The MD Thesis Committee

Guidelines

The updated Regulations were approved for the TeAMS program on June 4th, 2007 and are binding in any case requiring clarification, or in any dispute.

The MD Thesis proposal must be approved prior to the end of the first semester of the 3rd year.
The final MD Thesis must be approved before finalizing the 4th year.

Introduction

1. The Dean will appoint an MD Thesis Committee and a Chairman for the Committee with the approval of the Faculty Council.

2. This manual is intended to assist students to comply with the obligation to complete and submit a thesis as part of the requirements necessary for obtaining an MD (Doctor of Medicine) degree.

3. This manual is also intended for mentors.

4. All guidelines, requirements and samples of forms required for preparing and writing the proposal and have been brought together in this manual. Students and mentors are kindly requested to read this manual carefully, to avoid any delays or misunderstandings in the course of writing the dissertation.

5. Students are asked to carry out these instructions accurately and meticulously. Mentors are responsible for assisting students with this task, by offering guidance and instructions for writing the dissertation. The Thesis Committee will do its best to assist students and mentors in every way required, while ensuring strict adherence to the regulations and guidelines, as specified in this manual.

6. These TeAMS program thesis were established as of June 2007.

Translated by: Technion-American Medical Program – administration office
Checked and approved by:  Prof. Yochai Adir, Chairman of the MD Thesis Committee.
                          Prof Andrew Levy, Vice Head of the Technion American Medical Students Program and MD Thesis representative

* This document may use masculine forms, but is intended for both genders.
Instructions for Writing an MD Thesis Proposal

The MD thesis proposal will be submitted in **English**, in 1 copy, clearly printed (preferably on a laser printer) **printed one sided**. Please use 12 point high. letters font Times New Roman, and **Word 7**. Also, you are required to submit the thesis proposal by email as PDF file to the coordinator of the committee. **The proposal must be saved in a file under the student’s ID number and name.**

The email of the coordinator of the committee is: **mdthesis@tx.technion.ac.il**

The committee’s recommendation is to submit the proposal until the month of May of the 3rd year (beginning with the class of 2018).

**General Objectives of the Thesis**

1. Acquisition of knowledge and experience in planning and conducting independent research, as well as the reading and analysis of data and results from medical literature.

2. Learning and practicing procedures for data processing and analysis by statistical methods. Experience in writing a scientific research summary as a comprehensive essay or articles.

**The subject of the proposal will be limited solely to the following fields:**

1. An experimental study conducted on a clinical or pre-clinical topic, basic science or medical-technological subject. The project can be an independent study or a defined part of a more extensive study.

2. Data processing and analysis of clinical data with the aim of finding an answer to an interesting problem in the field of medicine. Emphasis will be placed on the independent contribution of the graduate student in carrying out the project, and on its originality.

3. A clinical epidemiological study or one connected to medical science.

4. An in-depth review of the literature on a clinical or pre-clinical topic, using meta-analysis or similar statistical methods for a comparative analysis.

**Note:** Proposals of the type listed in sections 3 and 4 above only will be approved upon presentation of reliable statistical and epidemiological methodology, and a letter from a statistician, confirming the acceptability of the thesis proposal as submitted to the Committee.

Thesis students are entitled to four hours of free statistical consultation for the purpose of preparing a proposal without data processing. For the data processing stage, students have the following options:

a. The mentor and/or student will perform the statistical processing within the context of existing statistical units at different hospitals (if any).

b. The mentor and/or student will be referred to an external statistician, to be financed from the mentor’s resources (at the expense of research funds or research budgets at the Technion).
c. The mentor and/or student will be referred to existing statistical units at the Technion (Prof. Ayala Cohen - Industry and Management) or at Haifa University (Prof. David Faraggi), to be financed by the mentor.

**To the Mentor** - The mentor undertakes the expenses involved in carrying out the dissertation project - its writing and statistical analysis. The mentor undertakes the Helsinki approval/ for research which involves human or animal subjects whenever required.
Date for the submission of the proposal for a final dissertation:

The MD Thesis proposal should be submitted by May at the end of the 3rd year (beginning with class of 2018).

The final MD Thesis can only be submitted after the proposal is approved (including Helsinki) and must be submitted by March 1 of the 4th year of studies. The final thesis must be approved with all corrections and presented in bound form in order to graduate.

The thesis proposal will include the following:

a. A summary of up to 300 words (the summary must be structured, that is to say, it must include background, objectives, research groups and methods, a sentence or two on the development of the project, and conclusions).

b. Introduction and a review of the literature

c. Objectives of the thesis

d. Significance of the thesis

e. Manner of performing the project (subjects/ materials and methods)

f. The student’s practical role in the performance of the project

g. Bibliography according to:


h. Appendices: Sample of questionnaires, approval of the Helsinki Committee (if required), approval of a statistician (if required), etc.

The thesis proposal will be reviewed by the Thesis Committee, by a Committee member responsible for the particular field, and will be approved on condition that it is acceptable from the scientific point of view and is written in accordance with the above-mentioned guidelines. The Committee is authorized to request additional changes and clarifications from the student, prior to continuing the handling of the proposal.

The Student will write a research proposal under the guidance of a mentor, and will submit the proposal for approval to the Thesis Committee. The proposal must be written in a concise manner and be worded clearly.

The Committee member in charge of the particular field will appoint two external examiners and will send them the proposal, in order to obtain their agreement to serve as judges of the final dissertation.

Final approval of the proposal will only be given after replies have been received from the two examiners, who confirm that the project has been approved. Confirmation will be sent to the student, with a copy to the mentor.

Critical review of proposals will be limited to four weeks from the time of completion of the submission barring extraordinary extenuating circumstances.

NOTE HELSINKI APPROVAL (TOFES 7) must be submitted in order to obtain final approval for the proposal.
Excellence in Medicine and Biomedical Research based on Innovation and Bridging Medicine with Science and Technology
The first page of the proposal must be written according to the sample attached below (Appendix A) on page 17.

Please ensure that the mentor/s signed the first page of the proposal (signature + stamp).

<table>
<thead>
<tr>
<th>Basic sciences</th>
<th>(   )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical</td>
<td>(   )</td>
</tr>
<tr>
<td>Prospective</td>
<td>(   )</td>
</tr>
<tr>
<td>Retrospective</td>
<td>(   )</td>
</tr>
<tr>
<td>Meta-analysis</td>
<td>(   )</td>
</tr>
</tbody>
</table>

Nature of the experiment (Please indicate Yes or No)

- Is the experiment controlled? Yes  No
- Has the allocation to groups been made in a random fashion? Yes  No
- Is it a blinded experiment? Yes  No

Introduction (1-2 pages):
You must define the problem or subject of the project and indicate its nature and scope. Please collect relevant information from the literature by quoting important articles that relate to the subject under discussion.

Objectives of the thesis proposal (up to half a page):
Briefly explain what are your objectives / the questions that you intend to answer in the thesis. Please focus on the principal research questions.

Significance of the thesis proposal (up to half a page):
Briefly note the significance of the proposal from a clinical/scientific/practical aspect in Israel and/or the world.

Methods (1-2 pages long)

a. Research Population
Specify the population from which your subjects are to be selected: justify the sample size, how the subjects of the study are to be sampled, possible deviations, and the degree to which the sample is representative.

b. Variables
Define clearly the principal variables in the study and how they are to be examined or measured.

c. Research Methods
Briefly describe (with references) the laboratory tests or methods of measurement of the variables or the indices being examined.
d. **Study Process**

Briefly specify, in chronological order, the process of carrying out the project and confirm that the project is designed in a manner that directly relates to the objectives of the project, as they have been defined.

e. **Statistical Methods**

Specify the principal statistical methods used both for planning the research project, and for processing the data. It is recommended that you consult a professional statistician. A sentence such as: “The results will be analyzed using the SPSS program,” will not be considered sufficient detail with respect to the statistical analysis.

**The Practical Role of the Student in Practice**

Indicate precisely the active part of the student in conducting the project, and what part will be conducted by others.

**Bibliography**

List here only articles to which there is actual reference in the text of the proposition, and list them in order of their appearance. The articles should be cited according to the following instructions: The name/s of the all the author/s, the title of the article or publication, the title of the journal, the year and volume number, and the first and last pages.

Abbreviations: First letters of first names, without periods after each letter, will be placed after the family name, with abbreviated version of the journal’s title - as is customary in Index Medicus.

Do not indicate the number of the issue or the month of its publication.

For example:

Berman MF, Norton JA.
Reoperation for persistent & recurrent hyperparathyroidism.
Ann Surg 1985; 201:40-44

When citing from a book, indicate the following: the title of the book, the edition number (if it is not the first), the name of the researcher/s or editor/s, the year of publication, the publisher, and the page numbers in the book that pertain to the subject mentioned in the text. If a different author has written the chapter, give his name and the title of the chapter, before the title of the book.

For example:

Weinstein L, Swartz MN.
Pathologic properties of invading microorganisms.
In: Sodeman W, Sodeman PK, editors.
Pathologic physiology: mechanism of disease.
Appendices:

a. Attach a samples of every questionnaire, if such is planned to be used as the basis for collecting data.

b. Attach the confirmation of a statistician concerning the acceptability of the proposal, where the project is an epidemiological study or meta-analysis.

c. Attach the approval of the Helsinki Committee in the event of a clinical study, which requires such approval. (See the Appendix entitled “The Helsinki Declaration.”)

The Committee will only approve a proposal after the external examiners have approved it, and the student and mentor have received written approval to start carrying out the project.

In the event that a student is required to make amendments to the proposal, the student must attach an accompanying letter indicating precisely where modifications have been made.

Examiner of a proposal for a thesis / final dissertation

An examiner/judge of the proposition for a thesis and a final dissertation may be any doctor, scientist or authorized individual in the aforesaid fields of medicine or science, whom the Committee decides is compatible, in accordance with his experience and qualifications, as regards the subject of the thesis, with no restrictions as to his academic standing or with respect to his holding a position in a certain institution.

Function of the Examiner

a. The examiner reviews the proposal for the study and notifies the Committee of the acceptability of the proposal and his willingness to serve as an examiner for the final dissertation.

The examiner must indicate on a detailed evaluation form whether the proposal is acceptable from a scientific viewpoint, and whether it is written in a manner that meets the requirements. In the event that one of the examiners raises a basic and fundamental reservation concerning the proposal, the leading Committee member in that field will request the opinion of a third examiner.

Following the written approval of the proposal for the thesis, the student will commence his project under the direction of his mentor.

b. In the event that the two examiners reject the proposal, it will be brought up for discussion at a meeting of the Thesis Committee.

The Mentor

Anyone holding an academic position of lecturer or higher, a physician with a specialist degree and anyone with a doctorate (PhD or DSc) in one of the pre-clinical fields may serve as a mentor.

In the event that the mentor is from a U.S. University (no Israeli mentor is required as discussed with Prof Shultheiss) will be chosen by the student according to the M.D. Thesis guidelines.
The mentor will record alongside his name his precise academic title, that is: Dr., Prof./_____, (Associate Prof. or Prof.) This is very important - please be accurate!

A relative of the student is not eligible to be mentor for that student.

**Functions of the Mentor**

1. The mentor will suggest a subject for a thesis to the graduate student, according to the requirements of the Regulations.

   It is the mentor’s responsibility to ensure that the thesis proposal is written in accordance with the requirements of the Regulations and the accompanying instructions, and must also sign the first page as confirmation of his agreement to serve as mentor for the thesis.

2. The mentor will guide the student and supervise the performance of the thesis.

3. The mentor will guide the student in writing the dissertation and will supervise the experiment findings and data processing and analyses in accordance with the regulations.

4. Upon completion of the thesis and final submission of the dissertation to the Thesis Committee, the mentor will send his written evaluation concerning both the quality of the work and the performance of the student, on special evaluation forms that will be sent to him by the Committee.

5. The mentor will assist the graduate student to amend his thesis, if necessary, in accordance with the comments of the examiners and the Thesis Committee.

6. The mentor is encouraged to recommend the names of two examiners who are experts in the field of the proposed thesis. He must attach an accompanying letter to the text of the proposal, giving the names of the examiners. The committee will try to include at least one of these recommended person as examiners for the proposal.
The Dissertation

Submission of the Dissertation

Upon completion of the dissertation, the student will submit to the Committee, in coordination with the mentor, a draft of the dissertation in 1 copy, clearly printed (preferably by laser printer), so that printed one sided, with 12 high point letters in David font in Word 7, printed in accordance with the instructions specified in the chapter, “Instructions for Writing a Thesis”. The student is also required to submit the thesis proposal by email as PDF file to the coordinator of the committee.

Please note: the graduation ceremony to confer the “Doctor of Medicine” degrees is held once a year at the beginning of May. The dissertation must be submitted to the Thesis Committee no later than March 1st of the 4th year.

Only individuals who have completed all of their studies, and whose dissertations have been evaluated and graded, are entitled to receive a degree. An official letter that all requirements for the receiving of the MD degree have been completed can be obtained only by the individuals who have completed the thesis and class obligations.

When the dissertation is submitted to the Thesis Committee, a draft of the final dissertation will be sent to the mentor and the ONE examiner (TEAMS DISSERTION ONLY REQUIRES ONE EXAMINER AS HAS BEEN DONE IN THE PAST) who approved the original proposal, for their evaluation and grading, which should be made on the detailed evaluation form that will be attached to the dissertation. In special cases, the Committee may refer the evaluation of the dissertation to additional judges or to other individuals than those who approved the proposition.

The mentor will send the evaluation with an appropriate grade: one concerning the quality of the project and the draft of the dissertation that has been submitted (similar to the evaluation of the judges), and the second concerning the student’s performance in the course of the project.

The examiner and the mentor may accept and approve the draft of the dissertation as is (giving it an appropriate grade), may demand revisions or modifications, or may reject the draft by giving it a grade that is below 60%.

In the event that the examiner requested revisions and modifications, or the Thesis Committee finds that the dissertation is not written in accordance with the regulations and guidelines, the Committee is authorized to return the draft to the student and insist that it is amended accordingly. Upon receiving the revisions, the Committee will approve the final version, and then the student may submit the thesis for final printing.

The dissertation in its final form will be submitted in 1 copy. When you submit the thesis in its final form, please take care to comply with the guidelines with respect to editing, style, spelling and layout, as specified in the regulations.

Exemption from a Final Thesis

1. An exemption from an MD thesis will be given to a student who has successfully completed a Master’s degree (MA) or a doctorate (PhD or DSc) in one of the life sciences at a recognized
academic institution.

The Committee will recommend an exemption after examining the Master’s or Doctorate’s thesis submitted.

The student must provide the Committee with the following documents:

a. A transcript of his grades
b. Approval from the School for Graduate Studies
c. A bound copy of the research work (Master or Doctorate)
d. A letter of application for an exemption from MD thesis, has to be submitted to the TeAMS administrator, coordinator of the the MD Thesis Committee, and addressed to Chairman of the Thesis Committee.

The Chairman of the MD Thesis Committee, will examine the above-mentioned documents (a-d), and may approve the student’s application for an exemption from submitting a thesis.

2. **Exemption from writing a dissertation:** In accordance with the decision of the Committee, a student who has completed a thesis that has been published or **has definitely been accepted** as an article for publication in a scientific/medical publication (which appears on the Index Medicus list), may be given an exemption from submitting a thesis dissertation, provided that the student has authored the article and appears as the **first author on the article**.

This decision was agreed at a Medical Faculty Council meeting on **June 22, 2005**.

**Determination of the Grade of a Thesis**

The Committee will receive three evaluation forms for the project (one from the judge and two from the mentor), and will determine the final grade of the thesis on the basis of the three evaluations that are received.

The grade is to be calculated as follows: The weighting of the grade of the examiner will be 35%; the weighting of the mentor’s opinion of the dissertation will be 20% and the weighting of the students’ performance 10%.

In any case which the examiners and mentor deem to be exceptional, or where the gap between the evaluations of the judges seems unreasonable (i.e., over 20%), the Committee is authorized to transfer the dissertation for the evaluation of a third judge or to assign two Committee members to make a second evaluation. In such a case, the Committee will calculate the final grade in accordance with the additional evaluations and at its own discretion.

A passing grade will be 60%. In the event that the grade of the thesis is less than 60%, the Committee will notify the student and mentor and enable the student to correct the grade in one of two ways:

a. By improving and correcting in the present thesis, rewriting the dissertation and submitting it for re-evaluation.
b. By completing a new thesis.
c. The grade of the thesis will appear on the transcripts of the 4th academic year.
Exceptional Situations in the Student-Mentor Relationship

In the event that the student commences the thesis, but discontinues his activity and interrupts his ongoing relationship with the mentor for a period exceeding 6 months, without the mentor’s approval and without a reasonable explanation, the mentor will notify the Committee of this and he may be released from his position as mentor.

In the event that the student commences his thesis but finds it impossible to continue, as a result of lack of cooperation on the part of the mentor or his unavailability, the student will notify the Committee in writing. The Thesis Committee will examine the circumstances with the mentor and is authorized, in accordance with its conclusions, to allow the student to stop working with this mentor.
Instructions for Writing a Thesis (Dissertation)

General Project

The project must be written in English, Students must first write a draft of the dissertation for submission for evaluation to the Thesis Committee, in 1 copy. The draft must be typed in double-spacing on white paper of quarto size/ A4 size:

*The mentor/s must sign the document next to his/their printed name/s, and must stamp the document.*

The final dissertation will be sent to one judge and the mentor, for evaluation and grading.

Upon receiving the comments of the examiner, these will be sent to the student in order for him to revise his dissertation in accordance with the comments, and then to resubmit the dissertation, in its amended form.

In the event that the judges accept the draft as is, the Committee will notify the student that it has been approved without any changes, and the grade (score).

The final version of the work must be **printed and bound** in the customary manner (see detailed instructions below) and submitted to the Committee **in 1 copy, with the signature and stamp of the mentor/s next to his/their printed name/s.**

The first page of the dissertation must also appear on the cover. The cover must be of blue cardboard. Covers in other colors will not be accepted.

**The structure of the draft and final dissertation will be in accordance with the following rules:**

**Page One:** Title Page. [See example on page 18.]

The title page must be printed in a uniform manner, in accordance with the following instructions: The name of the institution must appear at the top of the page (“The Technion - Israel Institute of Technology”) and the name of the Faculty (“The Faculty of Medicine”).

**Page Two:** Acknowledgements and dedications (optional)

**Page Three:** Table of Contents

English Summary + 3 Key Words

Followed by: Introductory chapter

- A chapter on Materials and Methods
- A chapter on Results
- A chapter with a Discussion
- Bibliography

In the upper part of the first page, centered, (see page 18), the title of the project should appear. Further down the page, the phrase “Final thesis in fulfillment of part of the requirements for receipt of the degree of Doctor of Medicine” should appear.

Below that, the name of the student should appear, followed by the name of the mentor. At the bottom of the page, indicate: “Submitted to the Senate of the Technion - Israel Institute of Technology,” and
Excellence in Medicine and Biomedical Research based on Innovation and Bridging Medicine with Science and Technology

The student may dedicate the second page of the project to his family (in gratitude), his teachers, his instructors, etc. This page is not compulsory (Acknowledgements).

The third page must include a table of contents, including the chapter titles and the page numbers with which they begin. Each chapter must commence on a new page.

Introduction - In this chapter, the student will summarize the background literature and clearly define the aims of the dissertation. The review of the literature must be comprehensive, up-to-date and discerning. Names of authors, insofar as they appear in the body of the paper, should be written in the original foreign language. Articles with no connection between them should not be mentioned together, but rather the student must classify and arrange the literature material. The review of the literature must explain the issues that are open for discussion, which the student intends to address in his dissertation. The aim of the current study must appear at the end of the chapter, in a separate paragraph.

Material and Methods - This chapter must comprise a precise description of all methods and materials that have been used in the research. If accepted methods (including statistical methods) have been used, references that describe these methods in detail must be cited in the bibliography. Every change or improvement that has been made (if any) in relation to the original proposed methods as initially submitted must be mentioned.

In describing experiments on human beings, clearly indicate whether the methods used comply with the Helsinki Declaration. Indicate the number of observations made, the number of patients or animals that participated and their statistical significance. Do not use the real names of patients, their real initials or their real hospital numbers. Identify accurately all medications and chemicals used, including their generic names, the dosages and their means of administration. Specify the statistical methods used for the processing and analysis of the results.

Results - Present the research results here, using tables, graphs or illustrations. Avoid presenting the same results in more than one way (for example, using both a table and a graph). Present the results in the text in logical order and within the context of the objectives of the project. Random results not connected to the general line of the research project should not be included.

Tables - Prepare each table so that it has a short title and explanation, which make it easy to comprehend even without needing to refer to the text. Print the tables double-spaced and leave 3 cm margins along each side. Minimize the use of printable horizontal and vertical lines as far as possible.

If you have used any abbreviations in the table, give details of each one in the explanation below the table. If you have several tables that are connected, try to present them in a uniform manner. Try to organize the tables so that the variables appear at the top of the table, one following the other, and the values of a certain variable appear vertically below the appropriate heading. You must use the same abbreviations that appear in the text in the tables. Abbreviations that appear for the first time must be defined in the explanation to the table. Do not present the same data in both a table and a chart, unless the chart shows a particular relationship between the data. Do not present long tables of data from all the experiments, unless it is impossible to summarize the data in averages.

Graphic Drawings - To prepare drawings it is recommended to consult a professional graphic artist. Each drawing must be accompanied by an explanation, to be clearly written in the legend. The explanation to the drawing will use the same concepts as in the rest of the text. Number the drawings on the next line below, “Haifa, Israel” and the English dates (only month and year). The same page format must also appear on the cover of the dissertation.
consecutively, and also refer to them in the text. The explanation of the drawing must be typed in double-spacing. The explanation must be as concise as possible. The explanation of details of the experiment that are presented must appear in the text as well. The explanation must give details about all the abbreviations and symbols that appear in the drawing. If the same symbols appear in all the drawings, identify them in the first drawing.

**Discussion** - Begin the discussion with a brief summary of all the principal findings of the results. Use the discussion to explain the results, to indicate the relationships and implications of the results, and to discuss the significance of the results and their importance in light of the relevant literature. Cite, as far as possible, articles that summarize the material. View the discussion also as a critical assessment of the project. Discuss the pros and cons of the assumptions that you present. Analyze your results in a critical manner. If your results differ from those of other researchers, attempt to explain this. Bring supporting references for all the important citations that you quote.

As far as possible, avoid using references to a study that is still in progress or a study that is about to be carried out. Avoid abbreviations, as far as possible; use them only for lengthy concepts that tend to be repeated. Use standard abbreviations as far as possible and explain them the first time you use them. After you use an abbreviation for the first time, repeat the term in as consistent a manner as possible. At the end of the discussion, summarize the principal conclusions of the dissertation.

**Abstract**

The summary should be focused and comprehensible to someone who hasn't read the whole dissertation. It should include the aims of the study, the methods used to carry it out, the significant results and the final conclusions. The summary may also include the innovations and principal subjects of value in the study. Use complete sentences and avoid abbreviations. The length of the summary, should be not more than 400 words.

Reminder: You must list three key words at the end of the summary.

**Bibliography**

The bibliography must comprise all articles or details in books that directly pertain to the study and are cited in the body of the project. Only articles that the student has read in the original should be cited. Cite the minimum number of items necessary. A lengthy bibliography does not necessarily testify to the quality of the thesis or familiarity with the research. The bibliography should be numbered according to the order in which the articles are cited in the body of the dissertation. The titles of journals and periodicals should be written as follows: Name/s of author/s (all), title of the article or publication, title of the journal, year, volume number, first and last page numbers. (See page 5 concerning instructions for writing a proposition.)

**Abbreviations**

The initials of the first names of authors, without a period after each letter, should follow the family name. An abbreviation of the title of a journal that is accepted in the Index Medicus may be used. Do not quote the issue number or the month of its publication.
The Helsinki Declaration

The Helsinki Declaration consists of a set of rules which define and determine the ethical aspects of medical experiments using human subjects. The Declaration was approved by the World Medical Association, at a conference in Helsinki, the capital of Finland, in 1964. This significant document is the final summary of studies that continued over a period of several years. The document comprises recommendations to guide physicians who are engaged in medical research. The original text of the Helsinki Declaration was written in French.

Introduction

The duty of the physician is to promote and safeguard the health of the people. His knowledge and conscience are dedicated to the fulfillment of this duty. The Declaration of Geneva of the World Medical Association binds the physician with the words, “The health of my patient will be my first consideration,” and the International Code of Medical Ethics declares that, “A physician shall act only in the patient's interest when providing medical care which might have the effect of weakening the physical and mental condition of the patient.”

Since it is vital that the results of laboratory experiments be applied to human beings, for the sake of the advancement of science and the alleviation of human suffering, the World Medical Association has prepared the following recommendations for the guidance of physicians who are engaged in medical research. It must be emphasized that the standards as they have been formulated are intended to be used solely for the guidance of physicians throughout the world. As a result, physicians are not free of criminal, civil or ethical liability in accordance with the laws of their countries of residence.

In the field of medical research, a basic distinction must be made between medical research whose purpose is primarily to heal the sick, and medical research whose purpose is purely scientific, without any healing aspect in respect of the people to whom it is applied, but made only for the purpose of experimental research.

I. Basic Principles

1. Medical research must conform with the scientific and ethical principles that justify medical research, and must be based on laboratory experiments, experiments on animals or on other facts that have been scientifically determined.

2. Medical research involving human subjects should be conducted only by scientifically qualified persons and under the supervision of a clinically competent medical person.

3. Medical research cannot be justified, unless there is a reasonable relationship between the significance of its purpose and the risk likely to be incurred, according to the way the experiment has been devised.

4. Every medical research project involving human subjects should be preceded by careful assessment of the predictable risks and burdens, and these risks must be weighed against the foreseeable benefits that may ensue to the subject of the experiment, or to others.
5. The physician conducting medical research is ordered to observe particular caution, since in the course of his work a change in the personality of the person involved in the experiment may occur, as a result of the effects of drugs or the manner in which the experiment is conducted.
II. **Medical Research, Combined with Professional Medical Care**

1. When treating a person who is ill, the physician must be free to use new therapeutic means, if, in accordance with his judgment, these new means offer the prospect of saving a life, of restoring health or relieving suffering. If it is at all feasible, the physician must obtain the full consent of the patient, after giving him a complete explanation. In the event that the patient is legally incompetent to make decisions, the physician must also obtain the consent of his legal guardian, and, if the patient lacks physical competence, the granting of permission on the part of the legal guardian will take the place of permission given by the patient.

2. The physician may combine medical research with professional medical care, if the purpose is the attainment of new medical knowledge, only insofar as the medical research is justified in terms of its medical value to the patient.

III. **Medical Research Without Medical Care**

1. The physician must explain the nature of the study, its purpose and the risks it involves to the subject of the study.
   
   a. No medical research may be conducted on a person without first obtaining his clear consent, after he has been informed about the study. If he is legally incompetent, the consent of his legal guardian must be obtained.
   
   b. The person who is the subject of medical research must be physically, mentally and legally capable of making full use of his ability to make choices.
   
   c. In general, consent must be obtained in writing, however, responsibility for medical research always rests with the person who conducts the study, and never rests on the subject of the research, even though the subject has given his consent.

3. a. A researcher must respect the right of every research subject to safeguard his integrity, especially if the person is dependent in any way on the researcher.

   b. A person who is the subject of research, or his legal guardian, must be free to revoke any agreement made to conduct medical research, at any stage of the research.

   c. The researcher or team of researchers is ordered to cease any investigation if, in his/their judgment, the study is likely to cause injury to a subject of the study.
Sample First Page (Proposition for Thesis)

Proposition for a Thesis

Date: ___________________

Subject/ Title of the Thesis in English: ________________________________

Three (3) Key Words: __________________________

First Name: ________________

Family Name: ________________

Technion ID No.: ________________

Year Studies Completed: _______________________

Permanent Address: ________________

Signature: ________________

Name of Principal Mentor: ________________

Position: ________________

Institution: ________________

Faculty: ________________

Department: ________________

Signature of Mentor: ________________

Name of Second Mentor: ________________

Position: ________________

Institution: ________________

Faculty: ________________

Department: ________________

Signature of Mentor: ________________

Excellence in Medicine and Biomedical Research based on Innovation and Bridging Medicine with Science and Technology
THE EFFECT OF YOHIMBIN ON THE EMOTIONAL RESPONSE IN JUVENILE DIABETES

THESIS FOR THE FULFILLMENT OF PART OF THE REQUIREMENTS FOR RECEIPT OF THE DEGREE OF DOCTOR OF MEDICINE

By the student:

First Name in English: _______________  Family Name in English: _______________

Supervised by: ____________________

Submitted to the Senate at the Technion - the Israel Institute of Technology
Haifa, Israel

___________ (Month) ______(Year)
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