

# Congenital Hip Disease in Adults

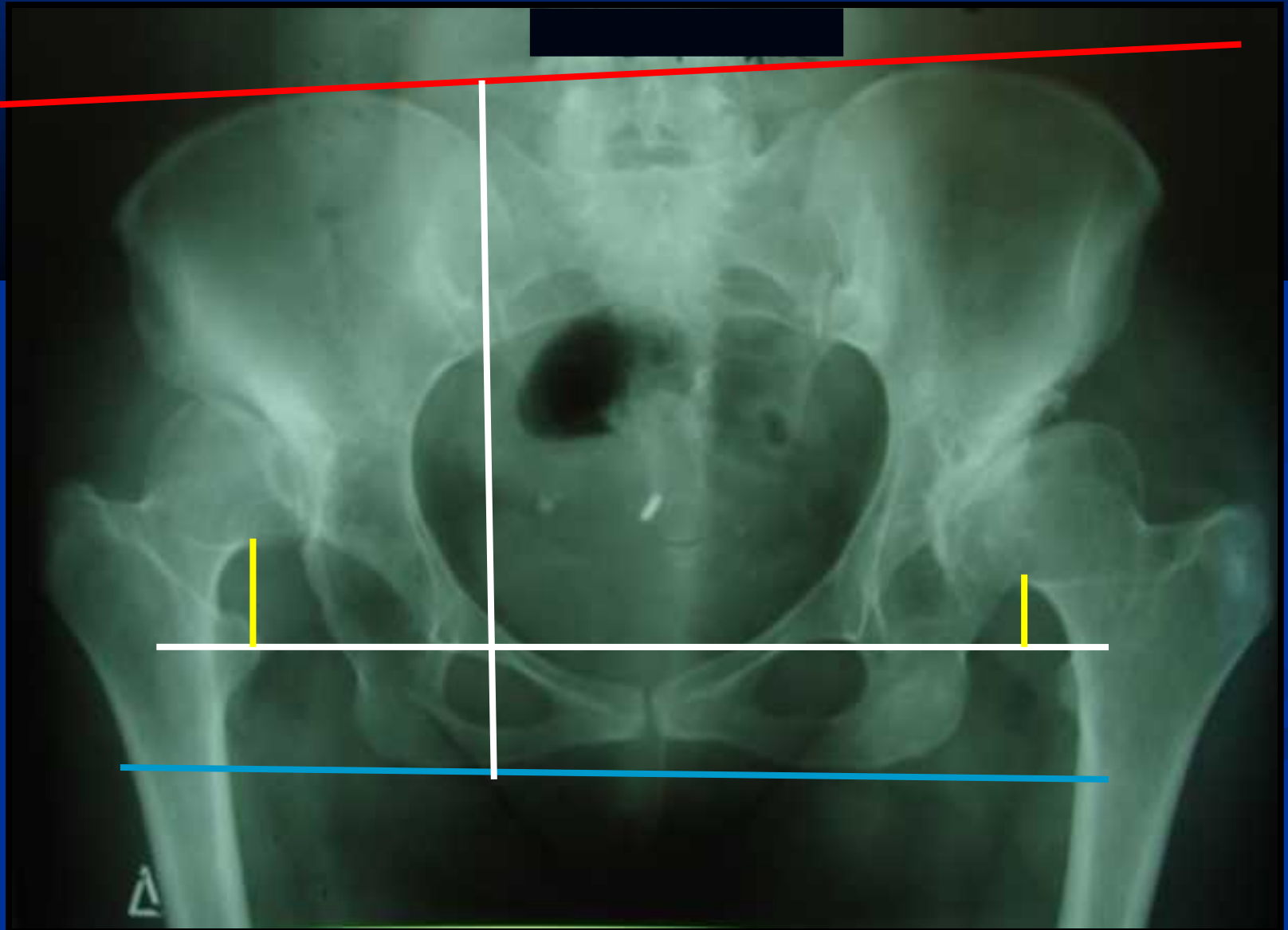
Reliability and Reproducibility  
of the Crowe and Hartofilakidis  
Classification Systems

For classification of CHD in adults the  
*Crowe et al.* and *Hartofilakidis et al.*  
systems are used most frequently

# Crowe Classification System

Evaluates the amount of  
femoral head  
subluxation  
in relation to  
the  
acetabular height

# Crowe Classification System



Type	Proximal displacement	Femoral head subluxation
Crowe I	<10%	<50%
Crowe II	10-15%	50-75%
Crowe III	15-20%	75-100%
Crowe IV	>20%	>100%

# Hartofilakidis Classification System

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Type A – Dysplasia

Type B – Low Dislocation

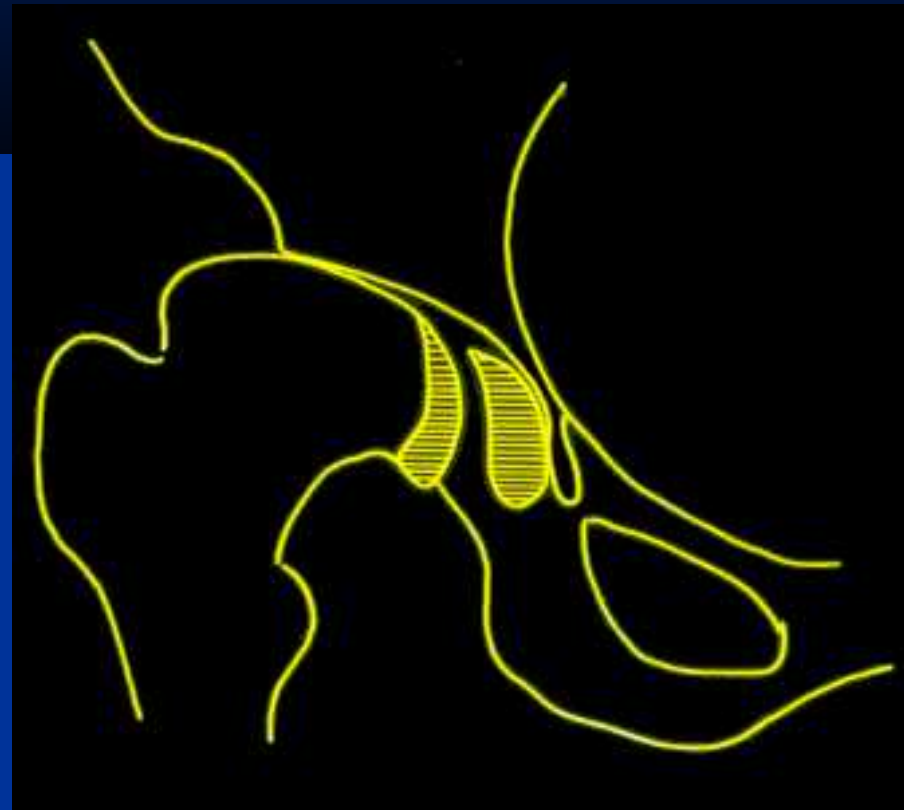
Type C – High Dislocation

# Hartofilakidis Classification System

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## Type A – Dysplasia

The femoral head is contained within the original acetabulum

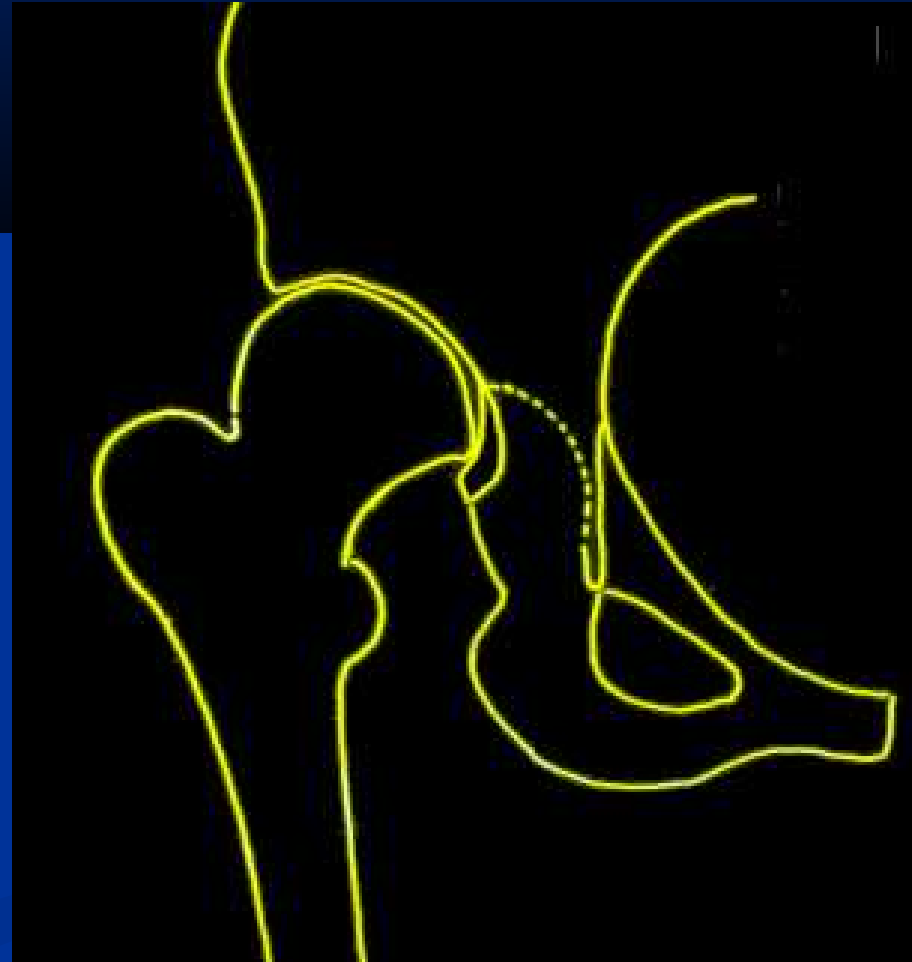


# Hartofilakidis Classification System

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## Type B – Low Dislocation

The femoral head articulates with a false acetabulum that partially covers the true acetabulum



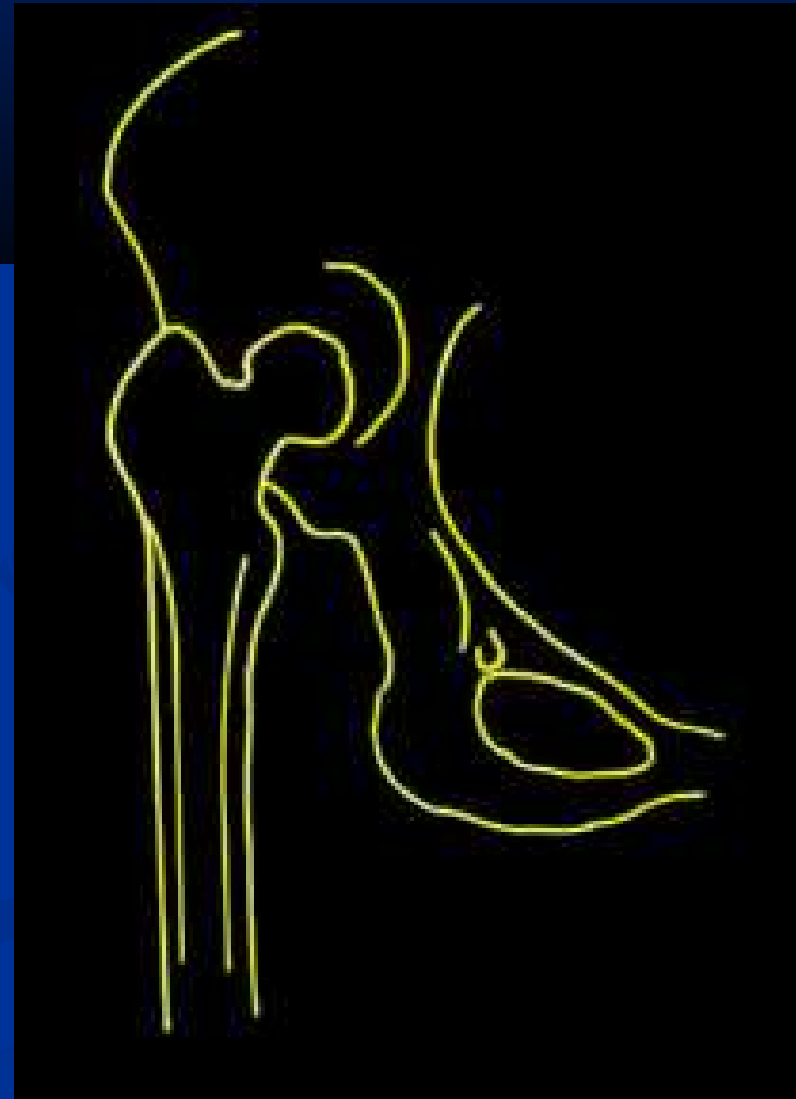


# Hartofilakidis Classification System

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## Type C – High Dislocation

The femoral head is migrated superiorly and posteriorly to the hypoplastic true acetabulum



Despite a widespread acceptance  
of the two classification systems  
a measure of their reliability  
has been reported only recently

Decking R et al. Reliability of the Crowe und Hartofilakidis  
classifications used in the assessment of the adult  
dysplastic hip. Skeletal Radiol. 2006 May;35(5):282-7.

Universities of Ulm, Mainz & Dresden

# Reported Study of Reliability

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- Three observers classified 62 hips with CHD according to the criteria of Crowe and Hartofilakidis
- A high inter- and intraobserver agreement of both systems was demonstrated
- In conclusion, both classification systems can be recommended to compare adult patients with CHD

We have initiated a comparative study before  
the recently reported one

In our study they are participating observers  
from different countries:

- J.B. Hodgkinson, Wrightington Hospital, UK
- A. Chougle, Manchester, UK
- A. Eskelinen, University of Helsinki, Finland
- G. Babis, University of Athens
- C. Yiannakopoulos, University of Athens

The purpose of our study is to determine the *inter- and intraobserver agreement* of the two classification systems by examining the radiographs of 210 hips from our personal digital database including different types of CHD

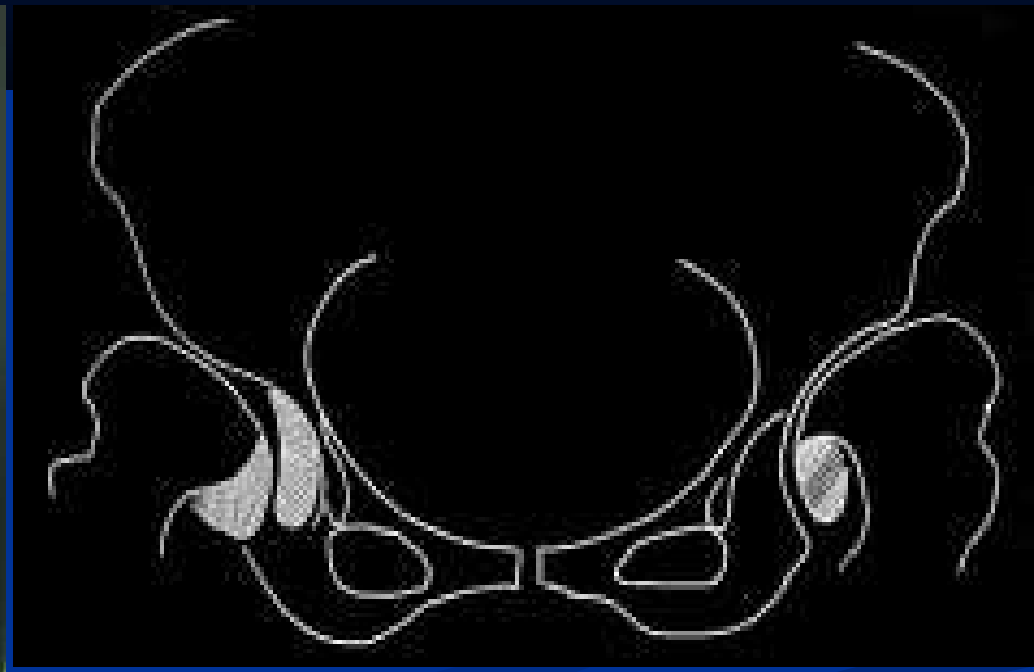
# Limitations of the Crowe classification system

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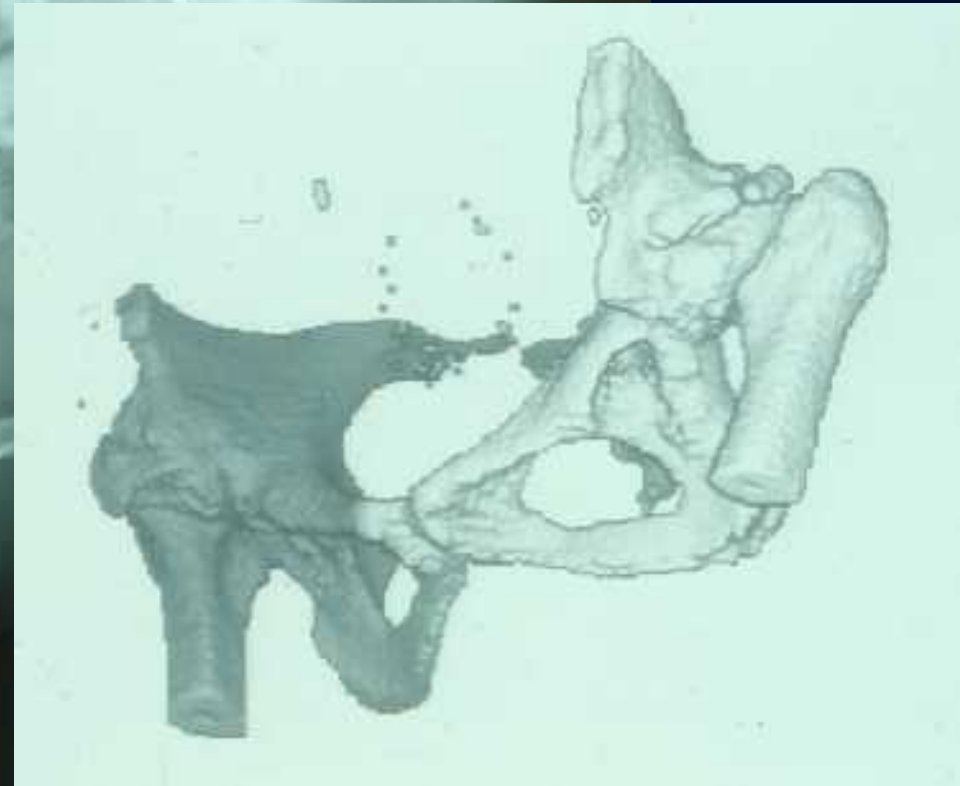
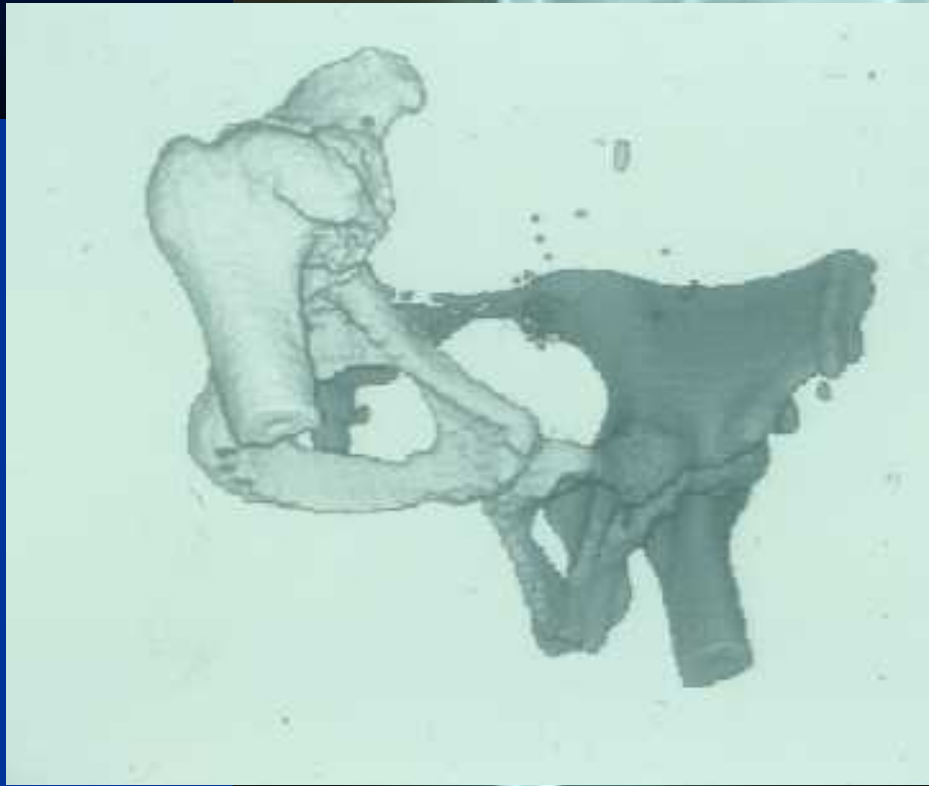
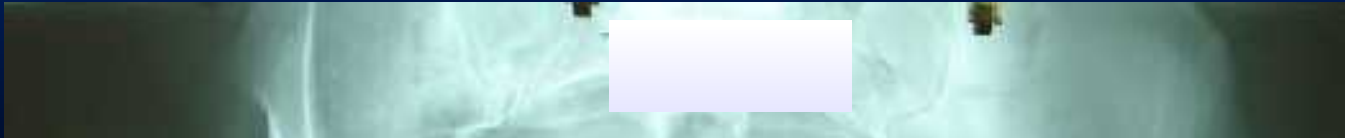
- Radiograph of the whole pelvis needed
- Location of the femoral-neck junction is not easily recognized
- No reference to the anatomy of the acetabulum

# Limitations of our classification system

- Difficulty in clarifying borderline cases



Borderline cases should  
be evaluated with 3D CT







## Conclusions:

- Both classification systems are reliable and in common use
- The Crowe classification is based on the degree of femoral head subluxation and is not informative on the pathoanatomy of the acetabulum
- Our classification system focuses on the pathoanatomy of hip joint in different CHD types in adults and facilitates treatment planning
- Thus, use of this classification is more appropriate in clinical practice