

PROTOCOL: For the APOPPS® FLO-TECH-TOR™ Socket

When used as a Postoperative, Protective or Early Fitting Prosthetic Socket

A licensed or certified prosthetist should be consulted throughout the use of all APOPPS® sockets.

PHYSICIANS - Suggested SURGICAL and POST SURGICAL PROTOCOL:

- ✓ Elective surgical length is ideal between 5" and 8" as measured from the mid patella tendon. However the APOPPS® can be custom made to any size or length and available to your patient in 24 to 48 hours depending upon:
 - time of day when prosthetist places the order (before noon ideal) and
 - shipping schedules.
- ✓ The cut edges of the tibia should be well rounded, beveled and smooth.
- ✓ The wound (incision) should be cleaned and well sutured.
- ✓ Apply Steri-Strips® and an Adaptec® gauze.
- ✓ Apply a thin layer of 4" x 4" gauze.
- ✓ Apply a non-compressive dressing, evenly and not too thick, from the distal end to approximately 2 inches above the patella. All forms of moderate skin cover (elastic bandages, gel liners, webbril®, etc.) are acceptable within the FLO-TECH-TOR™
- ✓ Roll the appropriate size sterile post-op fitting sock (or stockinet) up to the proximal edge of the non compressive dressing.
- ✓ The prosthetist may continue the application process from this point.

The FLO-TECH-TOR™ may be removed at any time to observe the incision, provide range of motion of the knee and allow for patient or staff to change bandages or dressings. It should also be removed, routinely, 2 times per day (once in the AM once in the PM). The outer amputation sock should be changed to a clean dry sock. This will allow the outer sock to wick away moisture and other fluids.

PROSTHETISTS - Suggested POST SURGICAL PROTOCOL:

- ✓ Apply the waist belt with extension aide.
- ✓ Roll the post-op fitting sock (or sterile stockinet) up high enough to fold over the top of the protective socket and secure it to the extension strap portion of the waist belt (temporarily) or use a non allergic spray adhesive to secure it to the thigh.
- ✓ Apply a reticulated polyurethane distal end pad.
- ✓ Apply an amputation sock over the reticulated pad, tall (long) enough to fold over the top of the protective socket.
- ✓ Apply the FLO-TECH-TOR™ (loosely fit) as a deterrent to swelling, injury and potential flexion contractures;
secure fork strap to the extension strap with minimal upward pressure.
 - The mid patella strap should be loose enough to slide a finger under the strap when the patient is NOT ambulating.
- ✓ *The side(s) may be heated and shaped to the contours of your patient (bulbous distal tissue).*
- ✓ The mid patella tendon strap and two piece Neoprene® waist band must be tightened before ambulating and loosened after ambulating.
- ✓ The APOPPS® Universal Frame Outer Socket (UFOS™) should be kept in the Physical Therapist's possession until the physician has prescribed its use on a regular independent basis.



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PATIENTS, NURSES, HOME HEALTH & FAMILY HELPERS

- Suggested POST SURGICAL PROTOCOL:

**Daily Hygiene, Range of Motion and Transfer Recommendations:*

- ✓ *Remove the FLO-TECH-TOR™ socket 2 times per day.
- ✓ *Remove the outer fitting sock (or stockinet) and the polyurethane distal end pad.
- ✓ Examine (do not remove) the innermost post-op fitting sock (or sterile stockinet) for signs of excessive bleeding or drainage
 - ***If excessive blood or drainage is found, contact the physician Immediately.***
 - ***If only mild spotting is noted make a record and proceed.***
 - ***Record the size and location of the spotting.***
 - ***If the spotting becomes excessive at some later point contact the physician.***
- ✓ Wash the reticulated distal end pad with an anti-bacterial soap; rinse well, dry the pad by gently compressing it in a towel (DO NOT WRING), reapply the pad and a clean dry outer sock over the pad.
- ✓ Re-apply the FLO-TECH-TOR™ socket.
- ✓ The strap at the mid patella tendon (just below the knee) should be loose enough to slide a finger under it.
- ✓ When standing the strap and the two piece Neoprene® waist band should be tightened.
- ✓ **When in bed or reclined in a chair the mid patella tendon strap should be loose enough to slide a finger under it.**

***THE COMPLETE HYGIENE PROCESS SHOULD TAKE NO LONGER THAN 20 MINUTES EACH TIME.**

PHYSICAL THERAPISTS - Suggested POST SURGICAL PROTOCOL:

Daily Use, Rehabilitation and Training:

- ✓ Weight bearing **MUST** be authorized by a physician.
- ✓ Patients may begin early contact weight bearing; upon receipt of the FLO-TECH-TOR™, either in a tilt table or by standing on a pillow with a chair supporting the distal socket.
- ✓ Patients should be encouraged to begin monitored use of the FLO-TECH-TOR™ in conjunction with the UFOS™, as soon as they are able (usually 24 hours to 7 days post-op).
- ✓ The extension strap is detached from the FLO-TECH-TOR™ fork strap and secured to the UFOS™ fork strap.
- ✓ When the time is right, patients should be encouraged to keep possession of the UFOS™.
- ✓ Training, prior to and after receiving the UFOS™, **MUST** stress: caution, following strap procedure, transfer skills, form (posture and balance), navigating obstacles and being aware of and reporting fitting problems as they develop.
- ✓ The patient should return to his/her licensed or certified prosthetist as often as appointments are scheduled.
- ✓ The prosthetist, **with a doctor's prescription**, will provide a VCSPTS™ (Variable Control Supra Patella Socket [a pre-fabricated preparatory prosthesis]) to be used with the same UFOS™, when the patient is ready for knee flexion and full weight bearing.



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PROTOCOL: For the APOPPS® VCSPS™ (Variable Control Supra Patellar Socket)

Preparatory Socket:

A licensed or certified prosthetist should be consulted throughout the use of all APOPPS® sockets.

PROSTHETIST:

- ✓ The VCSPS™ (Variable Control Supra Patella Socket) should be worn with the same UFOS™ (Universal Frame Outer Socket) the patient used with the FLO-TECH-TOR™ socket during the rehabilitation phase of treatment and be provided with a physicians prescription.
- ✓ The amputation must be healthy and ready for full weight bearing. The prosthetist will insert a firmer distal end pad, if needed, before the patient begins full weight bearing.
- ✓ Apply the VCSPS™ very snug. This will not only reduce edema and swelling of the residuum, but will provide a better weight bearing fit. To reduce the distal AP, wrap the distal VCSPS™ strap around the outside anterior portion of the of the UFOS™ and tighten to the desired dimension.
- ✓ The prosthetist will examine the patient, with the VCSPS™, the UFOS™, foot and pylon of your choice, and provide any adjustments required to insure a stable walking alignment.
- ✓ The supra patellar or supra condylar area may be molded or trimmed to a SCSP socket or even a PTB type socket.
- ✓ Suspension may be altered to accept a suspension sleeve, with a doctor's prescription.
- ✓ The prosthetist and the patient should continue to consult with the physician and the physical therapist as the patient progresses toward the time when he/she is ready for a definitive prosthesis.

PHYSICAL THERAPIST:

- ✓ Training MUST stress: weight bearing to the prescribed level, caution, form (posture and balance), navigating obstacles, and being aware of and reporting fitting problems (if they develop) to the prosthetist and the physician.
- ✓ Training should continue as long as the patient is making progress – physically and/or socially.
- ✓ Patients should be encouraged to wear the prosthesis as many hours per day as possible (even if they are not using it for walking), and to elevate the leg every time the prosthesis is removed for more than 10 minutes.
- ✓ The patient should be as independent as possible, and should return to his/her prosthetist and physician as often as appointments are scheduled.

****Daily Hygiene Recommendations:***

PATIENT, NURSES, HOME HEALTH AND FAMILY HELPERS:

- ✓ Remove the VCSPS™, the UFOS™ and all amputation socks and examine the skin thoroughly at least (two [2] times per day). Use a mirror if necessary to see all areas of the amputated limb.
- ✓ **If blisters or broken skin are found, contact the physician immediately.**
- ✓ **If redness is found, gently massage and apply rubbing alcohol to the area during the day and lanolin/aloe based lotion at night (with your physician's approval).**
- ✓ Wash the socket regularly with an anti-bacterial soap on a sudsy washcloth; rinse with a damp cloth and hand dry.
- ✓ The patient should re-apply the appropriate size and ply of amputation socks, long (tall) enough to extend above the top of the VCSPS™ and *re-apply the VCSPS™ and UFOS™ as soon as possible.

***THE COMPLETE HYGIENE PROCESS SHOULD TAKE NO LONGER THAN 20 MINUTES EACH TIME.**



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Flexion Contracture Modifications to the FLO-TECH-TOR™

- ◆ A hole is drilled in the distal end of the socket.
- ◆ An extra Neoprene® band is applied at the knee.
- ◆ The distal end pad(s) are split in the center.
- ◆ A long nylon pull sock is used to facilitate extension of the knee.

Flexion Contracture Protocol

- ✓ The nylon is placed on the patient, extending over the knee, with the long remainder at the distal end.
- ✓ The long remainder of nylon is pulled through the distal end pad(s) and then pushed through the hole in the distal socket.
- ✓ The socket is applied in the usual manner (gently) while the nylon is tugged with a firm yet gentle motion.
- ✓ The long remainder of the pull sock is then reverted on itself and pulled up and over the outside of the FLO-TECH-TOR™.
- ✓ The patient and/or aides must remove the long remainder of the nylon from the outer socket and tug on it every 30 to 40 minutes to encourage extension of the knee and reallocate pressure within the socket for enhanced blood flow.
- ✓ The FLO-TECH-TOR™ must be totally removed 4 to 6 times per day (if two sock protocol is followed) to further stimulate circulation, do range of motion of the knee and check for any folds or wrinkles in the bandages or socks (**Range of motion is done along with gentle desensitizing [tissue should not be displaced]**).

The FLO-TECH-TOR™ is reapplied 15 to 20 minutes after it is removed.



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TransTibial Postoperative and Extended Ambulation Protocol and Fitting Instructions

A. Patient Selection:

1. All diagnoses will benefit from application of one or more segments of the APOPPS®
2. Patients must be coherent and cooperative (except in O.R. applications)
3. Patients must have reasonable family support
4. Patients must demonstrate reasonable upper body strength
5. Residuum length must be between 4¼" and 6¼" for 7" socket systems
6. Residuum length must be between 6¼" and 8¼" for 9" socket systems
7. Sockets will accommodate distal circumferences between 8" and 20" (roughly 12" to 20" at the MPT)
8. All other amputation lengths and circumferences require custom sockets and systems (same day shipping available)

B. Postoperative Protective Socket Fitting:

1. Patients are fit with the FLO-TECH-TOR™ within one week of amputation surgery (see physician and prosthetist protocol)
 - a. Record date of surgery
 - b. Record date of fitting
2. The FLO-TECH-TOR™ is applied in the following manner when patient is at rest (not ambulating):
 - a. All Belts, Extension straps as well as thigh and socket bands should be snug – NOT TIGHT
 - b. Mid Patella strap - Loose enough to slide 1 to 2 fingers under it - Do NOT leave in tightened state
3. The FLO-TECH-TOR™ is removed 2 times per day
 - a. Once at bedtime - Once in the morning
 - b. Visual examination should reveal a total contact fit – if not select the proper size, length and circumference
4. While the FLO-TECH-TOR™ is off:
 - a. Examine the outer sock for spotting
 - i. Record small spotting – Size & Location
 - ii. Contact physician for large amounts of spotting
 - b. Remove outer sock ONLY
 - c. Remove the reticulated pad
 - i. Rinse the pad in cool water
 - ii. Squeeze dry in a towel - Do not wring
 - iii. Reapply pad to residuum
 - d. Reapply clean dry outer sock
5. Allow patient to range the knee as much as is reasonably comfortable (see Physical Therapist)
6. Reapply the FLO-TECH-TOR™ in 15 to 20 minutes from the time it was removed
7. When ambulating patient in parallel bars or walker (un-weighted residuum)
 - a. All Belts, Extension straps as well as thigh and socket bands must be tightened
 - b. Mid Patella strap must be tightened
 - c. Apply upward pressure to the distal end
 - i. Should be relatively pain free with pressure equaling approximately 5% body weight of patient's body
 - ii. When session is over follow procedures in step; B, #4, a, b, c & d
8. Begin distal weight bearing 48 hours after application of the FLO-TECH-TOR™
 - a. All belts, extension straps as well as thigh and socket bands must be tightened - Mid Patella strap must be tightened - Apply upward pressure to the distal end
 - b. Should be relatively pain free with pressure equaling less than 10% of patients body weight
 - c. When session is over follow procedures in step; B, #4, a, b, c & d
 - d. Reapply FLO-TECH-TOR™ as in step; B, #2, a & b

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TransTibial Postoperative and Extended Ambulation Protocol and Fitting Instructions ... *continued*

C. Rehab System Fitting:

1. When the patient is deemed ready for supervised weight bearing on the residuum, with application of the UFOS™, (48 hours to 7 days post amputation surgery or 48 hours after application of the FLO-TECH-TOR™)
 - a. Select the matching size UFOS™ to correspond to the FLO-TECH-TOR™ the patient is wearing
 - b. Patients should use amputation socks, in the size, number and thickness, that are comfortable but not too thick
 - c. Follow procedures in step; B, #8, a, b, c & d
 - d. Apply the UFOS™ directly over the FLO-TECH-TOR™ with all bands and straps tightened
 - i. An over sleeve can be used to facilitate the donning process
 - ii. Tighten all straps on the UFOS™
2. Apply pressure to the prosthetic foot - With patient standing with good upright posture
 - a. Pressure should be equal to 10%, or less, of the patients body weight
3. When the session is over
 - a. Remove the UFOS™ and the FLO-TECH-TOR™
 - b. Visual exam should reveal a total contact fit – if not, select the proper length and circumference
 - c. Follow the procedures in step; B, #4, a, b, c & d
4. Reapply FLO-TECH-TOR™
 - a. Follow procedures in step; B, #2, a & b
5. Record all findings before progressing patient to next level in the rehabilitation pathway
6. Patients progress in 10% increments from 10% weight bearing to 20%, 30%, 40%, 50% etc. by:
 - a. Follow this guide to determine readiness for increased weight bearing
 - i. Patients must perform supervised ambulation 2 consecutive days without pain, spotting or drainage
 - b. If patient reaches a significant level of weight bearing and suddenly shows spotting, or indicates pain, drop back to the previous level of weight bearing until patient is trouble free for 3 days.

D. Prep System Fitting:

1. When patient is deemed ready for full range of knee motion and independent (unsupervised) ambulation:
 - a. Select the corresponding size and side VCSPS™ (preparatory APOPPS®)
 - b. Remove the FLO-TECH-TOR™
 - c. Patients should use amputation socks, in the size, number and thickness, that are comfortable but not too thick (it is not uncommon to add more ply [thickness] due to shrinkage)
 - d. Patients should use appropriate assistive devices (walker, crutches, etc.)
2. Apply the VCSPS™ to the patient
 - a. Tighten MPT strap and socket bands as well as pelvic belt and extension strap (if used)
 - b. Pass the distal socket strap down through the UFOS™
 - i. Pass the distal VCSPS™ socket strap out and around the anterior portion of the UFOS™
 - ii. Secure strap to buckle - Draw strap to desired tightness
 - iii. Strap reduces the AP as well as the ML & circumference
3. Ambulation should be at full weight bearing
 - a. Continue training until patient is an independent ambulator at the expected level of rehabilitation
4. Record all findings before releasing patient from the Rehabilitation program.



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TransFemoral Postoperative and Extended Ambulation Protocol and Fitting Instructions

A. Patient Selection:

1. All diagnoses will benefit from application of one or more segments of the APOPPS-TF®
2. Patients must be coherent and cooperative (except in O.R. applications)
3. Patients must have reasonable family support
4. Patients must demonstrate reasonable upper body strength
5. Residuum length must be between 8¼" and 11¼" for 12" Transfemoral sockets & systems
6. Sockets will accommodate distal circumferences between 14" and 28" (roughly 15" to 27" at the Ischial level)
7. All other amputation lengths and circumferences require custom sockets and systems (same day shipping available)

B. Postoperative Protective Socket Fitting:

1. Patients are fit with the FLO-TECH-TOR-TF™ within one week of amputation surgery (see physician and prosthetist protocol)
 - a. Record date of surgery
 - b. Record date of fitting
2. The FLO-TECH-TOR-TF™ is applied in the following manner when patient is at rest (not ambulating):
 - a. All waist bands, belt and straps as well as socket bands should be snug – NOT TIGHT
 - b. Ischial level strap - Loose enough to slide 1 to 2 fingers under it - Do NOT leave in tightened state – distal strap snug NOT TIGHT
3. The FLO-TECH-TOR-TF™ is removed 2 times per day
 - a. Once at bedtime - Once in the morning
 - b. Visual exam should reveal a total contact fit – if not select the proper length and circumference
4. While the FLO-TECH-TOR-TF™ is off:
 - a. Examine the outer sock for spotting
 - i. Record small spotting – Size & Location
 - ii. Contact physician for large amounts of spotting
 - b. Remove outer sock ONLY
 - c. Remove the reticulated pad
 - i. Rinse the pad in cool water
 - ii. Squeeze dry in a towel - Do not wring
 - iii. Reapply pad to residuum
 - d. Reapply clean dry outer sock
5. Allow patient to range the hip as much as is reasonably comfortable (see Physical Therapist)
6. Reapply the FLO-TECH-TOR-TF™ in 15 to 20 minutes from the time it was removed
7. When ambulating patient in parallel bars or walker (un-weighted residuum)
 - a. All waist bands, belt and straps as well as socket bands must be tightened
 - b. Ischial level strap must be tightened
 - c. Apply upward pressure to the distal end
 - i. Should be relatively pain free with pressure equaling approximately 5% body weight of patient's body
 - ii. When session is over follow procedures in step; B, #4, a, b, c & d
8. Begin monitored distal weight bearing 48 hours after application of the FLO-TECH-TOR-TF™
 - a. All waist bands, belt and straps (EXCEPT distal socket strap) as well as socket bands must be tightened - Ischial strap must be tightened - Apply upward pressure to the distal end
 - b. Should be relatively pain free with pressure equaling less than 10% of patients body weight
 - c. When session is over follow procedures in step; B, #4, a, b, c & d
 - d. Reapply FLO-TECH-TOR-TF™ as in step; B, #2, a & b

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TransFemoral Postoperative and Extended Ambulation Protocol and Fitting Instructions ... *continued*

C. Rehab System Fitting:

1. When the patient is deemed ready for supervised weight bearing on the residuum, with application of the UFOS-TF™, (48 hours to 7 days post amputation surgery or 48 hours after application of the FLO-TECH-TOR-TF™):
 - a. Select the matching size UFOS-TF™ to correspond to the FLO-TECH-TOR-TF™ the patient is wearing
 - b. Patients should use amputation socks, in the size, number and thickness, that are comfortable but not too thick
 - c. Follow procedures in step; B, #8, a, b, c & d
 - d. Apply the UFOS™ directly over the FLO-TECH-TOR-TF™
 - i. Tighten all straps on the UFOS-TF™
2. Apply pressure to the prosthetic foot - With patient standing with good upright posture
 - a. Pressure should be equal to 10%, or less, of the patients body weight
3. When the session is over
 - a. Remove the UFOS-TF™ and the FLO-TECH-TOR-TF™
 - b. Visual exam should reveal a total contact fit – if not select the proper length and circumference
 - c. Follow the procedures in step; B, #4, a, b, c & d
4. Reapply FLO-TECH-TOR-TF™
 - a. Follow procedures in step; B, #2, a & b – Except now the distal strap may be tightened to the desired position (to patient comfort)
5. Record all findings before progressing patient to next level in the rehabilitation pathway
6. Advance patient in 10% increments from 10% weight bearing to 20%, 30%, 40%, 50% etc. by:
 - a. Follow this guide to determine readiness for increased weight bearing
 - i. Patients must perform supervised ambulation 2 consecutive days without pain, spotting or drainage
 - b. If patient reaches a significant level of weight bearing and suddenly shows spotting, or indicates pain, drop back to the previous level of weight bearing until patient is trouble free for 3 days.

D. Prep System Fitting:

1. When patient is deemed ready for full and independent (unsupervised) ambulation:
 - a. Patient should use amputation socks, in the size, number and thickness, that are comfortable but not too thick (it is not uncommon to add more ply [thickness] due to shrinkage)
2. Apply the FLO-TECH-TF™ to the patient
 - a. Tighten the waist bands, belt and straps as well as the socket bands
 - b. Pass the distal strap down through the UFOS-TF™
 - i. Pass the distal strap out and around the anterior portion of the UFOS-TF™
 - ii. Secure strap to buckle - Draw strap to desired tightness
 - iii. Strap reduces the AP as well as the ML & circumference
3. Ambulation should be at full weight bearing
 - a. Continue training until patient is an independent ambulator at the expected level of rehabilitation using appropriate assistive devices (walker, crutches, etc.)
4. Record all findings before releasing patient from the Rehabilitation program.



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