

Femoral Head/Neck Ostectomy (FHO)

What is the Femoral Head/Neck Ostectomy (FHO) procedure?

Femoral head ostectomy is removal or excision of the ball portion of the hip joint. After removal, the bone is smoothed so there is no bone to bone contact occurring between the pelvis & the remaining portion of the femur. Removal of the portion of the femur that articulates with the hip joint then causes formation of a false fibrous joint.

What are the indications for FHO surgery?

Femoral head & neck excision (FHNO) or ostectomy is a salvage procedure used in the treatment & management of hip dysplasia, trauma/fracture, Legg-Calvé-Perthes Disease, osteoarthritis or other diseases of the hip. Hip dysplasia means malformation of the hip joints. It is the most common orthopedic disease in dogs & a similar problem occurs in cats but much less often. The malformed hip will eventually develop some degree of arthritis & in some patients, pain. With trauma, patients can have fractures of the femoral head & often FHO surgery is indicated. There are other diseases of the hip, such as Legg Perthes' Disease, where the blood supply to the femoral head is abnormal & causes aseptic necrosis of the femoral head. In instances like these, FHO surgery is indicated to remove the diseased portion of the bone.

How long will my pet be in the hospital?

Hospitalization of patients for FHO surgery typically ranges from less than 1 day including the day of the surgery & recovery. In general, most patients are discharged at the end of the night/ evening after their surgical procedure, but extended hospitalization may be required if there are complications.

What is the prognosis following surgery?

In general, femoral head ostectomy is highly successful in cats & small dogs (<40 pounds). However, because this type of fibrous pseudo-joint is an unstable joint, clinical function is more unpredictable in larger dogs, but in my hands utilizing power equipment that smooths the cut bone ends very well, pets as large as 120 pounds have done very well. Also, if your pet has severe arthritis versus an acute fracture or luxation, the recovery is generally slower.

What post-operative care is required after FHO surgery?

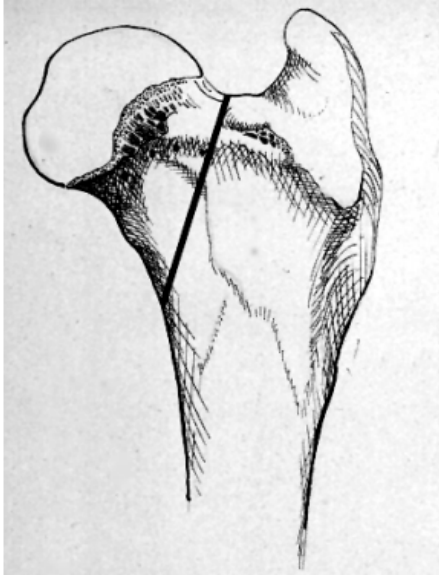
Post-operative care following FHO surgery is very different compared to most surgical procedures. Physical therapy is crucial to the success of the procedure. Swimming, running playing with other dogs, retrieving, etc is all encouraged starting 7-10 days after the operation. The fibrous false joint that will replace the hip joint will heal with a greater range of motion.

What are the complications or risks associated with FHO surgery?

Overall, complication rate associated with elective procedures is approximately ~10%. Complications may range from mild & easily resolved, to more severe complications requiring further treatments or diagnostic testing.

Are any follow-up appointments required during the post-operative period?

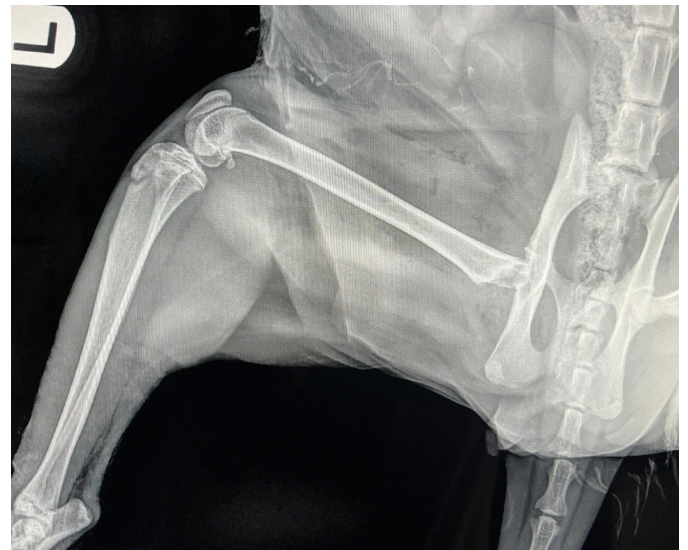
In general, recommendations for suture removal are 10-14 days after surgery. Monthly evaluations are then done to assess progression of healing & encourage physical therapy to increase the range of motion within the hip joint. If your pet is using his/her leg normally, then no further appointments are necessary. Remember, due to the “false” joint that is created, the leg will be slightly shorter than the other leg & your pet may have a “mechanical” limp which is very different from a “painful” limp & of no concern other than cosmetic. Our goal is to give your pet good range of motion with a pain free hip & it is hard to achieve a completely normal gait with this “salvage” procedure.



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Femoral head & neck gross example.

The figure illustrates that the portion of the bone that is removed during FHO.



Post-Surgical Care for a FHO (Physical Rehab)

Home patient care after orthopedic surgery is critical to the success of the surgery. Allowing your pet too much activity may alter the anticipated outcome of the surgery. Remember, this surgery is a “salvage” procedure designed to eliminate future arthritis & pain from the damaged or diseased hip joint & although the joint will never be “good as new”, most pets will have pain free function of the leg when walking. Your pet will not have “full range of motion” & may experience a slight limp, but this is due to the “false joint” that forms higher up on the pelvis & is not a sign of any pain or discomfort. Many pets will carry the leg when trotting as a result of the limited range of motion of the new joint. Patients without pre-surgical arthritis tend to heal faster & better than patients with arthritis.

The following instructions will be your guide to home care:

(Note: if your pet is walking normally, no matter how soon after surgery, you may stop all rehabilitation exercises, but continue leash restriction for a minimum of 8 weeks to allow full healing of soft tissues.)

WEEK 1

1. Provide pain management with NSAID's & pain medication +/-sedative the first 5 days or so.
2. Do not remove the Elizabethan collar or Bite Not Collar until sutures removed in 14 days to prevent infection.
3. After day 1; please start physical rehab exercise as indicated on the chart below.

WEEKS 2 & 3

1. Stop passive range of motion exercise if your pet is using the leg correctly
2. Schedule a recheck with your doctor 14 days after surgery to remove any sutures & evaluate range of motion & percent weight bearing.
3. Most patients begin to “toe touch” when standing by week 2, but every pet is different & some may take longer.
4. If you notice your pet's pain level getting worse after the last pain medication, please call & ask for a refill.

WEEKS 4 & 5

1. If available, swimming exercises for one to three minutes twice a day is helpful.
2. Most pets will be putting some weight on the leg at this point in time on a slow walk but hold it up on a trot or run.

WEEKS 6 – 8

1. Schedule another recheck with your doctor 6-8 weeks after surgery to evaluate your pet’s progress.
2. Most pets will be using the leg with a moderate limp at this point in time

WEEKS 9 – 12

At this point, your pet’s limping should be slowly getting less & less & activity should gradually return to full activity by the end of 12 weeks.

Some activity may or may not apply. If you have any questions, please contact your veterinarian.

▶ **TABLE 34.9** Sample Rehabilitation Protocol for Patient Post-**Femoral Head** and Neck **Osteotomy**

Treatments/ Modalities	Day 1-7 Toe Touching	Day 7- 21 Early Weight Bearing	3-4 WK	5-8 WK	8+ WK
Pain medications	As directed	As directed	PRN	PRN	PRN
Cryotherapy	15-20 min 3 times daily before walks or exercises First session immediately after surgery	Use after exercise for 15-20 min up to 3 times daily	PRN	PRN	PRN
Heat therapy		Apply heat to the thigh and hip muscles before exercise	PRN	PRN	PRN
Massage	Gentle massage around the surgical site, lumbosacral area and thigh	Continue twice daily	Once to twice daily	PRN	PRN

PROM	10 repetitions 3-4 times daily, focus on extension of hip	PROM and hip stretches (10-20 reps) 3 times daily Evoke flexor reflex and bicycle affected leg (2-5 min)	Continue 15-20 reps flexion and extension of all joints of affected leg once to twice daily	PRN	PRN
Laser therapy	Daily	Every other day for 1 week then twice weekly	Twice weekly	PRN	PRN
Walks	5-min supported leash walk 2-3 times daily	Increase each walk by 2-3 min each week	Increase by 5 min each week	Increase by 5 min each week	15- to 20-min walks 2-3 times daily
NMES	10 min twice daily	10 min twice daily	Discontinue if dog is doing well		
Balancing		5 min twice daily on soft pad	5 min 2-3 times daily, can use egg ball or disc	One-leg standing up to 5 min 2 times daily or balancing on inflatable ball	10 min balancing on inflatable ball

Cavalettis/obstacles/sit to stand			5 min twice daily for cavalettis Sit to stand do 10-15 reps BID	5 min twice daily for cavalettis Sit to stand do 15-20 reps BID	5 min twice daily for cavalettis Sit to stand do 15-20 reps BID
Jogging/Stairs			1 flight stairs once daily, 3 min light jogging	2-4 flights of stairs 1-2 times daily, 3-5 min light jogging on flat surface	2-5 flights of stairs 1-2 times daily, 3-5 min light jogging on flat surface
Hills				Zigzag low slow hills 5 min up and down	Increase to 10 min twice daily
Underwater treadmill		Start after day 14: 5-10 min total daily	10 min daily or every other day	15-30 min twice weekly	15-30 min twice weekly until released from rehab
Swimming			2-3 days per week	2-5 days per week	As desired as part of home exercise program

BID, Twice daily; *NMES*, neuromuscular electrical stimulation; *PRN*, as needed; *PROM*, passive range of motion.

ADDITIONAL INSTRUCTIONS:

1. Licking at the incision should be discouraged because it may lead to chewing at the sutures causing a wound infection. It may be necessary to bandage the leg or use an Elizabethan collar or collar donut or long t-shirt to prevent licking.
2. Feed your pet its regular diet but reduce it by 10-20% to allow for reduced activity.
3. Mild swelling may occur near incision or low on limbs. Your veterinarian should check moderate or severe swelling immediately.

COMPLICATIONS:

As with any surgical procedure, complications can occur. Unlike human patients who can use a sling or crutches, our patients do not know enough to stay off a healing leg so restricted activity is a major responsibility of you, the pet owner. Failure to follow these instructions carefully can lead to delayed healing.

The most common complication is delayed healing, where, despite our best efforts individual patients respond slower than others. In larger pets or pets with pre-existing arthritis, it can take up to 12 months for a full recovery. As long as you are noticing some improvement on a month to month basis, healing is still progressing.

If your pet does not continue to improve after 4 weeks & the leg use is not satisfactory, physical therapy with a trained veterinary physical therapist can be very rewarding. Slow healing patients can usually be treated successfully if brought to the surgeon's attention immediately. Waiting several months can lead to loss of range of motion & muscle atrophy making resolution very difficult. Scar tissue & muscle fibrosis is more easily prevented than treated.

Sometimes a simple injection of cortisone into the joint space will be all that is needed to get back on track. In about 5-10% of patients, the iliopsoas muscle (groin muscle) can become strained from constantly holding the leg up immediately after surgery for several weeks. Strict confinement & rest along with muscle relaxants & pain medicine usually resolves this discomfort in 2-4 weeks.

Surgery is sometimes necessary to alleviate a severely strained or torn muscle. Rarely, infections can develop & will need to be treated with different or stronger antibiotics than those used right after surgery.

99% of infections in veterinary medicine are due to owners allowing their pet to lick the incision by taking off the Elizabethan collar placed on your pet after surgery. Notify your veterinarian if you notice any discharge from the incision. Lastly, some pets will have some contact between the end of the femur & the pelvis entrapping muscles between them & causing pain which can usually be treated with anti-inflammatories.

If you would like assistance with your pet's exercise recovery, please let your veterinary team know so we can provide a referral to a local veterinary physical rehabilitation center. If you have any questions, please feel free to ask your primary veterinarian &/or veterinary surgeon.

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