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Integration of basic-clinical sciences: an experience of Team-Based Learning (TBL) vs. traditional method among undergraduate dental students

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Background: In most dental schools, basic science course is delivered in the first two years, hence the relevance of it with clinical sciences remains unclear for undergraduate students. A range of educational methods was used to improve the learning capacity of undergraduate dental students and enhance the application of basic sciences in the clinical decision making.
The purpose of the present study was to evaluate the effectiveness of Team-Based Learning (TBL) sessions compared with lectures on dental students learning during the basic science course.
Method: A non-randomized controlled study was conducted in Tehran, Iran. A series on TBL sessions was designed to deliver Anatomy, Microbiology and Dental Material subjects. 237 students attended TBL sessions in addition to lectures in the school of dentistry, Tehran University of Medical Sciences. In the comparison group, 114 students attended traditional lecture course in the school of dentistry, Shahid Beheshti University of Medical Sciences. Students' feedback on their satisfaction on TBL sessions was collected using a 21-item questionnaire. For evaluating the change of knowledge between groups a pre- and post-test MCQ test was conducted. Data was analyzed using repeated measure (ANOVA) test in SPSS version 24.0.
Results: A significant difference between pre- and post test scores was found between lecture-based and team-based learning in Anatomy ($p = 0.047$) and Dental material ($p = 0.00$) courses. But enhancement of final score in Microbiology was not significant ($p = 0.26$). Students generally enjoyed and appreciated the TBL sessions and reported that the TBL classes were very useful in clarifying the application of the topics.
Conclusion: Application of TBL in the basic science course was successful in improvement of students' learning.

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Team-Based Learning in physical examination skills: a pilot study

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Background: Physical examination skills training for medical students consists of two parts: a clinical skills teacher first provides students with background knowledge on how to use these skills and on normal and possible pathological findings, students then practise physical examination skills. Students seem to adopt a relatively passive attitude during the first part of the training. In his dissertation, Duvivier suggests that a student based approach might be more suitable for teaching physical examination skills because it actively engages students. Team-Based Learning (TBL) is such an approach. A new teaching format, based on TBL principles, has been designed for the first part of the training. To investigate how students value this new teaching format, a pilot study was performed.
Method: The new teaching format consisted of 4 steps: 1. preparation at home; 2. individual readiness assurance test (IRAT); 3. team readiness assurance test (tRAT); 4. plenary team discussion. Students complete the training by practising physical examination skills.
All students at VUmc School of Medical Sciences, Amsterdam, Netherlands, who participated in this training at the start of their Master's program, were asked to provide written feedback by means of a tip and a top for each step of the training.
Data were analysed using open coding. Consensus on themes was achieved through iterative discussion amongst three members of the research team. Data were collected and analysed until sufficiency was reached.
Results: A total of 115 feedback forms were returned (100%) during the period June-September 2017. The main themes that were valued positively by students were: interaction, thinking for themselves, competition, testing prior knowledge and preparation. Tips concerned time management, completeness and structured overview of background material.
Using TBL principles in training physical examination skills is valued positively by students. They report that they prepare better and feel more actively engaged in the training. Future research will focus on how teachers value this training.
Conclusion: We conclude that TBL seems to actively engage students when training physical examination skills. TBL principles seem to stimulate active learning, prior to and during training physical examination skills.