

The Effect of Performing Exercise in Air Polluted Environments on Blood Pressure Response

Title	The Effect of Performing Exercise in Air Polluted Environments on Blood Pressure Response
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Abstract	<p>Exercise has a positive impact on a person's health and fitness level. However, the benefits could be obtained if the exercise is conducted properly by avoiding the risk involved. One of the risks during exercise, especially for those in urban communities, is the difficulty in avoiding air pollution. Air pollution, especially particles with a size less than 2.5 microns (PM2.5), can be inhaled into the lungs and enter the bloodstream. The amount of air pollution inhaled will increase in the people doing exercise because the rate of breathing increases along with the increasing intensity and duration of the exercise. This may impact the blood pressure response due to the presence of foreign particles in the bloodstream. This study used a quasi-experimental method with a post-test-only comparison group approach. The research was conducted in Karawang Regency, West Java, Indonesia, and included two sites, a higher PM2.5 Concentration site, and a lower PM2.5 Concentration site. The research subjects included 22 undergraduate students with a healthy status divided into two research groups. Each group performed exercise, including 5 minutes of warm-up and 15 minutes of running at submaximal intensity (80%–85% of HR Max) at 07.00 for five days consecutively. Blood pressure response measurements were taken immediately after exercise. This study aimed to determine the effect of regular exercise in high and low air pollution conditions (PM2.5) on the blood pressure response. The study found that regular exercise for five days in an environment with high air pollution resulted in higher systolic and diastolic arterial pressures than a regular exercise in low air pollution conditions. Thus, performing exercise in high PM2.5 air pollution conditions affects the blood pressure response. For this reason, vulnerable groups should pay attention to air pollution levels when doing exercise.</p>
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