

Description

Appendix 2 provides a complete visual and verbal accounting of the **synergists** and **antagonists** for all muscles and actions of the body. It displays graphic representations of the information in Summary Tables S-1 to S-3 in MMM Chapter 7 (pages 204-209). Ideal for visual learners, it encourages the reader to observe how each muscle's fiber arrangement contributes to the action being studied.

Synergists



Left side of card shows all muscles that contribute to an action.

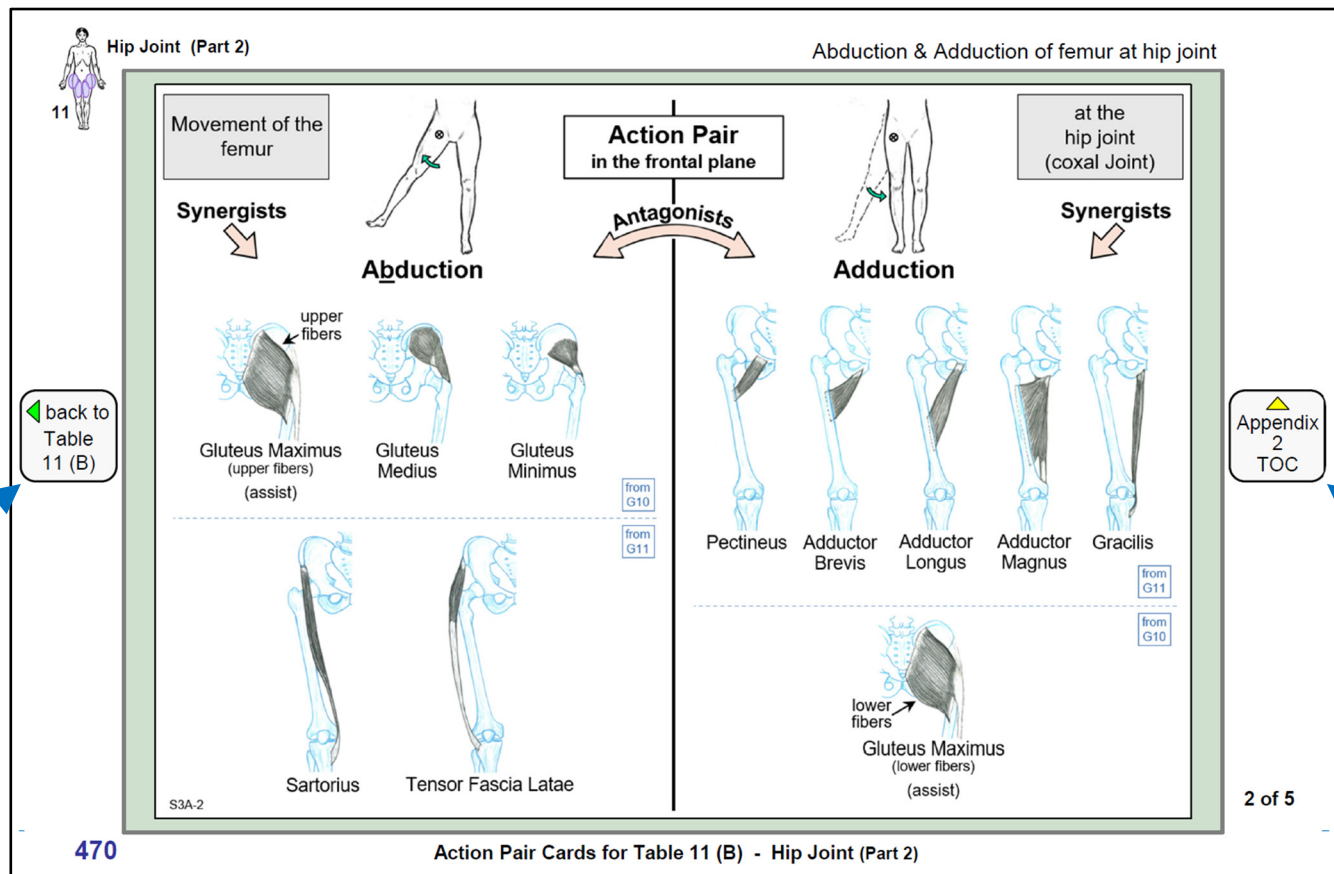
Muscles on one side of the card are antagonists to the muscles on the other side of the card



Synergists



Right side of card shows all muscles that contribute to the opposite action.



This button links each Action Pair card to the B-Tables in Chapters 4-6 of the main text. (see page 2 below).

This button facilitates using Appendix 2 as a stand-alone atlas to study how muscles work together and oppose each other (see page 3 below).

Action Pair Cards linked to the “B” Tables in Chapters 4-6

B-Tables in Chapters 4-6 show the synergists and antagonists for all of the actions available to a Muscle Group. The B-Tables in the main text are linked to full-page **Action Pair Cards** in Appendix 2 that graphically display the information.

Click an Action picture to view **all** of its synergists & antagonists

Group 11:

Muscles Acting On	Flexion @ Hip Jt.	Extension @ Hip Jt.	Abduction @ Hip Jt.	Adduction @ Hip Jt.	Medial Rotation @ Hip Jt.	Lateral Rotation @ Hip Jt.	Flexion @ Knee	Other	Innervation	L2	L3	L4	S1	S2	S3
1. Sartorius	✓		✓			✓	✓	Medial rotation of tibia at flexed knee	Femoral N. (L2, L3)	N	N				
2. Tensor Fascia Latae	✓		✓		✓			Stabilizes the extended knee	Superior Gluteal N. (L4, L5, S1)		N	N	N		
3. Pectineus	✓			✓	✓				Femoral N. (L2, L3) (& sometimes Obturator N.)	N	N				
4. Adductor Brevis	✓			✓	✓			(deep to adductor longus)	Obturator N. (L2, L3, L4)	N	N	N			
5. Adductor Longus	✓			✓	✓				Obturator N. (L2, L3, L4)	N	N	N			
6. Adductor Magnus	✓ Anterior fibers (which insert proximally)	✓ Posterior fibers (which insert distally)		✓ All fibers	✓ Anterior fibers			Can be an antagonist to itself (posterior vs. anterior fibers)	Anterior part: Obturator N. (L2, L3, L4) Posterior part: Sciatic N. (L4, L5, S1)	N	N	N	N		
7. Gracilis	may assist			✓	may assist		✓	Medial rotation of tibia at flexed knee	Obturator N. (L2, L3)	N	N				

(More muscles for the action) ...>

Table 11 (B) - Hip Joint (Part 2) - Synergists & Antagonists

(MMM page 180)

Book will jump to the **Action Pair Card** in Appendix 2.

Click on an action picture

back to Table 11 (B)

Click the “back to” button to return to the B-Table

Hip Joint (Part 2)

Abduction & Adduction of femur at hip joint

Movement of the femur

Abduction

Synergists

upper fibers

Gluteus Maximus (upper fibers) (assist)

Gluteus Medius

Gluteus Minimus

from G10

from G11

Adduction

Antagonists

Pectineus

Adductor Brevis

Adductor Longus

Adductor Magnus

Gracilis

from G11

from G10

lower fibers

Gluteus Maximus (lower fibers) (assist)

Sartorius

Tensor Fascia Latae

SSA-2

470

Action Pair Cards for Table 11 (B) - Hip Joint (Part 2)

Appendix 2 TOC

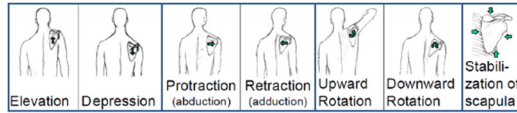
2 of 5

Using Appendix 2 as a Stand-alone Study Aid

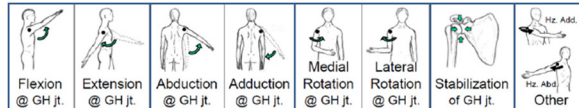
To use Appendix 2 stand-alone, go to the **Appendix 2 – Table of Contents (TOC)** on page 410.

Appendix 2 – Action Pair Cards - Table of Contents

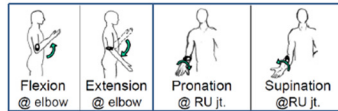
Scapula/Clavicle



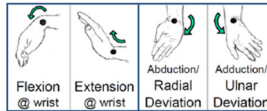
Shoulder Joint



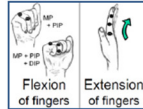
Elbow & Forearm



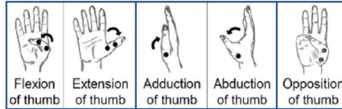
Wrist



Fingers

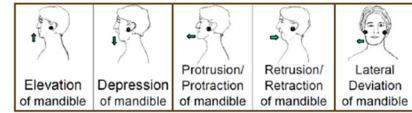


Thumb

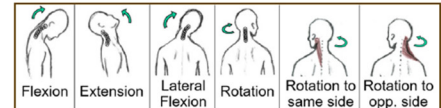


Upper
Extremity

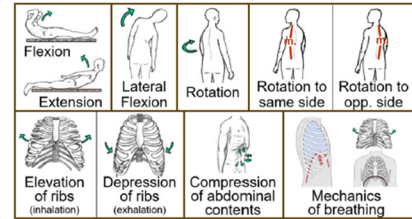
Face and Jaw



Neck and Head



Spine, Trunk & Breathing

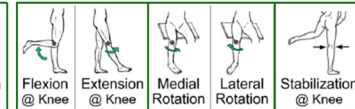


Axial Skeleton

Hip Joint

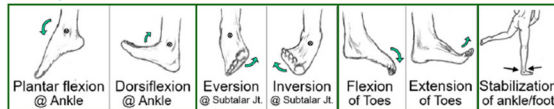


Knee



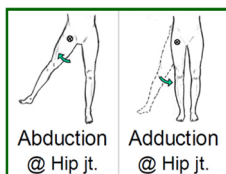
Lower
Extremity

Ankle, Foot & Toes

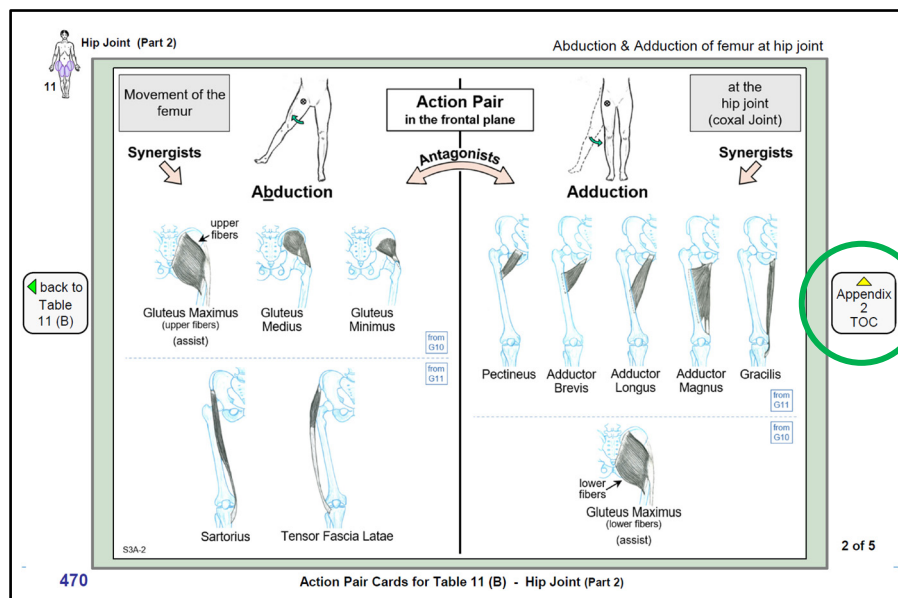


Click an action picture to view the Action Pair card.

Click on
an action
picture.



Book will jump
to the **Action
Pair Card.**



Appendix
2
TOC

Click the
"TOC"
button to
return to
the TOC
page.

Definitions

Abbreviations

Joints

GH – Glenohumeral
HU – Humeroulnar
RU – Radioulnar
RC – Radiocarpal
CM – Carpometacarpal
MP or MCP – Metacarpophalangeal
PIP – Proximal Interphalangeal
DIP – Distal Interphalangeal
TF – Tibiofemoral
TC – Talocrural
TM – Tarsometatarsal
MP or MTP – Metatarsophalangeal
TMJ – Temporomandibular Joint

Labels on Cards

Synergists



All the muscles that create the action on the left side of the card

Synergists



All the muscles that create the action on the right side of the card



Indicates that the muscles on one side of the card are the **antagonists** to the muscles on the opposite side of the card.

from
G3

from
G4

Small boxes indicate which Muscle Groups the muscles come from.

Actions

(assist) – The muscle assists the action, but is not a prime mover.

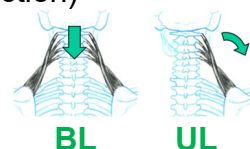
(may assist) – The muscle may assist, depending on strength requirements or relative bone angles.

Actions – Axial Skeleton only

(see Chapter 5 introductory section)

BL – Bilateral contraction of a muscle

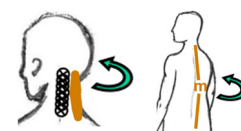
UL – Unilateral contraction of a muscle



UL to the same side – Muscle **rotates** the neck or spine to its own side of the body (ipsilateral).



UL to the opposite side – Muscle **rotates** the neck or spine to the other side of the body (contralateral).



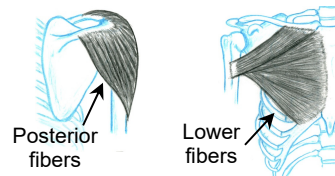
Note that **lateral flexion** actions are always to the same side (ipsilateral).



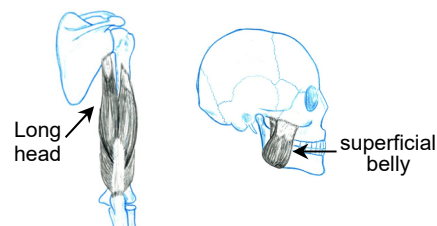
Muscle Qualifiers

These indicate that a portion of the muscle contributes to the action, but not the whole muscle.

Upper fibers,
Lower fibers,
Anterior fibers,
etc.



Long head
Short head,
etc.

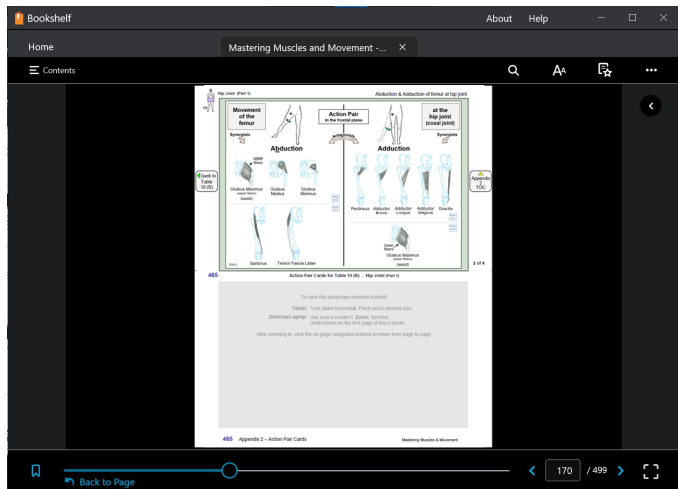




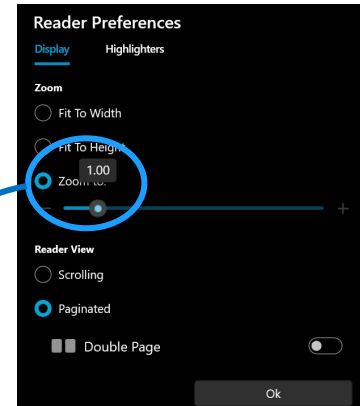
VitalSource Bookshelf – Reading Landscape-Oriented Pages

Landscape pages are displayed in the top half of portrait-shaped pages.

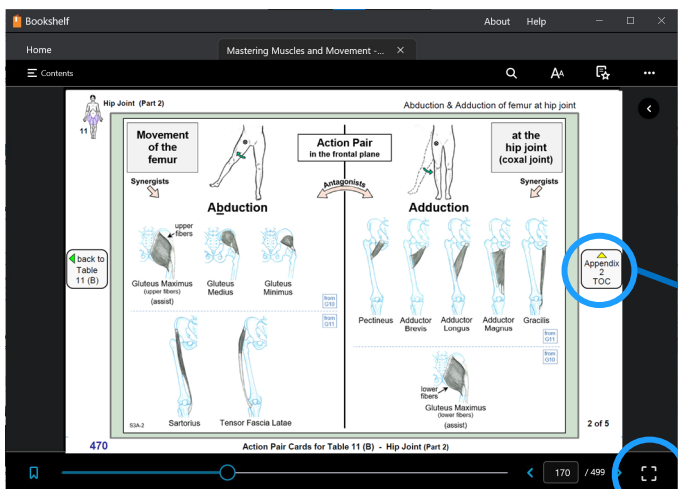
As an example, here is an Action Pair Card viewed in the Bookshelf Windows app:



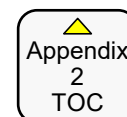
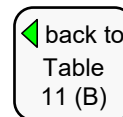
Click **AA** button for Reader Preferences.



Use “**Zoom to:**” slider to enlarge the card.



After zoomed in, use the navigation buttons to move between landscape pages.



(see pages 2-3 above for details)

For the largest view, click the **[]** button to enter full-screen mode.

Suggestion: Try reading the entire book zoomed in as described above. On portrait pages, it's very easy to do a short scroll between the top and bottom of the page.

Keyboard shortcuts when in full-screen mode (Windows app):

Scroll up and down on the current page:

Use up & down arrow keys, or use mouse wheel or trackpad.

Go to next page or previous page:

Ctrl-PageDown, Ctrl-PageUp