A Comprehensive Guide to the Human Muscular System

An Honors Thesis (HONORS 499)

by

Maria Wilkinson

Thesis Advisor
Dr. John Wilkins

Ball State University
Muncie, IN
December 2009
May 2010
Abstract

One of the difficulties of studying human anatomy is that the visual appearances of anatomical structures vary from person to person. Because of these variations, the instructors of Anatomy 201 at Ball State University incorporate information from a wide variety of sources in hopes that students will gain the ability to recognize structures of the body regardless of whose body they are examining. With all of these visuals coming from different sources, it can be a daunting task to organize the information in a manner that is cohesive enough to study and learn. This book combines all the visuals Anatomy 201 students are required to know including all pertinent models, textbook images from Saladin’s *Human Anatomy*, and images from Revealed® 2.0, all being clearly labeled, for the human muscular system. This book will be available for use by study room attendants, teaching assistants, and students as a reference manual to aid those who accept the challenge of mastering the human muscular system.
Acknowledgements

- I would like to thank Dr. John Wilkins for his time and guidance throughout the entire process of completing this thesis. Without his support and timely assistance, I would not have been able to complete this creative project.

- I would also like to thank Dr. James Ruebel for his guidance and encouragement.

- Finally, I would like to thank Stacey Sudhoff and Kyle Affolder for their advice and technical support.
References


Author’s Statement

A Comprehensive Guide to the Human Muscular System

In order to be successful in the medical field, one must have an advanced knowledge of the human anatomy. Ball State University offers a semester long course to aid in learning this anatomy, Anatomy 201. Students enrolled in Anatomy 201 are responsible for learning and mastering the skeletal, muscular, nervous, cardiovascular, circulatory, respiratory, urinary, digestive, and reproductive systems as well as the organs of the special senses; taste, smell, sight, and hearing, in only about sixteen weeks. In addition to merely knowing the anatomical terms, students must be able to apply their knowledge to different pictures and models. Since the human anatomy varies from person to person, it can be expected that students would need to know the parts in any diagram or model. Students are required to know the anatomy of the pictures in their textbook, a computerized dissection program called Revealed® 2.0, and the plastic models provided in the Anatomy 201 Lab. This may seem like a daunting task to some, and many students do not make it through the course. To help make this process easier for students, teaching assistants, and staff, two students before me compiled a comprehensive guide including pictures of models, textbook pictures, and pictures from the computerized dissection to all the body systems except for the muscular system and the skeletal system. My goal with this project was to continue their work by completing a comprehensive guide to the muscular system including all 99 muscle groups anatomy students need to know and the muscle histology that accompany the muscles.
Upon graduation at Ball State University, I plan to attend nursing school to obtain my Bachelors of Science in Nursing. I hope to be a registered nurse working in the emergency room. Because of my interest in the medical field, I also have an interest in the human body – how it works and which parts comprise it. In doing this project, I was able to remind myself of the muscles I learned a year ago when I took Anatomy 201. I will also be able to use this guide in the future whenever I need refreshed on the muscles of the human body.

Maria C. Wilkinson
A Comprehensive Guide to the Human Muscular System

An Honors Thesis (HONRS 499)

Maria C. Wilkinson

Thesis Advisor: Dr. John Wilkins

Ball State University
Muncie, Indiana

December 2009

Graduation: May 2010
Abstract

One of the difficulties of studying human anatomy is that the visual appearance of anatomical structures vary from person to person. Because of these variations, the instructors of Anatomy 201 at Ball State University incorporate information from a wide variety of sources in hopes that students will gain the ability to recognize structures of the body regardless of whose body they are examining. With all of these visuals coming from different sources, it can be a daunting task to organize the information in a manner that is cohesive enough to study and learn. This book combines all the visuals Anatomy 201 students are required to know including all pertinent models, textbook images from Saladin's *Human Anatomy*, and images from Revealed® 2.0, all being clearly labeled, for the human muscular system. This book will be available for use by study room attendants, teaching assistants, and students as a reference manual to aid those who accept the challenge of mastering the human muscular system.
Acknowledgements

I would like to thank Dr. John Wilkins for his time and guidance throughout the entire process of completing this thesis. Without his support and timely assistance, I would not have been able to complete this creative project.

I would also like to thank Dr. James Ruebel for his guidance and encouragement.

Finally, I would like to thank Stacey Sudhoff and Kyle Affolder for their advice and technical support.
# Table of Contents

- Cover Page ................................................................. i
- Abstract ...................................................................... iii
- Acknowledgements ................................................... v
- Table of Contents ...................................................... vii

## Muscle Histology

- Muscles of the Head, Neck, and Thorax .......................... 3
- Muscles of the Upper Extremity .................................... 17
- Muscles of the Lower Extremity ................................... 29
Muscle Histology
A-Periosteum  
B-Tendon  
C-Fascia  
D-Epimysium  
E-Fascicle  
F-Perimysium  
G-Muscle Fiber  
H-Endomysium
Muscles of the Head, Neck, and Thorax
A-Epicranius
   1. Occipitalis
   2. Frontalis
B-Obicularis Oculi
C-Buccinator
D-Obicularis Oris
E-Zygomaticus Major & Minor
F-Platysma

A Comprehensive Guide to the Human Muscular System
A-Epicranius
1. Occipitalis
2. Frontalis
B-Obicularis Oculi
C-Buccinator
D-Obicularis Oris
E-Zygomaticus Major & Minor
F-Platysma
A-Lateral Pterygoid
B-Medial Pterygoid
C-Temporalis
D-Masseter
A-Diagastric
B-Stylohyoid
C-Mylohyoid
D-Sternohyoid
E-Omohyoid
F-Thyrohyoid
G-Sternothyroid
H-Sternocleidomastoid
A-Trapezius
B-Rhomboideus minor
C-Rhomboideus major
D-Levator Scapulae
E-Splenius Capitis
F-Latissimus Dorsi
G-Erector Spinae
A- Trapezius
B- Rhomboideus minor
C- Rhomboideus major
D- Levator Scapulae
E- Splenius Capitis
F- Latissimus Dorsi
G- Erector Spinae
A-Diaphragm
B-External Intercostals
C-Internal Intercostals
A-Diaphragm
B-External Intercostals
C-Internal Intercostals
A-Pectoralis Major
B-Pectoralis Minor
C-Serratus Anterior
A-Rectus Abdominis  
B-External Oblique  
C-Internal Oblique  
D-Transversus Abdominis
Muscles of the Upper Extremity
A-Deltiod
B-Supraspinatus
C-Infraspinatus
D-Teres Minor
E-Teres Major
F-Subscapularis

Spine of Scapula
A-Coracobrachialis
B-Biceps Brachii
   1. short head
   2. long head
C-Brachialis
D-Triceps Brachii
   1. long head
   2. lateral head
   3. medial head
A - Coracobrachialis
B - Biceps Brachii
  1. short head
  2. long head
C - Brachialis
D - Triceps Brachii
  1. long head
  2. lateral head
  3. medial head
A-Coracobrachialis

B-Biceps Brachii
1. short head
2. long head

C-Brachialis

D-Triceps Brachii
1. long head
2. lateral head
3. medial head
A - Anconeus
B - Brachioradialis
C - Extensor Carpi Radialis Longus
D - Extensor Carpi Radialis Brevis
E - Supinator
F - Abductor Pollicis Longus
G - Extensor Pollicis Brevis
H - Extensor Digitorum
I - Extensor Digiti Minimi
J - Extensor Carpi Ulnaris
A-Anconeus  
B-Brachioradialis  
C-Extensor Carpi Radialis Longus  
D-Extensor Carpi Radialis Brevis  
E-Supinator  
F-Abductor Pollicis Longus  
G-Extensor Pollicis Brevis  
H-Extensor Digitorum  
J-Extensor Digiti Minimi  
K-Extensor Carpi Ulnaris
A-Flexor Carpi Ulnaris
B-Flexor Digitorum Profundus
C-Flexor Digitorum Superficialis
D-Palmaris Longus
E-Flexor Carpi Radialis
F-Pronator Teres
A-Flexor Carpi Ulnaris
B-Flexor Digitorum Profundus
C-Flexor Digitorum Superficialis
D-Palmaris Longus
E-Flexor Carpi Radialis
F-Pronator Teres
A-Flexor Carpi Ulnaris
B-Flexor Digitorum Profundus
C-Flexor Digitorum Superficialis
D-Palmâris Longus
E-Flexor Carpi Radialis
F-Pronator Teres
Muscles of the Lower Extremity
A-Gluteus Maximus
B-Gluteus Medius
C-Tensor Fascia Latae
D-Piriformis
Hamstrings
A-Biceps Femoris
1. long head
2. short head
B-Semitendinosus
C-Semimembranosus
Hamstrings
A-Biceps Femoris
  1. long head
  2. short head
B-Semitendinosus
C-Semimembranosus
A-Iliopsoas
B-Sartorius
C-Quadriceps Femoris
  1. vastus medialis
  2. rectus femoris
  3. vastus lateralis
  4. vastus intermedius
A-Gastrocnemius
B-Soleus
C-Popliteus
D-Tibialis Posterior
E-Flexor Hallucis Longus
F-Flexor Digitorum Longus
A-Gastrocnemius
B-Soleus
C-Popliteus
D-Tibialis Posterior
E-Flexor Hallicis Longus
F-Flexor Digitorum Longus
E-Tibialis Anterior
F-Extensor Hallicis Longus
G-Extensor Digitorum Longus
H-Fibularis Longus
(Peroneus Longus)
I-Fibularis Brevis
(Peroneus Brevis)