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A Biomechanical Case is defined in Appendix A, 3e in CPME document 320, *Standards and Requirements for Approval of Podiatric Medicine and Surgery Residencies as follows:*

Biomechanical cases. This activity includes direct participation of the resident in the diagnosis, evaluation, and treatment of diseases, disorders, and injuries of the foot, ankle, and their governing and related structures by biomechanical means. These experiences include, but are not limited to:

- performing comprehensive lower extremity biomechanical examinations and gait analyses,
- comprehending the processes related to these examinations, and
- understanding the techniques and interpretations of gait evaluations of neurologic and pathomechanical disorders.

The Biomechanical Examination Form is **not mandatory**, but was developed and approved by the American Board of Podiatric Medicine to assist residents and programs and residents in meeting the required case activities of a comprehensive lower extremity biomechanical examination.

Not all areas of the sample form need to be completed for each patient/case. The form is intended to be used as a tool to assist residents in:

- recording relevant findings in the biomechanical examination,
- identifying factors contributing to the pathology,
- developing appropriate biomechanical diagnoses, and
- developing an appropriate treatment plan that correlates to the findings.

A biomechanical exam **must** include a gait analysis on all ambulatory patients. Treatment plans **must** be justified and supported by the findings of the biomechanical exam, and how the treatment plan addresses the identified pathology.

**ABPM SUGGESTED BIOMECHANICAL EXAMINATION FORM**

MR# \_\_\_\_\_ Date \_\_\_\_\_ Resident \_\_\_\_\_

Patient Name \_\_\_\_\_ Attending \_\_\_\_\_

Sex \_\_\_\_\_ Age \_\_\_\_\_ Wt \_\_\_\_\_

Presenting complaint \_\_\_\_\_

**MUSCULOSKELETAL EVALUATION**

Normal	Non-Wt Bearing Assessment	R	L
45°	Internal Hip Rotation (ext)		
45°	External Hip Rotation (ext)		
0°	Neutral Position of Hip (ext)		
15-20°	Malleolar Position (ext)		
10°	Ankle DF (Knee Extended)		
>10°	Ankle DF (Knee Flexed)		
20°	Heel Inversion		
10°	Heel Eversion		
0°	STJ Neutral Position		
perp	Forefoot to Rearfoot (1-5)		
perp	Forefoot to Rearfoot (2-5)		
5mm	First Ray Dorsiflexion		
5mm	First Ray Plantarflexion		
0mm	First Ray Neutral Position		
65°	Hallux Dorsiflexion		
>30°	Hallux Plantarflexion		

Quality of Motion (circle)	R	L
<b>Ankle (dorsiflexion)</b> Normal Limited Painful		
<b>Ankle (plantarflexion)</b> Normal Limited Painful		
<b>STJ (supination)</b> Normal Limited Painful		
<b>STJ (pronation)</b> Normal Limited Painful		
<b>Hallux (dorsiflexion)</b> Normal Limited Painful		
<b>Hallux (plantarflexion)</b> Normal Limited Painful		
<b>Lesser Digits (dorsiflexion)</b> Normal Limited Painful		
<b>Lesser Digits (plantarflexion)</b> Normal Limited Painful		

Muscle Strength (0-5/5)	R	L
Hip Flexors		
Hip Extensors		
Hip Abductors		
Hip Adductors		
Hip Rotators (Internal)		
Hip Rotators (External)		
Gastrocnemius		
Soleus		
Tib. Posterior		
Flex. Hallucis Longus		
Flex. Digitorum Longus		
Flex. Digitorum Brevis		
Tib. Anterior		
Ext. Digitorum Longus		
Ext. Hallucis Longus		
Ext. Digitorum Brevis		
Peroneus Longus		
Peroneus Brevis		

**FOOT MORPHOLOGY**

**Frontal Plane (circle)**

Normal morphology	R	L
Varus		
Valgus		

Forefoot **R L R L**  
Rearfoot **R L R L**

**Sagittal Plane**

R	L
Normal morphology	
Anterior Cavus	
Posterior Cavus	
Cavoadductovarus	
Calcaneovalgus	
Planovalgus	
Rocker Bottom	
Other _____	

**Transverse Plane**

R	L
Normal morphology	
Forefoot Adducted	
Forefoot Abducted	
Rearfoot Adducted	

**ANKLE MORPHOLOGY**

Normal morphology	R	L
Equinus		
Calcaneus		
Varum		
Valgum		
Other _____		

**Limb Length Inequality (in cm)**

R	L
Normal (symmetric)	
Structural	
Combined	
Functional	

**DIGITAL ASSESSMENT (circle)**

Abducted	R: 1 2 3 4 5	L: 1 2 3 4 5
Adducted	R: 1 2 3 4 5	L: 1 2 3 4 5
Claw toe	R: 1 2 3 4 5	L: 1 2 3 4 5
Hammer toe	R: 1 2 3 4 5	L: 1 2 3 4 5
Mallet toe		
Hallux IP Extensus	<b>R L</b>	
Hallux IP Abductus	<b>R L</b>	

**POSTURAL APPRAISAL (circle)**

**Head Position:**  
Forward Backward Sideward

**Shoulders:**

Level	R	L
Dropped		
Forward		
Backward		

**Spine:**

Scoliosis		
Lordosis		
Kyphosis		

**Pelvis:**

Level	R	L
Dropped		
Forward		
Backward		

**Patella Orientation (circle):**

Medial Central Lateral  
**R L R L R L**

**Knee** Varum Valgum Flexion Recurvatum  
**R L R L R L R L**

**Tibia** Varum Valgum  
**R L R L**

**Malleolar Position** Internal External  
**R L R L**

Neutral Calc. Stance Position (deg.)	R	L
Relaxed Calc. Stance Position (deg.)		

**GAIT ANALYSIS (Barefoot Gait Pattern)**

(circle)

Normal Antalgic Apropulsive	R	L
Other (e.g. Steppage, Circumducted, Scissor)		
Angle of Gait		
Base of Gait		

**Patellar Position:**

Contact		
Mid-Stance		
Propulsion		
Swing		

**Heel Position:**

Contact		
Mid-Stance		
Propulsion		
Swing		

**Heel Off (circle):**  
WNL Early

**Abductory Twist (circle):**  
Yes No

<b>IF A PORTION OF EXAM IS DEFERRED, GIVE REASON:</b>
<b>ASSESSMENT:</b>
<b>TREATMENT PLAN:</b>