

Physiotherapy Following Total Hip Replacement

THE McKEE-FARRAR PROSTHESIS

By JOAN WALKER, M.N.Z.S.P., Dip.T.P.,

Lecturer Sub-Department of Physiotherapy, University of the Witwatersrand,
in co-operation with Miss M. von BRITZKE, Physiotherapist, Colin Gordon Hospital, Johannesburg

This article is an account of the routine as followed at the Colin Gordon Hospital, advocated by Mr. S. Sacks, F.R.C.S., Orthopaedic Surgeon.

Purpose of Operation; To correct deformity, relieve pain and to improve function.

Pre-Operative Condition of the Patient

This varies with the condition present on which the decision to perform the operation was made. This is covered in the article in this issue by Mr. S. Sacks. This procedure is commonly carried out in osteoarthritis where a considerable pain factor is present. In these cases Mr. Sacks considers the presence of pain to negate the value of pre-operative physiotherapy to strengthen the muscles round the hip, even if the exercises are given statically. For this reason the majority of patients who have, up to date, received this operation at the Colin Gordon have not received pre-operative physiotherapy, either as an out-patient, or as an in-patient.

In conditions, where pain is not a main symptom, routine pre-operative exercises are given, to strengthen the hip abductors and extensors, to acquaint the patient with the post-operative routine and what will be expected of him, to teach correct use of canes.

General Post-Operative Routine

The patient returns to the ward with the legs tied together to prevent the risk of dislocation. The legs are untied when the patient is conscious and co-operative. The patients are encouraged to sleep as flat as possible and from the second post-operative day to spend gradually longer periods in prone at least twice a day.

Sitting over the side of the bed, or in a ward arm chair is permitted from the third to fourth post-operative day provided the prosthesis is stable, but sitting is not encouraged until the 10th post-operative day.

X-rays are taken on the 3rd or 4th post-operative day to confirm the position of the prosthesis and if satisfactory gait training is commenced from this time. Two canes are used, however a walking frame may be used for the first couple of days if the patient is elderly and very nervous, to gain more confidence. Crutches are not used. It is considered that the use of crutches has a poor psychological effect on the patient's attitude to his condition.

The stitches are removed usually on the 12th post-operative day and the patient commonly discharged on the 14th post-operative day.

Stair training is commenced on the 10th post-operative day, at first using one rail one cane, but quickly progressed to two canes. Patients should be able to ascend and descend stairs by the day of discharge. In certain patients a slower rate of progress may be seen.

Because this procedure is a muscle split, muscles are not divided unless, for instance a hip flexion contracture is corrected, the amount of physiotherapy necessary in the majority of patients is minimal and therefore out-patient physiotherapy is not given routinely. Certain patients, with poor pre-operative condition, continued gait problems may however require further physiotherapy as an out-patient.

DETAIL OF THE PHYSIOTHERAPY PROGRAMME

Pre-Operative Routine

As stated previously this is not routinely given, an additional factor being that the majority of patients to date have been admitted on Saturday and operated on, on

Monday. When the patient is admitted for several days prior to surgery the following routine is given.

1. Deep breathing, stressing lateral costal and diaphragmatic is taught and an efficient cough established.
2. Strong full range dorsi—and plantar-flexion of the ankle is taught and stressed.
3. The post-operative gait pattern, using two canes is demonstrated and taught where possible.
4. Static contractions taught for the quadriceps, hip extensors and abductors.

A full assessment has been completed previously in the hip clinic, see Chart, however the therapist will assess each patient, enabling her to have a guide to the improvement gained by the operation. This assessment will include functional ability; use, type and number of walking aids; distance capable of walking; type of gait pattern; lumbar spine, hip, knee and ankle joint range, muscle strength about the hip and knee. In particular she will examine for the presence of a Gluteus Medius limp and flexion contracture (which will be corrected routinely during the operation if present).

Post-Operative Routine

Hip flexion is not stressed, nor lateral rotation. (Surgeons who use an anterior approach tend to stress hip flexion, particularly a high stepping gait.)

- Day 1: 1. deep breathing, diaphragmatic and lateral costal, with coughing
2. strong ankle dorsi- and plantarflexion
 3. static contractions are given to the quadriceps, hip extensors and hip abductors.

This is repeated during the day as many times as the patient's condition demands.

Day 2: as above plus

4. prone lying: assisted hip extension
5. side lying: assisted hip abduction in as much extension as possible and avoiding inner range of adduction
6. lying: assisted hip abduction with medial rotation
7. lying: with 1-2 pillows under the knee: Knee extension.

Assistance is given by the therapist however suspension or a re-education board may be used.

Day 3: as above, decreasing the assistance to hip movements and increasing periods morning and afternoon when the patient lies in prone.

X-rays are taken and if the position is satisfactory, the patient may commence weight-bearing.

Day 4: continue exercises 4 to 7, decreasing assistance, adding manual resistance.

8. Use of diagonal patterns may be commenced, emphasizing Ext. Abd. Med. Rot., pattern.

9. Standing, with support and with the use of a long mirror for posture retraining:

standing balance, weight transference, resisted forward pelvic thrust (to encourage hip extension) and raising up on to toes (to establish calf muscle action for normal heel-toe gait pattern are practised).

10. Standing on one leg (with support): lateral pelvic tilt to the weight-bearing side practised, to eliminate a gluteus medius limp.

11. Gait training is commenced, commonly with two canes, possibly with a walking frame.
- Day 5-10: Exercises 4-11 continued, adding resistance, springs may be used. A straight leg raise should be accomplished on the 5th day.
The patient is walked, on an average, 4 times a day, progressing the distance (this varies with individual age and physical condition). The patient should be lying in prone, for at least 20 minutes, morning and afternoon. General maintenance exercises for back extensors, abdominals may be added to the programme.
- Day 10: Stair training is commenced, as described previously, on the 10th day, and practise given in turning, toilet and slopes if available.

The patient practises changing from sitting to standing to exercise extensor muscle groups, flexion is still not stressed.

HOME PROGRAMME

- A simple list of exercises is given, depending on the patient's mental ability.
1. prone lying: hip extension (with straight and flexed knee)
 2. " " hip extension with abduction and medial rotation
 3. side lying: hip abduction with medial rotation, under leg well flexed and hip kept in as much extension as possible.
 4. standing: raising pelvis laterally and balancing on the operative side, without trunk sway
 5. " raising body weight up on toes, lowering slowly.

Instructions are given to: sleep flat on a firm mattress, practise walking daily, avoiding turning the foot out or swaying the trunk and TO USE BOTH CANES for further SIX WEEKS. Excessive exercise, or any jarring movements should be avoided, swimming can be encouraged.

Average Level of Function at Discharge:

The hip muscles can be graded Grade 3 and the patient commonly has a hip flexion of 90 per cent which allows him to sit in a chair but not to do up his shoe laces or attend to his foot toilet. He walks on the level with two canes, use of which will be continued for six weeks, can ascend and descend stairs with a variable degree of confidence, can manage the toilet but requires assistance in getting on to the high hospital beds.

X-rays are taken before discharge, commonly 14th day, and repeated in one year's time provided no complications have arisen.

The patient attends the hip clinic six weeks after discharge, then at six weeks after that, then at three-monthly intervals for one year, and following that at six-monthly intervals.

Later Functional Ability: Most patients are able to do up their shoe laces and attend to their foot toilet. At 15 months the majority of patients have discontinued use of any walking aids. Prior to this use of one cane when walking outside, on rough ground, in crowds is encouraged, more as a restraint to overactive use of the new joint.

In conclusion, the majority of patients who have received the McKee-Farrar prosthesis achieve a good functional result with the above in-patient physiotherapy and in continuing, at home, a certain number of exercises, so that further out-patient physiotherapy is considered not necessary, or indicated. The patient must gradually "wear in" his new hip, in the same manner a car is "run in".

ACKNOWLEDGEMENTS

The author would like to thank Mr. S. Sacks for his willing assistance in the preparation of this article.

REFERENCES

McKee, G. K. and Watson Farrar, J. (1966). Replacement of Arthritic Hips by the McKee-Farrar Prosthesis. *J. Bone Jt. Surg.*, **48B**, 245.

McKee, G. K. (1967). Replacement Hip Surgery, *Nursing Times*, **63**, 984.

McKee, G. K. (1967). Total Prosthetic Replacement of the Hip, *Physiotherapy*, **53**, 412.

Graveling, B. M. (1967). Physiotherapy for Replacement of Arthritic Hips by the McKee-Farrar Prosthesis, *Physiotherapy*, **53**, 416.

HIP ASSESSMENT FORM

JOHANNESBURG GENERAL HOSPITAL

With the kind permission of Mr. S. Sacks, Orthopaedic Surgeon.

Date: _____ Name: _____
 Etiology: _____ Number: _____
 Unilateral or Bilateral: _____ Age: _____

Grading

1. PAIN:
- (a) None or negligible.
 - (b) Noticeable but insufficient to limit activities.
 - (c) Sufficient to limit work and activities. Requires regular analgesics.
 - (d) Crippling pain, preventing work and activities.
Pain at rest in bed.

2. FUNCTIONAL ACTIVITY:

- Activity
- (a) Limp

Yes	..	..	..	..	..	..
No	..	..	..	..	..	..
 - (b) Trendelenburg test

Positive	..	..	..	..	..	..
Negative	..	..	..	..	..	..
 - (c) Walking outside

Unaided	..	..	..	..	..	..
One stick	..	..	..	..	..	..
Two sticks	..	..	..	..	..	..
Crutches	..	..	..	..	..	..
 - (d) Distance walked

One mile +	..	..	..	..	..	..
½ mile	..	..	..	..	..	..
100 yards	..	..	..	..	..	..
Not at all	..	..	..	..	..	..
 - (e) Completely bedridden
 - (f) Putting on shoe and sock

Yes	..	..	..	..	..	..
With difficulty	..	..	..	..	..	..
No	..	..	..	..	..	..
 - (g) Climbing stairs

Yes	..	..	..	..	..	..
With difficulty	..	..	..	..	..	..
No	..	..	..	..	..	..
 - (h) Sitting

Any chair	..	..	..	..	..	..
High chair	..	..	..	..	..	..
Special chair only	..	..	..	..	..	..
 - (i) Capacity for work

Fit for normal employment	..	..	..	..	..	..
Fit for light work	..	..	..	..	..	..
Totally unfit for work	..	..	..	..	..	..

MOBILITY:	Right	Left
Flexion deformity	..	..
Further flexion	..	..
Extension	..	..
Abduction	..	..
Adduction	..	..
Internal Rotation	..	..
External Rotation	..	..

Note: (Leg Length, Other Diseases, Previous Treatment, Recommended Treatment, Complications on the reverse side of this sheet.)