



BioPro® Femoral Heads

For the most current instructions for use and symbol glossary visit www.bioproimplants.com/ifu. Instructions for Use should always be reviewed before using or implanting a device. To receive a printed IFU within 5 business days, please contact orders@bioproimplants.com

Federal law (USA) restricts this device to sale, distribution and use by or on the order of a physician.

PRODUCT HANDLING – FEMORAL HEADS

Implants are provided sterile and should always be stored unopened in their respective protective containers. Prior to use, inspect package for damage, which may compromise sterility. If packaging has been opened or damaged, contact manufacturer's representative. When unpacking the implant, verify the labeling for correct Cat. No. and size. When removing the implant from its packaging, the relevant aseptic instructions must be observed. Protect prosthesis from contact with objects that may damage the surface finish. Inspect each implant prior to use for visual damage.

DESCRIPTION

The BioPro Femoral Head consists of a cobalt chromium and ceramic heads.

INDICATIONS FOR USE

The BioPro Femoral Heads are indicated for use for significantly impaired joints resulting from rheumatoid, osteo, and post-traumatic arthritis; revision of failed femoral head replacement, cup arthroplasty, or other hip procedures; proximal femoral fractures, avascular necrosis of the femoral head; non-union of proximal femoral neck fractures; other indications such as congenital dysplasia, arthrodiesis conversion, coxa magna, coxa plana, coxa vara, coxa valga, developmental conditions, metabolic and tumorous conditions, osteomalacia, osteoporosis, pseudarthrosis conversion, and structural abnormalities. The BioPro hip system (PSL) is for cemented and non-cemented use.

CONTRAINDICATIONS

- Improper stem, acetabular cup, or liner construct that would militate against femoral head fixation and articulation.
- Foreign body sensitivity to metals specifically cobalt chrome. Where material sensitivity is suspected, appropriate tests should be made prior to implantation.

WARNINGS AND PRECAUTIONS

While total hip arthroplasty components are not intended to withstand activity levels and loads of normal healthy bone, they are a means of restoring mobility and reducing pain for many patients.

In using joint replacement implants, the surgeon should be aware of the following:

- The correct selection of the modular implant components is extremely important. The potential for success in joint replacement is increased by the selection of the proper size, shape and design of the implant. Joint replacement prostheses require careful seating and adequate bone support and should be restricted to limited functional stress. The surgeon is to be thoroughly familiar with the implants, instruments, and surgical procedure prior to performing surgery.
- In selecting patients for joint replacement surgery, the following factors can be of extreme importance to the eventual success of the procedure:
 1. The patient's weight. An overweight or obese patient can produce loads on the prosthesis, which can lead to failure of the prosthesis. This becomes a major consideration when a small prosthesis must be used.
 2. The patient's occupation or activity. If the patient is involved in an occupation or activity, which includes substantial walking, running, lifting, or muscle strain, the resultant forces can cause failure of the fixation, the device or both.
 3. A condition of senility, mental illness or alcoholism. These conditions, among others, may cause the patient to ignore certain necessary limitations and precautions, leading to failure or other complications.
 4. Foreign body sensitivity. Where material sensitivity is suspected, appropriate tests should be made prior to material selection or implantation.
 5. Certain degenerative diseases. In some cases, the progression of degenerative disease may be so advanced at the time of implantation that it may substantially decrease the expected useful life of the appliance. For such cases, total joint replacement can only be considered a delaying technique or temporary relief.
- The correct handling of the implant is extremely important. Care must be taken to protect mating surfaces and polished bearing surfaces from nicks and scratches which could become the focal point for failure. Do not tamper with the implant as contouring or bending of the implant may reduce its service life and may cause immediate or eventual failure under load.
- Standard cleaning procedures cannot be relied upon to remove contamination from porous coating.
- A surgical implant should not be reused. Even though a used implant may appear undamaged, it may have small defects and internal stress patterns, which may lead to failure. Use only new prosthesis of the current design.
- Re-sterilization of the device is not recommended.
- The modular head and neck components must be firmly seated to prevent disassociation. Scratching of modular heads and tapers should be avoided. Repeated assembly and disassembly of the head or neck components could compromise a critical locking action. The head or neck components should be changed only when clinically necessary. The interfaces should be clean and free from debris prior to assembly.
- Bone excision should be limited to the amount necessary to accommodate the implants. Prior to closure, the surgical site should be thoroughly cleaned of bone chips, bone cement or other detritus that may cause a third body wear problem. Range of motion should be checked for impingement or instability.
- Postoperative care is important. The patient should be instructed on the limitations of these devices and should be cautioned regarding load-bearing, ranges of motion, and activity levels permissible. Excessive physical activity and trauma affecting the replaced joint have been implicated in premature failure by loosening, fracture and/or wear of the prosthesis implant. Early load-bearing should be carefully controlled. The patient should be advised to report any related pain, decrease in range of motion, swelling, fever, and unusual incidences.
- Range of motion is decreased with the use of the skirted +10.5mm offset head.

ADDITIONAL CONSIDERATIONS FOR CERAMIC HEADS

Femoral Heads are only for use with BioPro™ System femoral stems. No other ceramic heads should be used with these hip stems. Other considerations for the ceramic heads include the following:

- The ceramic head must not be sterilized on the hip stem.
- The ceramic heads should not be re-sterilized.
- The stem cone and head bore should be dry and free of contamination.
- The ceramic head should not be implanted if the head, or the cone of the stem, are possibly damaged.
- The ceramic head should be placed on the stem neck gently while keeping the head and neck in alignment, and then firmly attached by sharply hitting the head with a soft plastic hammer.
- Ceramic heads are contraindicated for use with anything other than an UHMWPE cup or a metal backed UHMWPE cup.

POSSIBLE ADVERSE EFFECTS

The possible adverse effects of the BioPro Hip System are similar to those occurring with any hip arthroplasty and include the following:

- Dislocation or subluxation due to improper positioning or muscle and fibrous tissue laxity.
- Loosening or migration of components due to trauma and/or loss of fixation.
- Accelerated wear of the polyethylene articulating surfaces of acetabular components. Such wear may be initiated by particles of cement, metal, or other debris which can cause abrasion of the articulating surfaces. Accelerated wear shortens the useful life of the prostheses and leads to early revision surgery to replace the worn components.
- Histiocytic granuloma formation and osteolysis around the implant due to wear debris.
- Fatigue fracture of the implant as the result of strenuous activity, improper alignment, inadequate fixation, extreme duration of service, or obesity.
- Urological complications, especially urinary retention and infection.
- Dislocation, wear, dissociation, or fracture of the acetabular cup liner due to neck-liner impingement.
- Wear, erosion, or abrasion of the acetabular cartilage and/or underlying bone secondary to articulation of the bipolar head in the acetabulum, which may result in pain and/or disability.
- Other complications associated with general surgery, drugs or ancillary devices used, blood, etc.

Intraoperative and early postoperative complications can include:

- Femoral perforation;
- Fracture of the femur while press-fitting the femoral stem component;
- Damage to blood vessels;

- Temporary or permanent neuropathies;
- Undesirable shortening or lengthening of the limb;
- Traumatic arthrosis of the knee from Intraoperative positioning of the extremity;
- Cardiovascular disorders including venous thrombosis, pulmonary embolism, or myocardial infarction;
- Hematoma;
- Delayed wound healing;
- Infection

Late postoperative complications can include:

- Trochanteric avulsion as a result of excessive muscular weakening;
- Trochanteric non-union due to inadequate reattachment and/or early weight bearing;
- Aggravated problems of the knee or ankle of the affected limb or contralateral extremity by leg length discrepancy, too much femoral medialization, or muscle deficiency;
- Femoral fracture by trauma or excessive loading, particularly in the presence of poor bone stock;
- Periarticular calcification or ossification, with or without impediment to joint mobility;
- Inadequate range of motion due to improper selection or positioning of components, by femoral impingement and periarticular calcification;
- Excessive joint pressures and pain with ambulation due to excessive scarring of the joint capsule and surrounding tissues;
- Infection.

Sterilization Guidelines for Instrument Trays

These guidelines are not intended for use with electrical, pneumatic or other powered surgical instruments. All instruments are shipped in a NON-STERILE condition and must be cleaned and sterilized prior to use.

General Care and Handling

Use instruments only for their intended purpose, such as cutting, holding, retracting, torquing, etc. Avoid undue stress or strain when handling or cleaning. Always transport contaminated or soiled items in or on a cart. Tap water can contain many minerals that may discolor and stain surgical instruments; therefore, it is recommended that de-ionized water be used for the final rinsing to prevent spotting. For instruments contaminated with protein material, prevention of drying prior to cleaning will facilitate cleaning. Placing instruments in water until cleaning can prevent drying.

Cleaning: Follow these steps to thoroughly clean all instruments

1. Submerge the instruments in an enzymatic detergent prepared according to the manufacturer's recommendations. Soak the instruments for ten (10) minutes in the protein-solubilizing detergent.
2. Scrub the submerged instruments with a soft sponge and agitate.
3. Use a pipe cleaner or brush in any lumens and crevices.
4. Rinse in warm (38-49°C) tap water for one (1) minute.
5. Thoroughly flush all lumens and other difficult-to-reach areas.
6. Ultrasonically clean the articles for ten (10) minutes in a neutral pH detergent (Neutrad or acceptable alternative). Prepare the detergent according to the manufacturer's recommendations.
7. Rinse the test articles with clean, tap water for at least one (1) minute.
8. Repeat rinse twice.
9. Dry the instruments thoroughly with a clean, lint-free cloth.
10. Inspect test articles for any damage or remaining contaminants.
11. Repeat the cleaning procedure if contamination remains.
12. Contact BioPro if instruments are damaged.

Sterilization

Following the cleaning process, place a sterilization indicator in each instrument tray along with the instruments. Instrument tray is to be wrapped in a double layer of CSR wrap. Steam sterilization is required with the following parameters:

Validated method

Pre-vacuum 132° C (270° F), 4-minute exposure, 4 pulses. Dry time of at least 30 minutes.

Examination Prior to Use

All instruments should be carefully examined for wear or damage by surgeons and staff in operating centers prior to surgery. The examination shall include a visual and functional inspection. It should also include verifying the cleanliness of the device, as well as the absence of any cracks, distortion, wear, corrosion, or other changes.

Like any precision surgical device, all instruments should undergo regular checks by knowledgeable personnel to ensure that they remain in good condition and continue to act as intended. Do not use any instrument or device that is damaged, incomplete, showing signs of excessive wear and tear, or that has been repaired outside the control of the manufacturer.

Warnings and Precautions

- Devices must only be used by surgeons who have been trained in the surgical technique and are familiar with the instruments provided.
- Use care in handling and storage. Some instruments are sharp and incorrect use or handling may result in puncture wounds.
- Improper use may result in breakage of the instrumentation during operation. Remove all broken instrument fragments. As a result of mechanical features required, the device is made of medical grade but not implant grade materials. Failure to remove broken instruments from the patient could result in patient complications and further intervention.
- Incorrect maintenance, cleaning or handling may render the instrument unsuitable for its intended use, cause corrosion, dismantling, distortion and/or instrument breakage or injury to the patient or operating staff. Potential complications include device breakage, leaching of debris, lack of component engagement, infection, and damage to tissue.

MR SAFETY INFORMATION

BioPro Femoral Heads have not been evaluated for safety and compatibility in the MR environment and has not been tested for heating or migration in the MR environment. The safety of the device in the MR environment is unknown. Scanning patients who have these devices may result in patient injury.



Sterilized with ethylene oxide gas.

Caution: Do not use if package is open or damaged.



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