**Problem:**
Is computer-based instruction in pathology better or equivalent to the use of textbooks or printed atlases?

**Common Approaches of CBT Evaluation:**

Peer Review Based on Criteria Catalogues

User Interviews / Questionnaires

These methods are important, but suffer from limited reliability and validity since the outcome of the didactic process is not directly measured.

**Complementary Approach:**
Outcome oriented evaluation of a CBT program using the methods of a randomized controlled trial.

The CBT program evaluated by this method *MicroPat*, is an atlas of histopathology, developed by the authors and designed especially to support medical students during the course of pathology in the 3rd year. *MicroPat* is a hypermedia application with more than 1300 images and describing texts.
Method: Cross-Over Study

3rd Year Medical Students

Subject A
(Prostatic & Mamma Diseases)

N=36
Randomized Assignment
N=36
N=72

Subject B
(Prostatic & Mamma Diseases)

t = 50 min
t = 50 min

Performance Assessment (recognition of 3 unknown microscopical slides from A, 3 from B)

Questionnaire: self-rating of diagnostic certainty
(1 = “uncertain”, 2 = “quite certain”, 3 = “absolutely certain”)

Questions for assessment of “computer literacy”
Results

Outcome of Correct Diagnoses of Unknown Microscopical Slides.

Not Significant for $\alpha = 0.05$

Outcome of Correct Diagnoses of Unknown Microscopical Slides, Weighted by Certainty Score.

Significant for $\alpha = 0.05$

Other Findings:

- Students that rated themselves familiar with computers showed better results in both, book and computer learning.
- Lack of “computer literacy” had no influence on the relative outcome of computer learning vs. book learning.

Conclusion:

The outcome of the use of MicroPat was at least equivalent to the use of textbooks for preparing the pathology exam. MicroPat proved to be user-friendly enough not to affect the outcome of students with less computer experience. We consider the cross-over design suitable for comparing different didactic methodologies and suggest its use especially for the assessment of computer-based methods.