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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GA/T 1583-2019

**Forensic sciences - Technical specifications for skeletal age
evaluation of han population teenagers**

法庭科学 汉族青少年骨龄鉴定技术规程

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

Please note that some elements of this document may involve patents. The issuer of this document is not responsible for identifying these patents.

This standard was proposed by the National Criminal Technology Standardization Technical Committee.

This standard is under the jurisdiction of the National Criminal Technical Standardization Technical Committee Forensic Inspection Branch Technical Committee (SAC/TC 179/SC 6).

This standard was drafted. Ministry of Justice Institute of Forensic Science and Technology, Material Evidence Identification Center of Ministry of Public Security.

1 Scope

This standard specifies the principles, methods, and contents of bone age assessment for Han adolescents.

This standard applies to the identification of bone age of 12 to 20-year-old Han nationality adolescents. There is no prescribed method for the bone age identification of adolescents in ethnic minorities the following can also be identified with reference to this standard.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

TY/T 3001-2006 Wrist bone maturity and evaluation methods in Chinese adolescents and children.

3 Terms and definitions

The following terms and definitions apply to this document.

Bone age

A measure of skeletal developmental maturity in adolescents.

Bone age evaluation

The process of bone age is inferred from the radiographic characteristics of individual bones.

Living age

Individual age calculated from the date of birth.

Development stage

According to the characteristics of ossification center and epiphyseal morphology and density changes on X-ray images, the bone development process is divided into several stages.

Ossification center

In the process of bone development, the site of ossification first.

Epiphysis

The enlarged structure of the two ends of the bone formed by the secondary ossification center.

Epiphyseal plate

Plate-shaped hyaline cartilage between the secondary ossification center of the long bone crest and the metaphysis at the growth stage.

Articular surface

Opposite faces of the bones that make up the joint, named after the section to which it

relates.

Bone age evaluation standard Methods and content for assessing the maturity of an individual's bone development.

4 Identification principles

Because there are some differences in bone development speed in different parts of the human body, bone age identification should be based on the development and ?? Specific analysis and comprehensive judgment of the degree of closure.

There is a certain difference between the bone age identification and the actual age, and the opinions of bone age identification should fully consider this difference.

Physical examination is helpful to discover the influence of physical retardation or abnormality on the identification of bone age. It can be used as a reference for identification under conditions.

test.

5.1.1 Filming site

In order to fully reflect the overall bone development of the identified person, the photographed area should include the shoulders, elbows, and wrist joints of the upper limbs (including hands, straight to the end of the fingers) and clavicle sternal end, hips, knees, ankles and pelvis of the lower limbs. Except for the front and side radiographs of the elbow, knee and ankle joints, other it only needs to take orthophotos in all parts. Except for the clavicle sternal end, other parts can be taken unilaterally.

5.1.2 Film requirements

The X-ray film can clearly show the imaging characteristics of the ossification center and the epiphysis.

5.2 Bone development grade

According to the X-rays taken, according to the imaging characteristics of the ossification center and the epiphyseal development, the ossification centers or bones in 24 different parts of the subject were identified.

The development level of the salamander is graded. See Appendix A for specific grading methods.

5.3 Table lookup method

According to the grading results of ossification centers and epiphyseal closure in 24 different parts, compared with Appendix B, when the human bone development was identified, when the result is the same as or closest to the bone development grading standard table corresponding to the specific age in Appendix B, the specific year Age is the bone age of the identified person.

5.4 Appraisal opinion

Taking into account that there is still a certain difference between the bone age and the actual life age, the report of the evaluation of the bone age should be clear while reporting the results of the bone age identification.

Corresponding life age range.

6 Identification standards

The results of secondary ossification centers and epiphyseal development of 24 different parts of Han adolescent boys and girls of different age groups are comprehensive according to Appendix B.

Analysis and comprehensive judgment.

Note: According to the preliminary research results, when applying this standard for bone age identification, when the error is limited to " ± 1.0 " years of age, its accuracy can reach 90%, so it is recommended the age of life error reported when applying this standard for bone age identification is preferably 2 years old.

Appendix A

(Normative appendix) Bone Development Classification Standard Atlas A.1 Clavicle sternal end A.1.1 Level 1 the secondary ossification center has not yet appeared, and the metaphysis is slightly sunken.

A.1.2 Level 2

Secondary ossification centers began to appear, showing a strip-like slightly high-density shadow; the metaphysis was slightly full.

A.1.3 Level 3

The secondary ossification center partly covers the metaphysis, which is less than 1/2 of the metaphysis; the patellar cartilage space is wide and clear.

A.1.4 Level 4

Most of the secondary ossification centers covered the metaphysis, more than 1/2 of the