

Appendix 1 Details of data collection

The participants enrolled in the study underwent a posterior-anterior radiography of the non-dominant hand and wrist. The criteria for inclusion were healthy children aged 3 to 18 years old from kindergarten, primary school, middle school, and high school, willing to participate in this study, and consent by parents. The participants who had no written informed consent from parents, and were under 3 years old were excluded. All the radiography without motion artifact and developmental deformity (e.g., hyperdactylia, oligodactylia, macrodactylia, dactylion, etc.) were included in the study. The protocol was approved by the ethics committee of Beijing Jishuitan Hospital (Approval No. 201907-11).

The posterior-anterior radiography was acquired by a mobile X-ray unit with shielding (X-Bone, Dymena Healthcare, Shanghai) (*Figure S1*). The projection was centered at head of ossa metacarpale III. The projection distance was 70 cm. The parameters of projection were 60–70 kV, 0.20 mAs, 300 mm× 300 mm, 500 ms. The radiation dose of the skin was tested as 2.9–4.9 μ Gy.



Figure S1 A boy was receiving a posterior-anterior radiography of the left hand and wrist. This image is published with the patient's consent.