

Use of stories as a way to increase retention of clinical small animal theriogenology information

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Abstract

Stories have long been described as a primary mechanism whereby humans classify, store, and retrieve information. The objective of this study was to determine if stories could be used as a tool to increase retention of scientific information about two common clinical entities in small animal theriogenology. Fictional stories about veterinarians were written about either pyometra or cryptorchidism, with elements of conflict interwoven into the narrative. Half of the class received a story about pyometra and a study guide about cryptorchidism, and the other half of the class received the opposite. All students completed a multiple choice examination containing questions about pyometra and cryptorchidism one month after reading the story or completing the study guide. Overall return rate was 38.2%, with 14 students in the “pyometra story” group and 12 in the “cryptorchidism story” group. There was no difference between the groups in scores for the test as a whole, or for scores on the cryptorchidism or pyometra portions separately. Future work will entail investigation of students writing the narratives themselves as an active learning technique, which will encourage them to self-assess which information is of most value and encourage individualized patterns of storage and recovery of that information.

Keywords: Education, stories, small animal

Introduction

Learning is a complex process, involving comprehension of material and placement of that information into memory. Memory can be equated with encoding of information, which is storing of knowledge in an organized, meaningful fashion.¹ In education, we strive to help students understand concepts and memorize facts, and to structure that material in a way that permits its easy access when addressing clinical problems. The traditional curricular structure of several years of didactic lectures and laboratories followed by a year of supervised clinical work does not promote optimal learning in all students. The sheer volume of material presented to students in the first years of the veterinary curriculum is a deterrent to ready understanding, storage, and retrieval of that information in the clinical year.

Humans remember information best when it is organized and when it is meaningful to them.¹ In one study, some young children given a story as a series of pictures put them in sequence to create a story; those who did so understood and remembered the story better than those who did not.² When presented with a long narrative, adults select pertinent material according to their perception of the importance of facts within that narrative.^{3,4} Stories have been demonstrated to enhance memory of facts, especially if the story was emotionally charged.⁵⁻⁷

Students at the University of Minnesota College of Veterinary Medicine are presented with basic science information in the first year, an intensive reproductive biology course in the second year, and species-specific clinical theriogenology in their third year. Many students enter the third year small animal theriogenology course with limited memory of embryology, placentation, reproductive endocrinology and other relevant topics, and enter the fourth year professing little memory of clinical small animal theriogenology. This study was undertaken to test use of stories as a means of enhancing retention of clinical small animal theriogenology as students moved on to the clinical year.

Materials and methods

All students enrolled in the third year small animal theriogenology course were asked to participate at the end of the course offering. Half of the students were sent by email a story about the owner of a dog with pyometra and her experiences at a clinic with poor customer service, and a study guide with focused questions to answer about cryptorchidism. The other half of the students were sent by email a story about a shelter veterinarian being asked by an attractive co-worker not to castrate a cryptorchid dog that appeared to be purebred, and a study guide with focused questions to answer about pyometra. Approximately one month later, a multiple choice examination and a brief questionnaire were sent to all the students, to be completed anonymously. Scored results were compared using Student's t-test.

Results

The pyometra story and cryptorchidism study guide were sent to 34 students (pyo group) and the cryptorchidism story and pyometra study guide were sent to 33 students (crypt group). Fourteen (14.2%) and 12 (36.4%) responses were adequately completed, respectively. Four students read both or did not remember which they had read; their responses were not included.

The pyo group scored 5.2 ± 1.2 out of 8.0 on the multiple choice examination. The crypt group scored 5.3 ± 1.6 . The difference was not significant. The pyo group did slightly better on the pyometra questions than on the cryptorchidism questions on the examination, and the crypt group did slightly better on the cryptorchidism questions than on the pyometra questions; again, the difference was not significant. The majority of the students reported that they somewhat or very much enjoyed reviewing information within the story.

Discussion

This group of students showed expected retention of material one month after exposure without dedicated study time. Retention varied slightly but not significantly within the groups for that material embedded within a story versus that offered as a study guide with focused questions.

Work done in medicine, nursing, and dentistry suggests that stories are a more powerful medium when individuals write the stories themselves.⁸⁻¹⁰ This allows those individuals to create associations in their own memory by linking themes within the story. Similarly, it has been demonstrated that group work, in which individuals express their ideas and discuss their own and others' associations between facts, provides new structure for encoding and enhances understanding and retention.¹¹ Based on this information, a follow-up study will be performed in which groups of students write stories for each other as a means of creating review materials.

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