

# Is Blood Pressure (Systolic and Diastolic) in Thigh Congruent to Upper Arm: True or Not?

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## Introduction

Accurate measurement of Blood Pressure (BP) is paramount for life-saving treatment decisions. In emergency care, using the upper arms for BP measurements sometimes is neither ideal nor feasible. Thighs, therefore, would be alternative sites. However, what will be the accuracy of the thigh BP compare with its counterpart?

## Objective

To find out how accurately can the BP measured on thigh predict the BP measured on upper arm by non-invasive BP monitor.

## Methods

A prospective experimental study was conducted in two Emergency Departments. Volunteers of ambulatory Hong Kong adult Chinese were invited for BP measurement in a laboratory with supine position.

## Result & Outcome

99 samples were collected and analyzed. Paired t test results indicated differences between SBP and DBP measured were statistically significant with  $p < 0.0001$ . The correlation between the BP values was high, which the Pearson Correlation Coefficient of SBP (0.881) was slightly higher than that of DBP (0.773). With Bland-Altman Agreement Analyses, there are limits of agreement for both SBP and DBP with 95% confident interval.

In conclusion, the SBP over thigh has a tendency to be higher than the arm, an overestimated value. The DBP over thigh has a tendency to be lower than the arm, an underestimated value. The study showed measurements obtained in two sites are not interchangeable. Therefore, striving for best practice, special attention should be drawn if thigh SBP was employed for treatment decision.