HIP ARTHROSCOPY:
Labral Reconstruction
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WESTERN ORTHOPAEDICS
Excellence in Motion

Hip Arthroscopy Rehabilitation Protocol
Specific for Dancers

General Notes

- Phase Six can be used with FAI patient population and elements can be used for Ischiofemoral impingement
- Please limit extension, adduction and ER

Precautions

- No resisted hip flexion
  - No resisted hip flexion during the entire rehabilitation process
- Weight bearing
  - NWB or TTWB for the first 4-6 weeks with assistive device
- Range of Motion
  - Flexion: Limit to 90° for 10 - 14 days
  - Extension: Limit to 10° for 10 - 14 days
  - Abduction: Limit to 25° for 10 - 14 days
  - External Rotation: No external rotation for 2 weeks post operatively, then gentle progression per patient tolerance for first 3 weeks
  - Internal Rotation: Gentle progression per patient tolerance for first 3 weeks

Goals:

- **General**
  - Minimize pain and inflammation
  - Protect the surgically repaired tissue
  - Initiate early motion exercises
- **Gait**
  - Maintain a symmetrical gait pattern to prevent concomitant stress throughout the lower extremity and spine.
  - If this gait pattern is not established, a muscular imbalance of tight hip flexors and erector spinae with inhibition of the glutes and abdominals (lower crossed syndrome) could develop.
  - The potential ramifications include increased weight-bearing through the acetabulum with labral tissue stresses secondary to hip flexor tightness. - Garrison, C. N Am J Sports Phys Ther. 2007 November; 2(4): 241–250.
- **Posture**
  - Typically, the adolescent population presents with anteversion. Anteversion is negatively correlated with femoral external rotation so appropriate LE alignment must be achieved and turnout may not be forced throughout the recovery process and with return to dance.

- The increased anterior pull of the muscles can create traction injuries to the labrum by the iliopsoas. Muscular imbalances are also present due to the inhibition of the posterior muscles and abdominals with over firing the anterior muscles and the erector spinae. (Becker, PAMA Presentation; July 2013)

<u>SUGGESTED PHYSICAL THERAPY INTERVENTIONS</u>:

Manual Therapy

- PROM (within surgeon's instructions or those listed above)
- Grade I-II Joint Mobilizations of the hip.
  - Be sure to include prone lying. Long Axis traction is **not** recommended for the first two weeks.
  - Be sure to assess the lumbar spine, sacrum, knee, foot and ankle for appropriate mechanics and mobility
- Stretching of ER/IR, Hamstrings, Quads.
  - Limit Hip Flexor to prone lying and gentle manual stretching

Exercise

- Cardio
  - Begin biking with a high seat and no resistance. Recumbent bikes are **not** advised.
    - Start with 5 minutes and progress 30 seconds each day until 10 minutes are completed on the bike in this first phase.
    - At the end of phase one you may use light resistance if no signs of hip flexor overuse are present and you maintain less than 90° of hip flexion
- Table/HEP
  - Ankle pumps
  - Isometric Hip Abduction, Hamstring sets, Glute sets, Quad sets, Transversus Abdominis
  - Heel Slides
  - **During weeks 3-4** you may begin abduction, and extension SLR. Do **not** begin flexion SLR at this time, and use your best judgment with adduction
- Pool
  - At 3 weeks post op and with appropriate scar healing (no scabbing) start water walking with a flotation device to assist with gait mechanics and increasing weight bearing

Modalities

- E-Stim
  - Begin with Russian Stim (or other noxious stim to tolerance) to the posterior glute to avoid inhibition. Have patient perform isometric glute sets in prone to assist with contraction. Watch for substitutions from low back.
- Ice/Heat PRN

Phase 2- Initial Strengthening Phase

Post Op Weeks 5-7

Post Op Weeks 9-13 With Microfracture Procedure

Precautions:

- **No resisted hip flexion**
  - Ask your surgeon as some desire no resisted hip flexion during the entire rehabilitation process
- **Weight bearing**
  - General guidelines are NWB or TTWB for the first 3-6 weeks with assistive device.
- **Range of Motion**
  - To individual patient tolerance. Recommended to have 25-50% or greater AROM as compared to uninvolved side to progress to Phase Two

Technique

- No grande plies
- Legs in neutral for any derriere exercises
- Only work in first and second position with all turnout less than 30°
- No legs over 45°
- No Centre work
- Watch for increased anterior pelvic tilt and correct to neutral spine
- Watch for appropriate LE mechanics and placement

Goals:

- Continue progressing ROM and soft tissue flexibility
- Transition the emphasis to strengthening while watching LE/Pelvic Alignment

SUGGESTED PHYSICAL THERAPY INTERVENTIONS

Manual Therapy

- **Grade II-III Joint Mobilizations** of the hip.
  - Avoid going into hypermobility if thought to be a contributing factor to pathomechanics
  - Be sure to assess the lumbar spine, sacrum, knee, foot and ankle for appropriate mechanics and mobility
- Continue with more aggressive **PROM/ Stretching** for ER/IR as needed and within pain tolerance of patient. May benefit from hip flexor and QL release.

Exercise

- Cardio
  - Increase biking duration and intensity (resistance, speed) to tolerance
- Table/HEP
  - Hip Flexor stretch in kneeling position
  - Prone Glute lift with knee flexion (watch for isolation of the glute with no lumbar compensations)
  - Double leg Bridging with Abd/Add focus by maintaining bridge and actively bringing knees together and apart Glute Three Ways
  - Heel/Toe Raises on ½ Foam Roller
  - **Weeks 6-7** Progress to SL bridging
  - **Weeks 6-7** Start Seated ER/IR with gentle resistance
  - **Weeks 6-7** Start BOSU bridges

- Pool
    - Freestyle swimming-gentle with no kicking so use buoy between legs
    - Pool Barre with same precautions- noodle to avoid resisted hip flexion

Technique Work – Barre

- **Plies** (CKC squats) with equal weight between feet and minimal ER- No more than 30°. Can be done in first and second, but **no** Grande Plies
- **Tendus En Croix from first position** but maintain neutral alignment with derriere- no ER. No more than 10 each way, or to tolerance or failure of correct mechanics. Encourage lots of brushing to decrease overuse of hip flexor and increased quad use.
- **Rond De Jambe**- Halves- front to side, side to neutral back, neutral back to side, side to front
- **Fondue En Croix from first position** with neutral back and no more than two sets en croix. Watch for anterior pelvic tilt, and encourage increased quad use to assist with lengthening the leg and decreasing the pull on the hip flexor

Modalities

- Ice/Heat PRN

Phase 3- Advanced Strengthening

Post Op Weeks 8-12

Precautions:

- No resisted hip flexion
  - Ask your surgeon as some desire no resisted hip flexion during the entire rehabilitation process.

Technique:

- Complete Barre without releve by 12 weeks.
- **No** Grande Plie, Rond de Jambe en l'air or Adagio
- Legs start to turn out gradually for any derriere exercises No legs over 45°
- No Jumping, Turning, Pointe Work
- Watch for increased anterior pelvic tilt and correct to neutral spine
- Watch for appropriate LE mechanics and placement
- Limit Reps to no more than 15 of any direction
- Start Centre work by week 12 but limit to tendus, degages, fondues, rond de jambes

Goals:

- Symmetrical ROM
- Integrated functional strengthening

SUGGESTED PHYSICAL THERAPY INTERVENTIONS:

Manual Therapy

- Grade II-III Joint Mobilizations of the hip, lumbar spine PRN
- Continue with more aggressive PROM/ Stretching for all motions PRN and within pain tolerance.

Exercise

- Cardio
  - Increase biking duration and intensity (resistance, speed) to tolerance
- Table/HEP
  - Prone Glute lift with knee flexion *(watch for isolation of the glute with no lumbar compensations)*
  - SL bridging
  - Glute Three Ways
  - BOSU Bridges
  - Supermans
  - Frogs
  - Standing Stool ER/IR
  - SLS on Foam
  - HS Ball Pull-In's
  - Timbers or Prone Ab Slides
  - Planks Front and Side
- Reformer Work
  - (Light Resistance) Watch pelvic alignment and over-recruitment of anterior musculature
  - HS slides(quadruped)
  - Leg circles
  - SL pull down

    - Standing plank slide
    - DL bridges
    - Standing slides front/side/back with and without plie
    - Bicycles
- Pool
    - Freestyle swimming only kicking every fourth lap with buoy between knees
    - Pool Barre with same Precautions

Technique Work – Barre & Centre

- **Plies** (CKC squats) with equal weight between feet and minimal ER- No more than 60°. Can be done in 1st and 2nd positions but no grande plie
- **Tendus En Croix from first position** – start adding turnout with derriere. No more than 15 each way or to tolerance. Encourage lots of brushing the foot along the floor to decrease overuse of hip flexor
- **Rond De Jambe**- Complete motion
- **Fondu En Croix from first position** -No more than two sets en croix. Watch for anterior pelvic tilt, and encourage increased quad use to assist with lengthening the leg and decreasing the pull on the hip flexor
- **Frappe En Croix from first position**-No more than two sets en croix. Watch for increased pelvic motion to compensate for lack of hip flexion strength on surgical side
- **Grande Battement En Croix from first position**- No more than two sets en croix. Legs remain in the 45° range all directions

Modalities

- Ice/Heat PRN

Phase 4
Weeks 12-18

Precautions:

- **No resisted hip flexion**
  - Ask your surgeon as some desire no resisted hip flexion during the entire rehabilitation process.

Technique:

- Complete Barre (if no valgus alignment – no grande plies in 4th or 5th).
- No releve except for first position; noted below).
- No Rond de Jambe en l'air or Adagio
- Legs start to turn out for any derriere exercises No legs over 60°
- No Jumping, Turning, Pointe Work
- Watch for increased anterior pelvic tilt and correct to neutral spine
- Watch for appropriate LE mechanics and placement
- Limit Reps to no more than 15 of any direction
- Centre work but limit to tendus, degages, fondues, rond de jambes, Across the Floor without jumping or releve

Goals:

- Safe, gradual, and effective return to 50-75% of previous activity level

SUGGESTED PHYSICAL THERAPY INTERVENTIONS

Manual Therapy

- **Grade II-III Joint Mobilizations** of the hip, lumbar spine PRN
- Continue with more aggressive **PROM/ Stretching** for all motions PRN and within pain tolerance of patient.

Exercise

- Cardio: increase biking duration and intensity (resistance, speed) to tolerance
- Table/HEP
  - Prone Glute lift with knee flexion (watch for isolation of the glute with no lumbar compensations)
  - SL bridging
  - Glute Three Ways
  - BOSU Bridges
  - Frogs
  - Supermans
  - Standing Stool ER/IR
  - SLS on Foam
  - HS Ball Pull-In's
  - Timbers or Prone Ab Slides
  - Planks Front and Side
- Basic Pilates mat classes
  - Leg Circles
  - Bicycles
  - Hot Potatoes
  - Swimming
  - Swan Dive

- Reformer Work
    - Light Resistance – watch for pelvic alignment and over-recruitment of anterior musculature
    - HS Slides (quadruped)
    - Leg circles
    - SL Pull Down
    - Standing plank slide
    - DL bridges
    - Standing slides front/side/back with and without plie
    - Bicycles
- Pool
    - Freestyle swimming only kicking every fourth lap
    - Pool Barre with same Precautions

Technique Work – Barre & Centre

- **Plies** (CKC squats) with equal weight between feet and minimal ER- No more than 60°. No grande plies.
- **Tendus En Croix from first position and fifth position** – start adding turnout with derriere. No more than 15 each way or to tolerance. Encourage lots of brushing the foot along the floor to decrease overuse of hip flexor
- **Rond De Jambe**- Complete motion
- **Fondue En Croix from fifth position**-No more than two sets en croix. Watch for anterior pelvic tilt, and encourage increased quad use to assist with lengthening the leg and decreasing the pull on the hip flexor
- **Frappe En Croix from fifth position**-No more than two sets en croix. Watch for increased pelvic motion to compensate for lack of hip flexion strength on surgical side and decreased hip extension moment that they may use lumbar spine to compensate for
- **Grande Battement En Croix from fifth position**- No more than two sets en croix. Legs remain in the 60° range all directions
- **Releves** – No more than 20 in first position with equal weight distribution and correct alignment

Modalities

- Ice/Heat PRN

Phase 5
4-5 Months Post OP

Precautions:

- **No resisted hip flexion**
  - Ask your surgeon as some desire no resisted hip flexion during the entire rehabilitation process.

Technique:

- Complete Barre (if no valgus alignment – no grande plies in 4th or 5th). Start gentle Rond de Jambe en l'air. **No** Adagio
- Legs turn out for any derriere exercises
- May begin releve in combination as long as it is not fast No legs over 60°
- No Jumping, No Repetitive Turning, No Pointe Work
- Watch for increased anterior pelvic tilt and correct to neutral spine.
- Watch for appropriate LE mechanics and placement
- Limit Reps to no more than 20 of any direction
- Centre work but limit to tendus, degages, fondues, rond de jambs, Across the Floor, Pirouettes in combination (no more than 8 reps)

Goals:

- Safe, gradual, and effective return to previous activity level

SUGGESTED PHYSICAL THERAPY INTERVENTIONS

Manual Therapy

- Grade II-III Joint Mobilizations of the hip, lumbar spine PRN
  - Continue with more aggressive PROM/ Stretching for all motions PRN and within pain tolerance of patient.

Exercise

- Cardio
  - Increase biking duration and intensity (resistance, speed) to tolerance
- Table/HEP
  - Hip Flexor stretch in kneeling
  - Prone Glute lift with knee flexion (watch for isolation of the glute with no lumbar compensations)
  - SL bridging
  - BOSU Bridges
  - Glute Three Ways
  - Frogs
  - Supermans
  - Standing Stool ER/IR
  - SLS on Foam
  - HS Ball Pull-In's
  - Timbers or Prone Ab Slides
  - Planks Front and Side

- Basic Pilates mat classes
    - Leg Circles
    - Bicycles
    - Hot Potatoes
    - Side Leg Lifts and Adductor Lift
    - Swimming
    - Swan Dive
    - Hundred with Knees Flexed and high with no hip flexor use
    - Plank-Front and Side
- Reformer Work
    - (Light Resistance) Watch Pelvic Alignment and over-recruitment of anterior musculature
    - HS Slides(quadruped)
    - Leg Circles,
    - SL Pull Down
    - Standing plank slide
    - DL Bridges
    - Standing Slides front/side/back with and without plie
    - Bicycles
- Pool
    - Freestyle swimming
    - Pool Barre with same Precautions

Technique Work – Barre & Centre

- **Plies** (CKC squats) All positions and with grande plie only in 1st and 2nd
- **Tendus En Croix from first position and fifth position** –Turnout with derriere. No more than 15 each way or to tolerance. Encourage lots of brushing the foot along the floor to decrease overuse of hip flexor
- **Rond De Jambe**- Complete motion. May start Rond de Jambe en l'air
- **Fondu En Croix from fifth position**-No more than two sets en croix. Watch for anterior pelvic tilt, and encourage increased quad use to assist with lengthening the leg and decreasing the pull on the hip flexor
- **Frappe En Croix from fifth position**-No more than two sets en croix. Watch for increased pelvic motion to compensate for lack of hip flexion strength on surgical side
- **Grande Battement En Croix from fifth position**- No more than two sets en croix. Legs remain in the 60° range all directions
- **Releves** – No more than 20 in first position with equal weight distribution and correct alignment. May add these into combination as long as they are not fast

Technique Work- Centre with same precautions

- Plies Tendues Degages
- Rond de Jambes Fondues
- Across the Floor Pirouettes in Combination (tombe pas de bourree)
- Chaine Turns
- Pique Turns

Modalities

- Ice/Heat PRN

Phase 6
5-7 Months Post OP

Precautions:

- **No resisted hip flexion**
  - Ask your surgeon as some desire no resisted hip flexion during the entire rehabilitation process.

Technique:

- Complete Barre with Grande Plie in all positions.
- Begin **gentle** adagio with legs to 45° **only**.
- Start with releves en pointe no more than 20 in first position
- Legs turn out for any derriere exercises Releve in combination is okay
- No legs over 60°
- Limited Jumping **at 7 months**
- No Repetitive Turning
- Limited Pointe Work **after 6 months**
- Watch for increased anterior pelvic tilt and correct to neutral spine
- Watch for appropriate LE mechanics and placement
- Limit Reps to no more than 20 of any direction
- Centre work but limit to tendus, degages, fondues, rond de jambes, Across the Floor,
- Pirouettes in combination (no more than 8 reps)
- Look at Petite Allegro but watch landings so there is no valgus present with all landing mechanics. Start in the pool if able; otherwise at the barre to assist with appropriate landing mechanics. Valgus increases shear on the labrum Becker, PAMA presentation 2013.

Goals:

- Safe, gradual, and effective return to 80- 90% of previous activity level

SUGGESTED PHYSICAL THERAPY INTERVENTIONS

Manual Therapy

- **Grade II-III Joint Mobilizations** of the hip, lumbar spine PRN
  - Continue with more aggressive **PROM/ Stretching** for all motions PRN and within pain tolerance of patient

Exercise

- Cardio
  - Increase biking duration and intensity (resistance, speed) to tolerance
- Table/HEP
  - Hip Flexor stretch in kneeling
  - Start Splits to tolerance
  - Prone Glute lift with knee flexion (watch for isolation of the glute with no lumbar compensations)
  - SL bridging
  - Glute Three Ways
  - Supermans

    - BOSU Bridges
    - Frogs
    - Standing Stool ER/IR
    - SLS on Foam
    - HS Ball Pull-In's
    - Timbers or Prone Ab Slides and Planks front and side
- Basic Pilates mat classes
    - Leg Circles
    - Bicycles
    - Hot Potatoes
    - Side Leg Lifts and Adductor Lift
    - Swimming
    - Swan Dive
    - Hundred with Knees Flexed and high with no hip flexor use
    - Plank-Front and Side
- Reformer Work
    - (Increased Resistance) Watch Pelvic Alignment and over-recruitment of anterior musculature
    - HS Slides(quadruped),
    - leg Circles
    - SL Pull Down
    - Standing Plank slide
    - DL Bridges
    - Standing Slides front/side/back with and without plie
    - Bicycles
- Rotation Discs
- Technique work to stabilize pelvis and look for valgus
- Wunda Chair Pilates
    - Single leg squat push down
- Pool
    - Freestyle swimming
    - Pool Barre with same Precautions

Technique Work – Barre

- **Plies** (CKC squats) All positions including grande plie in all positions.
- **Tendus En Croix from first position and fifth position** –Turnout with derriere. No more than 15 each way or to tolerance. Encourage lots of brushing the foot along the floor to decrease overuse of hip flexor
- **Rond De Jambe**- Complete motion. May start Rond de Jambe en l'air at 45°.
- **Fondu En Croix from fifth position**-No more than two sets en croix. Watch for anterior pelvic tilt, and encourage increased quad use to assist with lengthening the leg and decreasing the pull on the hip flexor
- **Frappe En Croix from fifth position**-No more than two sets en croix. Watch for increased pelvic motion to compensate for lack of hip flexion strength on surgical side
- **Adagio En Croix from fifth-**No higher than 45° and limit to one rep en croix
- **Grande Battement En Croix from fifth position**- No more than two sets en croix. Legs remain in the 60° range all directions
- **Releves** – No more than 40 in first position with equal weight distribution and correct alignment. May add these into combination as long as they are not fast

- **Jumping in first, second at the Barre**-Limit to no more than 8 each position. **At 7 months**
- **Pointe Work at the Barre**- No more than 20 releves in first**. After 6 months**

Technique Work – Centre with same precautions

- Plies Tendus Degages
- Rond de Jambes
- Fondues Across the Floor
- Pirouettes in Combination Chaine Turns
- Pique Turns
- Petite Allegro- first, second position jumps.
- Sautes across the floor, glissades, assembles, jetes- only if proper mechanics and at the end of 7 months

Modalities

- Ice/ Heat PRN

Phase 7
8-12 Months Post OP

Precautions:

- **No resisted hip flexion**
  - Ask your surgeon as some desire no resisted hip flexion during the entire rehabilitation process.

Technique:

- Complete Barre including Grande Plie.
- Pointe work at barre, progressing to centre by a year as technique allows
- Legs may begin to go past 60°
- Jumping, Repetitive Turning, Pointe Work may progress per technical ability
- Watch for increased anterior pelvic tilt and correct to neutral spine
- Watch for appropriate LE mechanics and placement
- Centre work full as long as pain tolerance and technique permit.
- Keep legs out of valgus and allow for jumps- pas de chat, tour jete, jumped fouette, c-jumps, calypso, etc; less than full extension until 11 months.
- Gradual progression to full extension by 12 months.
- Tours, Fouettes should be limited to 12 reps and gradually increased over the year mark

Goals:

- Safe, gradual, and effective return to 100% of previous activity level

SUGGESTED PHYSICAL THERAPY INTERVENTIONS

Periodic Visits may be needed to assess for tissue response to extreme end ranges of motion and technical progression. Labrum approximates with flexion and end ranges of motion. Watch for pain with progression

Exercise

- Cardio: increase biking duration and intensity (resistance, speed) to tolerance
- Table/HEP
  - Hip Flexor stretch in kneeling
  - Splits to tolerance
  - Prone Glute lift with knee flexion (watch for isolation of the glute with no lumbar compensations)
  - SL bridging
  - BOSU Bridges
  - Glute Three Ways
  - Frogs
  - Supermans
  - Standing Stool ER/IR
  - SLS on Foam
  - HS Ball Pull-In's
  - Timbers or Prone Ab Slides and Planks front and side
- Basic Pilates mat classes
  - Leg Circles
  - Bicycles
  - Hot Potatoes

    - Side Leg Lifts and Adductor Lift
    - Swimming
    - Swan Dive
    - Hundred with Knees Flexed and high with no hip flexor use
- Reformer Work
    - (Increased Resistance) Watch Pelvic Alignment and over-recruitment of anterior musculature
    - HS Slides(quadruped)
    - Leg Circles
    - SL Pull Down
    - Standing Plank slide
    - DL Bridges
    - Standing Slides front/side/back with and without plie
    - Bicycles
- Rotation Discs
    - Technique work to stabilize pelvis and look for valgus
- Wunda Chair Pilates
    - Single leg squat push down
- Pool
    - Freestyle swimming
    - Pool Barre with same Precautions

Technique Work- Barre

- **Plies** (CKC squats) All positions including grande plie in all positions.
- **Tendus En Croix from first position and fifth position** –Turnout with derriere.
- **Rond De Jambe**- Complete motion. Rond de Jambe en l'air at 60-90°
- **Fondue En Croix from fifth position**- Watch for anterior pelvic tilt, and encourage increased quad use to assist with lengthening the leg and decreasing the pull on the hip flexor
- **Frappe En Croix from fifth position**- Watch for increased pelvic motion to compensate for lack of hip flexion strength on surgical side
- **Adagio En Croix from fifth-**As Tolerated as long as there is no complaint of anterior hip pain
- **Grande Battement En Croix from fifth position**-As Tolerated as long as there is no complaint of anterior hip pain
- **Releves** -With equal weight distribution and correct alignment. May add these into combination
- **Jumping-** As tolerated but with correct mechanics and no LE Valgus
- **Pointe Work at the Barre**- As technique allows

Technique Work- Centre with same precautions

- Gradual progression of all jumps to full extension by 12 months.
- Tours, Fouettes should be resumed to full completion by 12 months

Modalities

- Ice/Heat PRN