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Forests and Human Health -Introduction of Practice in Japan-

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Forests and Human Health



Dialogue and practice
between scientists, forest agency and local authorities
in Japan

Research: Viewpoint of Evidence-based Medicine (EBM)
Elucidation of physiological relaxation effects
of forests (28 locations, 336 subjects)



Forest Agency: Authorization of relaxation forests
at local authorities



Local Authorities : Activation of local authorities
Rehabilitation of forests at local authorities



50 locations/5 years ~ 100 locations/10 years

- 1) Rehabilitation of all forests in Japan
- 2) Reductions in medical bills
(from viewpoint of preventive medicine)

Nature and man

Experience shows that wood provides various types of stimulation while contributing to the increased comfort of our lives.

Professor M. Sato, the president of the Japan Society of Physiological Anthropology, wrote in his book, "Man has been living in the natural environment for 5 million years since he took his present form. It is only in recent times that cities appeared in the history of human beings. We, the city dwellers, have the same brain that ancient people who lived in wild forests and grasslands did. All human physiological functions including those of the brain, nervous system, muscles, lungs, digestive organs, liver, and sensory organs have evolved in and have adapted to the natural environment."

Methods

- Physiological index
 - HRV (Heart Rate Variability)
 - Salivary cortisol
 - Blood pressure
 - Pulse rate
- Subjective report
comfortable-uncomfortable, calm-exciting



(a) Walking in the Forest Area



(b) Watching the Landscape in the Forest Area



(c) Walking in the City Area



(d) Watching the Landscape in the City Area



(a) Salivary collecting



(b) Blood pressure and pulse rate measuring



(c) HRV measuring



(d) Salivary collecting

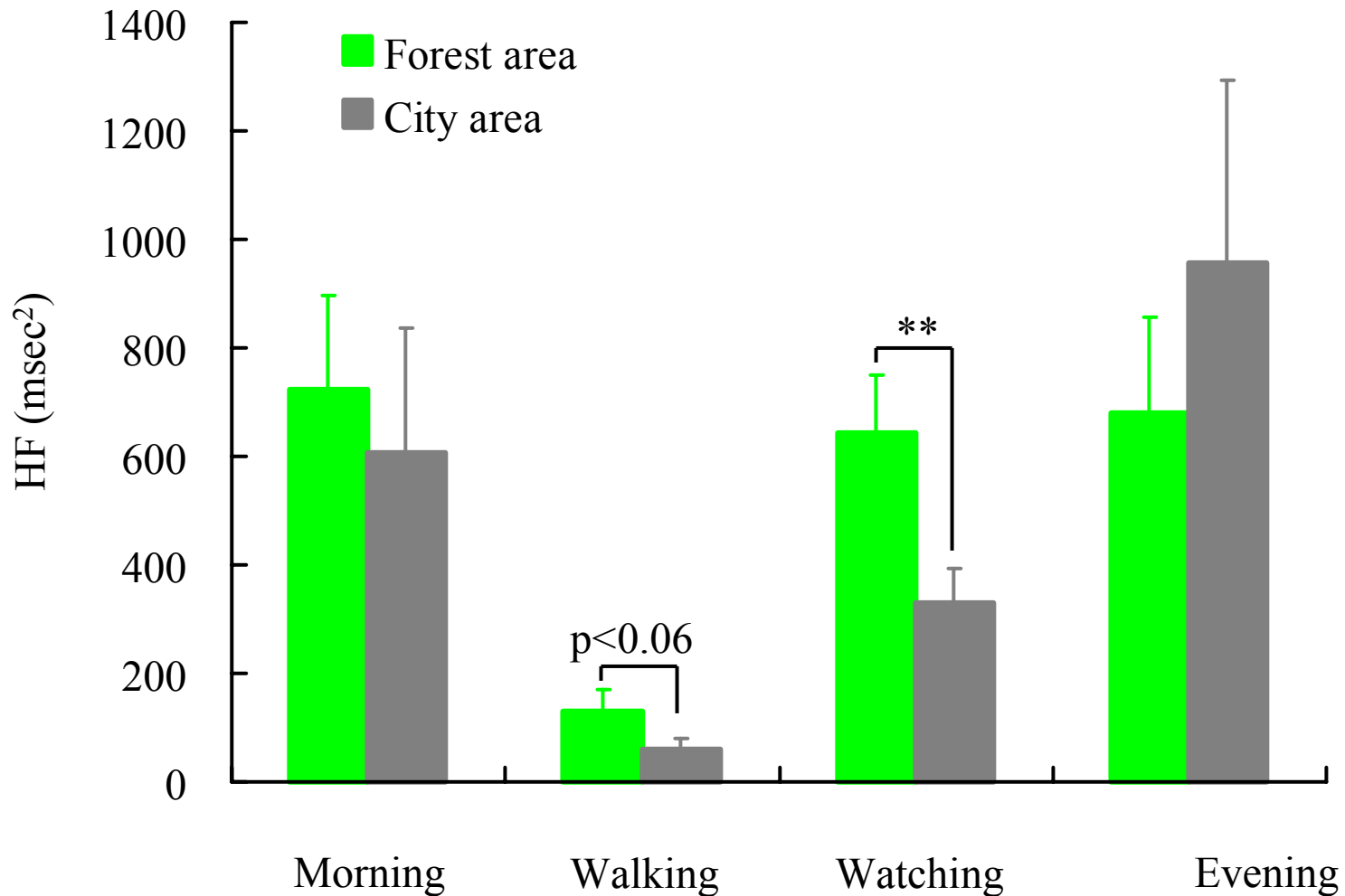


(e) Blood pressure and pulse rate measuring



(f) HRV measuring

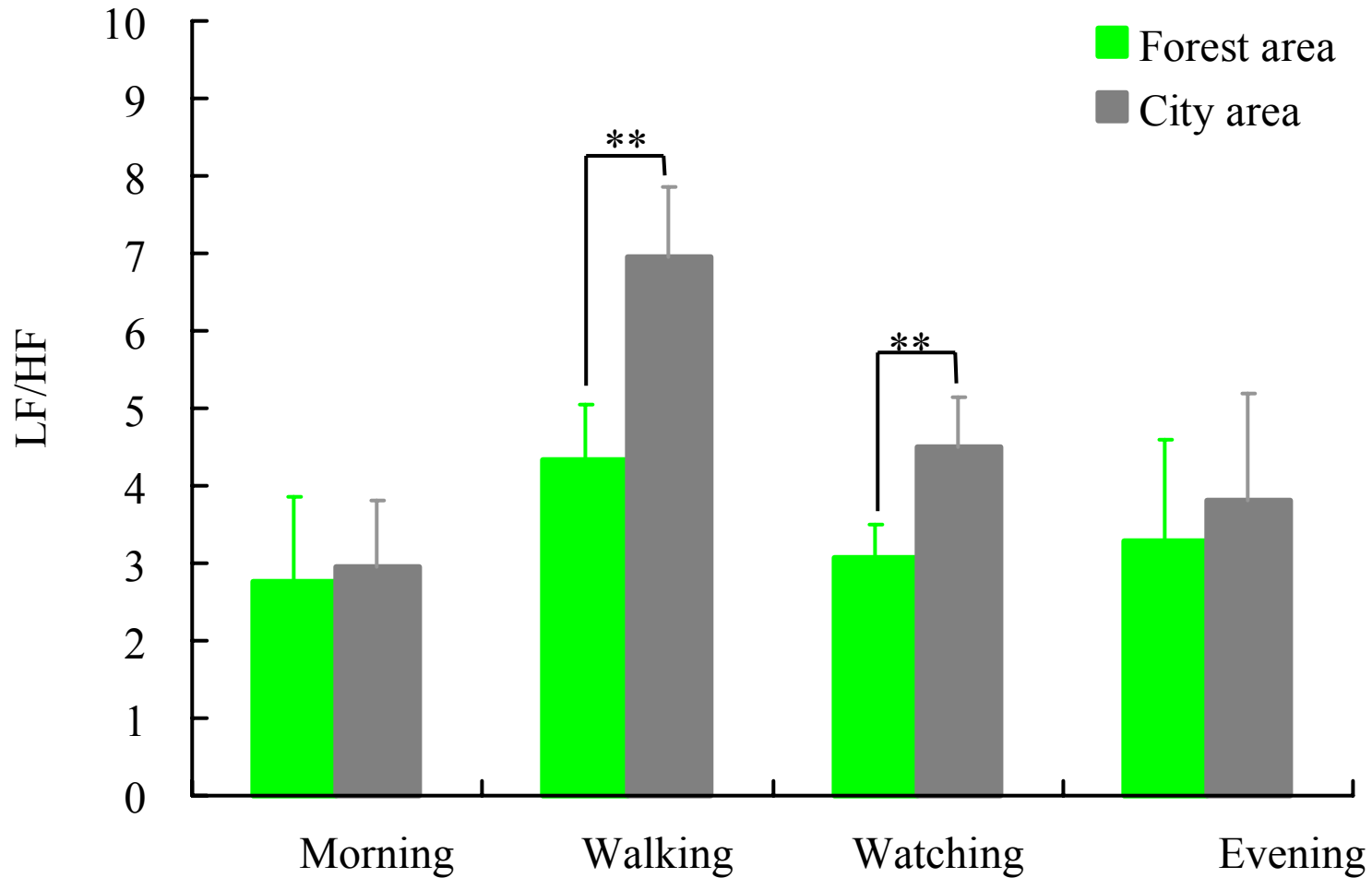
HRV (Activity of parasympathetic nerve)



N=10-11, Mean \pm SE, **:p<0.01 by paired t-test,

Morning, Evening : 1min. 50sec., Walking : 12 min., Watching : 14 min.

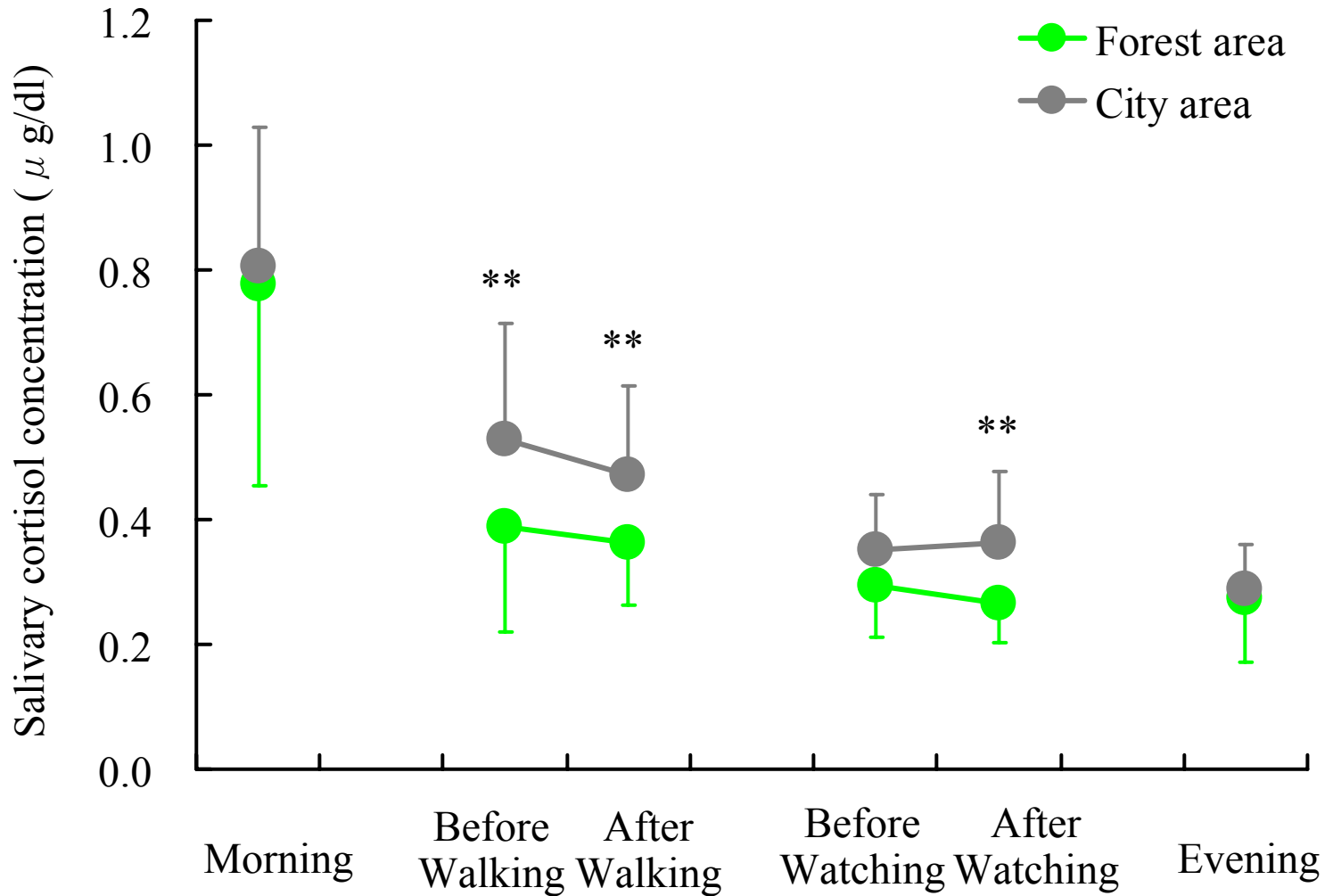
HRV (Activity of sympathetic nerve)



N=10-11, Mean \pm SE, **:p<0.01 by paired t-test,

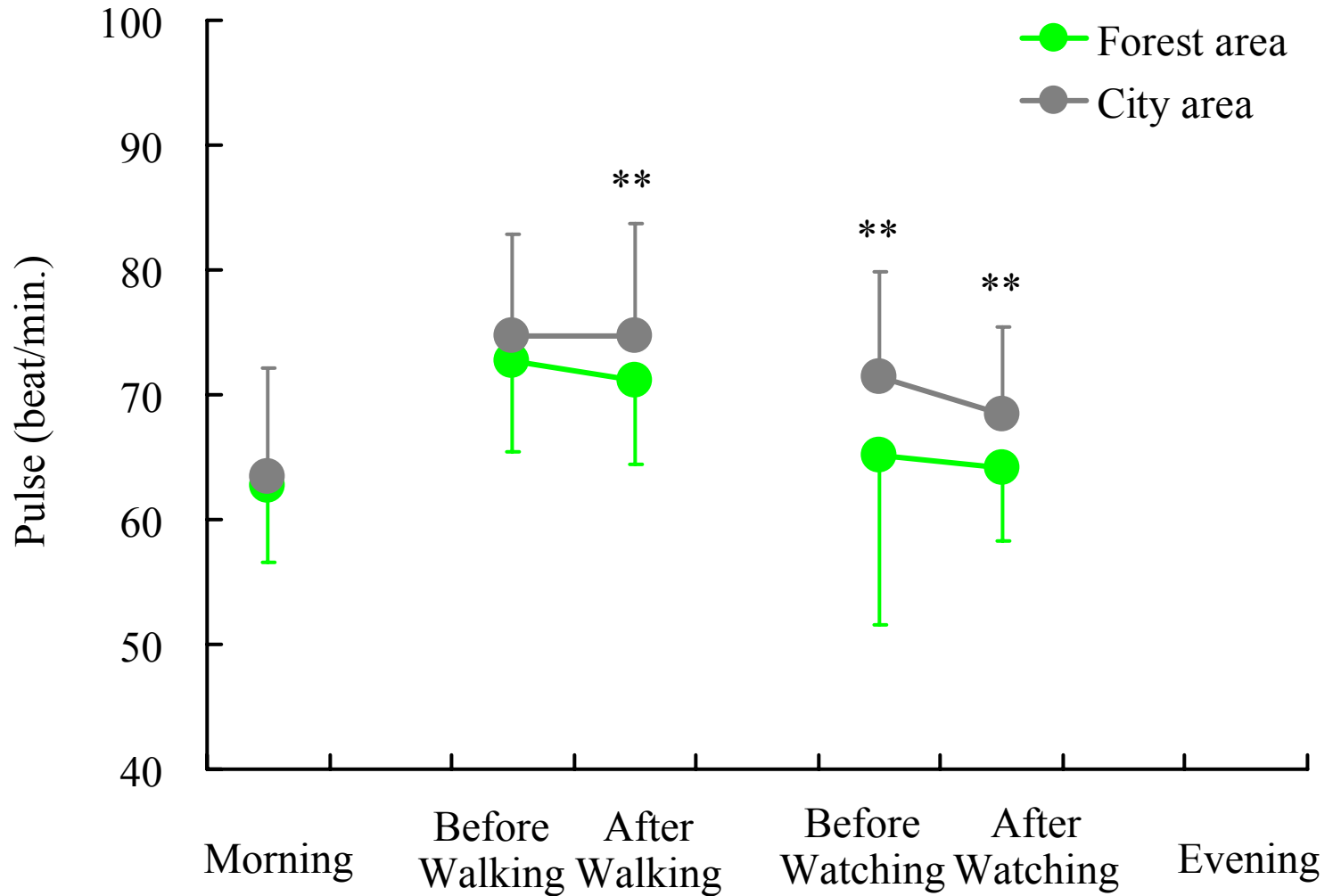
Morning, Evening : 1min. 50sec., Walking : 12 min., Watching : 14 min.

Salivary cortisol concentration



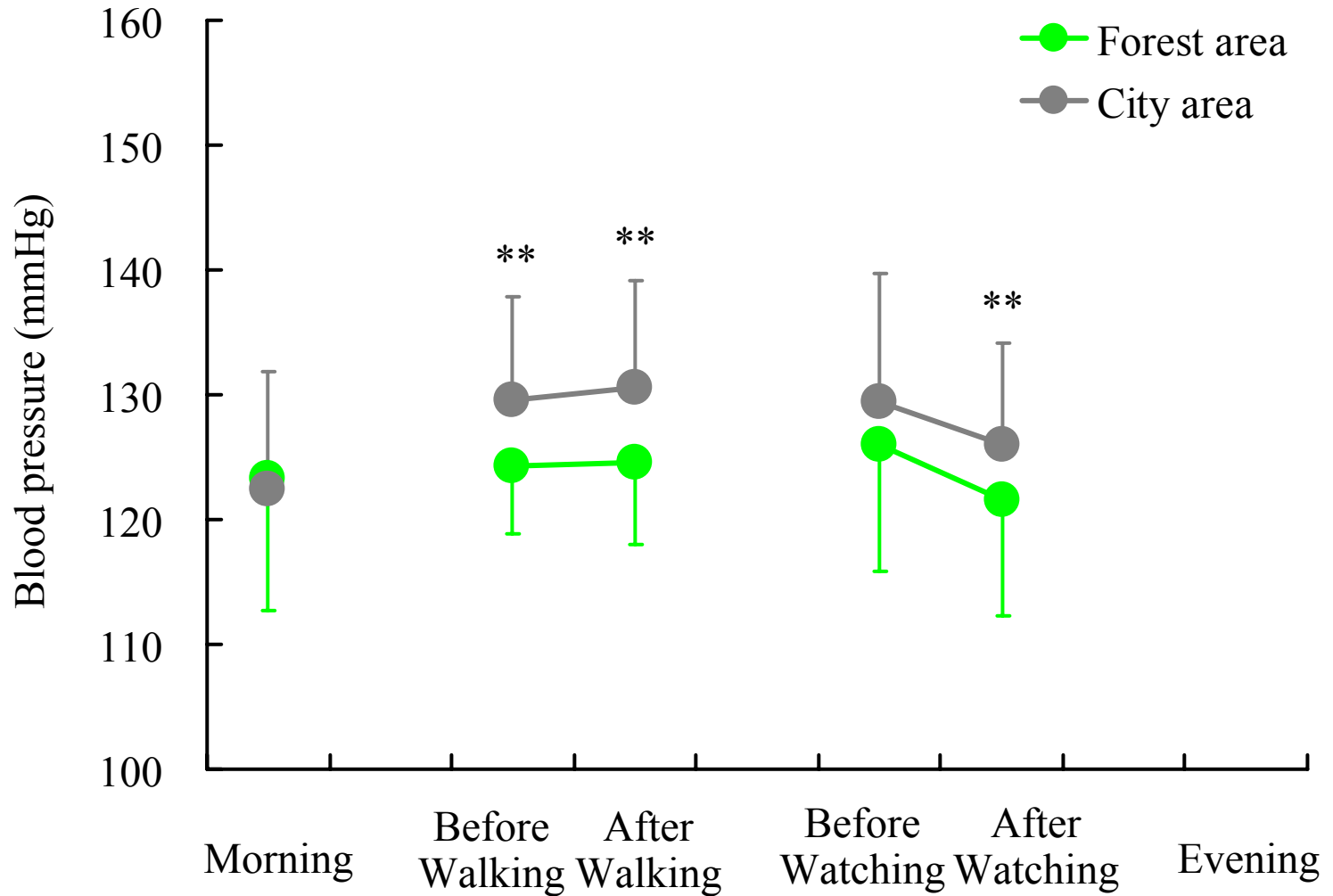
N=10-12, Mean \pm SD, **:p<0.01 by paired t-test

Pulse rate



N=12, Mean \pm SD, **:p<0.01 by paired t-test

Blood pressure



N=12, Mean \pm SD, **:p<0.01 by paired t-test

Dialogue and practice
between scientists, policy-makers, implementing agencies
and other stakeholders



Good Relationship between Forests and Human Health

Thank you for your attention