Development of an Educational Application to Support Learning the Molecular Bases of Endocrine Physiology

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Studies point to a difficulty for students to visualize and understand the molecular structures that compose living organisms, certainly due to the fact that they are invisible and abstract. Thus, the construction of concepts, both biological and chemical, is closely related to the visual form in which students have contact during their learning. The benefits of using interactive applications in education have been discussed for a long time and have demonstrated that they can increase the cognitive capacity as well as facilitate fixation of information. In this work is presented an application to support learning the molecular basis of endocrine physiology. The application was developed in HTML and JAVA and made available online on the website http://www.biomol.net/aulas/endocrinomol/. The application presents a theoretical introductory section on the basic concepts of endocrine physiology and another of interaction with three-dimensional hormone molecules. The three-dimensional models are accompanied by questions to be answered by students. The application was used in classes of Biomedicine of Universidade Severino Sombra (USS) and was evaluated by the students through spontaneous comments and Likert five-point questionnaire with questions covering usability, structure of the application and its use as a learning tool. In the results from the evaluation, the application was approved with regards to its usability and structure, and it was shown that facilitated the understanding by students of the molecular structures of hormones and their interactions.