Ludokrebs: playing with and learning energetic metabolism

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Introduction: The teaching-learning process of the contents and processes involving metabolism in the disciplines of biochemistry is complex and abstract, with high number of connected simultaneous reactions. One strategy (that has been) widely employed is the use of educational games (electronic or printed). In this work, a game called LudoKrebs, about ATP production, was developed and applied. It involves the glycolytic pathway, Krebs cycle and the electron transport chain.

Material and Methods: The game was to provide a better way to understanding the main steps of ATP production, as well as the perception of the reactions simultaneity and interdependence. It was developed as a puzzle and two boards integrated (one inside the other). The two boards are played simultaneously. On the board outside, the player moves the pawn in order to raise essential cards so that the pawn of the internal tray can be moved completing the glycolytic pathway and the Krebs cycle. Also, on the external board, the players get pieces for assembling the puzzle collaboratively. The game was applied in a biochemistry discipline part of a distance course of Biological Sciences, and subsequently an online survey with questions has been applied, addressing educational, affective and technical aspects.

Results and Discussion: The results indicated that the game contributed positively to learning, with good evaluations in all areas covered by the survey. It was also motivating and has contributed for the understanding of the dynamic processes, being the main reasons for this type of game design with simultaneous boards. **Conclusions:** The results of the building, implementation and evaluation of the game indicate the strategy as significant for learning as well as motivating, being an evidence for the development this kind of games for the theme to be continued.

Keyword: ludokrebs, game, biochemistry education

Sponsorship: FAPEMIG