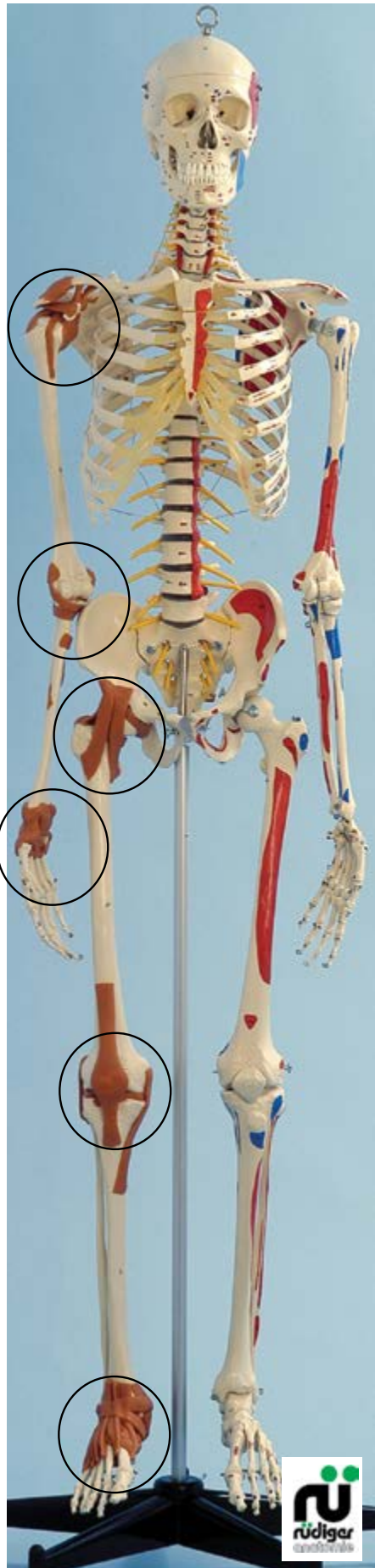


Maximale Neigungswinkel der Gelenkmodelle

Achtung:

Hier aufgezeigt sind die maximal möglichen Bewegungswinkel der Gelenkmodelle. Bewegungen mit größerem Winkel, insbesondere bei Demonstration der Überlastung eines natürlichen Gelenks (z.B. bei einem Unfall), führen zu Beschädigungen des Modells.

1. Schultergelenk	Max.
Anteversion (Vorschwingen)	20°
Retroversion (Rückschwingen)	20°
Innenrotation	20°
Außenrotation	20°
Seitliches Armheben	20°
2. Ellenbogengelenk	Max.
Extension und Flexion	150°
Drehung der Speiche	90°
3. Hüftgelenk	Max.
Anteversion (Vorschwingen)	90°
Retroversion (Rückschwingen)	45°
Innenrotation	45°
Außenrotation je	45°
Seitliche Bewegungen	20°
4. Handgelenk	Max.
Beugen nach innen (Abduktion)	25°
Beugen nach außen (Adduktion)	25°
Drehung der Speiche	180°
5. Kniegelenk	Max.
Extension und Flexion	90°
Retroversion (Rückschwingen)	20°
Innenrotation	20°
Außenrotation je	20°
Seitliche Meniskusbeugung	20°
6. Fußgelenk	Max.
Beugung und Streckung	15°
Drehbewegungen ein- u. auswärts	10°
Seitliche Bewegungen	10°



Maximum angle of inclination of the joint models

Attention:

Here you can see the maximum angle of movement which is possible with the joint models. Movements with a larger angle, especially shown when demonstrating an overload of a natural joint (e.g. after an accident), can lead to damage.

1. Shoulder joint	Max.
Anteversion (swinging forwards)	20°
Retroversion (swinging backwards)	20°
Internal rotation	20°
External rotation	20°
Raise arm lateral	20°
2. Elbow joint	Max.
Extension and Flexion	150°
Rotation of the radius	90°
3. Hip joint	Max.
Anteversion (swinging forwards)	90°
Retroversion (swinging backwards)	45°
Internal and external rotation each	45°
Lateral movement	20°
4. Hand joint	Max.
Internal bending (Abduction)	25°
External bending (Adduction)	25°
Rotation of the radius	180°
5. Knee joint	Max.
Extension and Flexion	90°
Retroversion (swin- ging backwards)	20°
Internal and external rotation each	20°
Lateral bending of the meniscus	20°
6. Foot joint	Max.
Flexion and extension	15°
Rotation movements in- & outwards	10°
Lateral movements	10°

Knochennummerierung
Key to the Numbers of the Bones

Latein - Deutsch - English
Seite 1

Muskeln und Knochen variieren von Mensch zu Mensch, es können sogar gewisse Muskeln oder Knochenstrukturen ganz fehlen. Auch hängt die Muskulatur vom Skelett ab, das bei jedem Menschen etwas anders aussieht.

Muscles may vary from human to human. It is possible that certain muscles are totally missing. Furthermore the musculature is dependend on the skeleton which may vary from human to human, too.

Cranium Hominis / Schädel / Skull	56. Fossa pterygoidea
1. Diploe	57. Canalis pterygoideus
2. Clivus	58. Os temporale
3. Fossa temporalis	59. Pars petrosa, margo superior
4. Arcus zygomaticus	60. Processus mastoideus
5. Fossa infratemporalis	61. Incisura mastoidea
6. Fossa pterygopalatina	62. Foramen mastoideum
7. Foramen jugulare	63. Canalis caroticus
8. Foramen lacerum	64. Canalis musculotubarius
9. Foramen palatinum majus	65. Tegmen tympani (nur im Quer-
10. Fossa incisiva	schnitt sichtbar) (only cross
11. Canalis incisivus	section)
12. Septum nasi osseum	66. Eminentia arcuata
13. Apertura nasi osseum	67. Hiatus canalis n. petrosi
14. Conchae nasales	majoris
15. Foramen ethmoidale anterius	68. Sulcus n. petrosi majoris
16. Foramen ethmoidale posterius	69. Impressio trigemini
17. Fossa sacci lacrimalis	70. Sulcus sinus petrosi superioris
18. Fissura orbitalis superior	71. Porus acusticus internus
19. Fissura orbitalis inferior	72. Processus styloideus
20. Os occipitalis	73. Foramen stylomastoideum
21. Foramen magnum	74. Meatus acusticus externus
22. Sulcus sinus petrosi inferioris	75. Processus zygomaticus
23. Tuberculum pharyngeum (pars basilaris)	76. Fossa mandibularis
24. Squama occipitalis	77. Tuberculum articulare
25. Condylus occipitalis	78. Os parietale
26. Canalis condylaris	79. Sutura coronalis
27. Canalis hypoglossi	80. Linea temporalis inferior
28. Incisura jugularis	81. Sulcus sinus sagittalis
29. Protuberantia occipitalis externa	superioris
30. Linea nuchae suprema	82. Sulcus sinus sigmoidei
31. Linea nuchae superior	83. Os frontale (Proc. zygo-
32. Linea nuchae inferior	maticus)
33. Protuberantia occipitalis interna	84. Glabella
34. Sulcus sinus sagittalis superior	85. Spina nasalis (nur im Quer-
35. Sulcus sinus transversi	schnitt sichtbar) (only cross
36. Sulcus sinus sigmoidei	section)
37. Os sphenoidale	86. Processus frontalis (Maxilla im
38. Sella turcica	Querschnitt) (only Maxilla
39. Tuberculum sellae turcicae	cross section)
40. Fossa hypophysialis	87. Crista frontalis
41. Dorsum sellae	88. Foramen cecum
42. Processus clinoideus posterior	89. Sinus frontalis (nur im Quer-
43. Sulcus caroticus	schnitt sichtbar) (only cross
44. Ala minor ossis sphenoidalis	section)
45. Canalis opticus	90. Os ethmoidale
46. Ala major ossis sphenoidalis	91. Lamina cribrosa ossis
47. Crista infratemporalis	ethmoidalis
48. Foramen rotundum	92. Crista galli
49. Foramen ovale	93. Concha nasalis inferior
50. Foramen spinosum	94. Os lacrimale
51. Sulcus tubae auditivae	95. Os nasale
52. Processus pterygoideus	96. Vomer
53. Lamina lateralis processus pterygoidei	97. Maxilla
54. Lamina medialis processus pterygoidei	98. Foramen infraorbitale
55. Incisura pterygoidea	99. Fossa canina (Cornus
	maxillae)
	100. Incisura nasalis
	101. Spina nasalis anterior
	102. Tuber maxillae
	103. Processus palatinus
	104. Os incisivum

105. Processus alveolaris	145. Vertebrae thracical (Brust-
106. Os palatinum	wirbelsäule, thoracic vertebrae)
107. Lamina horizontalis	146. Vertebra lumbales (Lenden-
108. Os zygomaticum	wirbelsäule, Lumbar vertebrae)
109. Facies temporalis	147. Os sacrum
110. Processus zygomaticus	148. Os coccygis
111. Foramen zygomaticoorbitale	149. Costae
112. Foramen zygomaticofaciale	150. Sulcus costae
113. Foramen zygomatico-	151. Caput costae
temporale	152. Collum costae
114. Mandibula	153. Sternum
115. Corpus mandibulae	
116. Basis mandibulae	
117. Protuberantia mentalis	
117.1 Tuberculum mentale***	
118. Spina mentalis	
119. Foramen mentale	
120. Linea obliqua	
121. Fossa digastrica	
122. Linea mylohyoidea	
123. Fovea sublingualis	
124. Fovea submandibularis	
125. Pars alveolaris (innenseite	
Unterkiefer) (inside of	
mandibula)	
125.1 Arcus alveolaris***	
126. Joga alveolaris	
127. Septa interalveolarea	
128. Ramus mandibulae	
129. Angulus mandibulae	
130. Caput mandibulae	
131. Collum mandibulae	
132. Fovea pterygoidea	
133. Processus coronoideus	
134. Incisura mandibulae	
135. Foramen mandibulae	
136. Lingula mandibulae	
137. Canalis mandibulae	
138. Sulcus mylohyoideus	
139. Os hyoideum (Zungenbein)	
(hyoid bone)	
139.1 Cornu minus (auf Zungen-	
bein) (on hyoid bone)	
139.2 Cornu majus (auf Zungen-	
bein) (on hyoid bone)	

Columna vertebralis et thorax / Wirbelsäule und Brustkorb / Spine & Thorax
140. Foramina transversaria
141. Massa lateralis atlantis
142. Atlas
142.1 Arcus anterior
142.2 Tuberculum anterius
142.3 Arcus posterior
142.4 Sulcus arteriae vertebralis
142.5 Tuberculum posterius
142.6 Processus transversus
143. Axis
143.1 Dens axis
144. Verterae arvicales (Halswir-
belsäule, cervical vertebrae)

Cingulum membri superioris / Schultergürtel / Shoulder
154. Scapula
154.1 Spina scapulae
154.2 Acromion*
154.3 Fossa supraspinata
154.4 Fossa infraspinata
154.5 Angulus superior
154.6 Angulus inferior
154.7 Margo lateralis
154.8 Tuberculum infraglenoidale*
154.9 Cavitas glenoidalis*
154.10 Processus coracoideus
154.11 Margo medialis
154.12 Linea mculares faciei
costalis
154.13 Incisura scapulae
155. Clavicula
155.1 Tuberculum conoideum
155.2 Extremitas acromialis*
155.3 Extremitas sternalis

Skeleton membri superioris liberi / Armskelett / Arm Skeleton
156. Humerus
156.1 Caput humeri
156.2 Collum anatomicum*
156.3 Corpus humeri
156.4 Tuberculum majus
156.5 Tuberculum minus
156.6 Sulcus intertubercularis
156.7 Tuberositas deltoidea
156.8 Facies anterior medialis
156.9 Facies anterior lateralis
156.10 Fossa olecrani*
156.11 Fossa coronoidea
156.12 Fossa radialis
156.13 Epicondylus medialis
156.14 Sulcus ulnaris
156.15 Epicondylus lateralis*
156.16 Capitulum humeri
156.17 Trochlea humeri*
157. Ulna
157.1 Olecranon*
157.2 Incisura trochlearis (innen)*
157.3 Incisura radialis*
157.4 Processus
coronoideus
157.5 Tuberositas ulnae
157.6 Caput ulnae**



Human Skeleton with Muscles
Human Skull with Muscles

Muscles may vary from human to human. It is possible that certain muscles are totally missing. Furthermore the musculature is dependend on the skeleton which may vary from human to human, too. We have therefore tried to illustrate the muscle descriptions as neutral as possible.

Muscles of the head and cervical muscles
1. Anterior straight muscle of head
2. Greater posterior straight muscle of head
3. Smaller posterior straight muscle of head
4. Lateral straight muscle of head
5. Superior oblique muscle of head
6. Inferior oblique muscle of head
7. Long muscle of head
8. Epicranial muscle (occipital belly)
9. Epicranial muscle (temporoparietal muscle)
10. Procerus muscle
11. Nasal muscle
12. Depressor muscle of septum
13. Orbicular muscle of eye
14. Orbicular muscle of eye - Lacrimal part
15. Superciliary corrugator muscle
16. Superciliary depressor muscle
17. Posterior auricular muscle
18. Orbicular muscle of mouth
19. Depressor muscle of angle of mouth
20. Greater zygomatic muscle
21. Lesser zygomatic muscle
22. Levator muscle of upper lip
23. Levator muscle of upper lip and nasal wing
24. Depressor muscle of lower lip
25. Levator muscle of angle of mouth
26. Buccinator muscle
27. Chin muscle
28. Masseter muscle
29. Temporal muscle
30. Lateral pterygoid muscle
31. Medial pterygoid muscle
32. Sternocleidomastoid muscle
33. Long muscle of neck
34. Anterior scalene muscle
35. Middle scalene muscle
36. Posterior scalene muscle
37. Digastric muscle
38. Stylohyoid muscle/ Styloglossus muscle
39. Mylohyoid muscle/ Stylopharyngeus muscle
40.a Geniohyoid muscle
40.b Omohyoid muscle
41. Sternohyoid muscle
42. Thyrohyoid muscle
178. Genioglossus muscle

Muscles of Back
43. Trapezium muscle
44. Latissimus dorsi muscle
45. Greater rhomboid muscle
46. Lesser rhomboid muscle
47. Levator muscle of scapula
48. Sup. posterior serratus m.
49. Inf. posterior serratus m.
50. Splenius muscle of head
51. Splenius muscle of neck
Iliocostal muscle
52. Sacrolumbalis muscle
53. Iliocostal muscle of neck
54. Iliocostal muscle of back

Longissimus muscle
55. Longissimus muscle of head
56. Longissimus muscle of neck

Muscle origines coloured in red colour
Muscle insertions coloured in blue colour

57. Longissimus muscle of back	118. Long extensor muscle of thumb
Spinal muscle	119. Extensor muscle of index finger
58. Spinal muscle of head	120. Short palmar muscle
59. Spinal muscle of neck	121. Short abductor muscle of thumb
60. Spinal muscle of back	122. Short flexor muscle of thumb
Transversospinal muscle	123. Opposing muscle of thumb
61. Semispinal muscle of head	124. Adductor muscle of thumb
62. Semispinal muscle of neck	125. Abductor muscle of little finger
63. Semispinal muscle of thorax	126. Opposing muscle of little finger
64. Multifidus muscles	176. M. flexor digiti minimi brevis
65. Rotator muscles	Lumbrical muscles
66. Interspinal muscles	(no O. and I. at bones)
179. Levator muscle of palatine velum	127. Dorsal interosseus muscle
Intertransverse muscles	128. Palmar interosseus muscle
67. Posterior intertransverse muscle of neck	Muscles of lower limb Iliopsoas muscle
68. Anterior intertransverse muscles of neck	129.a Iliac muscle
69. Lateral intertransverse lumbar muscles	129.b Greater psoas muscle
70. Medial intertransverse lumbar muscles	129.c Smaller psoas muscle
Muscles of thorax	130. Greatest gluteal muscle
71. Greater pectoral muscle	131. Middle gluteal muscle
72. Smaller pectoral muscle	132. Least gluteal muscle
73. Subclavius muscle	133. Tensor muscle of fascia lata
74. Anterior serratus muscle	134. Piriform muscle
75. Levator muscles of ribs	135. Internal obturator muscle
76. External intercostal muscles	136. External obturator muscle
77. Internal intercostal muscles	137. Superior gemellus muscle
78. Subcostal muscles	138. Inferior gemellus muscle
79. Transverse muscle of thorax	139. Quadrate muscle of thigh
80. Diaphragm, lumbar part	140. Satorius muscle
81. Diaphragm, costal part	Quadriceps muscle of thigh
82. Diaphragm, sternal part	141.a Straight muscle of thigh
Muscles of abdomen	141.b Lateral great muscle
83. Straight muscle of abdomen	141.c Intermediate great muscle
84. Pyramidal muscle	142. Articular muscle of knee
85. External oblique muscle of abdomen	143. Pectinal muscle
86. Internal oblique muscle of abdomen	144. Long adductor muscle
87. Transverse muscle of abdomen	145. Short adductor muscle
88. Quadrate lumbar muscle	146. Great adductor muscle
89. Coccygeal muscle	147. Gracilis muscle
Muscles of upper limb	Biceps muscle of thigh
90. Deltoid muscle	148.a Biceps, long head
91. Supraspinous muscle	148.b Biceps, short head
92. Infraspinus muscle	149. Semitendinous muscle
93. Teres minor muscle	150. Semimembranous muscle
94. Teres major muscle	151. Anterior tibial muscle
95. Supscapular muscle	152. Long extensor muscle of toes
Biceps muscle of arm	153. Third peroneal muscle
96.a Biceps muscle of arm - long head	154. Long extensor muscle of great toe
96.b Biceps muscle of arm - short head	155. Long peroneal muscle
97. Coracobrachial muscle	156. Short peroneal muscle
98. Brachial muscle	Triceps muscle of calf
Triceps muscle of arm	157.a Gastrocnemius muscle
99.a Triceps muscle of arm - long head	157.b Soleus muscle
99.b Triceps muscle of arm - short head	158. Plantar muscle
99.c Triceps muscle of arm - lateral head	159. Popliteal muscle
100. Anconeus muscle	160. Posterior tibial muscle
101. Round pronator muscle	161. Long flexor muscle of toes
102. Radial flexor muscle of wrist	162. Long flexor muscle of great toe
103. Long palmar muscle	163. Short extensor muscle of great toe
104. Ulnar flexor muscle of wrist	164. Short extensor muscle of toes
105. Superficial flexor m. of fingers	165. Abductor muscle of great toe
106. Deep flexor muscle of fingers	166. Short flexor muscle of great toe
107. Long flexor muscle of thumb	167. Adductor muscle of great toe
108. Quadrate pronator muscle	168. Adductor muscle of little toe
109. Brachioradial muscle	169. Short flexor muscle of little toe
110. Long radial extensor muscle of wrist	170. Short flexor muscle of toes
111. Short radial extensor muscle of wrist	171. Quadrate muscle of sole
112. Extensor muscle of fingers	172. Lumbrical muscles
113. Extensor muscle of little finger	173. Dorsal interosseus muscles
114. Ulnar extensor muscle of wrist	174. Plantar interosseus muscles
115. Supinator muscle	175. M. rectus iliobtibialis
116. Long abductor muscle of thumb	177. M. flexor digiti minimi brevis
117. Short extensor muscle of thumb	

