Introduction

For 20 years there has been a push to integrate the basic and clinical sciences in medical school curricula. Recently, student perceptions of integrated vs separate basic science curricula have been studied. This study aimed to examine student perceptions of integrated and separate learning resources. We surveyed students from two groups: the Basic Science (BC) group who used separate resources and the Integrated (INT) group who used integrated resources. The study was based on an experimental design developed by Kandelman et al. (2010) and was approved by the ethics board. Participants were recruited from the first-year medical student class. The INT and BC groups were similar in terms of gender, age, and academic background. All students had access to all resources, and some were allowed to write directly on the resources or take notes on a blank piece of paper which was supplied. All students were explained (INT group) (associated with the hypothalamic-pituitary-adrenal axis (HPA axis) in inflammatory pathways. Cortisol promotes higher blood sugar levels by inhibiting insulin release and stimulating gluconeogenesis. Cortisol stimulates proteolysis, providing amino acids and thus water retention, can chronically promote hypertension and weight gain.

Methods

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Questions Addressed

• Does the type of resource affect the type of notes taken by the students?
• Student notes taken during the study period were collected and reviewed by three of the investigators. These reviewers used a rating scale of 1 to 5, where 1 was for the least relevant and 5 was for the most relevant. The ratings were based on the concepts listed in Table 1. The averages of these ratings are listed in Table 1. To quantify the amount of information-evident in the notes, each set of rating scale ratings were calculated using the rubric shown in Figure 2a. Examples of integrated notes and notes that were not integrated are shown in Figures 2b and 2c.

Table 1

<table>
<thead>
<tr>
<th>Resources</th>
<th>Notes in margins</th>
<th>Outline/Outlines</th>
<th>Tables</th>
<th>Pathways</th>
<th>Drawings</th>
<th>Based on rubric</th>
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</thead>
<tbody>
<tr>
<td>BC</td>
<td>0.69</td>
<td>0.708</td>
<td>1.85</td>
<td>0.389</td>
<td>1.32</td>
<td>0.444</td>
</tr>
<tr>
<td>INT</td>
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<td>0.912</td>
<td>2.24</td>
<td>0.279</td>
<td>1.31</td>
<td>0.324</td>
</tr>
</tbody>
</table>

Student Perceptions of Integrated vs Separate Basic Science and Clinical Resources
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Do students have preferences for the type of learning resource?

Student perception notes show that students who took integrated notes had higher scores that those who took separate notes. This difference was significant. The results of the Diagnostic tests showed a similar trend although the difference between the groups did not reach significance. This suggests that integrated notes promote integrated learning and perhaps integrated thought processes.

Do students who take integrated notes retain knowledge better?

Test results on the Memory tests (M1 and M2) and Diagnostic tests (D1 and D2) of the 12 students with integrated note scores above 1.3 were compared with test results of the 21 students with scores below 1.3. Integrated group results were compared with test results of the 21 students with scores below 1.3. Integrated group results were compared with test results of the 21 students with scores below 1.3. The results of the Diagnostic tests showed a similar trend although the difference between the groups did not reach significance. This suggests that integrated notes promote integrated learning and perhaps integrated thought processes.

Conclusions

Our study suggests that the type of resources can influence the type of notes taken by students, and that the process of taking integrated notes can enhance learning and retention. It was a pilot study and is limited by its small sample size. Additional research is planned to confirm and expand on these results.

References
