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REHABILITATION OF THE KNEE AFTER MARTIAL ARTS TRAUMA AND SURGICAL INTERVENTION OF RECONSTRUCTION OF ANTERIOR CRUCIATE LIGAMENT

G. DI FILIPPO - ITALY

In the last years there are an increasing of martial arts trauma. The request of the athletes is to come back as soon as possible to the daily practice of sport. The difficulty of the physician is to find efficacy planning treatment and the prevention of new injury.

INDICATIONS:The study regarding 16 patients with indication for surgical intervention of arthroscopy anterior cruciate ligament after complete rupture.

SURGICAL INTERVENTION: After RMN, and arthroscopy, in order to verify the conditions of the knee and identify associated or secondary to the articular cartilage and the menisci.

Preparation and stripping of the semitendinosus tendon using a tendon stripper. technique using technique of transepiphyseal with extraosseous fixation. The semitendinosus tendon is either tripled or quadrupled, depending on the thickness, and prepared for transplantation. Single-canal technique was used. The tendon transplant is placed such that the canal is also filled with the tendon in the epiphyseal part (tendon transplant length usually 7-8 cm). Tibial canal entry medial to the tibial tuberosity. Entering the joint at the level of the anterior horn of lateral meniscus in the intercondylar notch. The fixation of the tendon are made with interference srew. The new tendon transplant is in minimal tension in 30 degrees flexion.



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REHABILITATIVE PROTOCOL: Rehabilitation treatment depends on the extent of additive injuries surgeries , menisci, chondral. First 6 week: (no associated injuries), the weight bearing is gradually increased till full weight bearing at the end of the first week. With additional meniscal lesion, the knee flexion is restricted to 60 degrees maximum and non-weight bearing for 4 weeks. The mobilization of the knee is possible using a knee orthosis. In a period of 4-6 weeks , the flexion is gradually increased to a maximum of 90 degrees and partial weight bearing is started. The full weight bearing and free movements, without orthosis. The muscle training are started after 6 weeks. Avoid of weight transmission on the flexed and rotated knee until 14 weeks. Beginning of sports activities start after 6 months. Restart of professional sports activities after 10 months.

RESULTS : 16 patients treated with surgical intervention of reconstruction of ACL that following the rehabilitative protocol were evaluated before start professional sport activities and after two years from post-chirurgic intervention. All of this have had a good and excellent results.

Despite in an absence of standardized rehabilitation protocol, but with accurately assess and progressive and gradually increased of weith bearing and degree, the patients have restore, at the end of rehabilitation, the safely return to sport.

Doctor G. DI FILIPPO - ITALY



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CUFF LESION OF THE ROTATORS. REHABILITATIVE PROTOCOL AFTER ARTHROSCOPY RECONSTRUCTION

G. DI FILIPPO - ITALY

OBJECTIVE

Full shoulder functionality recovering in order to allow rider's reintegration to sporting activity being ahead of classical rehabilitative protocols

SYSTEMS AND STUFF

- 100 patients (35<20 years – 50>30 years)
- medium age 30 years
- shoulder lesions 63%
- up to (fino a) 12 months on average follow up
- acromionplastic operation, bursectomy and suture

ETIOLOGY OF LESIONS

■Primary (principal,head compression	40
■Secondary compression	25
■Overloading	27
■Traumatic	8
TOTAL	100

ETIOLOGY OF CUFF LESIONS

- primary compression
- secondary compression
- overloading
- macrotraumatic



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LESIONS

- | | |
|----------------------------------|-----|
| ■ SUPRASPINATUS TENDON | 71% |
| ■ SUPRA AND INFRASPINATUS TEND. | 22% |
| ■ SUPRASPINATUS AND BICEPS TEND. | 7% |

REHABILITATIVE PROTOCOL

POST OPERATION (0-2 weeks)

OBJECTIVES

- PAIN DECREASE
- IMPROVMENT OF HEMATIC AFFLUX
- CICATRIZATION FAVOURING
- GRADUATED JOINTS REHABILITATION

TREATMENT

- BRACE
- EXPLOITABLE PASSIVE MOBILIZATION
- ELBOW, HAND AND WRIST ACTIVE THERAPEUTICAL EXERCISE
- PASSIVE KINESI
- ACTIVE KINESI, ACTIVE-ASSISTED
- STRETCHING EXERCISES
- PENDULAR EXERCISE

REHABILITATIVE PROTOCOL FIRST STAGE (3-5 weeks)

Passive therapeutical exercises

- Shoulders abduction and press-ups
- Shoulders 45° abduction intra and extra rotation
- Humerus lower translation
- Shoulder blade (scapular) abduction and elevation
- Lateral decubitus shoulders depression
- Shoulders 45° abduction intra and extra rotation
- Shoulders abduction and adduction supine position)



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- Stretching
- Forward extension seated position
- Flexion, intra and extra rotation with stick supine position
- Pendolar exercise

REHABILITATIVE PROTOCOL SECOND STAGE (6-9 weeks)

OBJECTIVES

- COMPLETE AND PAINLESS MOVEMENT
- GRADUATED MUSCULAR STRENGTH INCREASE

TREATMENT

- STRETCHING
- ISOTONIC EXERCISES
- ISOMETRICS SUBMASSIMAL EXERCISES
- ISOTONIC EXERCISES WITH ELASTICS BANDS
- POSTURAL REHABILITATION

Isotonic exercises

- Shoulders abduction standing
- Shoulders flexion
- Forearm 90° flexion intra and extra shoulders rotation

Isotonic exercises with elastic bands

- Shoulders blade elevation and depression
- Flex shoulder extension
- Forward arm pressure
- Intra and extra shoulders rotation
- Shoulders abduction supine
- Postural rehabilitation

REHABILITATIVE PROTOCOL THIRD STAGE (10-13 weeks)



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OBJECTIVES

- COMPLETE MOVEMENT PRESERVATION
- MUSCULAR STRENGTH IMPROVEMENT
- NEURO-MUSCULAR CONTROL IMPROVEMENT

TREATMENT

- ADVANCED STRETCHING EXERCISES
- ISOTONIC EXERCISES WITH BENDS
- PROPRIOCEPTOR EXERCISES
- KINETIC CLOSED CHAIN EXERCISES
- Advanced stretching exercises
- Fore, posterior, lower and upper cuff stretching
- Arms elevation and depression with stuff behind head
- Stretching with cloth for shoulders rotation
- Isotonic exercises with elastic bends
- Proprioceptor exercises

REHABILITATIVE PROTOCOL

FOURTH STAGE (14-18 weeks)

OBJECTIVES

- COMPLETE SHOULDER FUNCTIONALITY
- RETURN TO SOCIAL, WORK AND SPORTING LIFE

TREATMENT

- ADVANCED STRETCHING EXERCISES
- ISOTONIC EXERCISES WITH ELASTIC BENDS
- COORDINATION AND STABILIZATION EXERCISES
- PLIOMETRIC EXERCISES Isotonic exercises with elastic bends
- Coordination and stabilization exercises
- Pliometrics exercises



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EVALUATION SYSTEM

- PATIENT SATISFACTION
- RESPONSE TO CLINICAL TESTS
- WEIGHED MARKS OF CONSTANT
-

PATIENT SATISFACTION

- IMPROVED 90%
- UNALTERED 8%
- DETERIORATED 2%

RESPONSE TO CLINICAL TESTS

- IMPINGMENT SIGNS PERSISTENCE 6%
- POSITIVE JOBE SIGN 13%
- ARTICULAR RANGE REDUCTION 11%

AVERAGE OF WEIGHED MARKS OF CONSTANT

PRE-OPERATING	48
AFTER-TREATMENT	85

POSTURE

- PRE-OPERATION ALTERED 70% PATIENTS
- AFTER TREATMENT ALTERATED 38% PATIENTS
- EXAMINATION GAIT-ANALYSIS CHECK

CONCLUSIONS

Factors with positive effect on functional recovery:

- OPERATION STANDARD
- ELASTIC BANDS USE
- TECHNIQUES OF POSTURAL REHABILITATION INTRODUCTION
- CLOUSE CHEKS



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ELASTIC BANDS PROPERTIES:

- **UNIDIMENSIONAL (STRAIN ALONG A SINGLE AXIS)**
- **STRAIGHTFORWARD CONDUCT (PROPORTIONAL RELATION BETWEEN LENGTH AND TENSION)**

USED FOR THERAPEUTICAL EXERCISES MORE DIFFICULT PROGRESSIVELY AND REFLECTING MOTOR

CONCLUSIONS

POSTURAL REHABILITATION HAS BEEN INSERT TO CATCH UP QUALITATIVE OBJECTIONS (CORRECT PERCEPTION OF THE PHYSICAL SEGMENTS IN THE SPACE, EXACT EXECUTION OF FUNCTIONAL GESTURES, COMPENSATIONS ELIMINATION) INSTEAD OF QUANTITATIVE (RECOVERY OF GREATEST STRENGTH).

CLOSE CHECKS USEFUL FOR:

- **PATIENT WHO NOTICES PROGRESSIVE IMPROVEMENT AND FEELS MORE MOTIVATED FOR A BETTER RECOVERY**
- **SPECIALIST WHO COULD FIX THERAPEUTICAL OBJECTION ALWAYS MORE COMPLEX AND ARTICULATE TO ACHIEVE HIGHEST LEVEL**

CONCLUSIONS

VALID PROGRAMME FOR EACH SINGLE PATIENT DOES NOT EXIST AND MARKED GUIDE LINES ARE MODIFIABLE ON THE BASIS OF THE STANDARD OF PERFORMED OPERATION AND ABOVE ALL ON THE BASIS OF THE PATIENT RESPONSE IN REFERRING TO THE PROGRAMME.

Doctor G. DI FILIPPO - ITALY