

## Comparative study between third and sixth year of medical students regarding basic science in Al-Nahrain College of medicine

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### Abstract.

**Background:** The basic sciences have a fundamental role in the development of physicians, there is now an urgent need to facilitate and enhance student retention of basic science knowledge, concepts and principles delivered to the students in the preclinical years .**The aim of this research is to :**(1) Assess the level of integration of basic medical sciences in the clinical training of medical students.(2) Determine the opinion of medical students about basic medical science. **Subjects and Methods:** A descriptive Cross sectional study which carried out on one hundred students using consecutive non random sampling technique, there is no inclusion or exclusion criteria. The study was done in Baghdad and conducted during the period from May through July 2012 in Al-Nahrain College of medicine . to determine the integration of the basic medical sciences to the clinical training. Fifty students were participant from third year and the same numbers were from sixth year. The basic medical sciences information was collected by using questions in six main basic medical sciences branches, there were five core multiple choice questions in each branch, the questions were selected from United State Medical License Examination. The study also includes a questionnaire survey which contains ten questions. **Statistical analysis :**using soft ware MINITAB ,p value bellow 5 representation for significances.

**Result:** this study shows that the percentage of success in passing the test in third year was (54%) in comparison with (34%) in sixth year, the success rate in pathology was higher in six year in comparison with third year while in other branches was higher in third year. The students' test score categories in the sixth year reach to (60-69) while in third year was up to (80-89). The opinion of students' about integration of the basic medical sciences was (46%) for good in the third year while the sixth year choose (56%) for average, the third year choose (40%) for enough for the bulk of information in comparison with (46%) for overcrowded in sixth year. The two groups was agreed in chosen the same opinion in method of teaching was accepted, and for the interest it was limited, this results supported with a lot of international studies.

**Conclusions:** this study concluded on the important of integration and change teaching method are one of the tool which can help to reach the target .

**Key word;** basic medical science ,third year ,sixth year ,integration

### 1.Introduction

**1.1** The basic sciences will continue to have a fundamental role in the development of tomorrow physicians, there is now an urgent need to facilitate and enhance student retention of basic sciences knowledge, concepts and principles delivered to the students in the preclinical years. Flexner's report provided the main impetus for designing the undergraduate medical curriculum with a foundational pre-clinical phase, aimed primarily at providing medical students with the scientific basis (foundation) of medical education, followed by a clinical phase of education.<sup>[1]</sup>

**1.2** many problems based models have been adapted by integrating patient contact across all six years of study, an emphasis on basic sciences remains<sup>[2]</sup>

there is a general agreement that as teaching new information have implications on patient's care, the interrelations of the basic sciences and clinical training are readily apparent. There is a need to emphasize areas of sciences that can best be taught after some clinical training has been completed (for example, clinical pharmacology and therapeutics, clinical decision-making, or nutrition)<sup>[3]</sup>.

The purposes of basic sciences input into graduate medical education are to provide a rational basis for medical practice, development of critical thinking in physicians, fundamental knowledge of the human body is essential for clinical application.

**The aims of this study are:**

- (1) Assess the level of integration of basic medical sciences in the clinical training of medical students.
- (2) Determine the opinion of medical students about basic medical sciences.

**2. Methodology**

**2.1 study design :** A descriptive Cross sectional study which carried out on one hundred students using consecutive non random sampling technique, there is no inclusion or exclusion criteria.

**2.2 setting:** The study was done in Baghdad and conducted during

**2.3 duration:** the period from May through July 2012 in Al-Nahrain College of medicine to determine the integration of the basic medical sciences to the clinical training.

**2.3 sample:** Fifty students were participant from third year (29 males and 21 females) and the same numbers were from sixth year (29 males and 21 females).

**2.4 ethical consideration :** the study approved by ethical and scientific committee of the college. with complete confidentiality was guaranteed to the participants were no name contain .

**2.5 data collection :** The basic medical sciences information was collected by using questions in six main basic medical sciences branches which are (microbiology, medical biochemistry, pathology, anatomy, physiology and pharmacology)... There were five core multiple choice questions in each branch, the questions were selected from United State Medical License Examination (USMLE) by medical basic sciences teachers. The same questions given to both students groups and then each right answer are multiplied by 3.3333 to get final result score (100), for the test see appendix number one. The study also includes a questionnaire survey which contains ten questions about Basic medical sciences importance. Integration of basic medical sciences to the clinical training. The bulk of information in lectures of basic medical sciences. The methods of teaching. The students interest to the basic medical sciences. The students' attention span during lectures of basic medical sciences. How long reading basic sciences each day. The amount of lecture understanding during attending. And how much basic medical sciences information can student remember after a day of attending lecture. For the questionnaire see appendix number two.

The last question in questionnaire survey asking a student to rate basic medical branches in a rank according to their importance regarding his opinion. The data then collected and analyzed. The result of this question is analyzed by an equation done by researcher which is  $11 - X = Y$  (X) =rate of branch chosen by the students, (Y) = is the score number that gain summation of final score.

**2.6 The statistical analysis:** was done by using Microsoft Office Excel 2007 to find the percentage and use Minitab 18 to find the P value.

**3. Result and discussion:**

**3.1 'tomorrow doctors'** are in need to be armed with basic sciences, to increase their performance. in the past several decades, curriculum reforms with the primary aim of enhancing integration of the basic sciences with clinical medicine have been initiated in many medical schools, including schools in Asia and Europe . However the process of integration varied greatly among them and with significant differences in design structure, including: time allocation, sequencing, electives or compulsory courses, and pedagogy. <sup>[28]</sup>

**3.2:** As it seems that in figure (1) student results declined with increases in academic years ( $p=0.004$ ) and still in third year below accepted level , this may be due the information is not memorable, so the student lost the information with time, this is consistent with a study stated that there is loss of basic sciences knowledge among medical students . <sup>[29]</sup>

**3.3: Raising issue of integrations** we see that third year success rate is higher in all branches except pathology the sixth year is higher in this subject , may be due to that sixth year continue to read pathology and pharmacology because they need it in the clinical diagnosis and treatment, while the anatomy and medical biochemistry was the less successful rate because they never return to it figure (2). <sup>[29]</sup>

**3.4** Another very important fact shown in figure (3) ( $p=0.128$ ) that the decrease in two directions the quality and the quantity of the information in the sixth year in comparison with the third year we see the sixth year

never passed the (70) score while the third year reach to the (89) score, this may be due to the lost of information with time. Raising the point of ( life-long learning).<sup>[30]</sup>

**3.5:** Again we facing a problem in getting our target sixth year started to loss interest in BMS as it shown in figure (4), in spite of there is not statistical significant ( $p=0.202$ ), and if we know that its help them to make correct decision to be five star doctors , supported by study stated that some evidence indicates that basic sciences knowledge that relates causation to disease symptoms can improve diagnostic accuracy.<sup>[31]</sup>

**3.6:** Concerning students opinion about integration shown in figure (5) students in the third year expect a good integration in the future by chosen (46%) for good in comparison with the sixth year (10%) for good ( $p=0.001$ ) , on the contrast to what Jason observed, that students frequently see the basic sciences as having little relation to the goals of patient care that attracted many of them to careers in medicine in the first place<sup>[32][33]</sup>

**3.7:** Over crowded information is the picture in six year as in figure (6) Shows students agree in the point of more than need( $p=0.001$ ) . and in both third and six year it was (32%) in both groups , the sixth stage is reveals the real situation, maybe there is a need to revise the basic medical sciences curriculum and concentrate on core and most important information that the physician need them in his practical life to be given in lectures in order to make lectures more understandable and memorable to the students.

**3.8:** An agreement about the method of teaching as in figure (7) it was (52%) for third year and (50%) for sixth year students said accepted and then they chosen poor method (28%) in third year and (38%) in sixth year<sup>[23]</sup>

**3.9:** Limited interest is the picture concerning BMS (48%) for third year and (40%) for sixth year, might be due as some study stated due to the stiffness, boring and overcrowded of these branches as in figure (8) .<sup>[34]</sup>

**3.10:** table (1) shows that the pathology, physiology and pharmacology are the most important basic medical sciences branches to the physician in the opinion of the sixth year.Each department is responsible for some part of the education of a medical student, but no department should forget that it is no more than a part of the whole which is responsible for the education of a whole student and the fulfillment of the overall objective.”<sup>[50]</sup> . Wilkerson, Stevens and Krasne have already emphasized the importance of designing learning experiences for students based on sound pedagogy to enhance more effective integration of the basic sciences with clinical medicine.<sup>[51]</sup>

For medical education, the question is not only what to teach and what to leave out but also how to teach it.

**4. Conclusions and** Students in both year started to loss interest and forget what they taken in the college .pathology and pharmacology are exception.

Causes of this phenomena as student opinion are bulk information, poor memorial subject ,overcrowded material , more than needed ,poor teaching techniques , discounted during the last three year of the college .

## 5. Recommendations

There is a need to improve curriculum, teaching, learning methods and integration .

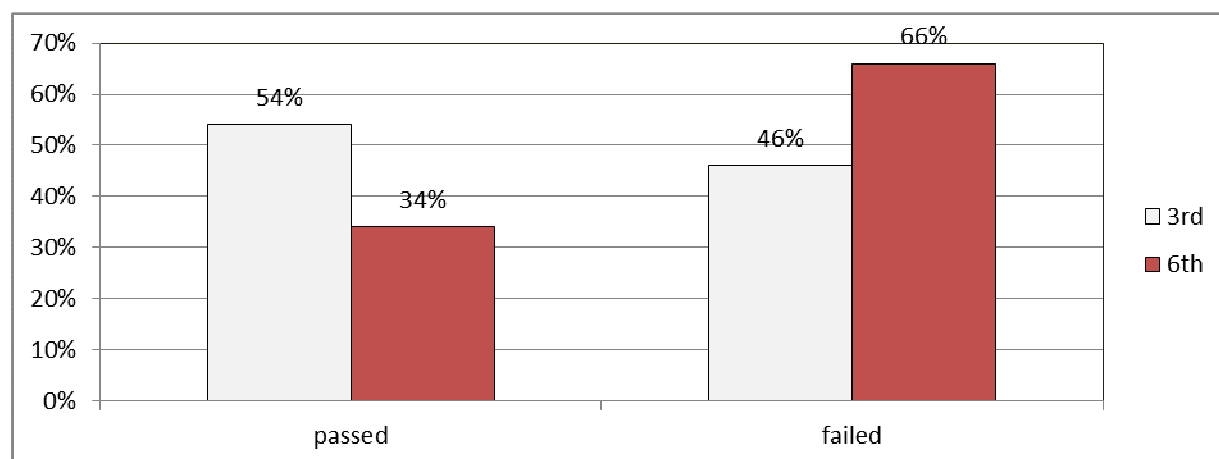
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P=0.004

Figure (1): percentage of successful and failed students in research test

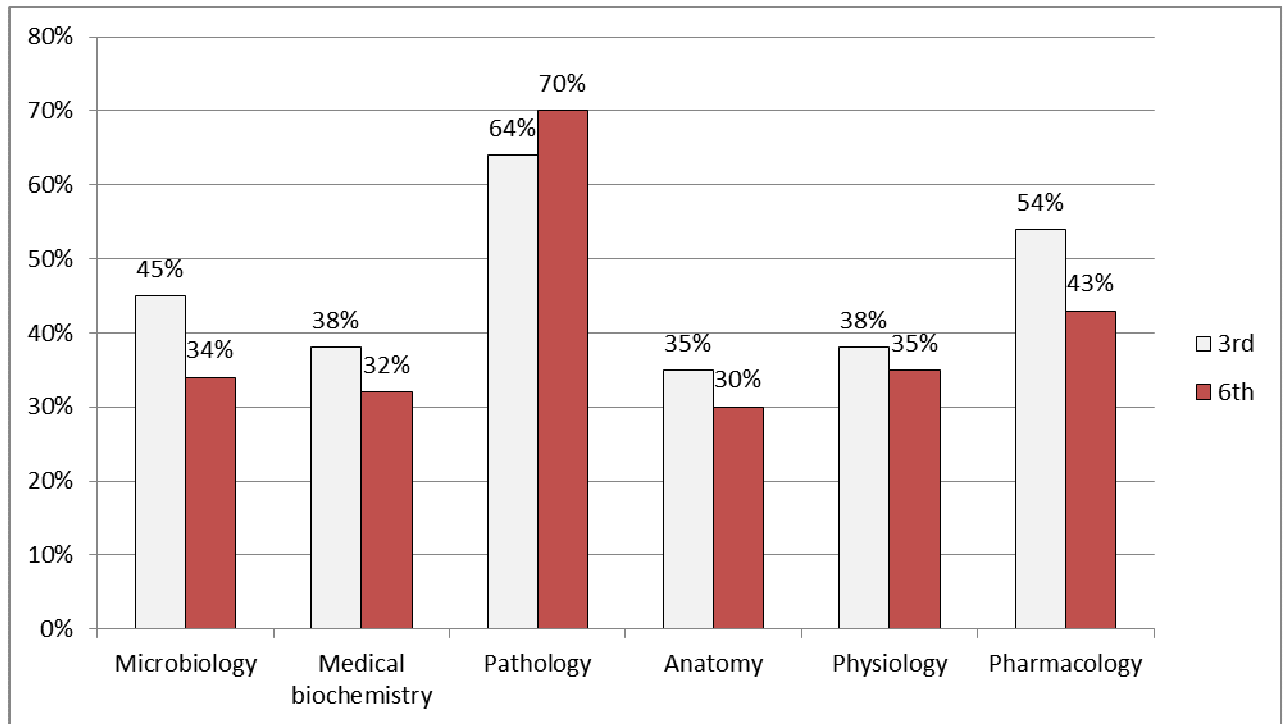
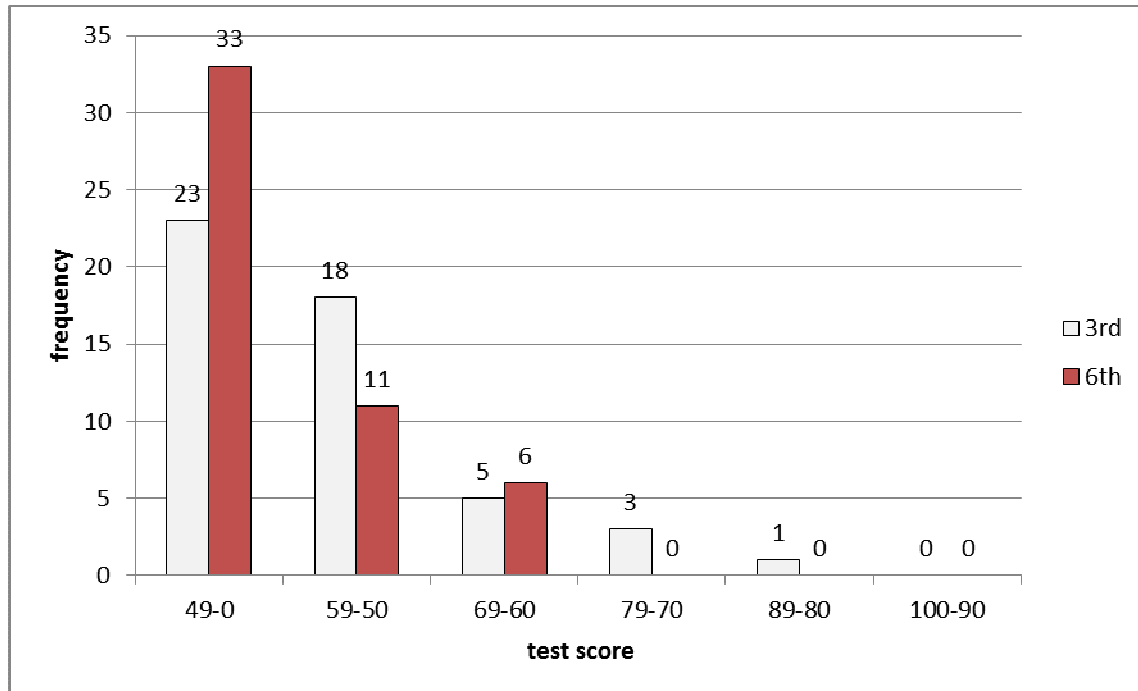
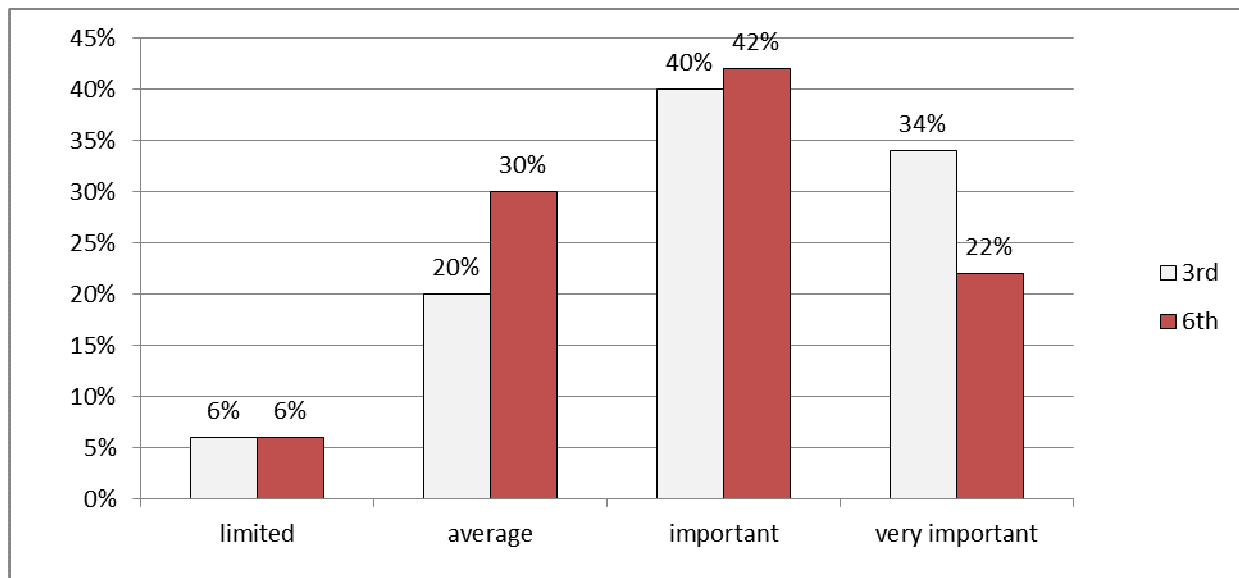


Figure (2): percentage of successful students in each basic medical branch



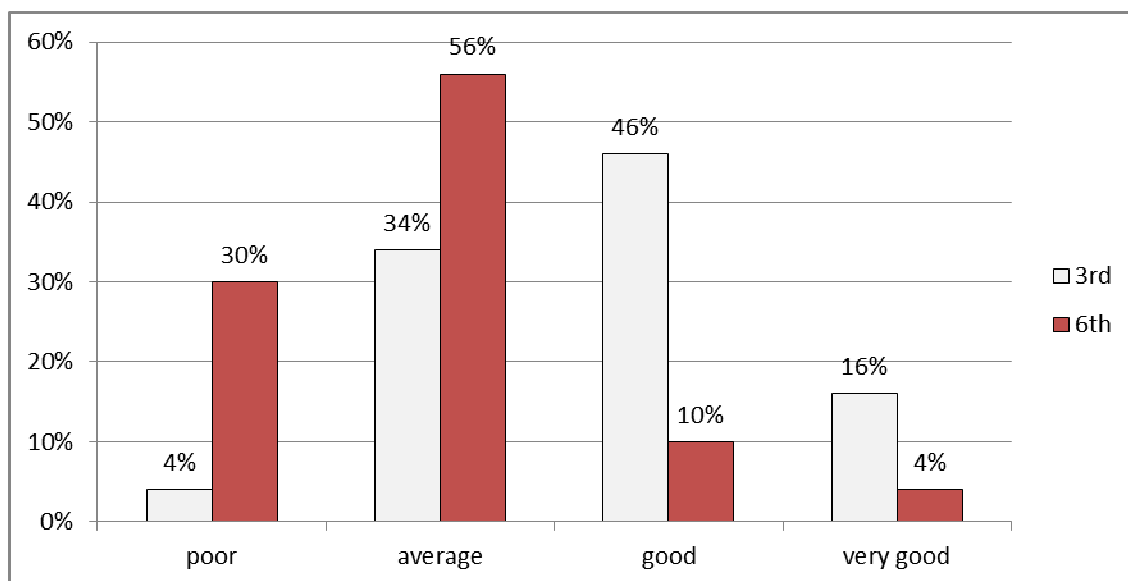
P=0.128

Figure (3): frequency of students according to the test score categories



P=0.202

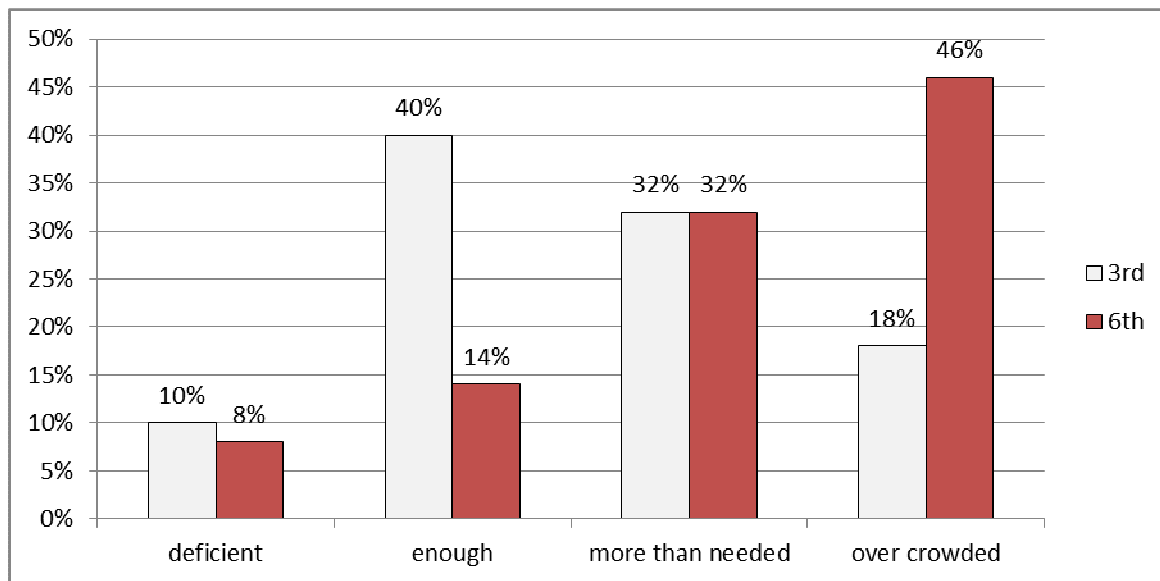
Figure (4): Students' opinion about the importance of basic medical sciences to the physician



P=0.001

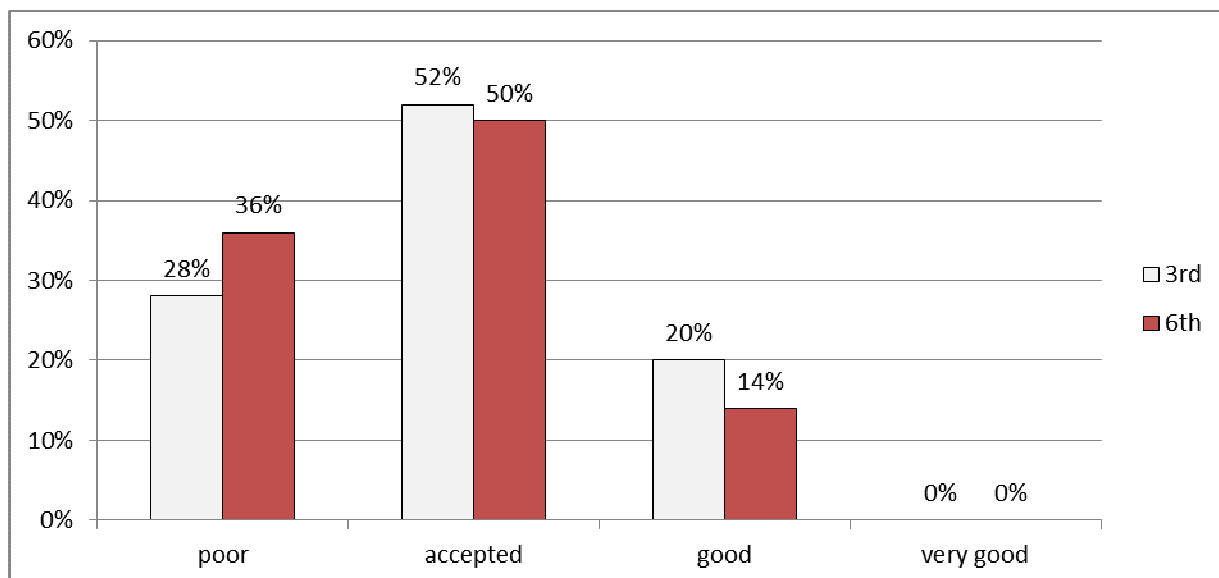
Figure (5): Students' opinion about the integration of basic medical sciences to clinical training





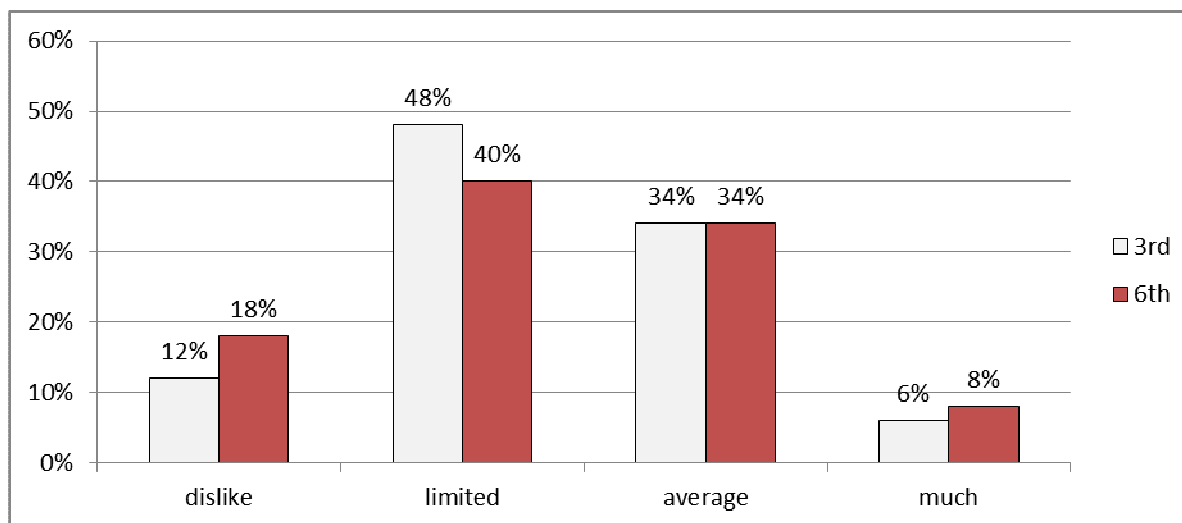
P=0.001

Figure (6): Students' opinion about the bulk of information in lectures of basic medical sciences



0.321

Figure (7): Students' opinion about the method of teaching of basic medical sciences



0.534

Figure (8): students' interest to the basic medical sciences

Table (1): Students' opinion about ranking of basic medical branches

Rank	3 <sup>rd</sup> year	Score	6 <sup>th</sup> year	Score
1	physiology	352	pathology	392
2	anatomy	345	physiology	388
3	pathology	316	pharmacology	355
4	microbiology	312	anatomy	331
5	histology	308	histology	242
6	pharmacology	294	parasitology	222
7	parasitology	233	biochemistry	218
8	biochemistry	209	microbiology	214
9	medical physics	202	medical physics	204
10	embryology	179	embryology	184

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