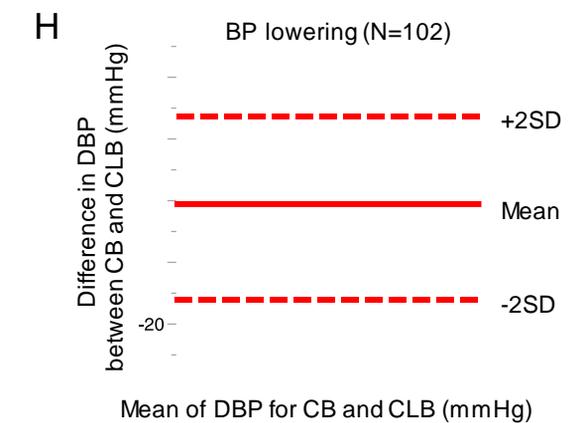
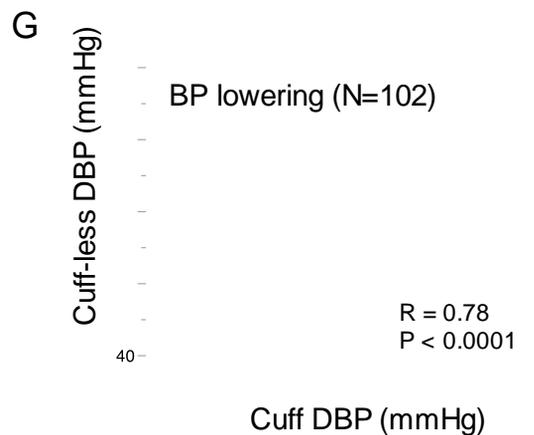
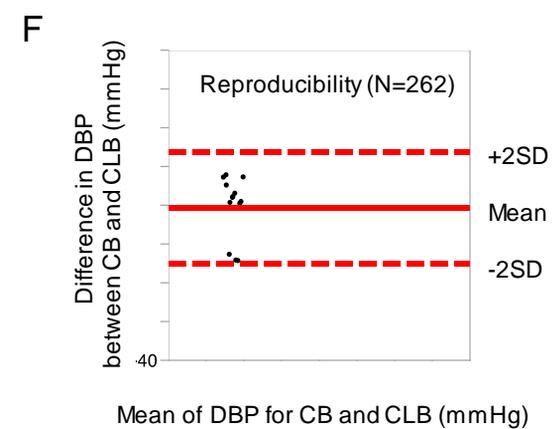
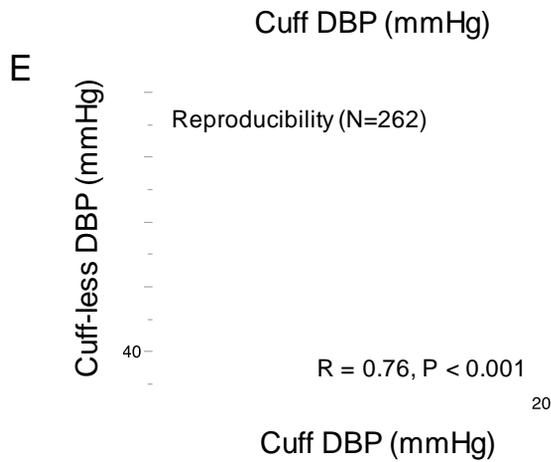
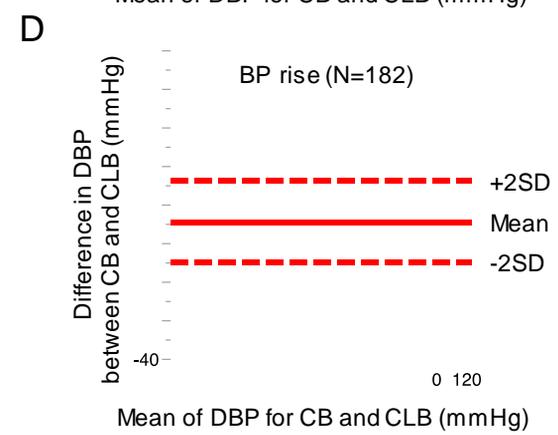
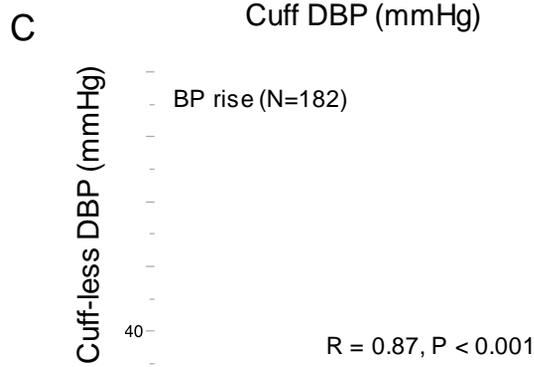
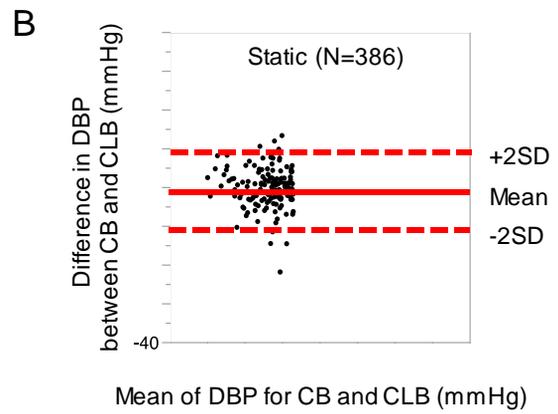
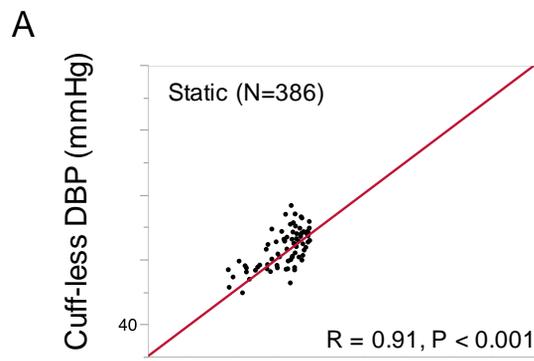


D

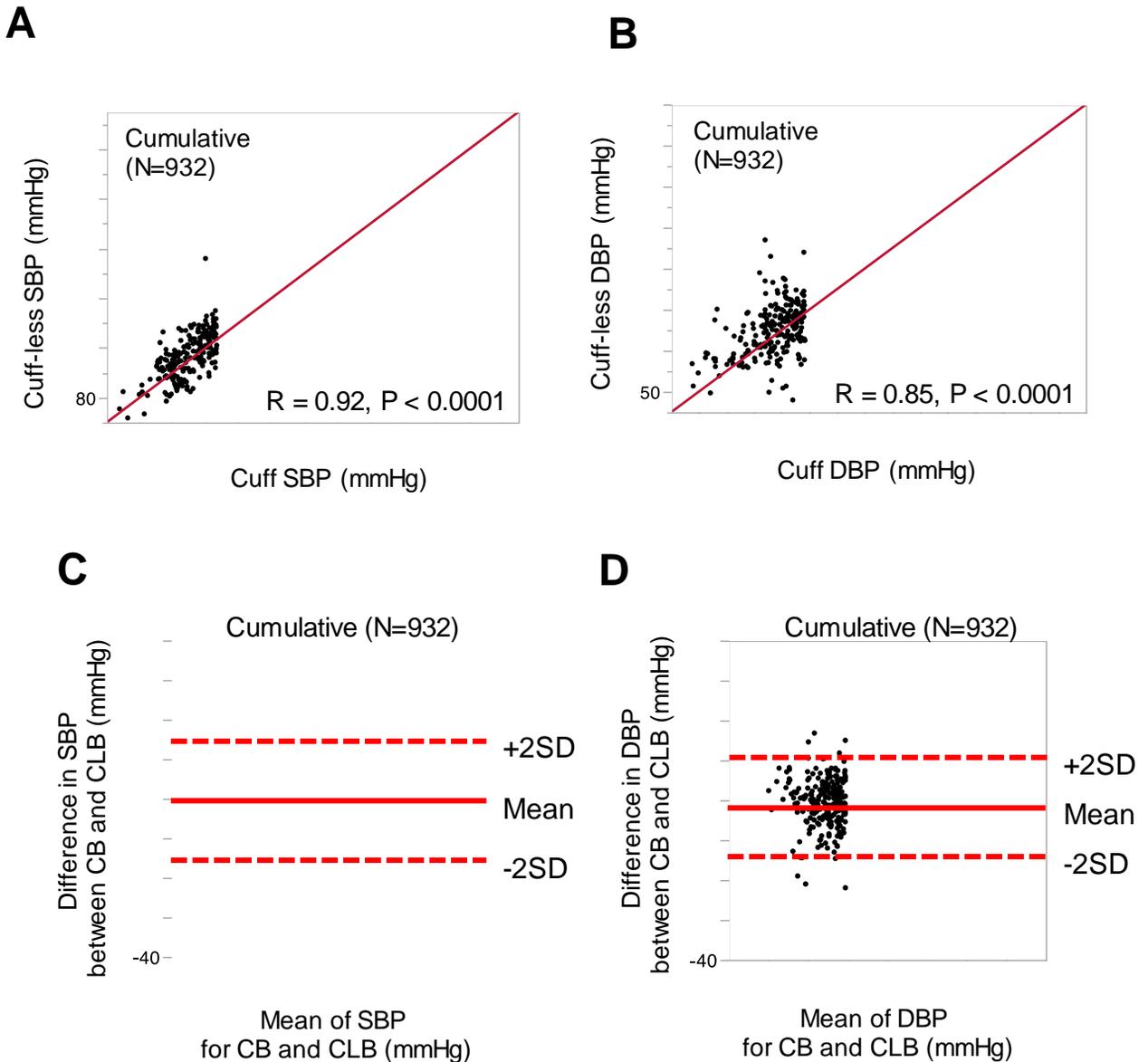
Validation Criteria
1. <i>MAD (mmHg) < 7</i>
2. <i>>20 data at 3 different conditions;</i>
✓ <i>Static</i>
✓ <i>Dynamic (BP rise and fall)</i>
✓ <i>Reproducibility (>1 month interval).</i>

Supplemental Figure 1. Participant characteristics and detailed procedure for BP estimation system

- A. Histogram of participant number and distribution pattern of their age and gender.** Vertical axis; participant number, horizontal axis; age of participants. Blue bar; male, red bar; female.
- B. Feature parameter of pulse wave.** Schematic display of feature parameters of fingertip volume pulse wave (upper panel) and acceleration pulse wave (lower panel). P1_time; Time duration between Zero to P1 peak (second), P1_value; Height of P1 (arbitrary unit).
- C. Detailed protocol for validation step according to the IEEE1708™-2014** Flow chart of the validation step. Schematic display of validation protocol issued by IEEE 1708™-2014. Modified and adapted from the IEEE 1708™-2014 position paper (Reference 13).
- D. Summary of the validation criteria.**

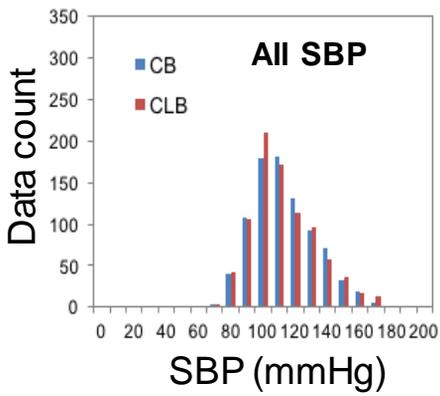
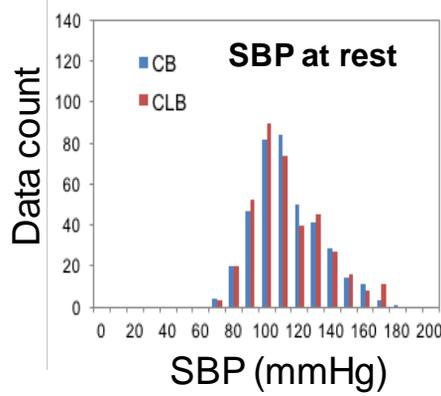
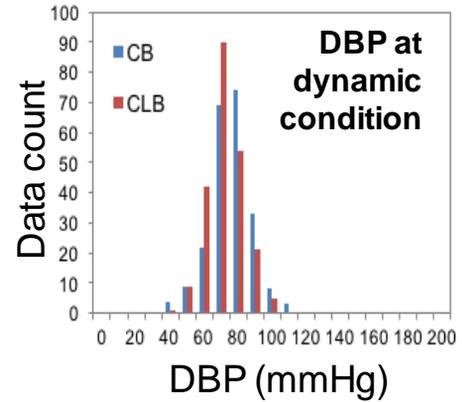
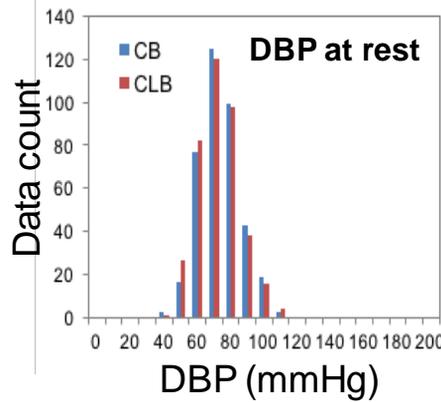
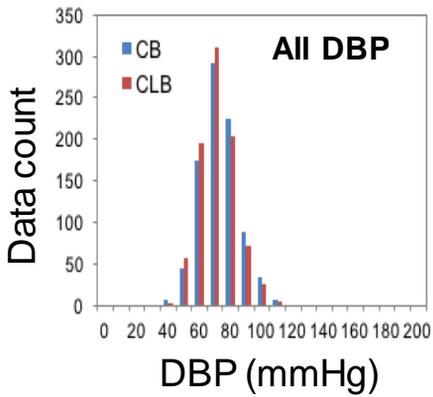
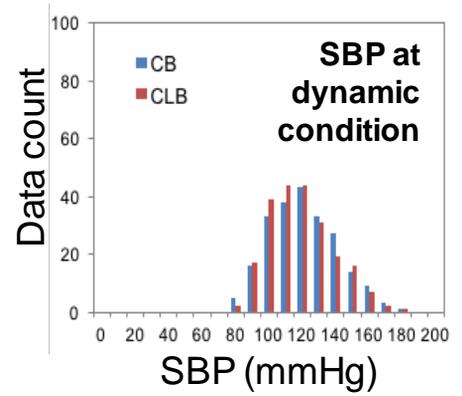


Supplemental Figure 2. Correlation and agreement of diastolic blood pressure measured by CB and CLB. Correlation (**A, C, E, and G**) and agreement (**B, D, F, and H**) of diastolic blood pressure (DBP) measured by cuff and cuff-less in the validation tests (at the condition of static (**A and B**), BP rise (**C and D**), reproducibility (**E and F**), and BP lowering during coronary angiography (**G and H**)).



Supplemental Figure 3. Cumulative summaries of correlation and agreement of BP estimation measured by cuff-less device to the cuff device references

All BP estimation data at the phase of static (N=386), BP rise (N=182), lowering (N=102), and one month internal study (N=262) were plotted together to summarize and verify the precision of the cuff-less measurement independently of BP variability that is required by the IEEE standard guideline for the cuff-less BP device. CLB; cuff-less device, CB; cuff-based device.

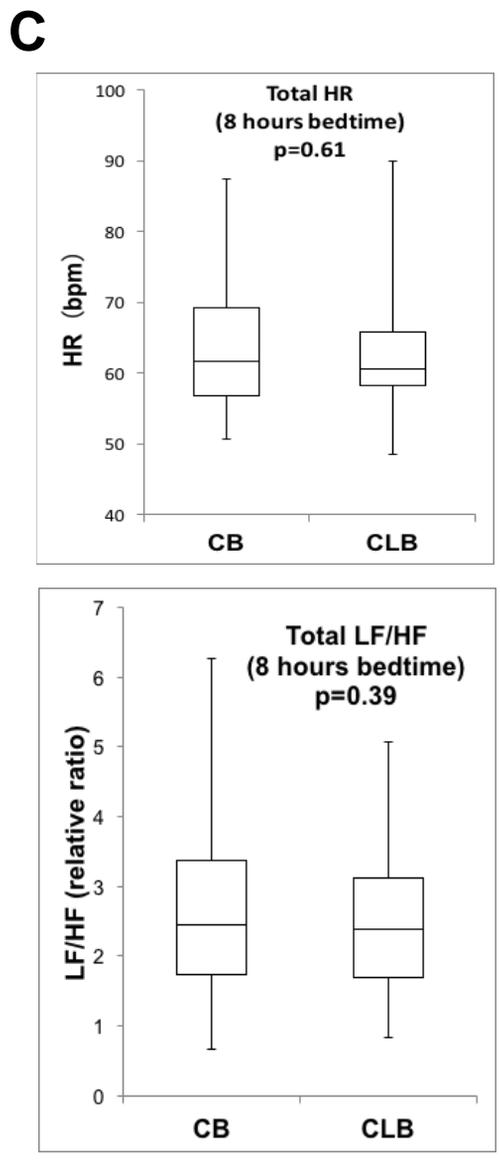
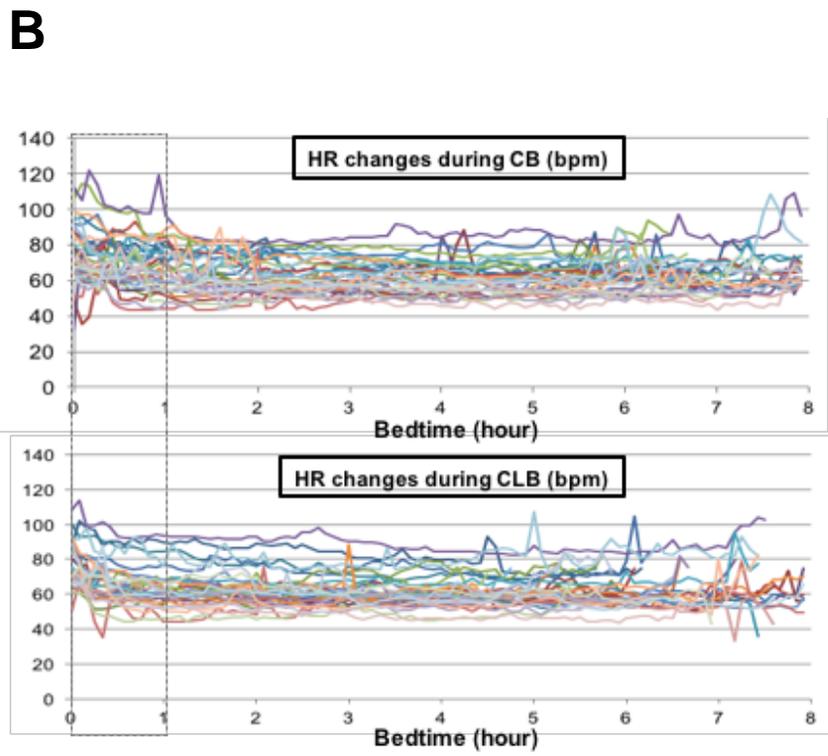
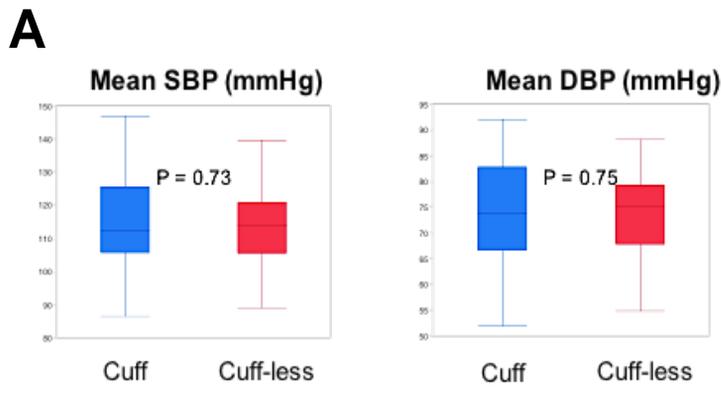
A**B****C**

Supplemental Figure 4. Comparison of BP difference between CLB and CB by histogram pattern

Distribution pattern of SBP (upper) and DBP (lower) obtained by CB (blue) and CLB (red) displayed by histogram. Vertical axis; data count, horizontal axis; blood pressure in mmHg.

A. Plot of SBP (upper) and DBP (lower) data at all recording conditions.

B and C; Plot of BP data obtained at specific conditions; at rest (**B**) and at dynamic condition (i.e. BP rise and fall; **C**).



Supplemental Figure 5. Impact of cuff on quality of sleep by simultaneous monitoring with CB and CLB and changes in heart rate.

A. Impact of cuff on SBP (left) and DBP (right) during bedtime with CB and CLB. There was no changes in total MBP in this setting.

B. Original traces of HR during bedtime with CB (upper panel) or with CLB (lower panel). The average of heart rate (HR) was calculated and displayed in Figure 4E (N=35). Vertical axis; HR (in bpm) , horizontal axis; bedtime (in hour). Within the first one hour (indicated by dashed square), presumable time to onset of sleep, unstable changes in HR were more apparent by CB.

C. Box plots representing heart rate (HR) and low and high frequency power HRV ratio (LF/HF) during total bedtime time (8 hours). No statistical significances were observed.

Supplemental Table 1. Baseline Characteristics of participants who enrolled in coronary angiography (Fig. 3) and in bedtime BP monitoring (Fig. 4).

	Coronary angiography (n=29)	ABPM (n=35)
Age, y.o.	67.3 ± 11.1	48.7 ± 5.7
Male	25 (86.2)	35 (100)
Body height, cm	162.8 ± 7.5	169.4 ± 6.0
Body weight, kg	65.7 ± 13.6	70.7 ± 10.1
Hypertension*	19 (65.5)	11 (31.4)
Diabetes Mellitus*	14 (48.3)	1 (2.9)
Dyslipidemia*	17 (58.6)	6 (17.1)

Values are n (%) or mean ± SD.

*Hypertension; Patients who has been diagnosed and treated with anti-hypertensive medication.

*Diabetes Mellitus; Patients who has been diagnosed and treated with anti-hyperglycemic

medication. *Dyslipidemia; Patients who has been diagnosed and treated with medication.