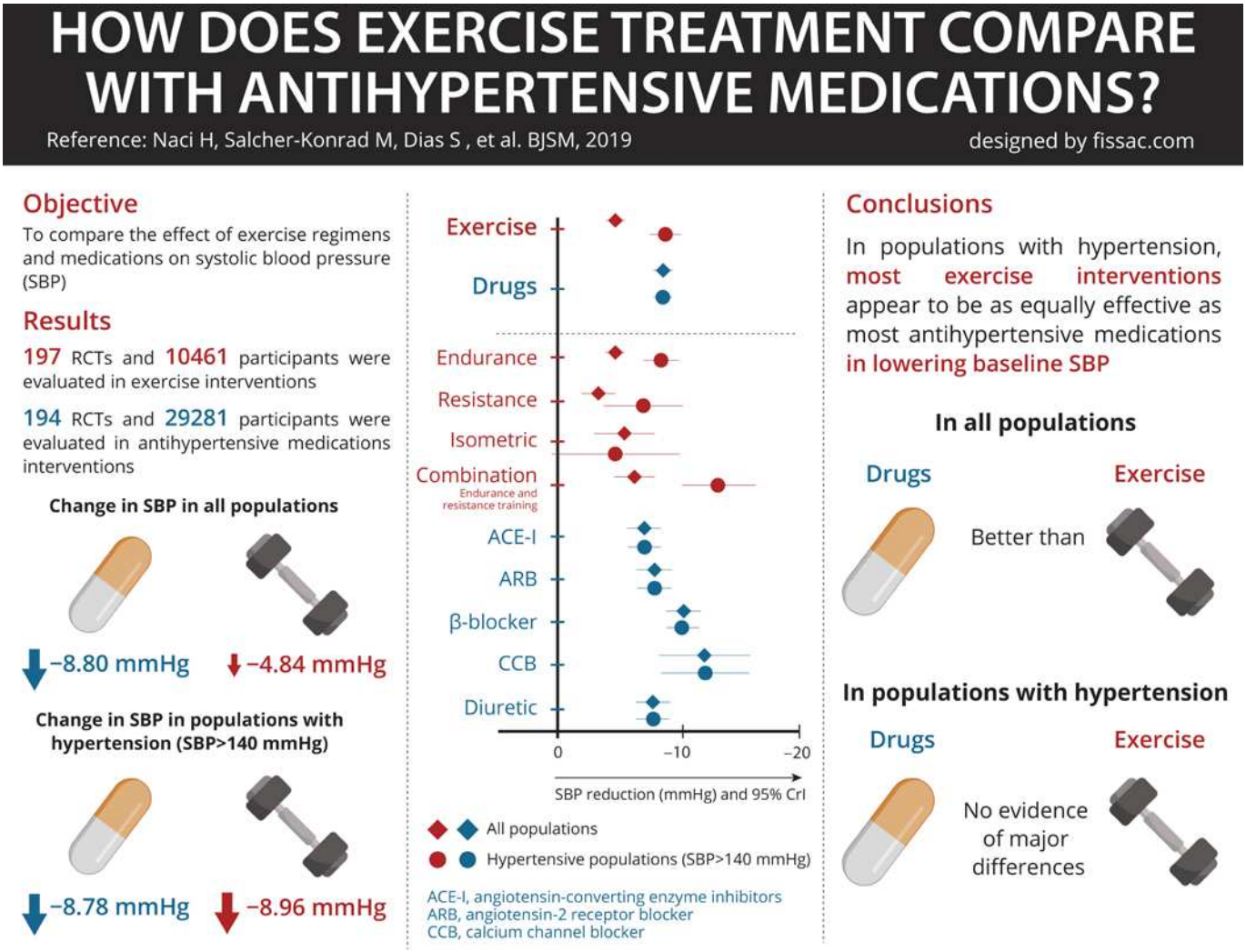

Figure 1 Infographic.

caution, as none of the included studies directly compared antihypertensive medications *vs* exercise, exercise interventions were often evaluated in trials too small to adequately control for confounding and produce reliable effect estimates and populations were healthier than those in medication trials.

Further research is therefore needed to directly compare the blood pressure (BP) lowering effects of exercise and drug interventions. Recently published guidelines from the American College of Cardiology/American Heart Association[5] lowered the threshold to define hypertension in adults to 130 mm Hg (instead of 140 mm Hg). The recently updated European Society of Cardiology/European Society of Hypertension guidelines[6] define SBP 130–139 as 'high normal'. Many individuals who were previously not indicated for drug therapy are thus recommended to start medications to lower their BP. Whether exercise interventions can be considered as viable substitutes of antihypertensive medication for newly diagnosed hypertensive individuals needs careful evaluation. We also need more data to understand the combined effects of medications and exercise and whether exercise may allow reducing the number of antihypertensive agents used in patients treated with combinations of multiple drugs.

More research is also needed to determine the effects of exercise to prevent the risk (or as a coadjuvant treatment) of some hypertension phenotypes that are associated to a particularly high cardiovascular risk despite the use of drug combinations, such as resistant hypertension (a condition found in subjects receiving three drugs of different classes at maximally tolerated doses) and a more recently identified phenotype, the so-called 'masked uncontrolled hypertension', a condition found in some patients treated for hypertension with seemingly well-controlled BP in the office (or clinic) yet with high ambulatory BP.[7]

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