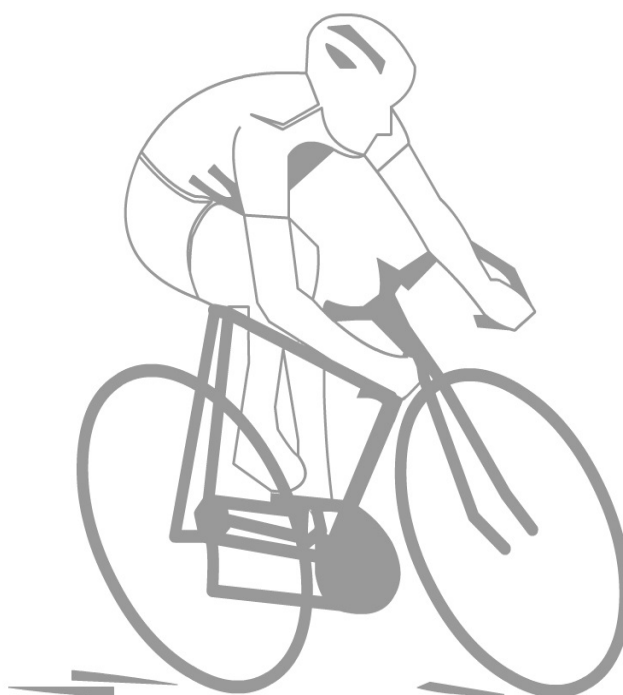


BIKE PROTOCOL

Kinematic analysis and muscle functional evaluation



Patient Details:

SURNAME:	RODRIGUEZ SOTELO
NAME:	JOSE LUIS
BIRTHDAY:	6/11/1979
SESSION DATE:	21/10/2024

KINEMATIC ANALYSIS

Dynamic Posture on Frontal Plane

ANGLE (°)	FRONTAL INCLINATION
SHOULDERS:	6.1 ± 1.5
PELVIS:	7.4 ± 2.8

value < 0° LEFT shoulder and LEFT pelvis in UP position

value > 0° LEFT shoulder and LEFT pelvis in DOWN position

Dynamic Posture on Transversal Plane

ANGLE (°)	TRANSVERSAL ROTATION
SHOULDERS:	-2.9 ± 2.8
PELVIS:	-1.5 ± 2.8

value < 0° LEFT shoulder and LEFT pelvis BACKWARD

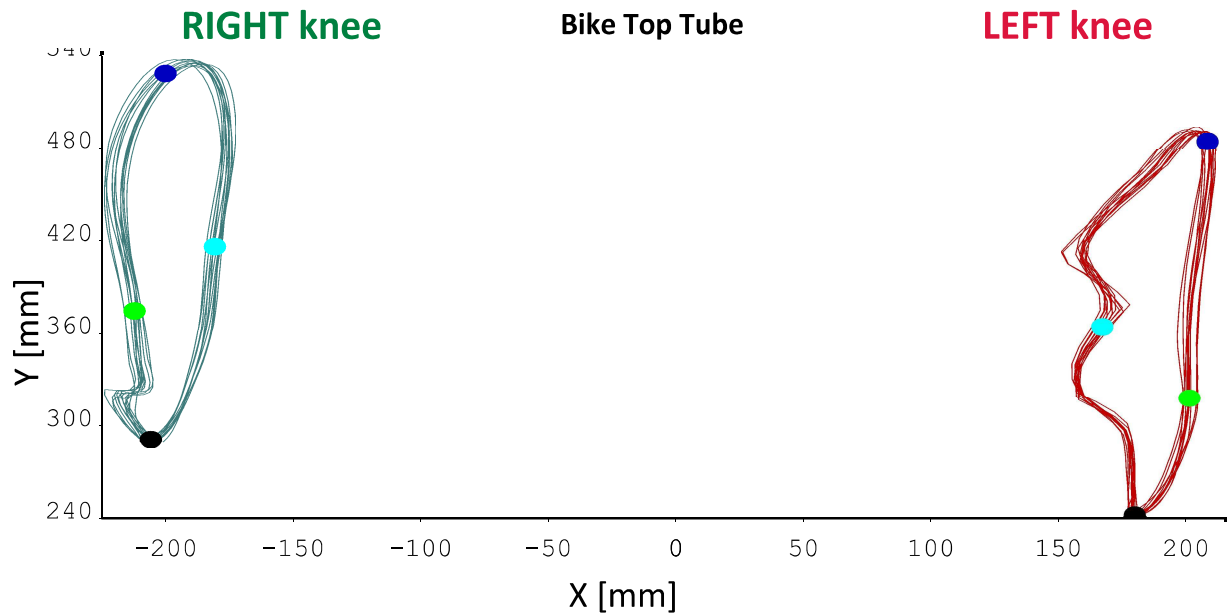
value > 0° LEFT shoulder and LEFT pelvis FORWARD

Legend:

Frontal Inclination		Transversal Rotation	
SHOULDERS	PELVIS	SHOULDERS	PELVIS

KINEMATIC ANALYSIS

KNEE Movement on FRONTAL Plane



Knee horizontal distance from the bike top tube

DISPLACEMENT (mm)	RIGHT knee	LEFT knee
POSITION at 0°	-200	208.2
POSITION at 90°	-180.9	167.2
POSITION at 180°	-205.7	179.9
POSITION at 270°	-212	201.3

Legend:

Frontal plane

KNEE



KINEMATIC ANALYSIS

Dynamic Posture on Sagittal Plane

RIGHT SIDE



LEFT SIDE



ANGLE (°)	RIGHT MEAN VALUE	LEFT MEAN VALUE	DIFFERENCE
PELVIS	41.9 ± 2	38.9 ± 3.8	3
TRUNK	42.8 ± 1.7	43 ± 1.3	-.2
UNDERARM	75.7 ± 2.5	69.7 ± 2.3	5.9
ELBOW	128 ± 3.2	121.9 ± 4.1	6.1

Legend:

PELVIS



TRUNK



UNDERARM

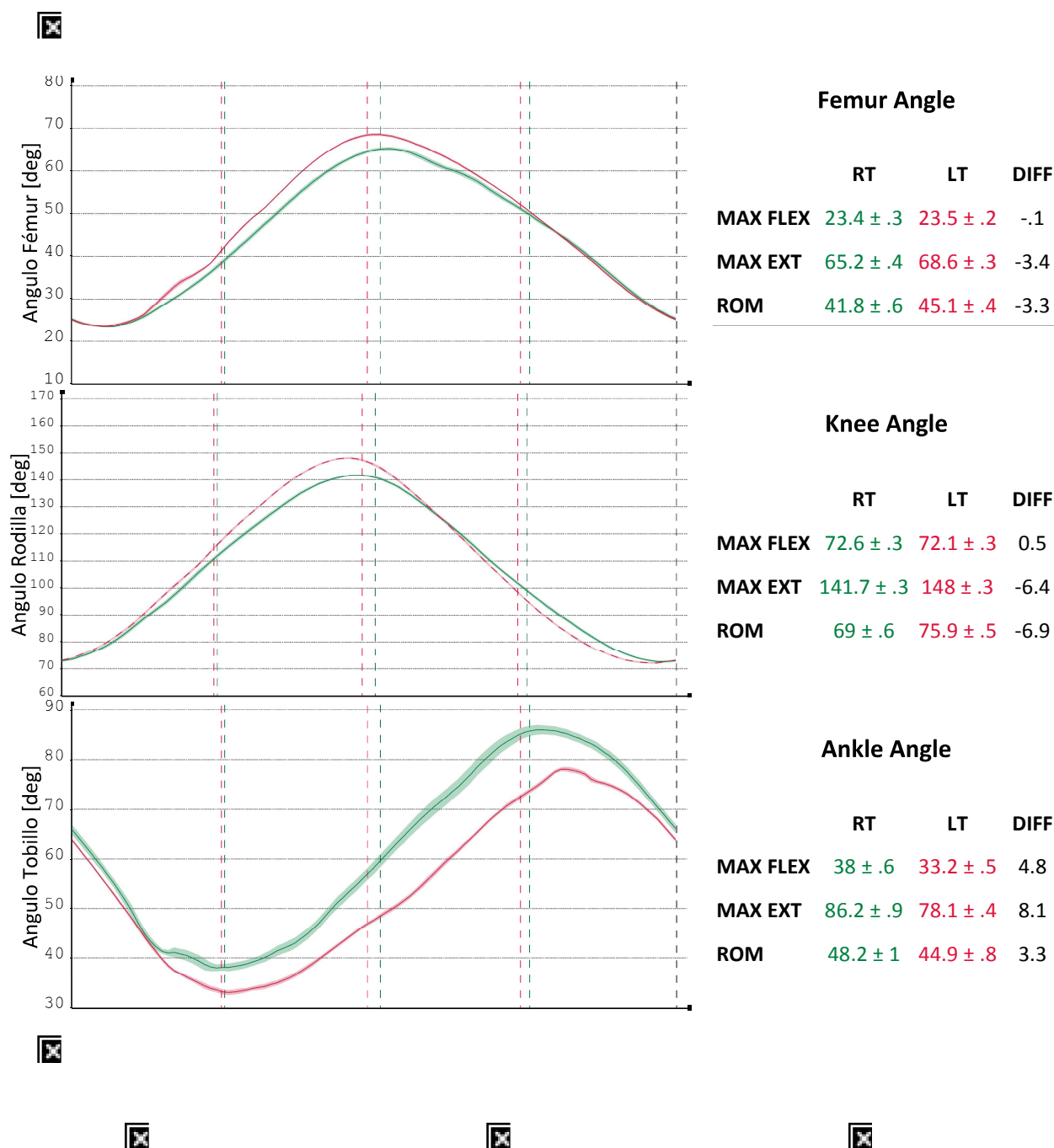


ELBOW



KINEMATIC ANALYSIS

RIGHT and LEFT Legs on Sagittal Plane



FEMUR

KNEE

ANKLE

KINEMATIC ANALYSIS

Maximum Pushing Phase

(when the feet are aligned horizontally)

RIGHT SIDE



LEFT SIDE



ANGLE (°)	RIGHT MEAN VALUE	LEFT MEAN VALUE	DIFFERENCE
KNEE MOVING BACK	-2.5 ± .3	-.7 ± .4	-1.8
KNEE (POPLITEAL)	111.8 ± .8	114 ± .9	-2.2
ANKLE	38.1 ± .7	33.3 ± .6	4.7
PUSHING ANGLE	68.6 ± .2	68.2 ± .1	0.4

RPM = 74

Legend:

KNEE MOVING BACK



KNEE (POPLITEAL)



ANKLE

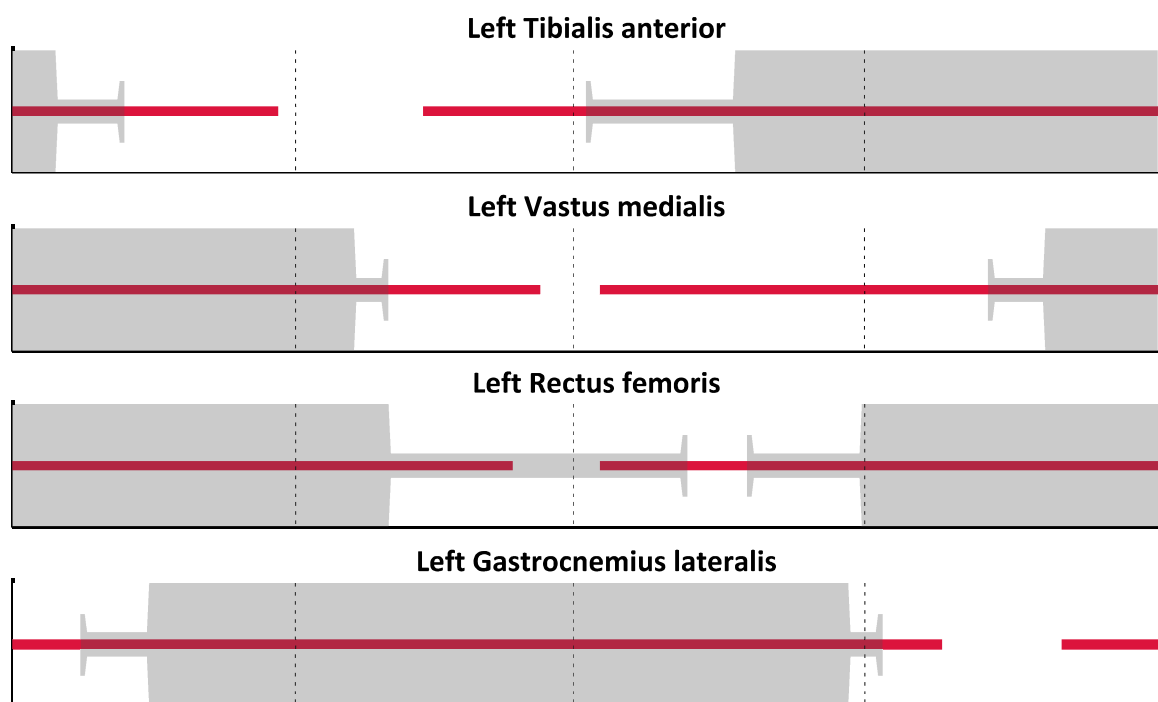
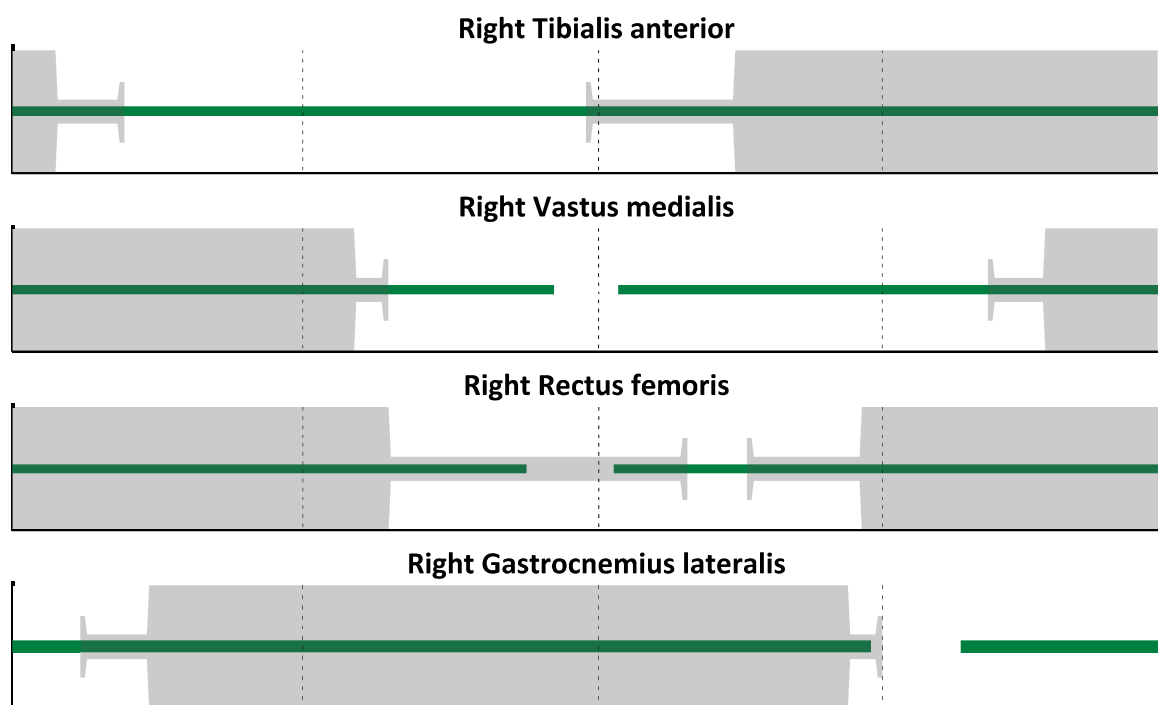


PUSHING ANGLE



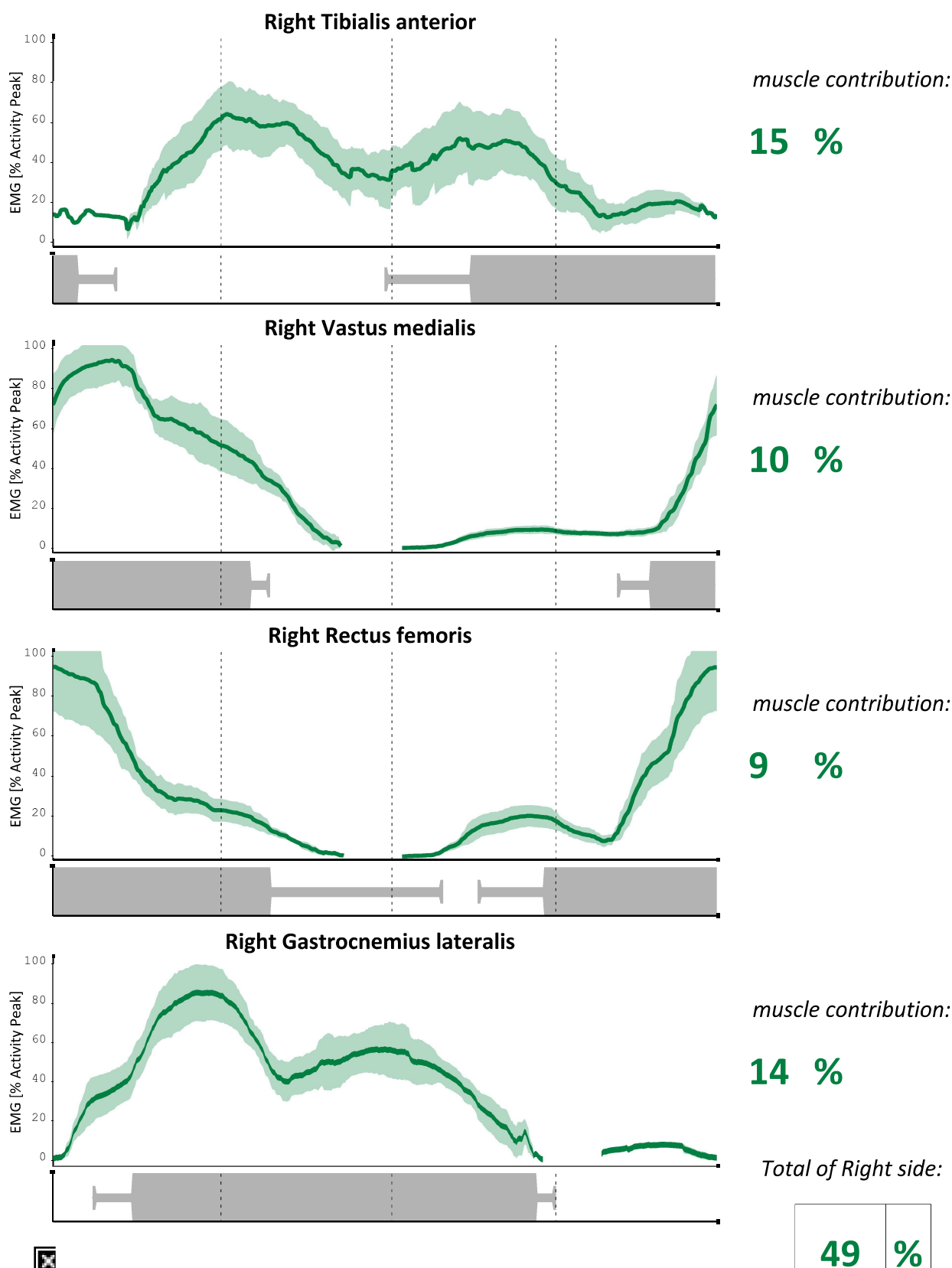
EMG ANALYSIS

Muscle Coordination



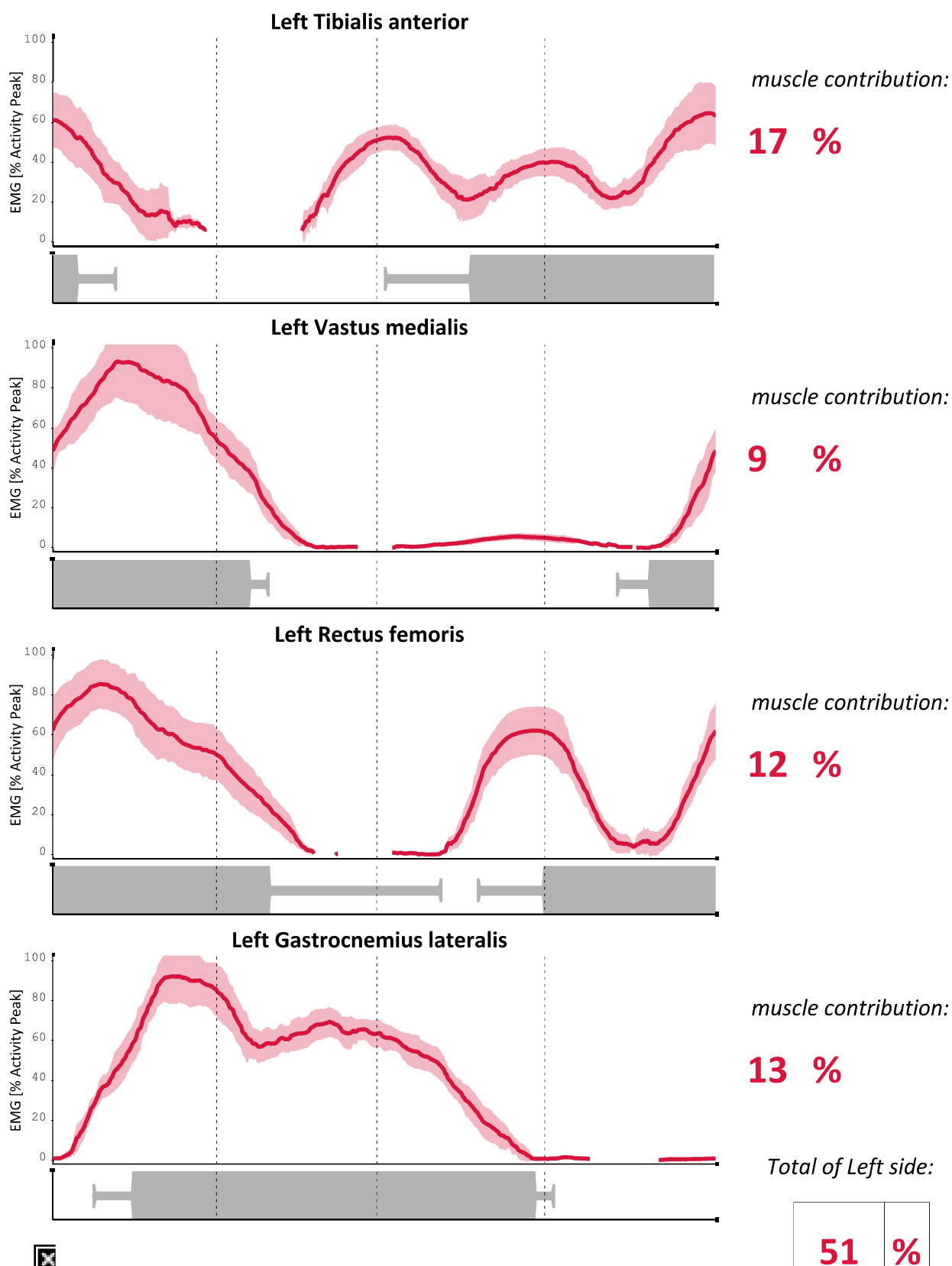
EMG ANALYSIS

Amplitude Analysis: normalization on Peak



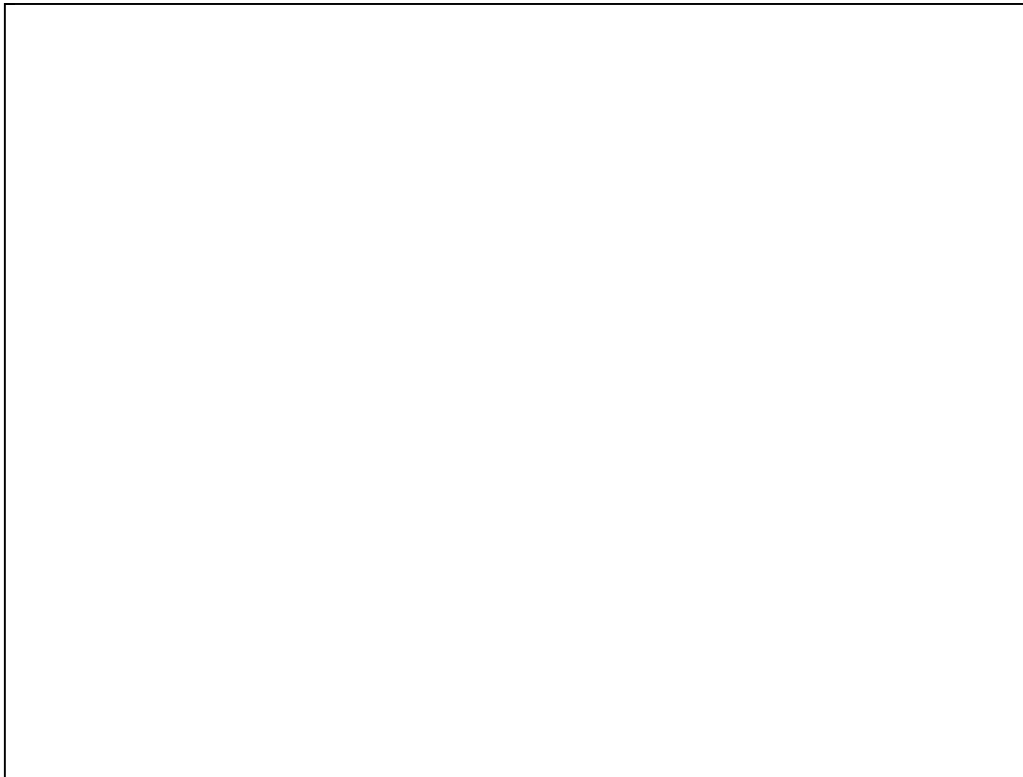
EMG ANALYSIS

Amplitude Analysis: normalization on Peak



VIDEO ANALYSIS

RIGHT View



LEFT View

