

Morning Hypertension

Understanding the Risk



Why Home Monitor?

A home blood pressure monitoring regimen may help improve the effectiveness of antihypertensive drug treatment since multiple measurements can help physicians chart variations in blood pressure and the effectiveness of treatment.¹³ The American Heart Association recommends taking two to three blood pressure measurements in the morning and evening. The average of the multiple measurements helps provide a better indication of one's blood pressure.¹⁴ Morning measurements typically are taken in a sitting position within an hour of waking, but before breakfast and before taking medication. Evening measurements are taken before bedtime.

Omron Healthcare's groundbreaking HEM-780, HEM-775 and HEM-790IT Blood Pressure Monitors are the only FDA-cleared home blood pressure monitors which include a morning hypertension indicator. These sophisticated units calculate morning and evening blood pressure averages and display a morning hypertension symbol if a user's weekly average is above 135/85 mmHg. The monitors are designed to automatically store eight weeks of separate morning and evening averages for up to two users. Monitor memory storage can provide physicians a more reliable record of accurate readings than self-recording, which may prove vital to patient health.¹⁵ ●



Brought to you by **OMRON** BLOOD PRESSURE MONITORS

Does time of day affect blood pressure?

In the past, many clinicians assumed blood pressure readings were lowest in the early morning hours. However, research using home blood pressure monitoring devices has shown that early morning blood pressure readings within the first hours of awakening may be higher than other casual blood pressure readings throughout the day.¹

This alarming phenomenon, known as “morning hypertension,” has been associated with various conditions and is an important predictor for stroke.² Research also has found that cardiovascular events, such as myocardial infarction, are most likely to occur in the morning hours, when blood pressure values may be the highest.³ Patients exhibiting morning hypertension are classified as dippers (surge type) or non-dippers (nocturnal hypertension).⁴

What conditions are responsible for morning hypertension?

Elderly patients who exhibit morning surges in blood pressure shortly after awakening—also known as dippers—may have impairments in autoregulation of target organs.⁵ Impaired baroreflex response often is evident, as well as orthostatic hypotension and increased arterial stiffness.⁴ Elderly patients with orthostatic hypertension have been found to have increased rates of silent cerebrovascular disease and stroke.⁶

Conversely, “non-dippers” exhibit gradual increases in blood pressure throughout the sleep cycle. Lack of 24-hour control in medicated patients with hypertension, as well as other medical conditions, can contribute to this nocturnal pattern. Depression, which is well known for causing poor sleep quality, has been

associated with non-dipping patterns.⁷ In men, increases in morning blood pressure also have been linked to the severity of obstructive sleep apnea.⁸ Additionally, research has demonstrated that regular consumption of alcohol is an important determinant for morning hypertension.⁹

Is home blood pressure monitoring recommended?

Home blood pressure monitoring may be beneficial in assisting clinicians in evaluating response to antihypertensive medications—helping to enhance patient compliance to medications and evaluating white-coat hypertension.¹⁰ It is also a practical, cost-effective mechanism in evaluating 24-hour control of blood pressure in medicated patients, especially in the early morning hours.

The American Society of Hypertension's *ad hoc* panel has recommended that, at a minimum, patients should measure their blood pressure in the morning and evening.¹¹ In order to evaluate the effects of work-related stress on blood pressure control, patients should be encouraged to measure their blood pressure on both work and non-work days of the week.¹¹ Frequency of readings and testing recommendations should be individualized to the patient. Newly diagnosed patients or those starting or changing medications may require more frequent readings on multiple days per week.¹¹

The American Heart Association recommends that patients take self-blood pressure measurements after resting in a seated position for three to five minutes during the early morning and evening.¹² Individuals should avoid testing after physical activity or eating.¹² Ideally, an average of three readings, taken in succession separated by one minute, is preferred.¹²

For more information about morning hypertension, visit www.morningbp.com/dsn3

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