

Medical and Dental Sciences



# Clinical Anatomy

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Research student : Weiyi WANG (April ~), Takahiro KASHIYAMA (October ~)

## (1) Outline

Department of Clinical Anatomy supports clinical medicine through formulation of human anatomical and developmental biological bases of diagnoses and surgical procedures. We handle the whole body in human anatomical researches. We think it is classic but important to represent human morphology for exactly what they are based on meticulous observations of human body structures regardless of diagnostic technics and surgical procedures. Our researches are aimed to share languages among all clinicians based on clinical anatomy by describing the results of observations in an accessible way for clinicians. In addition, we perform analyses using experimental embryological approaches and developmental biological approaches, because we think it is important to consider how human structures are constructed.

## (2) Research

- 1) Clinical anatomic study of the shoulder joint and rotator cuff.
- 2) Clinical anatomic study of the anal region for the rectoanal surgery.
- 3) Cadaveric study of the female pelvis for the gynecologic oncology and colposcopy.
- 4) Analyses of the lamination in the masticatory muscles with special reference of nerve supply.
- 5) Embryological study of the differentiation of cloaca and surrounding muscles.

### ( 3 ) Education

Clinical anatomy is generally considered as the practical application of anatomical knowledge to diagnosis and treatment, however we think that this course is a part of pure anatomical science based on the findings of the morphological observations of the human bodies. Main objective of Clinical anatomy in the graduate course is to make detailed anatomical data to answer the questions developed from clinical fields especially by surgeons and radiologists. We collaborate with many clinicians: ENT, orthopedics, gynecology, thoracic surgery, radiology and so on, and our projects have been broad areas. Students are expected to get fine dissection techniques of human bodies and also learn techniques of histology and embryological experiments. By using these techniques, we study the spatial relationships of organs, vessels nerves, and also try to examine their developmental processes in various projects.

### ( 4 ) Lectures & Courses

Theories and hypotheses of morphogenesis derived from descriptive anatomy and descriptive biology have been confirmed and modified by experimental biology. Furthermore, progresses of developmental biology identified molecules and signaling pathways involved in the morphogenesis. Progresses in the developmental biology also verified morphological hypotheses, and added revisions to the morphological models. The postulates of the morphological models which are currently investigated were built and completed by Anatomy. However, we find Anatomy is still not completed and has many obscure issues through careful dissection of human body. It might be thought that everything was done and there could be no new finding in the human anatomical field anymore because the anatomy employs the classic procedures such as the gross anatomy. However, there are still a lot of unclear anatomical topics, because they had not been focused and not investigated with their clinical significances.

### ( 5 ) Publications

#### [Original Articles]

1. Shintarou Kudo, Mizuki Hatanaka, Seiya Kanazawa, Keisuke Hirakawa, Shigeyuki Hara, Masahiro Tsutsumi. Effects of short foot exercises with ultrasound bio-feedback on motor learning and foot alignment: A double blinded randomized control trial. *J Back Musculoskelet Rehabil.* 2023.12;
2. Tharnmanularp S, Muro S, Nimura A, Ibara T, Akita K. Significant relationship between musculoaponeurotic attachment of the abdominal and thigh adductor muscles to the pubis: implications for the diagnosis of groin pain. *Anatomical science international.* 2023.11; 99(2); 190-201
3. Muro S, Moue S, Akita K. Twisted orientation of the muscle bundles in the levator ani functional parts in women: Implications for pelvic floor support mechanism. *Journal of anatomy.* 2023.10; 244(3); 486-496
4. Jiamjunyasiri A, Tsutsumi M, Muro S, Akita K. Origin, course, and distribution of the posterior femoral cutaneous nerve and the spatial relationship among its branches. *Anatomical science international.* 2023.09; 98(4); 540-547
5. Yamamoto A, Fujita K, Yamada E, Ibara T, Nihey F, Inai T, Tsukamoto K, Kobayashi Y, Nakahara K, Okawa A. Foot characteristics of the daily-life gait in postmenopausal females with distal radius fractures: a cross-sectional study. *BMC musculoskeletal disorders.* 2023.09; 24(1); 706
6. Masahiro Yamane, Yoshiya Ishikawa, Daisuke Asano, Shuichi Watanabe, Hiroki Ueda, Keiichi Akahoshi, Hiroaki Ono, Atsushi Kudo, Shinji Tanaka, Yuzuki Sugiyama, Satoru Muro, Keiichi Akita, Minoru Tanabe. Surgical anatomy of the dorsal pancreatic artery: Considering embryonic development. *Pancreatology.* 2023.09; 23(6); 697-703
7. Kuroiwa T, Sarcon A, Ibara T, Yamada E, Yamamoto A, Tsukamoto K, Fujita K. The Potential of ChatGPT as a Self-Diagnostic Tool in Common Orthopedic Diseases: Exploratory Study. *Journal of medical Internet research.* 2023.09; 25; e47621
8. Kyosuke Kamijo, Kentaro Ishida, Shiho Oide, Keisuke Anan, Shunsuke Taito, Yuki Kataoka, Kenro Chikazawa. Efficacy and Safety of the Surgery-First Approach Compared to the Chemotherapy-First Approach for Treating Low-Risk Gestational Trophoblastic Neoplasia: A Systematic Review and Meta-Analysis. *Cureus.* 2023.09; 15(9); e45726

9. Sara Sugiura, Haruhiko Shimura, Koji Fujita, Takahisa Ogawa, Akimoto Nimura. Comparison of ceftriaxone and ceftazidime as prophylactic antibiotics for surgical site infection in orthopedic upper extremity surgery: The nationwide shortage of ceftazidime in March 2019. *J Orthop Sci.* 2023.09; 28(5); 1018-1022
10. Ibara T, Fujita K, Watanabe N, Takada R, Miyatake K, Nimura A, Akita K. Stabilization and compensation strategy of the hip angle during gait in hip-osteoarthritis patients from the perspective of whole-body movement synergy. *Gait & posture.* 2023.08; 106; 65-71
11. Ryo Karakawa, Hidehiko Yoshimatsu, Yuma Fuse, Tomoyuki Yano. Comparison of outcomes following pedicled and free flap transfers for the defect after shoulder sarcoma resection. *J Plast Reconstr Aesthet Surg.* 2023.08; 83; 373-379
12. Fujishiro H, Nimura A, Azumaya M, Hattori S, Hoshi O, Akita K. Anatomical study of the bone morphology of the anterior talofibular ligament attachment. *Anatomy & cell biology.* 2023.07;
13. Nawa N, Numasawa M, Yamaguchi K, Morita A, Fujiwara T, Akita K. Association between the social network of medical students and their academic performance on the anatomy written examination. *Anatomical sciences education.* 2023.07; 16(4); 654-665
14. Fukino K, Iida K, Tsutsumi M, Iwanaga J, Akita K. Evaluation of morphological features of palatopharyngeus insertion into the thyroid cartilage. *Anatomical science international.* 2023.07; 98(3); 448-453
15. Tokairin Y, Kawamura Y, Muro S, Nagai K, Kawada K, Okada T, Tharnmanularp S, Jiamjunyasiri A, Akita K, Kinugasa Y. Histological study of the thin membranous dense connective tissues around the curving portion of the bilateral recurrent laryngeal nerves. *Esophagus : official journal of the Japan Esophageal Society.* 2023.07; 20(3); 410-419
16. Tsutsumi M, Nimura A, Tharnmanularp S, Kudo S, Akita K. Posteromedial capsular anatomy of the tibia for consideration of the medial meniscal support structure using a multidimensional analysis. *Scientific reports.* 2023.07; 13(1); 12030
17. Saito T, Muro S, Fujiwara H, Umebayashi Y, Sato Y, Tokunaga M, Akita K, Kinugasa Y. Histological study of the structural layers around the esophagus in the lower mediastinum. *World journal of gastrointestinal surgery.* 2023.07; 15(7); 1331-1339
18. Hidehiko Yoshimatsu, Ryo Karakawa, Mario F Scaglioni, Yuma Fuse, Tomoyuki Yano. Use of intraoperative indocyanine green angiography for detection and prediction of congestion in pedicled island flaps. *Microsurgery.* 2023.07; 43(5); 452-459
19. Kenro Chikazawa, Ken Imai, Tomoyuki Kuwata, Ryo Konno. infection on gastric cancer development. *Int J Gynecol Cancer.* 2023.07; 33(7); 1164
20. Yoshimatsu H, Karakawa R, Fuse Y, Yano T, Muro S, Akita K. The Use of the Deep Brachial Artery as the Recipient Artery for Free Perforator Flap Transfer: An Anatomic Study and Clinical Applications. *Medicina (Kaunas, Lithuania).* 2023.06; 59(6);
21. Yamada E, Fujita K, Watanabe T, Koyama T, Ibara T, Yamamoto A, Tsukamoto K, Kaburagi H, Nimura A, Yoshii T, Sugiura Y, Okawa A. A screening method for cervical myelopathy using machine learning to analyze a drawing behavior. *Scientific reports.* 2023.06; 13(1); 10015
22. Ibara Takuya, Matsui Ryota, Koyama Takafumi, Yamada Eriku, Yamamoto Akiko, Tsukamoto Kazuya, Kaburagi Hidetoshi, Nimura Akimoto, Yoshii Toshitaka, Okawa Atsushi, Saito Hideo, Sugiura Yuta, Fujita Koji. Screening for degenerative cervical myelopathy with the 10-second grip-and-release test using a smartphone and machine learning: A pilot study *DIGITAL HEALTH.* 2023.06; 9; 20552076231179030
23. Keisuke Anegawa, Kengo Kawanishi, Misaki Nakamura, Meika Izumi, Masahiro Tsutsumi, Shintarou Kudo. Tibial nerve dynamics during ankle dorsiflexion: The relationship between stiffness and excursion of the tibial nerve. *J Biomech.* 2023.06; 155; 111646
24. Umebayashi Y, Muro S, Tokunaga M, Saito T, Sato Y, Tanioka T, Kinugasa Y, Akita K. Distribution of splenic artery lymph nodes and splenic hilar lymph nodes. *World journal of gastrointestinal surgery.* 2023.05; 15(5); 812-824

25. Ryo Karakawa, Hidehiko Yoshimatsu, Kengo Nakatsuka, Yuma Fuse, Shohei Nishiyama, Tomohiro Kawahara, Tomoyuki Yano. "Super-Microsurgical Anastomosis training using the chick embryos within the "Egg-in-Cube" system.". *Plast Reconstr Surg.* 2023.05;
26. Kengo Kawanishi, Akihiro Kakimoto, Keisuke Anegawa, Masahiro Tsutsumi, Isao Yamaguchi, Shintarou Kudo. Automatic Identification of Ultrasound Images of the Tibial Nerve in Different Ankle Positions Using Deep Learning. *Sensors (Basel).* 2023.05; 23(10);
27. Muro S, Nimura A, Ibara T, Chikazawa K, Nakazawa M, Akita K. Anatomical basis for contribution of hip joint motion by the obturator internus to defaecation/urinary functions by the levator ani via the obturator fascia. *Journal of anatomy.* 2023.04; 242(4); 657-665
28. Masayo Harada, Keiichi Akita. Mouse vaginal development with lateral enlargement at late embryonic stages and caudal elongation after birth. *Congenit Anom (Kyoto).* 2023.03; 63(2); 30-39
29. Okuda Itsuko, Akita Keiichi, Komemushi Takayoshi, Imaizumi Kazuhiko, Jinzaki Masahiro, Ohjimi Hiroyuki. Basic Consideration for Facial Aging: Age-Related Changes of the Bony Orbit and Orbicularis Oculi Muscle in East Asians *AESTHETIC SURGERY JOURNAL.* 2023.03; 43(4); 408-419
30. Haruhiko Shimura, Tatsunobu Ikeda, Koji Fujita, Hidetoshi Kaburagi, Akimoto Nimura. Radiation educational program significantly reduces intraoperative fluoroscopy time during locking plate fixation for distal radius fractures. *J Orthop Sci.* 2023.01; 28(1); 251-254
31. Hasegawa S, Yoshimura H, Mochizuki T, Arai R, Akita K, Nimura A. High diagnostic accuracy of magnetic resonance imaging in detecting subscapularis tendon tears by focusing on the most superior portion of the subscapularis tendon. *Surgical and radiologic anatomy : SRA.* 2023.01; 45(1); 17-24
32. Kenro Chikazawa. Four-step Technique on Ureteral Safety in Total Laparoscopic Hysterectomy. *Gynecol Minim Invasive Ther.* 2023; 12(4); 251-252
33. Kenro Chikazawa, Ken Imai, Naoki Ichi, Tomoyuki Kuwata. Easy and Standardized Technique for the Dissection of Severe Pouch of Douglas Obliteration Mainly by Blunt Dissection in Total Laparoscopic Hysterectomy for Deep Infiltrating Endometriosis. *Gynecol Minim Invasive Ther.* 2023; 12(3); 179-180
34. Kouki Samejima, Sachiko Netsu, Junji Mitsushita, Kenro Chikazawa, Tomoyuki Kuwata. Modified Laparoscopic Cornual Resection for Cornual Pregnancy. *Gynecol Minim Invasive Ther.* 2023; 12(2); 101-102
35. Ken Imai, Kenro Chikazawa, Tomoyuki Kuwata, Ryo Konno. Volume Index Measured Using Magnetic Resonance Imaging for Diagnosing Cervical Cancer Tumors < 2 cm. *In Vivo.* 2023; 37(4); 1786-1789
36. Kenro Chikazawa, Ken Imai, Masahiro Misawa, Tomoyuki Kuwata. A Safe and Standardized Strategy for Laparoscopic Hysterectomy in Patients with a History of Cesarean Section. *Gynecol Minim Invasive Ther.* 2023; 12(1); 46-47
37. Kengo Kawanishi, Daisuke Fukuda, Toshinori Miyashita, Takashi Kitagawa, Hiroyuki Niwa, Taisuke Okuno, Takashi Kinoshita, Masahiro Tsutsumi, Shintarou Kudo. Effects of Compression Intervention on the Thigh Using Elastic Bandage on Lateral Femoral Pain After Trochanteric Fractures: A Multicenter Randomized Controlled Trial. *Gerontol Geriatr Med.* 2023; 9; 23337214231214405

#### [Misc]

1. Muro S, Akita K. Novel combination method of wide-range serial sectioning and 3D reconstruction visualizing both macro-level dynamics and micro-level interactions in an attempt to analyze the female pelvic floor. *Anatomical science international.* 2023.07; 98(3); 343-352
2. Muro S, Akita K. Pelvic floor and perineal muscles: a dynamic coordination between skeletal and smooth muscles on pelvic floor stabilization. *Anatomical science international.* 2023.07; 98(3); 407-425

**[Conference Activities & Talks]**

1. Georgina Djameh, Masayo Harada, Keiichi Akita. Cervical vertebrae fusion in elbow knee synostosis (Eks) mutant mice with fibroblast growth factor 9 N143T mutation. The 46th Annual Meeting of the Molecular Biology Society of Japan 2023.12.07 Kobe, Hyogo
2. Masayo Harada, Keiichi Akita. The mouse vagina develops laterally at the late embryonic stages and elongates caudally after birth. 第 46 回日本分子生物学会年会 2023.12.06 神戸市, 兵庫県
3. Satoru Muro, Shoko Moue, Keiichi Akita. Stratified relationship of the muscle bundles in the levator ani functional parts: Implications for pelvic floor support mechanism. the combined 10th congress of the Asia Pacific International Congress of Anatomists (APICA) and 20th Annual Meeting of the Australian and New Zealand Association of Clinical Anatomists (ANZACA) 2023.12.03 Dunedin, New Zealand
4. Keiichi AKITA, Satoru MURO. Dynamic coordination of the smooth and skeletal muscles in the pelvic floor. the combined 10th congress of the Asia Pacific International Congress of Anatomists (APICA) and 20th Annual Meeting of the Australian and New Zealand Association of Clinical Anatomists (ANZACA) 2023.12.03 Dunedin, New Zealand
5. 辛川 領. Sarcoma reconstruction using a Minimally-invasive flap. PRS Korea 2023 2023.11.10 Seoul, Korea
6. Satoru Muro, Suthasinee Tharnmanularp, Yuichiro Tsukada, Masaaki Ito, Keiichi Akita. Analysis of smooth muscle fiber density in anterior to male rectum. The 17th Annual Congress of the European Association of Clinical Anatomy (EACA) and the 14th Annual Congress of the International Symposium of Clinical and Applied Anatomy (ISCAA) 2023.09.15 Prague, Czech
7. Yuzuki Sugiyama, Satoru Muro, Daisuke Ban, Keiichi Akita. The fusion fascia affects the course of the nerves to the pancreas. The 17th Annual Congress of the European Association of Clinical Anatomy (EACA) and the 14th Annual Congress of the International Symposium of Clinical and Applied Anatomy (ISCAA) 2023.09.15 Prague, Czech
8. Suthasinee Tharnmanularp, Satoru Muro, Akimoto Nimura, and Keiichi Akita. Insights into the aponeurotic attachment of abdomen-thigh adductor muscles to pubis and MRI diagnosis for groin pain. The 17th Annual Congress of the European Association of Clinical Anatomy (EACA) and the 14th Annual Congress of the International Symposium of Clinical and Applied Anatomy (ISCAA) 2023.09.14 Prague, Czech
9. Nimura A, Fukai A. What is the lateral ulnar collateral ligament?; an anatomical study. 15th International congress on shoulder and elbow surgery 2023.09.06 Roma, Italy
10. Mina Nakagawa, Kumiko Yamaguchi, Mitsuyuki Numasawa, Kanako Noritake, Eriko Okada, Eiji Kaneko, Janelle Moross, Jun Tsuruta, Keiichi Akita, Masanaga Yamawaki. Patients as teachers: a novel IPE curriculum . AMEE2023 2023.08.28
11. 辛川 領. Imaging Application for Sarcoma Reconstruction. 5th Congress of Imaging in Reconstructive Microsurgery 2023.08.20 Singapore
12. 辛川 領. High-Precision Reconstructive Surgery with Advanced Visualization Technology. 12th Congress of World Society for Reconstructive Microsurgery 2023.08.18 Singapore
13. 辛川 領. Advances in Sarcoma Reconstruction New Technology and Minimally invasive surgery. 12th Congress of World Society for Reconstructive Microsurgery 2023.08.18 Singapore
14. Takuya Ibara, Koji Fujita, Naoto Watanabe, Ryohei Takada, Kazumasa Miyatake, Akimoto Nimura, Keiichi Akita. Time series for the whole-body synergy of the hip angle during gait in patients with hip osteoarthritis. ISB 2023 Congress XXIX 2023.07.30 FUKUOKA CONVENTION CENTER
15. Masayo Harada, Keiichi Akita. The mouse vagina develops laterally at the late embryonic stages and caudally after birth. The 56th Annual Meeting of the Japanese Society of Developmental Biologists 2023.07.23 Sendai, Miyagi
16. 馬上 頌子. Endoscopic Phenotype Analysis of Postoperative Acute and Chronic Pouchitis in Ulcerative Colitis. 第 78 回 日本消化器外科学会 2023.07.14 函館市, 北海道

17. Takuya Ibara, Koji Fujita, Naoto Watanabe, Ryohei Takada, Kazumasa Miyatake, Akimoto Nimura, Keiichi Akita. Synergy for center of mass trajectory in the medial-lateral direction of patients with hip osteoarthritis. ISPGR World Congress 2023.07.09 Brisbane Convention Centre
  18. 石川 喜也, 杉山 夕月, 室生 暁, 山根 聖弘, 竹内 将, 浅野 大輔, 渡辺 秀一, 上田 浩樹, 赤星 径一, 小野 宏晃, 工藤 篤, 田中 真二, 秋田 恵一, 田邊 稔. Novel landmarks for SMA left approach based on the anatomical study. 第 35 回日本肝胆膵外科学会学術集会 2023.07.01 東京
  19. 杉山 夕月, 室生 暁, 伴 大輔, 秋田 恵一. Morphology of the fusion fascia, nerves, and arteries around the pancreatic head. 第 35 回日本肝胆膵外科学会学術集会 2023.07.01 東京
  20. Itsuko Okuda. Objective analysis of age-related changes in the superficial musculoaponeurotic system using computed tomography. Aesthetic Surgery Journal Open Forum, YouTube 2023.07.01 Web
  21. Kenro Chikazawa, Ken Imai, Tomoyuki Kuwata, Ryo Konno. . The ideal format to exchange patient information for the next on service team. The 31th international Congress of the European Association for Endoscopic Surgery 2023.06.20 Rome, Italy
  22. Keiichi Akita. Dynamic coordination of the smooth and skeletal muscles in the pelvic floor. Songdo International Proctology Symposium 2023 2023.06.17 Seoul, Korea
  23. Sultana Farzana, Zhang Chenyang, Okuhara Shigeru, Nagai Shigenori, Azuma Miyuki. 新規の炎症チェックポイント分子である ILDR2 は脳炎において発現量が増加している (A novel immune checkpoint molecule, ILDR2 is upregulated in the inflammatory brain). 口腔病学会雑誌 2023.03.01
  24. Akimoto Nimura. Reconsideration of anatomy in the lateral part of elbow joint; what are LCL and LUCL?. 7th FIPAR webinar 2023.02.01 Web
1. Anatomy of rotator interval in terms of layered and histological concepts. 2023.07.08
  2. Atsuhiko Fukai, Akimoto Nimura, Masahiro Tsutsumi, Hitomi Fujishiro, Koji Fujita, Junya Imatani, Keiichi Akita. Lateral Ulnar Collateral Ligament of the Elbow Joint Reconsideration of Anatomy in Terms of Connection with Surrounding Fibrous Structure. The 35th Annual Meeting of the Japan Elbow Society 2023.02.03 Yamagata City, Yamagata Prefecture