

7. References

Alba D M, Moyà-Solà S, and Köhler M (2003) Morphological affinities of the *Australopithecus afarensis* hand on the basis of manual properties and relative thumb length. *Journal of Human Evolution*. 44: 225-254.

Alexander C J (1994) Utilisation of joint movement range in arboreal primates compared with human subjects: an evolutionary frame for primary osteoarthritis. *Annals of Rheumatic Diseases*. 53: 720-725.

Almécija S, Moyà-Solà S, and Alba D M (2010) Early origin for human-like precision grasping: a comparative study of pollical distal phalanges in fossil hominins. *PLoS ONE*. 5: e11727.

Bagis S, Sahin G, Yapici Y, Cimen O B, and Erdogan C (2003) The effect of hand osteoarthritis on grip and pinch strength and hand function in postmenopausal women. *Clinical Rheumatology*. 22: 420-424.

Berger L R, Hawks J, de Ruiter D J, Churchill S E, Schmid P, Deleuzene L K, Kivell T L, Garvin H M, Williams S A, DeSilva J M, Skinner M M, Musiba C M, Cameron N, Holliday T W, Harcourt-Smith W, Ackermann R R, Bastir M, Bogin B, Bolter D, Brophy J, Cofran ZD, Congdon K A, Deane A S, Dembo M, Drapeau M, Elliott M C, Feuerriegel E M, Garcia-Martinez D, Green D J, Gurtov A, Irish J D, Kruger A, Laird M F, Marchi D, Meyer M R, Nalla S, Negash E W, Orr C M, Radovicic D, Schroeder L, Scott J E, Throckmorton Z, Tocheri M W, VanSickle C, Walker C S, Wei P, and Zipfel B (2015) *Homo naledi*, a new species of the genus *Homo* from the Dinaledi Chamber, South Africa. *eLife*. 4: e09560.

- Bhardwaj P, Nayak S S, Kiswar A M, and Sabapathy S R (2011) Effect of static wrist position on grip strength. *Indian Journal of Plastic Surgery*. 44: 55-58.
- Blob R W, Espinoza N R, Butcher M T, Lee A H, D'Amico A R, Baig F, and Sheffield K M (2014) Diversity of limb-bone safety factors for locomotion in terrestrial vertebrates: evolution and mixed chains. *Integrative and Comparative Biology*. 54: 1058-1071.
- Borel A, Chèze L, and Pouydebat E (2016) Sequence analysis of grip and manipulation during tool using tasks: a new method to analyze hand use strategies and examine human specificities. *Journal of Archaeological Method and Theory*. 1-25.
- Bosch K, Nagel A, Weigend L, and Rosenbaum D (2009) From “first” to “last” steps in life – pressure patterns of three generations. *Clinical Biomechanics*. 24: 676-681.
- Buffi J H, Crisco J J, and Murray W M (2013) A method for defining carpometacarpal joint kinematics from three-dimensional rotations of the metacarpal bones captured *in vivo* using computer tomography. *Journal of Biomechanics*. 46: 2104-2108.
- Bush M E, Lovejoy C O, Johanson D C, and Coppens Y (1982) Hominid carpal, metacarpal, and phalangeal bones recovered from the Hadar formation 1974-1977 collections. *American Journal of Physical Anthropology*. 57: 651-677.
- Chan L K (2007) Scapular position in primates. *Folia Primatologica*. 78: 19-35.

Chan L K (2008) The range of passive arm circumduction in primates: do hominoids really have more mobile shoulders? *American Journal of Physical Anthropology*. 136: 265-277.

Choi W J, and Robinovitch S N (2011) Pressure distribution over the palm region during forward falls on the outstretched hands. *Journal of Biomechanics*. 44: 532-539.

Congdon K A, and Ravosa M J (2016) Get a grip: substrate orientation and digital grasping pressures in strepsirrhines. *Folia Primatologica*. 87: 224-243.

Csapo R, Maganaris C N, Seynnes O R, and Narici M V (2010) On muscle, tendon and high heels. *The Journal of Experimental Biology*. 213: 2582-2588.

D'Agostino P, Kerkhof F D, Shahabpour M, Moermans J-P, Stockmans F, and Vereecke E E (2014) Comparison of the anatomical dimensions and mechanical properties of the dorsoradial and anterior oblique ligaments of the trapeziometacarpal joint. *The Journal of Hand Surgery*. 39: 1098-1107.

D'Agostino P, Dourthe B, Kerkhof F, Stockmans F, and Vereecke E E (2016) In vivo kinematics of the thumb during flexion and adduction motion: evidence for a screw-home mechanism. *Journal of Orthopaedic Research*. 35: 1556-1564.

D'Agostino P, Dourthe B, Kerkhof F, Van Lenthe G H, Stockmans F, and Vereecke E E (2017) In vivo biomechanical behavior of the trapeziometacarpal joint in healthy and osteoarthritic subjects. *Clinical Biomechanics*. 49: 119-127.

D'Août K, Aerts P, De Clercq D, Schoonaert K, Vereecke E, and Van Elsacker L (2001) Studying bonobo (*Pan paniscus*) locomotion using an integrated set up in a zoo environment: preliminary results. *Primatologie*. 4: 191-206.

D'Août K, Pataky T C, De Clercq D, and Aerts P (2009) The effects of habitual footwear use: foot shape and function in native barefoot walkers. *Footwear Science*. 1: 81-94.

D'Août K, Meert L, Van Gheluwe B, De Clercq D, and Aerts P (2010) Experimentally generated footprints in sand: analysis and consequences for the interpretation of fossil and forensic footprints. *American Journal of Physical Anthropology*. 141: 515-525.

Dart R A (1925) *Australopithecus afarensis*: the man-ape of South Africa. *Nature*. 115: 195-199.

Demes B, Larson S G, Stern Jr J T, Jungers W L, Biknevicius A R, and Schmitt D (1994) The kinetics of primate quadrupedalism: "hindlimb drive" reconsidered. *Journal of Human Evolution*. 26: 353-374.

Dirks P H G M, Roberts E M, Hilbert-Wolf H, Kramers J D, Hawks J, Dosseto A, Duval M, Elliott M, Evans M, Grün R, Hellstrom J, Herries A I R, Joannes-Boyau R, Makhubela T V, Placzek C J, Robbins J, Spandler C, Wiersma J, Woodhead J, and Berger L R (2017) The age of *Homo naledi* and associated sediments in the Rising Star Cave, South Africa. *eLife*. 6: e24231.

Doran D M (1993) Comparative locomotor behavior of chimpanzees and bonobos: the influence of morphology on locomotion. *American Journal of Physical Anthropology*. 91: 83-98.

Edgren C S, Radwin R G, and Irwin C B (2004) Grip force vectors for varying handle diameters and hand sizes. *Human Factors*. 46: 244-251.

Eils E, Nolte S, Tewes M, Thorwesten L, Völker K, and Rosenbaum D (2002) Modified pressure distribution patterns in walking following reduction of plantar sensation. *Journal of Biomechanics*. 35: 1307-1313.

Eksioglu M (2004) Relative optimum grip span as a function of hand anthropometry. *International Journal of Industrial Ergonomics*. 34: 1-12.

El-Shennawy M, Nakamura K, Patterson R M, and Viegas S F (2001) Three-dimensional kinematic analysis of the second through fifth carpometacarpal joints. *Journal of Hand Surgery*. 26A: 1030-103.

Enomoto T (1990) Social play and sexual behavior of the bonobo (*Pan paniscus*) with special reference to flexibility. *Primates*. 31: 469-480.

Eshed V, Gopher A, Galili E, and Hershkovitz I (2004) Musculoskeletal stress markers in Natufian hunter-gatherers and Neolithic farmers in the Levant: the upper limb. *American Journal of Physical Anthropology*. 123:303-315.

Feix T, Kivell T L, Pouydebat E, and Dollar A M (2015) Estimating thumb-index finger precision grip and manipulation potential in extant and fossil primates. *Journal of the Royal Society Interface*. 12: 20150176.

Goislard de Monsabert B, Vigouroux L, Bendahan D, and Berton E (2014) Quantification of finger joint loadings using musculoskeletal modelling clarifies mechanical risk factors of hand osteoarthritis. *Medical Engineering and Physics*. 36: 177-184.

Hall C (1997) External pressure at the hand during object handling and work with tools. *International Journal of Industrial Ergonomics*. 20: 191-206.

Halleman A, D'Août K, De Clercq D, and Aerts P (2003) Pressure distribution patterns under the feet of new walkers: the first two months of independent walking. *Foot & Ankle International*. 24: 444-453.

Harmand S, Lewis J E, Fiebel C S, Lepre C J, Prat S, Lenoble A, Boës X, Quinn R L, Brenet M, Arroyo A, Taylor N, Clément S, Daver G, Brugal J-P, Leakey L, Mortlock R A, Wright J D, Lokorodi S, Kirwa C, Kent D V, and Roche H (2015) 3.3-million-year-old stone tools from Lomekwi 3, West Turkana, Kenya. *Nature*. 521: 310-315.

Hatala K G, Dingwall H L, Wunderlich R E, and Richmond B G (2013) The relationship between plantar pressure and footprint shape. *Journal of Human Evolution*. 65: 21-28.

Hirasaki E, Higurashi Y, and Kumakura H (2010) Brief communication: dynamic plantar pressure distribution during locomotion in Japanese macaques (*Macaca fuscata*). *American Journal of Physical Anthropology*. 142: 149-156.

Humle T, and Matsuzawa T (2009) Laterality in hand use across four tool-use behaviors among the wild chimpanzees of Bossou, Guinea, West Africa. *American Journal of Primatology*. 71: 40-48.

Hunt K D (1991) Mechanical implications of chimpanzee positional behavior. *American Journal of Physical Anthropology*. 86: 521-536.

Hunt K D (1992) Positional behavior of *Pan troglodytes* in the Mahale Mountains and Gombe Stream National Parks, Tanzania. *American Journal of Physical Anthropology*. 87: 83-105.

Hunt K D (1994) Body size effects on vertical climbing among chimpanzees. *International Journal of Primatology*. 15: 855-865.

Hunt K D (1996) The postural feeding hypothesis: an ecological model for the evolution of bipedalism. *South African Journal of Science*. 92: 77-90.

Hunt K D, Cant J G H, Gebo D L, Rose M D, Walker S E, and Youlatos D (1996) Standardized descriptions of primate locomotor and postural modes. *Primates*. 37: 363-387.

Idani G (1990) Relations between unit-groups of bonobos at Wamba, Zaire: encounters and temporary fusions. *African Study Monographs*. 11: 153-186.

Imamura M, Imamura S T, Salomão O, Pereira C A M, De Carvalho Jr A E, and Neto R B (2002) Pedobarometric evaluation in the normal adult male foot. *Foot & Ankle International*. 23: 804-810.

Isler K (2002a) Characteristics of vertical climbing in African apes. *Senckenbergiana lethaea*. 82: 115-124.

Isler K (2002b) Characteristics of vertical climbing in gibbons. *Evolutionary Anthropology: Issues, News, and Reviews*. 11 (S1): 49-52.

Isler K (2004) Footfall patterns, stride length and speed of vertical climbing in spider monkeys (*Ateles fusciceps robustus*) and woolly monkeys (*Lagothrix lagotricha*). *Folia Primatologica*. 75: 133-149.

Kawano S M, Economy D R, Kennedy M S, Dean D, and Blob R W (2016) Comparative limb bone loading in the humerus and femur of the tiger salamander: testing the 'mixed - chain' hypothesis for skeletal safety factors. *Journal of Experimental Biology*. 219: 341-353.

Keaveny T M, and Hayes W C (1993) Chapter 10. Mechanical properties of cortical and trabecular bone. In, Hall B K (1993) *Bone. Volume 7: Bone Growth - B*. CRC Press: Boca Raton, Ann Arbor, London, Tokyo. Pages: 285-344.

Key A J M (2016) Integrating mechanical and ergonomic research within functional and morphological analyses of lithic cutting technology: key principles and future experimental directions. *Ethnoarchaeology*. 8: 69-89.

Key A J M, and Dunmore C J (2015) The evolution of the hominin thumb and the influence exerted by the non-dominant hand during stone tool production. *Journal of Human Evolution*. 78: 60-69.

Kimbel W H and Deleuzene L K (2009) “Lucy” redux: a review of research on *Australopithecus afarensis*. *Yearbook of Physical Anthropology*. 52: 2-48.

Kivell T L, and Schmitt D (2009) Independent evolution of knuckle-walking in African apes shows that humans did not evolve from a knuckle-walking ancestor. *Proceedings of the National Academy of Sciences*. 106: 14241-14246.

Kivell T L, Schmitt D, and Wunderlich R E (2010) Hand and foot pressures in the aye-aye (*Daubentonia madagascariensis*) reveal novel biomechanical trade-offs required for walking on gracile digits. *The Journal of Experimental Biology*. 213: 1549-157.

Kivell T L, Kibii J M, Churchill S E, Schmid P, and Berger L R (2011) *Australopithecus sediba* hand demonstrates mosaic evolution of locomotor and manipulative abilities. *Science*. 333: 1411-1417.

Kivell T L, Deane A S, Tocheri M W, Orr C M, Schmid P, Hawks J, Berger L R, and Churchill S E (2015) The hand of *Homo naledi*. *Nature Communications*. 6: 8431.

Kong Y-K, and Lowe B D (2005) Optimal cylindrical handle diameter for grip force tasks. *International Journal of Industrial Ergonomics*. 35: 495-507.

Kraft T S, Venkataraman V V, and Dominy N J (2014) A natural history of human tree climbing. *Journal of Human Evolution*. 71: 105-118.

Kuo L-C, Su F-C, Chiu H-Y, and Yu C-Y (2002) Feasibility of using video-based motion analysis system for measuring thumb kinematics. *Journal of Biomechanics*. 35: 1499-1506.

Lee S-H (2010) Hand biomechanics in skilled pianists playing a scale in thirds. *Medical Problems of Performing Artists*. 25: 167-174.

Lee C R, and Farley C T (1998) Determinants of the center of mass trajectory in human walking and running. *The Journal of Experimental Biology*. 201: 2935-2944.

Lin H-T, Kuo L-C, Wu W-L, and Su F-C (2011) The three-dimensional analysis of three thumb joints coordination in activities of daily living. *Clinical Biomechanics*. 26: 371-376.

Lindbladh M, Fraver S, Edvardsson J, and Felton A (2013) Past forest composition, structures and processes – how paleoecology can contribute to forest conservation. *Biological Conservation*. 168: 116-127.

Lovejoy C O, Simpson S W, White T D, Asfaw B, and Suwa G (2009a) Careful climbing in the Miocene: the forelimbs of *Ardipithecus ramidus* and humans are primitive. *Science*. 326: 70, 70e1-70e8.

Lovejoy C O, Suwa G, Simpson S W, Matternes J H, and White T D (2009b) The great divides: *Ardipithecus ramidus* reveals the postcrania of our last common ancestors with African Apes. *Science*. 326: 73, 100-106.

Lowry R (2018) *Binomial probabilities*. Vassarstats. [Online] Available from: <http://vassarstats.net> Accessed: 12/07/18.

Lucas G L, Cooke F W, and Friis E A (1999) *A primer of biomechanics*. Springer-Verlag New York, Inc.

MacLeod D, Sutherland D L, Buntin L, Whitaker A, Aitchison T, Watt I, Bradley J, and Grant S (2007) Physiological determinants of climbing-specific finger endurance and sport rock climbing performance. *Journal of Sports Sciences*. 25: 1433-1443.

Marchi D (2005) The cross-sectional geometry of the hand and foot bones of the hominoidea and its relationship to locomotor behavior. *Journal of Human Evolution*. 49: 743-761.

Marzke M W, and Shackley M S (1986) Hominid hand use in the Pliocene and Pleistocene: evidence from experimental archaeology and comparative morphology. *Journal of Human Evolution*. 15: 439-460.

Marzke M W (1997) Precision grips, hand morphology, and tools. *American Journal of Physical Anthropology*. 102: 91-110.

Marzke M W, and Marzke R F (2000) Evolution of the human hand: approaches to acquiring, analysing, and interpreting the anatomical evidence. *Journal of Anatomy*. 197: 121-140.

Marzke M W, Tocheri M W, Steinberg B, Femiani J D, Reece S P, Linscheid R L, Orr C M, and Marzke R F (2010) Comparative 3D quantitative analysis of trapeziometacarpal joint surface curvatures among living catarrhines and fossil hominins. *American Journal of Physical Anthropology*. 141: 38-51.

Matarazzo S (2013) Manual pressure distribution patterns of knuckle-walking apes. *American Journal of Physical Anthropology*. 152: 44-50.

McBride I D, Wyss U P, Cooke T D V, Murphy L, Phillips J, and Olney S J (1991) First metatarsophalangeal joint reaction forces during high-heeled gait. *Foot & Ankle International*. 11: 282-288.

Mermier C M, Robergs R A, McMinn S M, and Heyward V H (1997) Energy expenditure and physiological responses during indoor rock climbing. *British Journal of Sports Medicine*. 31: 224-228.

Milella M, Cardoso F A, Assis S, Lopreno G P, and Speith N (2015) Exploring the relationship between enthesal changes and physical activity: a multivariate study. *American Journal of Physical Anthropology*. 156: 215-223.

Nakano Y (2002) The effects of substratum inclination on locomotor patterns in primates.

Zeitschrift für Morphologie und Anthropologie. 83: 189-199.

Napier J R (1956) The prehensile movements of the human hand. *The Journal of Bone and*

Joint Surgery. 38B: 902-913.

Newton I (1687) *Philosophiae naturalis principia mathematica*. Jussu Societatis Regiae ac

Typis Josephi Streater; prostat apud plures Bibliopolas, London.

Nguyen N H, Pahr D H, Gross T, Skinner M M, and Kivell T L (2014) Micro-finite element

(μ FE) modelling of the siamang (*Symphalangus syndactylus*) third proximal phalanx: The

functional role of curvature and the flexor sheath ridge. *Journal of Human Evolution*. 67:60-

75.

Nurse M A, and Nigg B M (1999) Quantifying a relationship between tactile and vibration

sensitivity of the human foot with plantar pressure distributions during gait. *Clinical*

Biomechanics. 14: 667-672.

Nurse M A, and Nigg B M (2001) The effect of changes in foot sensation on plantar pressure

and muscle activity. *Clinical Biomechanics*. 16: 719-727.

Orr C M (2016) Chapter 9. Functional morphology of the primate hand: recent approaches

using biomedical imaging, computer modeling, and engineering methods. In, Kivell T L,

Lemelin P, Richmond B G, and Schmitt D (Editors) (2016) *The evolution of the primate*

hand. Anatomical, developmental, functional, and paleontological evidence. Springer. Pages: 227-257.

Patel B A (2010) The interplay between speed, kinetics, and hand postures during primate terrestrial locomotion. *American Journal of Physical Anthropology*. 141: 222-234.

Patel B A, and Wunderlich R E (2010) Dynamic pressure patterns in the hands of olive baboons (*Papio anubis*) during terrestrial locomotion: implications for cercopithecoid primate hand morphology. *The Anatomical Record*. 293: 710-718.

Payne R C, Crompton R H, Isler K, Savage R, Vereecke E, Günther M M, Thorpe S K S, and D'Août K (2006) Morphological analysis of the hindlimb in apes and humans. 1. Muscle architecture. *Journal of Anatomy*. 208: 709-724.

Pouydebat E, Fragaszy D, and Kivell T L (2014) Grasping in primates: for feeding, moving and human specificities. *Bulletins et Mémoires de la Société d'Anthropologie de Paris*. 26: 129-133.

Preuschoft H, and Günther MM (1994) Biomechanics and body shape in primates compared with horses. *Zeitschrift für Morphologie und Anthropologie*. 80: 149-165.

Preuschoft H, Günther M M, and Christian A (1998) Size dependence in prosimian locomotion and its implications for the distribution of body mass. *Folia Primatologica*. 69: 60-81.

Preuschoft H (2002) What does “arboreal locomotion” mean exactly and what are the relationships between “climbing”, environment and morphology? *Zeitschrift für Morphologie und Anthropologie*. 83: 171-188.

Preuschoft H (2004) Mechanisms for the acquisition of habitual bipedality: are there biomechanical reasons for the acquisition of upright bipedal posture? *Journal of Anatomy*. 204: 363-384.

Quaine F, Vigouroux L, and Martin L (2003) Effect of simulated rock climbing finger postures on force sharing among fingers. *Clinical Biomechanics*. 18: 385-388.

Raichlen D A, Gordon A D, Harcourt-Smith W E H, Foster A D, and Haas Jr W R (2010) Laetoli footprints preserve earliest direct evidence of human-like bipedal biomechanics. *PLoS One*. 5: e9769.

Remis M (1995) Effects of body size and social context on the arboreal activities of lowland gorillas in the Central African Republic. *American Journal of Physical Anthropology*. 97: 413-433.

Richmond B G, Roach N T, and Ostrofsky K R (2016) Chapter 18. Evolution of the early hominin hand. In, Kivell T L, Lemelin P, Richmond B G, and Schmitt D (Editors) (2016) *The evolution of the primate hand. Anatomical, developmental, functional, and paleontological evidence*. Springer. Pages: 515-543.

Richmond B G (2007) Biomechanics of phalangeal curvature. *Journal of Human Evolution*. 53: 678-690.

Richmond B G, Begun D R, and Strait D S (2001) Origin of human bipedalism: the knuckle-walking hypothesis revisited. *Yearbook of Physical Anthropology*. 44: 70-105.

Rolian C, Lieberman D E, and Zermeno J P (2011) Hand biomechanics during simulated stone tool use. *Journal of Human Evolution*. 61: 26-41.

Rossi J, Goisard de Monsabert B, Berton E, and Vigouroux L (2014) Does handle shape influence prehensile capabilities and muscle coordination? *Computer Methods in Biomechanics and Biomedical Engineering*. 17: 172-173.

Ruff C, Holt B, Trinkaus E (2006) Who's afraid of the big bad Wolff?: "Wolff's Law" and bone function adaptation. *American Journal of Physical Anthropology*. 129:484-498.

Samuel D S, Nauwelaerts S, Stevens J M G, and Kivell T L (2018) Hand pressures during arboreal locomotion in captive bonobos (*Pan paniscus*). *Journal of Experimental Biology*. 221: 170910.

Sanz C, Morgan D, and Gulick S (2004) New insights into chimpanzees, tools, and termites from the Congo Basin. *The American Naturalist*. 164: 567-581.

Sarmiento E E (1988) Anatomy of the hominoid wrist joint: its evolutionary and functional implications. *International Journal of Primatology*. 9: 281-345.

Schindelin J, Rueden C T, Hiner M C, and Eliceiri K W (2015) The ImageJ ecosystem: an open platform for biomedical analysis. *Molecular Reproduction & Development*. 82: 518-529.

Schlecht S H (2012) Understanding entheses: bridging the gap between clinical and anthropological perspectives. *The Anatomical Record*. 295: 1239-1251.

Schmitt D (2003) Substrate size and primate forelimb mechanics: implications for understanding the evolution of primate locomotion. *International Journal of Primatology*. 24: 1023-1036.

Schmitt D, Zeininger A, and Granatosky M C (2016) Chapter 13. Patterns, variability, and flexibility of hand posture during locomotion in primates. In, Kivell T L, Lemelin P, Richmond B G, and Schmitt D (Editors) (2016) *The evolution of the primate hand. Anatomical, developmental, functional, and paleontological evidence*. Springer. Pages: 345-369.

Schoonaert K, D'Août K, Samuel D, Talloen W, Nauwelaerts S, Kivell T L, and Aerts P (2016) Gait characteristics and spatio-temporal variables of climbing in Bonobos (*Pan paniscus*). *American Journal of Primatology*. 78: 1165-1177.

Seo N J, Armstrong T J, Ashton-Miller J A, and Chaffin D B (2007) The effect of torque direction and cylindrical handle diameter on the coupling between the hand and a cylindrical handle. *Journal of Biomechanics*. 40: 3236-3243.

Seo N J, and Armstrong T J (2008) Investigation of grip force, normal force, contact area, hand size, and handle size for cylindrical handles. *Human Factors*. 50: 734-744.

Sheel A W, Seddon N, Knight A, McKenzie D C, and Warburton D E R (2003) Physiological responses to indoor rock-climbing and their relationship to maximal cycle ergometry.

Medicine and Science in Sports and Exercise. 35: 1225-1231.

Skinner M M, Stephens N B, Tsegai Z J, Foote A C, Nguyen N H, Gross T, Pahr D H, Hublin J-J, and Kivell T L (2015) Human-like hand use in *Australopithecus africanus*. *Science*. 347: 395-399.

Standring S (2016) *Gray's anatomy. The anatomical basis of clinical practice*. Forty-first Edition. Elsevier Limited.

StataCorp (2017) *Stata Statistical Software: Release 15*. College Station, TX: StataCorp LLC.

Su F-C, Chou Y L, Yang C S, Lin G T, and An K N (2005) Movement of finger joints induced by synergistic wrist motion. *Clinical Biomechanics*. 20: 491-497.

Sylvester A D, Christensen A M, and Kramer P A (2006) Factors influencing osteological changes in the hands and fingers of rock climbers. *Journal of Anatomy*. 209: 597-609.

Thorpe S K S, and Crompton R H (2006) Orangutan positional behavior and the nature of arboreal locomotion in hominoidea. *American Journal of Physical Anthropology*. 131: 384-401.

Thorpe S K S, Holder R L, and Crompton R H (2007) Origin of human bipedalism as an adaptation for locomotion on flexible branches. *Science*. 316: 1328-1331.

Thorpe S K S, McClymont J M, and Crompton R H (2014) The arboreal origins of human bipedalism. *Antiquity*. 88: 906-926.

Toth N, and Schick K (2007) Chapter 21. Overview of paleolithic archaeology. In, Henke, W, and Tattersall I (2007) *Handbook of paleoanthropology. Volume 1. Principles, methods and approaches*. Springer-Verlag. Pages: 1943-1963.

Tuttle R H (1969) Quantitative and functional studies on the hands of the anthropoidea. 1. The hominoidea. *Journal of Morphology*. 128: 309-363.

Venkataraman V V, Kraft T S, and Dominy N J (2013) Tree climbing and human evolution. *Proceedings of the National Academy of Sciences of the United States of America*. 110: 1237-1242.

Vereecke E E, and Wunderlich R E (2016) Chapter 10. Experimental research on hand use and function in primates. In, Kivell T L, Lemelin P, Richmond B G, and Schmitt D (Editors) (2016) *The evolution of the primate hand. Anatomical, developmental, functional, and paleontological evidence*. Springer. Pages: 259-284.

Vilensky J A, Moore-Kuhns M, and Moore A M (1990) Angular displacement patterns of leading and trailing limb joints during galloping in monkeys. *American Journal of Primatology*. 22: 227-239.

Ward C V (2002) Interpreting the posture and locomotion of *Australopithecus afarensis*: where do we stand? *Yearbook of Physical Anthropology*. 45: 185-215.

Watts P B, and Drobish K M (1998) Physiological responses to simulated rock climbing at different angles. *Medicine and Science in Sports and Exercise*. 30: 1118-1122.

White T D, and Suwa G (1987) Hominid footprints at Laetoli: facts and interpretations. *American Journal of Physical Anthropology*. 72: 485-514.

Williams-Hatala E M (2016) Chapter 11. Biomechanics of the human hand: from stone tools to computer keyboards. In, Kivell T L, Lemelin P, Richmond B G, and Schmitt D (Editors) (2016) *The evolution of the primate hand. Anatomical, developmental, functional, and paleontological evidence*. Springer. Pages: 285-312.

Williams E M, Gordon A D, and Richmond B G (2010) Upper limb kinematics and the role of the wrist during stone tool production. *American Journal of Physical Anthropology*. 143: 134-145.

Williams E M, Gordon A D, and Richmond B G (2012) Hand pressure distribution during Oldowan stone tool production. *Journal of Human Evolution*. 62: 520-532.

Wolff J (1892) *Das gesetz der transformation der knochen*. A Hirschwald: Berlin.

Wunderlich R E, and Jungers W L (2009) Manual digit pressures during knuckle-walking in chimpanzees (*Pan troglodytes*). *American Journal of Physical Anthropology*. 139: 394-403.