



International Union of Biochemistry  
and Molecular Biology



מכון ויצמן למדע  
WEIZMANN INSTITUTE OF SCIENCE

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# New Horizons in Biochemistry & Molecular Biology Education

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## **When meaningful and rote learning butt heads or an old threat of “test tyranny” in a new reality of Ukrainian medical education**

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**Background.** Over the past decades Ukrainian higher education has been changed dramatically due to the fundamental society transformation and challenges of the world globalization. Longstanding modernization of higher medical education has resulted in a combination of some elements of European Credit Transfer-Accumulation System with American testing. For 16 years, the National Testing Center has been conducting an objective external independent evaluation of the professional competence of future physicians, dentists and pharmacists. This licensed integrated exam "Step" includes one, two or three separate test exams depending on the qualification level - "Step 1" (3rd year), "Step 2" (6th year), "Step 3" (interns), "Step M" (junior Specialists) and "Step B" (Bachelors).

**Practice:** Biochemistry is a component of "Step 1" with eight other fundamental subjects. Significance of the testing in the learning process was increasing gradually. At the first step this strategy was used at the current sessions and its contribution to the overall students' assessment was minimal. At the second step the testing became a screening stage to midterm and final exams. At the next step it replaced the final exam and then the exams at the end of both terms of Biochemistry studying. This has reoriented the students' motivation to mechanically test memorizing.

**Evaluation methods:** evaluation of module examinations and testing, assessment of final examination and testing, analysis of "Step 1" exam, undergraduate students' questionnaire.

**Outcomes:** Biochemistry is getting more and more complicated for medical students as the methodological approaches of teaching contradict the education tasks and peculiarities of information perception by a new generation of undergraduate students. Understanding and perceiving large amounts of academic textual information seemed to be the most problematic task for the students. Traditional lectures and note taking of the main questions during the preparation to practical classes based on the rote learning are losing their efficiency and value. Testing is also based mostly on the rote learning and its domination in the learning process and evaluation of students' successfulness cannot motivate the undergraduates to deeper studying such a theoretical subject as biochemistry. This great disadvantage of the testing must be balanced by pedagogical strategies of meaningful learning through transformation of demonstrative lectures into interactive ones, replacement of opened tests for closed ones, enhancement of the role of situational problems (case-method) and introduction of mind mapping.

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