Effect of Dietary Patterns on Ambulatory Blood Pressure
Results From the Dietary Approaches to Stop Hypertension (DASH) Trial


Abstract—We measured ambulatory blood pressure (ABP) in 354 participants in the Dietary Approaches to Stop Hypertension (DASH) Trial to determine the effect of dietary treatment on ABP (24-hour, day and night) and to assess participants’ acceptance of and compliance with the ABP monitoring (ABPM) technique. After a 3-week run-in period on a control “typical” American diet, subjects (diastolic blood pressure [BP], 80 to 95 mm Hg; systolic BP, <160 mm Hg; mean age, 45 years) were randomly assigned to 1 of 3 diets for an 8-week intervention period: a continuation of the control diet; a diet rich in fruits and vegetables; and a “combination” diet that emphasized fruits, vegetables, and low-fat dairy products. We measured ABP at the end of the run-in and intervention periods. Both the fruit/vegetable and combination diets lowered 24-hour ABP significantly compared with the control diet (P<0.001 for systolic and diastolic pressures on both diets: control diet, −0.2/+0.1 mm Hg; fruit/vegetable diet, −3.2/−1.9 mm Hg; combination diet, −4.6/−2.6 mm Hg). The combination diet lowered pressure during both day and night. Hypertensive subjects had a significantly greater response than normotensives to the combination diet (24-hour ABP, −10.1/−5.5 versus −2.3/−1.6 mm Hg, respectively). After correction for the control diet responses, the magnitude of BP lowering was not significantly different whether measured by ABPM or random-zero sphygmomanometry. Participant acceptance of ABPM was excellent: only 1 participant refused to wear the ABP monitor, and 7 subjects (2%) provided incomplete recordings. These results demonstrate that the DASH combination diet provides significant round-the-clock reduction in BP, especially in hypertensive participants. (Hypertension. 1999;34:472-477.)

Key Words: blood pressure monitoring, ambulatory ■ nutrition ■ diet ■ blood pressure

Twenty-four–hour ambulatory blood pressure monitoring (ABPM) provides valuable information otherwise unattainable when casual, office-based measurements are used. ABPM has aided our understanding of blood pressure (BP) circadian rhythm and has identified differences in BP rhythms in several population subgroups (eg, less than the expected BP fall occurred during sleep—also called “nondipping”—in blacks and in people with Cushing’s syndrome, congestive heart failure, and type II diabetes). Furthermore, in cross-sectional studies, ambulatory blood pressure (ABP) also shows a better correlation with risk of stroke and left ventricular hypertrophy than does casual office measurement, although prospective data examining ABP and cardiovascular risk are lacking.

ABPM is often used in testing antihypertensive drugs. Compared with standard BP measurements, it simplifies the determination of the time of a drug’s peak and trough effects, shows minimal placebo effect, and offers less withinsubject test-retest variability than casual office readings. There is less experience with ABP in trials of nonpharmacological therapy. The Dietary Approaches to Stop Hypertension (DASH) Trial provided an opportunity to measure ABPM in a large, randomized, controlled, nonpharmacological trial in 362 subjects. Our goals were to determine the effect of the DASH diets on diurnal BP and to determine whether participants would accept and comply with ABPM methodology in a clinical trial setting.

Methods

DASH was a feeding study conducted at 4 clinical centers. Participants received all their food from the study centers for 11 weeks. A detailed description of the methods of this trial has been previously published. All study procedures were approved by the institutional review boards, and all subjects granted written informed consent.
**Participants**

We enrolled 459 DASH participants in 5 separate cohorts over a 2-year period. We measured ABP in cohorts 2 through 5, which included 362 subjects. Unless otherwise noted, results reported in this study are from the 354 persons who had a satisfactory run-in ABPM. We excluded the 8 persons who failed to produce a satisfactory run-in recording. We reasoned that, if ABP was the primary outcome variable in a trial, those unsuccessful in obtaining a run-in recording would not have been randomized into the trial. Participants were healthy, community-dwelling adults (aged \( \geq 22 \) years), not on antihypertensive medication, who had an average systolic BP \(<160 \text{ mm Hg} \) and diastolic BP \( 80 \) to \( 95 \text{ mm Hg} \) (mean of 6 random-zero [RZ] sphygmomanometer measurements across 3 screening visits). Major exclusion criteria have been previously reported.\(^1^1\) We emphasized recruitment of minorities to ensure that two thirds of DASH participants were from a minority background and 90% of minority participants were blacks.

**BP Measurements**

ABPM recordings were obtained at the end of run-in and intervention periods with the use of the Space Labs 90207 device. The devices were programmed to take readings automatically every 30 minutes and to repeat a reading if systolic BP (SBP), diastolic BP (DBP), or heart rate fell outside predefined acceptable ranges (SBP, 70 to 240 mm Hg; DBP, 40 to 150 mm Hg; heart rate, 20 to 150 bpm). After wearing the monitors for \( \geq 24 \) hours, participants returned to the clinic, and the monitors’ data were downloaded.

ABPM was considered to be satisfactory if there were \( \geq 14 \) acceptable readings between 6 AM and midnight (based on a previous report that indicated that 14 daytime readings provide measurement replication comparable to that seen with 28 to 52 measurements per monitoring period\(^1^2\)). If there were \( <14 \) acceptable readings, participants were asked to wear the device for another 24-hour period. For analysis, the ABPM data were cleaned, eg, null values were removed, and data were trimmed and edited so that we included \( \leq 24 \) hours of readings.

For comparison, random-zero sphygmomanometer BP (RZ-BP) measurements were obtained with the use of a standardized protocol at all 4 clinical sites. Trained, certified staff measured BP in participants who had been quietly seated for 5 minutes with Hawksley RZ mercury manometers and appropriate-size cuffs. The BP on any given day was defined as the average of 2 measurements taken 30 seconds apart. RZ-BPs were measured at each of 3 screening visits and on 4 separate days during the last 2 weeks of a 3-week run-in period: baseline RZ-BP was the average of pressures from these 7 visits. RZ-BP was again measured on 5 separate days during the final 2 weeks of feeding of the intervention diets. The mean BP from these 5 visits represented the end-of-intervention RZ-BP.

**Diets**

All participants ate the control diet (typical of what many Americans eat) during the 3-week run-in period. They were then randomized to receive 1 of 3 intervention diets for 8 weeks. One third of participants continued the same control diet. One third consumed a diet rich in fruits and vegetables but otherwise similar to the control diet. The final third consumed a combination diet that emphasized fruits, vegetables, and low-fat dairy products; included whole grains, poultry, fish, and nuts; and was reduced in fats, red meat, sweets, and sugar-containing beverages. Body weight was kept constant by adjusting calories as needed. Alcoholic beverages were limited to \( \leq 2 / d \). The sodium content was similar in all 3 diets: \( \sim 3 \text{ g/d} \). Detailed information on the diets and the feeding procedures has been previously published.\(^1^1, ^1^2\)

**Outcomes**

The primary outcome for DASH was the change in RZ-BP.\(^1^1\) Change in ABP from the run-in to end of intervention period was a prespecified secondary outcome. For each ABPM tracing, mean 24-hour BP, mean daytime BP, and mean night BP were calculated for SBP and DBP. We defined “daytime” as 7 AM to 11 PM and “night” as 11 PM to 7 AM because these times most closely approximated our participants’ average times of awakening and falling asleep on the day they wore the ABP monitor. (Eighty-eight percent of participants awakened between 5 and 9 AM; 87% retired between 10 PM and 1 AM.) For the 9 participants who had satisfactory ABPM at run-in but not at end of intervention, we used the run-in values as their end-of-intervention measurement.

For analysis of the BP response to diets during daytime versus night, we used both the actual BP levels and the qualitative classification of participants as dippers/non-dippers. We defined a “dipper” as a participant whose average SBP during the night fell \( \geq 10\% \) compared with his/her average day SBP. Nondippers fell \(<10\%\).

Change in RZ-BP was defined as the difference between end of run-in and end of intervention. For persons without follow-up RZ-BP measurements in the last 2 weeks of intervention feeding, end-of-intervention BP was the average of the last 2 weekly measurements taken earlier in the intervention period.

**Analytical Approaches**

Data are presented as mean \( \pm 95\% \) CIs unless otherwise noted. For primary analyses, between-diet differences in BP change were tested by 2-way ANOVA, adjusted for clinical center. A between-diet difference was considered statistically significant at \( P < 0.05 \) (2-tailed). For assessing differences in the effects of the diets on 24-hour SBP and DBP in subgroups (eg, men versus women, minority versus non-minority), we used diet-by-race and diet-by-gender interaction terms and multiple regression models. For comparison of the BP effect of the diets measured by RZ-BP versus ABPM, the responses to the control diet were greater for RZ-BP than ABPM, and therefore we adjusted the BP change with the fruit/vegetable and combination diets for the control diet change. We then calculated the RZ-BP change minus the ABPM change. We computed the variance of this statistic, accounted for the correlated nature of the data, and used a \( z \) score to test for statistical significance. This procedure is equivalent to testing for interaction in a 2-way design that involves treatment status and measurement technique, with the subject as a random blocking factor.

To determine whether any of the 3 diets caused a change in dipper/non-dipper status, we categorized each participant as dipper or nondipper at the end of run-in and then again at end of intervention. Then, within each diet assignment, we tested whether diet significantly changed dipper status (either from dipper to nondipper or vice versa) with McNemar’s test. We examined change in dipper status in all participants combined and in black and hypertensive subgroups.

**Results**

ABPM was attempted with 362 participants. One refused, and 7 returned incomplete recordings (ie, \(<14 \) daytime readings) and declined further attempts. The remaining 354 (98%) provided satisfactory recordings during the run-in period. (Eleven participants [3%] needed to wear the monitor a second time to get a satisfactory recording.) At the end of the intervention feeding period, 345 participants (97%) also provided satisfactory recordings (including 7 [2%] who needed a second attempt). The average run-in recording provided 96% of the expected number of 48 BP readings per 24 hours (95% of expected day readings; 97% of night). The average at the end-of-intervention feeding was 93% complete (92% of day readings; 94% of night).

Table 1 provides baseline demographic characteristics and BP for the 354 participants who provided satisfactory run-in ABPM. We defined hypertension as \( \geq 140 \text{ mm Hg} \) SBP and/or \( \geq 90 \text{ mm Hg} \) DBP on the basis of the average of RZ-BP readings taken on 7 separate days (screening visits and run-in period). Twenty-nine percent of the participants

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\(^1^1\) Moore et al. Ambulatory Blood Pressure in the DASH Trial. 473

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were hypertensive at the beginning of the trial. At run-in, 24-hour ABP and RZ-BP were similar.

After 8 weeks of intervention feeding, the control diet group showed no significant change in either RZ-BP or 24-hour ABP (Figure 1). The combination diet significantly reduced BP measured by both methodologies, while the fruit/vegetable diet had an intermediate effect (Figure 1).

In the control diet group, there was a slightly greater fall in RZ-BP than in ABP. After adjustment for differences in this control diet effect, there were no significant differences in the BP effect detected by the 2 BP measurement methods for either the fruit/vegetable or combination diet (Table 2).

ABPM demonstrated that the diet exerted its BP-lowering effect throughout the day and night (Figure 2). With the combination diet, both SBP and DBP fell significantly during 24 hours, daytime, and night in all participants combined (Table 3). Pressure fell in prespecified subgroups as well, although the changes did not always achieve statistical significance, perhaps as a result of small subgroup size. Formal tests of interactions between diet and subgroup status indicated no statistically significant differences between the BP effect in men versus women, minorities versus nonminorities, or younger versus older participants, although the greater ABP response to the combination diet in minorities versus nonminorities approached statistical significance (eg, 24-hour SBP, $P=0.08$). Hypertensive subjects had a significantly greater SBP and DBP fall than normotensives during day, night, and 24-hour recordings ($P<0.05$ for interaction). In contrast, the fruit/vegetable diet provided less overall BP lowering than the combination diet, and the changes were nonsignificant in several time periods/subgroups (data not shown).

Finally, we examined the effect of the diets on dipper/nondipper status. The percentages of nondippers at end of run-in and end of intervention were as follows: for the control diet, 44% and 43% ($P=0.87$); for the fruit/vegetable diet, 55% and 50% ($P=0.33$); and for the combination diet, 42% and 35% ($P=0.29$). Thus, none of the diets significantly changed dipper/nondipper status in all participants combined. Dipper status also did not change significantly in black or hypertensive subgroups (data not shown).

## Discussion

These results confirm and extend the findings of the original DASH report. In addition to reducing BP measured by RZ sphygmomanometry (the primary outcome measure in DASH), the combination diet (which was rich in fruits, vegetables, and low-fat dairy foods; included whole grains, poultry, fish, and nuts; and was reduced in fats, red meat, sweets, and sugar-containing beverages) also significantly lowered 24-hour, day, and night ABP in all participants combined as well as in gender, age, ethnic, and BP status subgroups. Only the nonminority subgroup failed to show a significant 24-hour ABP response.

The DASH combination diet lowered ABP through both day and night. The net-of-control declines in day versus night SBP ($−4.4$ versus $−4.5$ mm Hg) and DBP ($−2.7$ versus $−2.7$) with the combination diet were nearly identical (Table 3). Review of the hourly pressures (Figure 2) confirms a consistent reduction through the day and night. We defined nondippers as those with $<10\%$ decline in nocturnal SBP. Overall, $47\%$ of our participants were nondippers. We saw no change in the dipper status with any of our diets. Previous studies of lifestyle changes have not consistently shown round-the-clock BP lowering. For example, Moore et al reported that sodium restriction lowered pressure more during the night than day in 15 hypertensives, and Straznicky et al found that a low fat diet reduced SBP during the day but not

### TABLE 1. Baseline Characteristics of DASH Participants With ABPM Measurements

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Control</th>
<th>Fruits/Vegetables</th>
<th>Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>354</td>
<td>118</td>
<td>121</td>
<td>115</td>
</tr>
<tr>
<td>Age, y</td>
<td>45.1 $±$ 10.4</td>
<td>45.4 $±$ 10.7</td>
<td>45.0 $±$ 10.5</td>
<td>44.9 $±$ 9.9</td>
</tr>
<tr>
<td>% Female</td>
<td>47</td>
<td>47</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>% Minorities</td>
<td>62</td>
<td>61</td>
<td>60</td>
<td>64</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>28.1 $±$ 3.9</td>
<td>28.0 $±$ 3.7</td>
<td>27.9 $±$ 4.0</td>
<td>28.5 $±$ 4.0</td>
</tr>
<tr>
<td>SBP (RZ), mm Hg</td>
<td>131.4 $±$ 10.5</td>
<td>131.1 $±$ 10.9</td>
<td>131.4 $±$ 10.6</td>
<td>131.6 $±$ 10.2</td>
</tr>
<tr>
<td>DBP (RZ), mm Hg</td>
<td>84.7 $±$ 4.8</td>
<td>85.1 $±$ 4.7</td>
<td>84.5 $±$ 5.2</td>
<td>84.6 $±$ 4.5</td>
</tr>
<tr>
<td>24-h SBP (ABP)</td>
<td>131.6 $±$ 10.9</td>
<td>130.9 $±$ 11.3</td>
<td>132.0 $±$ 10.8</td>
<td>131.9 $±$ 10.7</td>
</tr>
<tr>
<td>24-h DBP (ABP)</td>
<td>83.6 $±$ 7.4</td>
<td>83.3 $±$ 7.4</td>
<td>83.9 $±$ 8.0</td>
<td>83.6 $±$ 6.8</td>
</tr>
<tr>
<td>Day SBP (ABP)</td>
<td>136.2 $±$ 11.4</td>
<td>135.5 $±$ 12.2</td>
<td>136.3 $±$ 11.2</td>
<td>136.7 $±$ 10.7</td>
</tr>
<tr>
<td>Day DBP (ABP)</td>
<td>87.5 $±$ 7.8</td>
<td>87.1 $±$ 8.2</td>
<td>87.6 $±$ 8.3</td>
<td>87.8 $±$ 6.8</td>
</tr>
<tr>
<td>Night SBP (ABP)</td>
<td>121.7 $±$ 11.9</td>
<td>121.0 $±$ 11.3</td>
<td>122.6 $±$ 12.0</td>
<td>121.5 $±$ 12.5</td>
</tr>
<tr>
<td>Night DBP (ABP)</td>
<td>75.1 $±$ 8.6</td>
<td>75.0 $±$ 8.1</td>
<td>75.7 $±$ 9.2</td>
<td>74.5 $±$ 8.5</td>
</tr>
<tr>
<td>% With hypertension</td>
<td>29</td>
<td>31</td>
<td>30</td>
<td>27</td>
</tr>
</tbody>
</table>

Values (except percentages) are mean $±$ SD. BMI indicates body mass index.

*Randomized participants with acceptable run-in ABPM ($≥$14 daytime readings).
†RZ BP at baseline is average of readings from 3 screening visits plus 4 visits during run-in period.
‡ABP measured during run-in period.
§Hypertension $=$ baseline RZ SBP $≥$ 140 or DBP $≥$ 90.
Exercise training also lowered BP more during the day than night in several trials.\textsuperscript{16–18} Potassium supplementation in 3 daily doses did lower ABP throughout the day and night.\textsuperscript{19} Thus, some nonpharmacological measures may exert their BP effect over limited times of the day or night. The DASH combination diet produced a sustained, round-the-clock BP effect.

The magnitudes of the BP responses measured by RZ-BP and ABP were very similar, as were the qualitative responses to the 3 diets (combination diet effect $>$ fruits/vegetables $>$ control). The similarity in the results captured by these 2 very different measurement methods provides additional corroboration that the DASH combination diet significantly lowered BP. Previous studies of nonpharmacological treatments have often shown either different BP effect sizes by standard methods versus ABP\textsuperscript{20,21} or significant responses with one measurement but not the other.\textsuperscript{15,22} Two studies of salt restriction did show significant correlation between the changes in resting versus ambulatory pressure,\textsuperscript{14,23} but both of these studies determined resting pressure by averaging 20 to 60 separate BP measurements. Most other studies used fewer measurements and thus may not have captured as representative an estimate of BP. In DASH, our feeding-study design afforded us daily contact with participants, which allowed frequent BP measurements. We estimated resting pressure from RZ-BP taken on 7 different days for baseline and 5 different days for posttreatment level. The robustness of these estimates may explain the concordance of effect size in our RZ-BP versus ABP measurements.

Will research participants accept ABP methodology and use it correctly? Of the 362 participants who were asked to wear the ABP monitors, only 1 refused. For both run-in and end-of-intervention measurements, 2\% to 3\% of participants were unsuccessful on their first attempt but successful on a second try. Overall, if ABP had been the primary outcome variable in our trial, 98\% of eligible participants would have provided acceptable run-in recordings and thus could have been randomized into the trial. Of these, 97\% provided acceptable end-of-intervention recordings. In addition, participant compliance was excellent: on average, usable recordings yielded $>$90\% of total expected BP readings during both day and night. We should note that participants with body mass index $>$35 kg/m$^2$ were not eligible for DASH. ABPM may be less successful in extremely obese participants because of the difficulty in placing the ABP cuff.

In some circumstances, RZ sphygmomanometry may offer advantages over ABPM. For example, when frequent measurements on different days are needed (eg, documenting the time course of a response), repeated ABPM may be impractical. Also, when high rates of follow-up are difficult to achieve, as in long-term studies, some participants may agree

### TABLE 2. Comparison of BP Changes* Measured by RZ-BP vs ABPM

<table>
<thead>
<tr>
<th>Diet</th>
<th>RZ-BP $\Delta$SBP (95% CI)</th>
<th>24-h ABPM $\Delta$SBP (95% CI)</th>
<th>RZ-BP $\Delta$DBP (95% CI)</th>
<th>24-h ABPM $\Delta$DBP (95% CI)</th>
<th>$P$-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit/vegetable</td>
<td>$-3.2 (-5.1, -1.4)$</td>
<td>$-3.1 (-4.8, -1.4)$</td>
<td>$-0.8 (-2.1, 0.5)$</td>
<td>$-2.0 (-3.3, -0.8)$</td>
<td>$P=0.89$</td>
</tr>
<tr>
<td>Combination</td>
<td>$-5.6 (-7.5, -3.7)$</td>
<td>$-4.5 (-6.2, -2.8)$</td>
<td>$-2.4 (-3.7, -1.1)$</td>
<td>$-2.7 (-4.0, -1.4)$</td>
<td>$P=0.26$</td>
</tr>
</tbody>
</table>

*Net of change with control diet.
TABLE 3. ABP (24-Hour, Daytime, Night) Responses to Combination vs Control Diet in All Participants and in Subgroups

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>24-h</th>
<th></th>
<th></th>
<th>Day (7 AM–11 PM)</th>
<th></th>
<th></th>
<th>Night (11 PM–7 AM)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>95% CI</td>
<td>P‡</td>
<td>Mean</td>
<td>95% CI</td>
<td>P‡</td>
<td>Mean</td>
<td>95% CI</td>
</tr>
<tr>
<td>SBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All participants</td>
<td>-4.5</td>
<td>(-6.2, -2.8)</td>
<td>0.0001</td>
<td>-4.4</td>
<td>(-6.3, -2.5)</td>
<td>0.0001</td>
<td>-4.5</td>
<td>(-6.8, -2.2)</td>
</tr>
<tr>
<td>Men</td>
<td>-4.4</td>
<td>(-6.6, -2.1)</td>
<td>0.0002</td>
<td>-4.8</td>
<td>(-7.2, -2.3)</td>
<td>0.0002</td>
<td>-3.4</td>
<td>(-6.5, -0.3)</td>
</tr>
<tr>
<td>Women</td>
<td>-4.6</td>
<td>(-7.3, -1.9)</td>
<td>0.0011</td>
<td>-4.1</td>
<td>(-7.0, -1.1)</td>
<td>0.0082</td>
<td>-5.8</td>
<td>(-9.2, -2.4)</td>
</tr>
<tr>
<td>Nonminority</td>
<td>-2.7</td>
<td>(-5.5, 0.2)</td>
<td>0.0668</td>
<td>-3.1</td>
<td>(-6.2, 0.1)</td>
<td>0.0566</td>
<td>-1.6</td>
<td>(-5.2, 2.0)</td>
</tr>
<tr>
<td>Minority</td>
<td>-5.6</td>
<td>(-7.8, -3.4)</td>
<td>0.0001</td>
<td>-5.3</td>
<td>(-7.7, -2.9)</td>
<td>0.0001</td>
<td>-6.1</td>
<td>(-9.1, -3.2)</td>
</tr>
<tr>
<td>Younger§</td>
<td>-4.8</td>
<td>(-6.8, -2.7)</td>
<td>0.0001</td>
<td>-4.8</td>
<td>(-7.1, -2.4)</td>
<td>0.0001</td>
<td>-4.6</td>
<td>(-7.6, -1.6)</td>
</tr>
<tr>
<td>Older</td>
<td>-4.5</td>
<td>(-7.5, -1.5)</td>
<td>0.0036</td>
<td>-4.4</td>
<td>(-7.5, -1.3)</td>
<td>0.0057</td>
<td>-4.7</td>
<td>(-8.5, -0.9)</td>
</tr>
<tr>
<td>Hypertensive</td>
<td>-10.1</td>
<td>(-13.9, -6.2)</td>
<td>0.0001</td>
<td>-10.1</td>
<td>(-14.3, -5.8)</td>
<td>0.0001</td>
<td>-9.8</td>
<td>(-14.2, -5.3)</td>
</tr>
<tr>
<td>Normotensive</td>
<td>-2.3</td>
<td>(-4.1, -0.5)</td>
<td>0.0121</td>
<td>-2.2</td>
<td>(-4.2, -0.2)</td>
<td>0.0289</td>
<td>-2.6</td>
<td>(-5.2, 0.1)</td>
</tr>
</tbody>
</table>

All participants, 131/85; men, 130/85; women, 133/84; nonminority, 132/85; minority, 131/85; younger, 128/84; older, 135/85; high BP, 143/89; and normal BP, 126/83 mm Hg.

*Mean BP difference (control diet minus combination).
†95% CIs, not adjusted for multiple comparisons.
‡P value for testing hypothesis that treatment effects do not differ between treatment groups.
§Younger = ≤46 years (median); older = > 46 years.

Mean baseline BPs measured by RZ sphygmonanometry (average of readings from 3 screening visits and 4 visits during last week of run-in period) were as follows: all participants, 131/85; men, 130/85; women, 133/84; nonminority, 132/85; minority, 131/85; younger, 128/84; older, 135/85; high BP, 143/89; and normal BP, 126/83 mm Hg.

Appendix


Acknowledgments

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References


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