

A multimodal dataset of human gait at different walking speeds established on healthy and injured free adult participants

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Marker trajectories stored in c3d files

Labels	Format	Dim.	Unit	Description
L_IAS	Real	n* x 3	mm	Left anterior-superior iliac spine coordinates
L_IPS	Real	n x 3	mm	Left posterior-superior iliac spine coordinates
R_IPS	Real	n x 3	mm	Right posterior-superior iliac spine coordinates
R_IAS	Real	n x 3	mm	Right anterior-superior iliac spine coordinates
L_FTC	Real	n x 3	mm	Left greater trochanter coordinates
L_FLE	Real	n x 3	mm	Left lateral femoral epicondyle coordinates
L_FME	Real	n x 3	mm	Left medial femoral epicondyle coordinates
L_FAX	Real	n x 3	mm	Left fibula head coordinates
L_TTC	Real	n x 3	mm	Left tibial tuberosity coordinates
L_FAL	Real	n x 3	mm	Left lateral tibial malleolus coordinates
L_TAM	Real	n x 3	mm	Left medial tibial malleolus coordinates
L_FCC	Real	n x 3	mm	Left posterior calcaneus coordinates
L_FM1	Real	n x 3	mm	Left 1 st metatarsal head coordinates
L_FM2	Real	n x 3	mm	Left 2 nd metatarsal head coordinates
L_FM5	Real	n x 3	mm	Left 5 th metatarsal head coordinates
R_FTC	Real	n x 3	mm	Right greater trochanter coordinates
R_FLE	Real	n x 3	mm	Right lateral femoral epicondyle coordinates
R_FME	Real	n x 3	mm	Right medial femoral epicondyle coordinates
R_FAX	Real	n x 3	mm	Right fibula head coordinates
R_TTC	Real	n x 3	mm	Right tibial tuberosity coordinates
R_FAL	Real	n x 3	mm	Right lateral tibial malleolus coordinates
R_TAM	Real	n x 3	mm	Right medial tibial malleolus coordinates
R_FCC	Real	n x 3	mm	Right posterior calcaneus coordinates
R_FM1	Real	n x 3	mm	Right 1 st metatarsal head coordinates
R_FM2	Real	n x 3	mm	Right 2 nd metatarsal head coordinates
R_FM5	Real	n x 3	mm	Right 5 th metatarsal head coordinates
CV7	Real	n x 3	mm	7 th cervical vertebra coordinates
TV10	Real	n x 3	mm	Spinous process of the 10 th thoracic vertebrae coord.
SXS	Real	n x 3	mm	Suprasternal notch coordinates
SJN	Real	n x 3	mm	Xiphoid process coordinates
L_SIA	Real	n x 3	mm	Left acromial tip coordinates
L_SRS	Real	n x 3	mm	Left spine root coordinates
L_SAA	Real	n x 3	mm	Left acromial angle coordinates
L_SAE	Real	n x 3	mm	Left acromial edge coordinates
L_HLE	Real	n x 3	mm	Left lateral humerus epicondyle coordinates
L_HME	Real	n x 3	mm	Left medial humerus epicondyle coordinates
L_UOA	Real	n x 3	mm	Apex of the left olecranon coordinates
L_RSP	Real	n x 3	mm	Left radius styloid process coordinates
L_UHE	Real	n x 3	mm	Left ulnar styloid process coordinates
L_HM2	Real	n x 3	mm	Left head of the 2 nd metacarpus coordinates
L_HM5	Real	n x 3	mm	Left head of the 5 th metacarpus coordinates
R_SIA	Real	n x 3	mm	Right acromial tip coordinates
R_SRS	Real	n x 3	mm	Right spine root coordinates
R_SAA	Real	n x 3	mm	Right acromial angle coordinates
R_SAE	Real	n x 3	mm	Right acromial edge coordinates
R_HLE	Real	n x 3	mm	Right lateral humerus epicondyle coordinates
R_HME	Real	n x 3	mm	Right medial humerus epicondyle coordinates
R_UOA	Real	n x 3	mm	Apex of the right olecranon coordinates
R_RSP	Real	n x 3	mm	Right radius styloid process coordinates
R_UHE	Real	n x 3	mm	Right ulnar styloid process coordinates
R_HM2	Real	n x 3	mm	Right head of the 2 nd metacarpus coordinates
R_HM5	Real	n x 3	mm	Right head of the 5 th metacarpus coordinates

* Number of frames recorded at 100 Hz

Analog data stored in c3d files

Labels	Format	Dim.	Unit	Description
R_tibialis_anterior	Real	m* x 1	V	EMG* signal of the right Tibialis Anterior
R_soleus	Real	m x 1	V	EMG signal of the right Soleus
R_gastrocnemius_medialis	Real	m x 1	V	EMG signal of the right Gastrocnemius Med.
R_vastus_medialis	Real	m x 1	V	EMG signal of the right Vastus Medialis
R_rectus_femoris	Real	m x 1	V	EMG signal of the right Rectus Femoris
R_semitendinosus	Real	m x 1	V	EMG signal of the right Semitendinosus
R_gluteus_maximus	Real	m x 1	V	EMG signal of the right Gluteus Maximus
R_gluteus_medius	Real	m x 1	V	EMG signal of the right Gluteus Medius
Fx1	Real	m x 1	N	Force applied by the foot on forceplate 1 /X [‡]
Fy1	Real	m x 1	N	Force applied by the foot on forceplate 1 /Y
Fz1	Real	m x 1	N	Force applied by the foot on forceplate 1 /Z
Mx1	Real	m x 1	N.mm	Moment applied by the foot on forceplate 1 /X
My1	Real	m x 1	N.mm	Moment applied by the foot on forceplate 1 /Y
Mz1	Real	m x 1	N.mm	Moment applied by the foot on forceplate 1 /Z
Fx2	Real	m x 1	N	Force applied by the foot on forceplate 2 /X
Fy2	Real	m x 1	N	Force applied by the foot on forceplate 2 /Y
Fz2	Real	m x 1	N	Force applied by the foot on forceplate 2 /Z
Mx2	Real	m x 1	N.mm	Moment applied by the foot on forceplate 2 /X
My2	Real	m x 1	N.mm	Moment applied by the foot on forceplate 2 /Y
Mz2	Real	m x 1	N.mm	Moment applied by the foot on forceplate 2 /Z

* Number of frames recorded at 1500 Hz

* EMG: Electromyographic

‡ All forces and moments are expressed here in the coordinate system of the related forceplate

Forceplate data stored in c3d files

Structure	Labels	Format	Dim.	Unit	Description
ForcePlate(1)	P	Real	m* x 3	mm	Centre of pressure coordinates (forceplate 1) [‡]
	F	Real	m x 3	N	3D ground reaction force (forceplate 1)
	M	Real	m x 3	N.mm	3D ground reaction moment (forceplate 1)
ForcePlate(2)	P	Real	m* x 3	mm	Centre of pressure coordinates (forceplate 2)
	F	Real	m x 3	N	3D ground reaction force (forceplate 2)
	M	Real	m x 3	N.mm	3D ground reaction moment (forceplate 2)

* Number of frames recorded at 1500 Hz

‡ All centres of pressure, forces and moments are expressed here in the inertial coordinate system

Metadata* stored in c3d files

Structure	Labels	Format	Dim.	Unit	Description
Subject	age	Integer	1 x 1	years	Age
	gender	Integer	1 x 1	none	0: woman, 1: man
	weight	Real	1 x 1	kg	Body weight
	height	Real	1 x 1	mm	Participant size
	R_legLength	Real	1 x 1	mm	Right leg length [†]
	L_legLength	Real	1 x 1	mm	Left leg length
Event	Right_Foot_Strike1	Real	1 x 1	s	First right foot strike timing
	Right_Foot_Strike2	Real	1 x 1	s	Second right foot strike timing
	Right_Foot_Off	Real	1 x 1 or 1 x 2	s	Right foot off timings
	Left_Foot_Strike1	Real	1 x 1	s	First left foot strike timing
	Left_Foot_Strike2	Real	1 x 1	s	Second left foot strike timing
	Left_Foot_Off	Real	1 x 1 or 1 x 2	s	Left foot off timings

* Additional metadata are stored by default (i.e. Copyright, Force_Platform, Point, Analog, Trial, Event_Context)

† Leg length is measured between the anterior-superior iliac spine and the medial tibial malleolus