



Minimum Standards for ACVS Fellowship Training for Joint Replacement Surgery November 2024

I. Objective

The objective of an **ACVS fellowship training program** is to build upon the surgical knowledge and experience obtained during surgical residency training through an intense period of applied focus in fellowship training within an ACVS approved fellowship training program. A fellowship training program should prepare its enrollees to successfully interact with other disciplines and to provide a leadership role in the surgical, medical, and lay communities in matters pertaining to veterinary surgery. It is expected that most graduates of fellowship training programs will devote a major portion of their professional effort to the diagnosis, treatment, rehabilitation of patients, and the generation of new knowledge in their fellowship discipline.

An ACVS Fellow should have a high level of expertise in the selection of patients and have attained a high level of proficiency in performing surgical procedures as well as preoperative and postoperative care and management of morbidity related to the procedures in their fellowship training discipline. The fellow must be knowledgeable of the benefits and risks associated with a multidisciplinary approach to veterinary surgery.

II. Definitions:

- A. **ACVS fellowship training program**: A mentored training program of specific application, duration, curriculum, and evaluation for completion as specified later in this document.
- B. **Fellowship vs. residency**: Fellowship training programs are autonomous to a surgical residency program. The surgical residency and ACVS fellowship training periods may not overlap. ACVS fellowship training may occur at any time following completion of residency training and is distinguished from the general residency training by its focus on a specific area of veterinary surgery.
- C. **Primary mentors and program directors**: Only an ACVS Diplomate, in good standing, who is an ACVS Fellow or ACVS Founding Fellow may mentor a fellow candidate or be on record as a program director in the appropriate discipline. Primary mentors and program directors must maintain ACVS Diplomate status according to ACVS criteria. The

same individual may serve as both institutional program director and primary mentor. For each fellowship program, the minimum requirement for the number of mentors is one ACVS Fellow or ACVS Founding Fellow in the discipline per fellow candidate, although more than one mentor in the training program is preferable (e.g., two fellows may have two fellow candidates in a program at the same time). If there are multiple fellows and fellow candidates in a fellowship program, during a given clinical week, an ACVS Fellow or ACVS Founding Fellow may supervise the training of two fellow candidates simultaneously in their discipline, however, each surgical case may only be claimed as “primary surgeon” by a single fellow candidate.

- D. **Supervising mentors:** Supervising mentors are those who are directly supervising the fellow candidate the majority of time during their fellowship training. They are the program director, primary mentor, and other ACVS Founding Fellows or Fellows.
- a. ACVS fellowship trained ECVS Diplomates can supervise fellowship training up to, but no more than, 30% of the required training weeks for any fellow candidate in training. These individuals must provide documentation certifying completion of ACVS fellowship training to the ACVS office prior to serving as a supervising mentor, pending approval by the Fellowship Committee. Permitting ECVS Diplomates to serve as supervising mentors as described in this section applies to all current and future ACVS Fellowship Programs.
- E. **Supporting faculty:** Supporting faculty are all faculty, other than supervising mentors, involved in training of the fellow candidate. This includes:
1. Board-certified anesthesiologists, radiologists, or other specialists as defined by the fellowship discipline
 2. Other ACVS Diplomates who are not founding fellows or fellows
 3. European College of Veterinary Surgeons (ECVS) Diplomates
- F. **The title “ACVS Founding Fellow”:** an ACVS Diplomate who has received fellow status as a result of credentials that were submitted, reviewed, and approved during a one-year open call for founding fellows. The open call occurs after the approval of the fellowship program by the ACVS Board of Regents and the announcement of the fellowship program to the ACVS membership. Founding fellow requirements may be fulfilled through one of two pathways:
1. Application for founding fellow at the initial call for founding fellows. Applicants completed all minimum criteria as defined by the Founding Fellow Selection Committee (FFSC) at the time of the call for founding fellows.
 2. Application for an extension of consideration (of scholarly credentials): This option is separate from the original call for founding fellows and would be

available in cases where ACVS Diplomates either did not act on the original call or did not fulfill the scholarly requirements for immediate acceptance as a founding fellow. If the application for extension is accepted, the applicant would be allowed up to three years to complete scholarly requirements. The fellowship oversight committee reviews the applicants submitted documents and submits its recommendation to the Fellowship Committee to be presented to the Board of Regents.

- G. **The title “ACVS Fellow”**: an ACVS Diplomate who has successfully completed an ACVS fellowship training program in a described discipline. To earn the title “Fellow,” the individual must first obtain Diplomate status in the ACVS. Thus, an individual cannot become an ACVS Fellow without first being an ACVS Diplomate. Fellow title can be obtained through two mechanisms:
1. Full-time fellowship training: The minimum time requirement to become a fellow is one year. However, this mechanism is contingent on the ability of the fellowship candidate to meet the minimum case requirements.
 2. Part-time fellowship training: Upon agreement with the fellow candidate and the ACVS fellowship mentor a part-time fellowship training program can be developed. The maximum period of time for a part-time fellowship training program would be three years.
- H. **The title “ACVS fellowship trained ECVS Diplomate”**: an ECVS Diplomate who has successfully completed an ACVS fellowship training program in a described discipline. To earn the title “ACVS Fellowship trained ECVS Diplomate,” the individual must first obtain Diplomate status with ECVS. Thus, an individual cannot become an ACVS Fellowship trained ECVS Diplomate without first being an ECVS Diplomate.
- I. **The title for the fellowship candidate is “Fellow Candidate”**: A person currently enrolled in an ACVS fellowship training program who has not yet completed that program. The fellow candidate may use this title in correspondence or other means of communication.
- J. **Terminology for a person who successfully completed an ACVS fellowship training program, but is not ACVS board certified**: A person who has completed an ACVS fellowship training program and has not passed the ACVS certifying examination may indicate only that they have completed a fellowship training program in the discipline. No connection to the ACVS may be implied. Terms such as “ACVS Fellow eligible” and “completed an ACVS Fellowship Training in the discipline” should not be used. An individual who identifies their professional credentials using these terms may be

eliminated from the approval process.

- K. **Fellow-in-training clinic week**: The fellow-in-training clinic week is defined as a minimum of five full working days in the clinic and may include additional night and weekend patient care as specified by the mentor, program, and institution.
- L. **Mentor work week**: The mentor work week is defined as a minimum of three working days on site with the fellow candidate outside of which the mentor remains available to the fellow candidate for consultation by the most efficient and appropriate means. This may include on site interaction or by telecommunication. The emphasis is that the mentor must support the fellow candidate and assure patient safety and care.
- M. **Trackable surgical case**: A surgical case that can be tracked in the fellowship training case log and counted as a “trackable” case is a surgery that is “performed under” an ACVS fellowship mentor in the appropriate discipline. This means that the case is operated during a fellow-in-training clinic week wherein the mentoring fellow is on site. The mentor may be physically present in the operating room or, if the fellow candidate possesses sufficient training to proceed alone, the mentor is available for appropriate consultation.

III. Institutional Requirements

- A. ACVS Fellowship training must be conducted at a veterinary medical facility (hospital or institution) that offers the scope, volume, and variety of patients affected with surgical conditions for the specific discipline as well as the complimentary services necessary to care for these patients including but not limited to:
 1. Diagnostic imaging facilities with an on-site or off-site American College of Veterinary Radiology (ACVR) or European College of Veterinary Diagnostic Imaging (ECVDI) board certified radiologist
 2. Emergency and critical care facilities
 3. On-site or off-site American College of Veterinary Anesthesia and Analgesia (ACVAA) or European College of Veterinary Anesthesia and Analgesia (ECVAA) Diplomate anesthesiologist
- B. Fellow candidates should have a broad exposure to advanced diagnostic imaging techniques and advanced surgical procedures within the discipline. Training institutions will need to carefully consider whether they can provide the depth and breadth of training required before agreeing to participate in the training of an ACVS Fellow. Fellow candidates should have on-site or off-site exposure to anesthesiologists with experience in anesthesia for surgical procedures within the prescribed discipline.

- C. Clinical experience alone is insufficient education in an ACVS fellowship training program. The training program must include regularly scheduled educational events consisting of lectures, debate series, and/or journal clubs, covering not only clinical surgical problems but also nonsurgical, perioperative and postoperative management, basic science, and clinical research.
- D. A written agreement crafted by the institution and signed by the fellowship candidate, fellowship mentor, and department head or hospital director to participate in the training of the fellow candidate must be formally documented prior to institution of the fellowship program. This agreement (known as the fellowship training agreement) will serve to define the clinical and educational relationship between the fellow candidate and the training institution(s) as to their responsibility to provide mentorship to the fellow candidate for the entirety of their program. The training agreement must specify the agreed duration of the training program (minimum of one year, maximum of three years), which should be determined before training begins. The agreement is retained by the institution.
- E. Each institution will craft a statement to be signed by the fellow candidate. This statement will indicate that the fellow candidate understands that they must undertake their clinical role with the utmost integrity, care, professionalism, and responsibility to the institution and the patients whom they serve. The statement (known as a statement of compliance) may also specify expectations of day-to-day work responsibilities and schedules. Meeting the licensing requirements to practice at an institution is the responsibility of the fellow candidate. The candidate is expected to remain in good standing throughout the ACVS fellowship training program with both the training institution(s) and all state and federal licensing agencies.

IV. Fellow Candidate Requirements

- A. The fellow candidate must have completed a surgery residency (at either an ACVS or ECVS residency training program) prior to beginning an ACVS fellowship training program. It is not necessary to be board certified by the ACVS before beginning the program, but becoming board certified by the ACVS is required before that individual can use the title of ACVS Fellow. Similarly, it is not necessary to be board certified by the ECVS before beginning the program, but becoming board certified by the ECVS is required before that individual can use the title ACVS fellowship trained ECVS Diplomate. No aspects of the surgery residency can be applied toward the requirements of fellowship training.

- B. The fellow candidate must register with ACVS at least 30 days prior to the start date of the fellowship training program. Confirmation of receipt of the fellowship registration from the ACVS office must be received before cases can be counted to meet the requirements of the fellowship program. The fellow candidate must work with the program director and primary mentor to complete the registration form for ACVS fellowship training. Required information includes:
1. The name of the institution(s) or hospital(s) where the fellowship training program will primarily take place.
 2. The name and contact information for the fellowship training program director and primary mentor.
 3. A list of ACVS Founding Fellows, ACVS Fellows, and ACVS fellowship trained ECVS Diplomates (who are permitted to supervise fellowship training up to, but no more than, 30% of the required training weeks for any fellow candidates in training) who will be included on the team of supervising mentors for the fellow candidate.
 4. The names and contact information of required specialists (supporting faculty) involved in training the fellow candidate. Supporting faculty must include at least one ACVR diplomate, radiologist (on or off site is acceptable) and one ACVAA diplomate, anesthesiologist physically present at the fellowship training site a minimum of three working days of each week concurrent with the working days of the fellow candidate. The specialists will need to indicate their willingness to assist in training of the fellow candidate and that they have read and understand the specific requirements of the ACVS fellowship training program outlined herein.
 5. A fellow candidate registration fee (\$1,000). This fee must be received by the ACVS office within 30 days of starting the fellowship training program.
 6. Acknowledgement of the fellowship training agreement between the institution and the responsible host mentor at all ancillary institutions (if training will occur at more than one facility). (See III: Institutional Requirements, section D.)
 7. Acknowledgment of the signed statement of compliance between the fellow candidate and institution regarding the fellow candidate's responsibility to the institution. (see III: Institutional Requirements, section E.)
 8. The signatures of the fellow candidate, program director, and primary mentor.
- C. The fellow candidate shall provide to each training institution a signed statement of compliance, crafted by the institution, indicating their commitment to undertake their clinical role with the utmost integrity, care, professionalism, and responsibility to the

institution and the patients whom they serve. The statement may also specify expectations of day-to-day work responsibilities and schedules. Meeting the licensing requirements to practice at an institution is the responsibility of the fellow candidate, and the candidate is expected to remain in good standing throughout the ACVS fellowship training program with both the training institution(s) and all state and federal licensing agencies.

- D. The fellow candidate must act as first assistant or primary clinician/surgeon on all cases assigned by the faculty mentor(s). The fellow candidate is responsible for reviewing the surgical literature as to the surgical and nonsurgical procedures, approaches, options, and adjuvant therapies for all cases assigned to them or seen by the mentoring faculty and any case on the surgery service within the training discipline that will be treated surgically. The fellow candidate is responsible to promptly report to the faculty mentor(s) any complications, client complaints, or concerns that occur and document the information in the medical record.
- E. The fellow candidate shall keep a case log listing the cases operated. This should include the medical record number, the animal's and the client's name, a description of the surgical procedure performed, and whether the case was directly supervised by mentoring faculty or non-supervised. The case log will be submitted along with the activity week logs to the ACVS office to be reviewed by the appropriate fellowship oversight committee, halfway through the fellowship training program and then again at the completion of the training program.
- F. It is expected that each ACVS fellowship training program will have a peer-reviewed manuscript requirement. In general, the expectation will be that peer-reviewed manuscripts will be accepted within three years of initiating fellowship training and include required publications in the credentials application.

The fellow candidate must publish and provide evidence of a manuscript that has been accepted as a peer reviewed publication. Similarly for fellowship programs having requirements for atlas-style website publications (currently applicable for Surgical Oncology and Minimally Invasive Surgery Fellowship Programs), the fellow candidate must provide evidence the digital contribution has been accepted with peer review.

- G. It is possible that during the fellowship training period key events might occur, including departures of the program director, primary mentor, and/or the radiologist or anesthesiologist. In the event of any of the above or any other unexpected changes in the program occurring, it is the responsibility of the program director to promptly contact the appropriate fellowship oversight committee with a clearly defined and

outlined solution. A modification to any registration information must be reported to the ACVS office within 60 days of the key event. In the event of the primary mentor leaving, no more 'Fellow-in-Training Clinic Weeks' can be logged until a new mentor has been identified and the change to the training program approved by the fellowship oversight committee. Fellow candidates should be clear that such programmatic changes might result in a delay of the training program, and if no acceptable solution can be found, the training program might be terminated.

- H. Extenuating circumstances are defined as unforeseen or unavoidable events that altered a fellowship training program which could not reasonably have been anticipated or avoided in advance of the request for accommodation. Examples include a health condition, change in fellowship training personnel, or a drop in the caseload.
1. The fellow candidate and a representative from the fellowship training program will submit a dated written request to the Fellowship Oversight Committee (FOC) detailing the nature of the extenuating circumstance and the proposed change(s) to the fellow candidate's fellowship training program.
 2. From the time of receipt, the FOC will have four weeks to discuss, vote on the request, and send notification of the decision.
 - a. If the majority of the FOC is not in favor of granting the request, the FOC will notify the fellow candidate, fellowship training program representative, and the FC and provide a summary of the FOC's discussion and the outcome of the FOC vote. A summary will be included in the FC's activity report to the BOR.
 - b. If the majority of the FOC is in favor of granting the request, the FOC will submit the request along with a summary of FOC discussion and the outcome of the FOC vote to the FC.
 3. For requests supported by the FOC (i.e., 2.b above), the FC will have four weeks from the time of receiving the information from the FOC to discuss, vote on the request, and send notification of the decision. The FC will inform the FOC, the fellow candidate, and the fellowship training program representative and provide a summary of the FC's discussion and the outcome of the FC vote. A summary will be included in the FC's activity report to the BOR.

V. Program director and primary mentor expectations:

- A. The program director and the primary mentor must be ACVS Diplomates, in good standing, and either an ACVS Fellow or Founding Fellow.
1. Primary mentors and program directors must maintain ACVS certification according to ACVS criteria.
 2. The same individual may serve as both institutional fellowship director and primary mentor in the specific discipline.
 3. A primary mentor may mentor only one fellow candidate at a time. Two supervising mentors may supervise two candidates who alternate between

them, provided there is a clearly defined primary mentor for each candidate.

- B. The ACVS fellowship training program is considered an intensively mentored experience. This may require varying levels of direct (i.e., at the table) supervision at different phases of the fellow candidate's training. Fellow candidates are required to have completed a surgical residency and therefore should begin their fellowship training program with certain core surgical competencies. Nonetheless, good surgical decision making in complex surgical cases and optimal integration of surgical intervention with other treatment modalities requires experience.
1. The fellow candidate must receive mentored assistance or observation on a case-by-case basis until such a time that the fellow candidate is competent to proceed with similar cases unassisted and unobserved.
 2. A supervising mentor must be available for consultation at all times during fellowship training. While the primary mentor may not be personally available at all times, he or she should ensure that there is mentorship available at all times. The mentor should be available at least three regular full workdays per fellow-in-training clinic week for that week to be counted towards the fellow candidate's case log. During the training period, it remains the responsibility of the mentor(s) to be aware and proximate enough to ensure patient safety. An ACVS Diplomate who is not a founding fellow or fellow may provide supervision when the primary mentor or other supervising mentor is not available; however, surgeries performed under these circumstances will need to be reviewed by the primary mentor in order to be counted as trackable cases.
- C. The program director must assure each fellow candidate's progress is formally evaluated in writing and feedback provided to the fellow candidate semi-annually.
1. The program director or the primary mentor can perform this function.
 2. The fellow candidate should be advised of any deficiencies prior to completion of the fellowship training program and an immediate performance improvement plan put in place if deficiencies are identified. If satisfactory improvement is not met in the specified time frame, the fellow candidate can be dismissed from the training program.
- D. Fellow candidates must be provided an opportunity to evaluate the overall fellowship training program, as well as all educational events, rotations, conferences, and faculty. These evaluations should be confidential and should be submitted by the fellow candidate to the Fellowship Committee's ACVS staff liaison. The staff liaison will compile

the information and submit it to the Fellowship Committee for review.

- E. Every three years, the Fellowship Committee will complete a full review of the evaluations provided by fellow candidates to determine whether the goals of the training program are being achieved and whether ancillary institutions/faculty are effective in their training mission.

VI. Specific Program Requirements

- A. The ACVS Fellowship Oversight Committee will review for approval each Fellowship Training Program request by a fellow candidate. Requests to initiate programs must be made at least 60 days prior to the start of the Fellowship Training period to allow time for the Fellowship Oversight Committee to review the program plan. The approval of the program will remain in force for 3 years providing no substantive changes in the program structure or personnel occur.
- B. Review of the primary training institution's oversight of Fellowship Training Programs will occur once every 3 years or when substantive changes occur to ensure the minimum standards are met. On behalf of each primary training institution, Program Directors shall submit documentation for each fellow candidate participating in the fellowship training program over the last three years to the Fellowship Oversight Committee.
- C. A fellow candidate may complete a Fellowship Training Program in a minimum of one year but all requirements must be completed over a maximum five-year period. The terminology used for training options include "Full-time Fellowship training", for fellowship programs of approximately 1-year duration. A training program significantly longer than one year is defined as "Part-time Fellowship training".
- D. Part-time Fellowship training can be organized as continuous, i.e. the Fellow candidate is employed full-time at the mentor's institution, but assigned to Fellowship training only part of the time. Part-time Fellowship training can be intermittent, i.e. the Fellow candidate is employed elsewhere, when not in active Fellowship training
- E. The Fellowship Training program must include a minimum of 30 weeks on clinics. A fellow candidate's clinic "week" is defined as at least 5 full workdays along with appropriate after-hours case management (nights and weekends) (see II. Definitions, section J).
- F. Outside rotations in human hospitals can be part of ACVS fellowship training program. Specific requirements for each ACVS fellowship training discipline will be as the discretion of the fellowship oversight committee for that discipline.
- G. There is an expectation that fellowship training candidates will attend focus meetings in their discipline. Specific requirements for each fellowship training program will be defined by the fellowship oversight committee in that discipline.

- H. Up to 7 weeks of the 52 weeks of the Fellowship training program can be used for research and/or board preparation.
- I. Two additional weeks are to be scheduled for vacation.
- J. Continuous part-time fellowship training programs longer than one consecutive year, must include clinical rotation blocks of no less than one consecutive week. Intermittent part-time fellowship training programs longer than one consecutive year must include clinical rotation blocks of no less than two consecutive weeks to ensure an appropriately intensive clinical experience.
- K. Regularly scheduled educational events consisting of attendance at case conferences/journal clubs covering surgical topics appropriate to the discipline, basic science, clinical research and rehab should be organized. These should be outlined at the beginning of the fellow candidate's program and involve a broad cross section of the above topics. Specific numbers of educational events will be determined by the Fellowship Oversight Committee in that discipline.
- L. Presentation of comprehensive case discussions may be required as defined by the fellowship oversight committee in the discipline. An acceptable audience includes their fellowship mentors but may include other ACVS Diplomates and residents. The cases presented should represent complex multi-disciplinary approaches to the management of a surgical patient. The intention of the audience is to prepare the fellow candidate to successfully interact with the other related disciplines and to provide a leadership role in the link between the disciplines. Case presentations may be teleconferenced to enable participation of a number of ACVS Fellows or Founding Fellows.
- M. Required learning objectives for ACVS fellowship training programs
 1. Radiology – Each ACVS fellowship training discipline will set specific learning objectives pertaining to diagnostic imaging (**Appendix 1**). Mastery of these learning objectives must be documented by the ACVR diplomate radiologist who was identified as participating faculty at the start of the Fellowship Training Program. If the Fellowship Training Program is designed such that focused clinical weeks (rotations in radiology) must occur in order to master the required training objectives, such clinical weeks (rotations) must occur in addition to the 30 clinical training weeks specified for surgical case experience.
 2. Anesthesiology – Each ACVS fellowship training discipline will set specific learning objectives pertaining to anesthesia (**Appendix 2**). Mastery of these learning objectives must be documented by the ACVAA diplomate anesthesiologist who was identified as participating faculty at the start of the Fellowship Training Program. If the Fellowship Training Program is designed such that focused clinical weeks (rotations in anesthesiology) must occur in order to master the required learning objectives, such clinical weeks (rotations) must occur in addition to the 30 clinical training weeks specified for surgical case experience.

3. Ancillary Specialty Learning Objectives- ACVS fellowship training discipline will set specific learning objectives pertaining to their specific training discipline.
- N. Minimum case requirements: Minimum case requirements for ACVS fellowships performed under ACVS Fellow or Founding Fellow membership in the appropriate discipline will be set and determined by the individual ACVS fellowship training programs. The fellow candidate can either be the primary surgeon or first assistant on the case in order for the case to be counted toward case minimum. If multiple fellow candidates scrub on a case, only one person can count as primary and one as first assistant.
 - O. The type of surgical procedures for each ACVS Fellowship training program must demonstrate sufficient depth and breadth of diversity and advanced skills. The distribution of cases will be determined by each of the individual ACVS fellowship training programs. The Primary Mentor must sign off on all surgical case logs at the end of the fellowship training.
 - P. The Primary Mentor, the Program Director, and supporting faculty will determine if the fellow candidate has successfully completed the Fellowship Training Program at the end of the Fellowship Training Program. The fellow candidate must submit the following within 5 years of initiating the Fellowship Training Program to be considered for the designation of ACVS:
 1. Letter of intent to become an ACVS Fellow in the discipline they were trained in
 2. Supporting letters from the Program Director and Primary Mentor indicating successful completion of the program
 3. All supporting documentation (case logs, signed documentation of other required specialty training, case presentations, publications, etc.). Review by the Fellowship Oversight Committee, ACVS Fellowship Committee and ACVS Board of Regents will occur within 6 months of submission of materials to the ACVS office.
 - Q. Activities of the fellow candidates in ACVS Fellowship Programs will be monitored by the Fellowship Oversight Committee. The Fellowship Oversight Committee will provide a report to the ACVS Fellowship Committee each fall specifying:
 1. Number and location of fellowship programs
 2. Names of fellow candidates pursuing fellowships
 3. Results of requirement completion
 4. Requests for program modification
 - R. After fellow candidates successfully complete all program requirements, the ACVS Board of Regents will grant Fellow status based on the recommendation of the Fellowship Oversight Committee and review of the ACVS Fellowship Committee.

VII. Additional Specific Program Requirements for ACVS Fellowship Program: Joint Replacement Surgery Fellowship

Definition of Joint Replacement Surgery

Surgical replacement of the articular surfaces of a synovial joint with non-biological material performed with the intent to reduce pain and improve function

Institutional Requirements

The JRS Fellowship training must be conducted at a veterinary medical facility (hospital or institution) that offers the scope, volume, and variety of patients affected with both JRS surgical and non-JRS surgical conditions as well as the complimentary services necessary to care for these patients including:

- A. At least 2 veterinary operating room technicians that devote >12 hours per week working with orthopedic patients
- B. Trained technical support staffing for patient management for those undergoing advanced orthopedic surgery procedures
- C. Access to a minimum of one ACVR or ECVDI board-certified radiologist
- D. Access to an ACVAA or ECVAA Diplomate anesthesiologist
- E. Emergency on-call coverage for 24-hour patient care within the surgery facility
- F. Operating rooms with acceptable standards for complex orthopedic and JRS procedures that follow the guidelines of the American Association of Hip and Knee Surgeons
- G. Access to veterinary rehabilitation services in-hospital or off-site
- H. Access to clinical and anatomical pathology services that are supervised by a board-certified pathologist
- I. Access to 3-D printing for production of bone models to rehearse surgery
- J. Fellow Candidates in JRS should have access to one or more patient positioning system (positioning board or vacuum bag), one or more joint replacement instrument set, one or more total joint approach and instrumentation pack, and one or more sterilizable power drill.

Manuscript requirements

The fellow candidate must publish and provide evidence of a manuscript primarily focused on JRS that has been accepted as a peer reviewed publication. The work must be performed during the fellowship. The publication topic must contribute to the goal of advancing the science of joint replacement surgery. All areas of study can be addressed including complications, complication prevention, clinical outcomes, prosthetic design, biomechanics, biomaterials, novel joint replacement surgery, rehabilitation concepts as they relate directly to a joint

replacement surgery procedure, or biological response to joint replacement materials *in vivo*. The publication must be either a prospective or retrospective study following the scientific method; or a case report or case series of a novel or advanced surgical technique. The peer reviewed publication list utilized for ACVS residents will apply for JRS fellows.

Meeting requirements

None

Educational events

- A. A regularly scheduled didactic program consisting of attendance at case conferences/ journal clubs covering JRS basic science, clinical research and rehab should be organized. These should be outlined at the beginning of the Fellow Candidate's program and involve no less than 20 attended sessions in a broad cross section of the above topics.
- B. Presentation of three comprehensive JRS case discussions to an audience that includes their mentors and may include other ACVS Diplomates, and residents. The cases presented should represent complex multi-disciplinary approaches to the management of a surgical patient. The intention of the audience is to prepare the Fellow Candidate to successfully interact with the other related disciplines and begin to provide a leadership role in the link between the disciplines.

Required learning objectives for JRS

- A. Required learning objectives for diagnostic imaging are outlined in **Appendix 1** and for anesthesia in **Appendix 2**. Mastery of these learning objectives must be documented by the ACVR, ECVR, ACVA or ECVA Diplomates who were identified as participating faculty at the start of the Fellowship Training Program. If the Fellowship Training Program is designed such that focused clinical weeks (rotation in *radiology or anesthesia*) must occur in order to master the required training objectives, such clinical weeks (rotations) must occur in addition to the 30 clinical training weeks specified for **JRS** case experience.

Minimum case requirements (see specific numbers for specific disciplines below):

- A. A minimum number of cases performed under JRS Fellow or Founding Fellow mentorship in the appropriate discipline during the JRS Fellowship Training Program. The Fellow Candidate can either be the primary surgeon or first assistant on the case in order for the case to be counted toward case minimum. If multiple Fellow Candidates scrub on a case, only one person can count as primary and one as first assistant.

- a. JRS: minimum of 100 cases from the qualified cases list, with a minimum of 33 level-2 cases. See **Appendix 3** for the list of qualified cases and description of level-1 and level-2 cases. If a Fellow would like their candidate to be able to count a procedure not on the Qualified Cases list in **Appendix 3**, they can submit a request to the JRS FOC for consideration.
- B. The Fellow and Fellow Candidate must submit a status report to the FOC when 50 cases have been logged. This update should include the case log, the status of the Radiology and Anesthesia learning objectives, and the progress made on the publication requirement. The status reports must be submitted during the first 15 days of June or the first 15 days of December when at least 50% of the required caseload has been completed. Status reports will be examined by the JRS FOC in July and January.
- C. The Primary Mentor must sign off on all surgical case logs (**Appendix 4**) at the end of the fellowship training.

Completion requirements for fellowship training program

- A. Activities of the Fellow Candidates in JRS Fellowship Programs will be monitored by the JRS Fellowship Oversight Committee. The JRS Fellowship Oversight Committee will provide a report to the ACVS Fellowship Committee each fall specifying:
 - a. Number and location of fellowship programs
 - b. Names of fellow candidates pursuing fellowships
 - c. Results of requirement completion
 - d. Requests for program modification
- B. The Primary Mentor, the Program Director, and supporting faculty will determine if the Fellow Candidate has successfully completed the Fellowship Training Program at the end of the Fellowship Training Program. The Fellow Candidate must submit the following within 5 years of initiating the Fellowship Training Program to be considered for the designation of ACVS Fellow in JRS:
 - a. Letter of intent to become an ACVS JRS Fellow.
 - b. Supporting letters from the Program Director and Primary Mentor indicating successful completion of the program. The JRS Program Completion Checklist in **Appendix 5** must be included in the letter.
 - c. All supporting documentation (case logs, signed documentation of other required specialty training, case presentations, publications, etc.). Review by the JRS Fellowship Oversight Committee, ACVS Fellowship Committee and ACVS Board of Regents will occur within 6 months of submission of materials to the ACVS office.

- C. After Fellow Candidates successfully complete all program requirements, the ACVS Board of Regents will grant Fellow status based on the recommendation of the JRS Fellowship Oversight Committee and review of the ACVS Fellowship Committee.

Appendix 1

ACVS JRS Fellow

Required Diagnostic Imaging Learning Objectives

The objectives of the diagnostic imaging include the development of a knowledge base related to bone and joints and to joint replacement in the short and long term without and with complications.

Long-bone and articular geometry

- CORA based bone geometry

- Abnormal bone geometry

- Abnormal joint geometry

Features of joint disease

- Osteophytosis

- Enthesophytosis

- Subchondral cysts

Features of joint replacement

- Implant position and orientation

- Initial implant bone interfaces

- Implant subsidence and other motion

- Periosteal, cortical, endosteal, medullary bone changes

- Fibrous and osseous ingrowth into implants

Features of complications of total joint replacement

- Subluxation and luxation

- Fissures and fractures and their management

- Medullary infarction

- Implant wear and breakage

- Granuloma and joint replacement-associated neoplasia

- Other complications

Appendix 2

Required Anesthesia Learning Objectives for JRS Fellows

- 1) Pre-operative assessment and plan development
- 2) Intra-operative pain management
 - i) Multimodal approaches
 - ii) Local & Regional analgesia – pros and cons
 - iii) Recognizing, and managing, pulmonary embolism
- 3) Post-operative management
 - i) Pain protocols
 - ii) Environment modifications

Appendix 3

ACVS JRS Fellowship Qualified Case List and Case Log Categories

Qualified Case List

Total Hip Replacement
 Total Knee Replacement
 Total Elbow Replacement
 Total Hock Replacement
 Total Shoulder Replacement
 Total Radial-Carpal Joint Replacement

Case Log Categories

Level-1 Category JRS	Level-2 Category JRS
<ul style="list-style-type: none"> • No subluxation or mild hip joint subluxation • No femoral medullary sclerosis or mild femoral medullary sclerosis • No medialization of the greater trochanter or mild medialization of the greater trochanter • Minimal to mild osteoarthritis and osteophytosis • None to mild acetabular infilling with bone • None to minimal dorsal acetabular rim wear • Recent (less than 7 days) coxofemoral luxation with pre-existing osteoarthritis 	<ul style="list-style-type: none"> • Moderate or severe femoral subluxation (femoral head contacting the dorsal acetabular rim) with grossly visible femoral head cartilage denuding or DAR wear • Luxoid conformation • Moderate or severe femoral medullary sclerosis • A canal flare index of ≤ 1.8 • Moderate or severe medialization of the greater trochanter • Femoral capital physeal or femoral neck fracture • Femoral capital physeal or femoral neck malunion • Chronic (more than 7 days) coxofemoral luxation • Lateral drift of the proximal-medial femoral cortex • Moderate or severe osteophytosis at the cranial acetabular pole and proximal femoral neck • Moderate or severe acetabular filling with bone • Moderate or severe dorsal acetabular rim wear (DAR becoming concave) • Acetabular malunion

	<ul style="list-style-type: none">• Failure of a previous open reduction of an acetabular fracture• Pseudo-acetabulum formation• Femoral head and neck excision revision• Double / triple pelvic osteotomy revision• A dog, or cat, with a Body Condition Score of 8/9 or 9/9• Skeletal immaturity with an open physeal plate at the base of the greater trochanter• A dog weighing <4.5 kg or >45 kg• Revision or explantation surgery of a JRS case performed at the training institution but without Fellow candidate involvement in the index surgery, or, when the index surgery was performed elsewhere by another surgeon• Micro Hip Replacement• Nano Hip Replacement• Total Knee Replacement• Total Elbow Replacement• Total Shoulder Replacement• Total Tibial-Tarsal Replacement• Total Radial-Carpal Replacement• Total joint replacement with custom component
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Appendix 4

ACVS JRS Fellow

ACVS JRS Fellowship Case Log

The Fellow Candidate shall maintain a Fellowship Training Case Log listing of the JRS cases. A formatted spreadsheet will be provided by the JRS FOC. Data to be collected will include the following:

- Case number
- Date of surgery
- Medical record number
- Patient name
- Fellow role [e.g. First Assistant (FA) or surgeon in charge (SIC)] during the procedure
- Supervision: direct or indirect supervision by JRS fellow: Direct Indirect
- Patient date of birth - DOB
- Body Weight (#/kg):
- Body Condition Score (1/9):
- Patient gender
- Joint undergoing JRS: Hip, Knee, Elbow, Ankle, Shoulder, Other (custom)
- Patient breed
- Referral source
- Indication for JRS surgery. e.g. hip dysplasia, capital physeal fracture, chronic osteoarthritis of undetermined etiology, hip luxation with pre-existing osteoarthritis
- Duration of Clinical Signs: Years Months Weeks Days
- Severity Clinical Signs: Mild Moderate Severe
- Side: Left Right
- First Second side
- Case complexity – (Level 1 = Basic or Level 2 = Advanced)
- Comorbidities and potential pitfalls atypical for this patient or procedure. e.g. contralateral osteoarthritis, concurrent MPL stabilization, obesity, animal behavioral problems, chronic luxoid hip
- Lateralization (side) of the JRS procedure: Left Right
- Duration of preoperative symptoms as reported by the animal owner
- Role in surgery: Primary First Assistant
- Name of Surgeon-in-Charge:
- Exact prosthetic component: brand, type, size e.g. BioMedtrix #8 BFX Ti EBM Femoral stem with 14-mm-long lateral bolt; BioMedtrix #24 mm BFX Ti EBM cup
- Surgery duration time in minutes from incision to skin closure

- Surgical biopsy: Yes No
 - Bacterial culture collected: Yes No
 - Intraoperative photographs: Yes No
 - Technique changes, if any, from the published technique guides, or variance of implant size used on the contralateral same JRS procedure
 - Complications encountered with specific type of complication details. e.g. infection, luxation, loosening, fracture, implant failure,
 - Revision procedures, if any, with type of revision performed
 - Explanation, if performed with the date
 - Comments are to be noted relative to each patient and procedure including “None to report”.
-

Follow-Up Examination

- Examination Date:
- Duration of follow-up
- Client:
- Patient:
- Joint:
- Function: Normal Abnormal
- Summary of radiographic findings
- Radiographic assessment
- Revision: Yes No
- Explantation: Yes No
- Complications:
- Comments:

Appendix 5

JRS Program Completion Checklist

Please add this checklist to the supporting letter from the Primary Mentor

Program Requirements Completed

- ✓ Clinical weeks - 30
- ✓ Case requirements - 100 total, 33 Level 2
- ✓ Radiology Learning Objectives completed
- ✓ Anesthesia Learning Objectives completed
- ✓ Educational events attended - 20
- ✓ Case presentations given - 3
- ✓ Manuscript accepted for publication