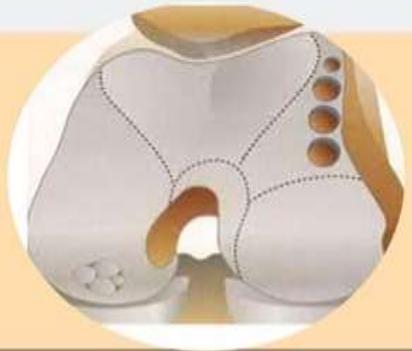




Egyptian Arthroscopy Association EGAA 2016



Knee Cartilage Preservation Course



Emeritus President of the EGAA
Prof. Ahmed Abdel Aziz

President of The Course & EGAA
Prof. Roshdy El Sallab

Honorary President of The EGAA
Prof. Adel Hamed

Course Organizers
Prof. Hesham El Kady
Ass. Prof. Ahmed Waly
Dr. Akram El Dawoudy

6th - 7th October 2016
The National Training Institute, Cairo



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Congress Structure

Instructional Course Lectures
Symposia
Hand on Workshops

Workshops

Meniscal excision
Meniscal repair

Osteochondral grafting
High Tibial osteotomy for Early Registration

Registration

Registration Fees For Lectures **300 L.E**
Registration For High Tibial osteotomy **300 L.E** [Limited Number]
Meniscal excision, Meniscal repair, Osteochondral grafting : **Free**

For Registration please Contact

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**Egyptian
Arthroscopy Association**

Preserving the Knee Joint Course

The national training institute

Nasr city – Cairo 29th& 30th of

September

2016

Course Manual

Section one

Course structure objectives and context guide lines for lecturers

Preserving the knee joint course

Course structure objectives and context guide lines for lecturers:

This is a course for orthopaedic surgeons, physical therapists and all health care providers who are interested in knee surgery and are in touch with patients having knee pathology. It is designed in a way to give them the up to date well- evidenced core knowledge in the area of how to preserve the knee joint, keep it healthy and repair it if necessary.

It is structured in the form of a number of symposia, every symposium consists of number of short lectures, keynote lectures (given by experts), round table

discussions, case scenarios, algorithms and debates. All of these materials are in touch with our daily medical practice as much as possible.

The mission is to conduct the necessary information in an interesting and unforgettable way.

The structure and time allowance of the educational process during this course are organised as follows:

- Short lecture " 10 min"
- Keynote lecture (for expert lecturers) "15 min"
- Round table discussion (a discussor and 3 guests) "30 min"
- Mini battle and debates "20 min"/ "10 min" For each presenter
- Algorithms (single side) "5 min"

- All long symposia (more than an hour) are followed by "20 min" and short symposia by "15 min" for discussion.
- Discussions are considered one of the main educational tools and are given enough time after each symposium as stated above.
- All symposia are followed by either a "10 min" short break, "30min" coffee break or "45 min" lunch break" to avoid mental fatigue.
- Each symposium is given a title that directs the attention of the delegate to its general content.

(1)

- Many lectures are given a title and a question to make the answer more interesting and make the delegate more anxious to know it.

As a lecturer we expect you to:

1-Keep strict to your allowed time.

2-Be as clear and as simple as possible.

- 3-Enrich your talk with the necessary evidence and cite it whenever possible.**
- 4-Enrich your talk with high quality pictures and videos that share in making the subject easily understood.**
- 5- Try to make it as practical as possible and give examples for real-live case scenarios and clinical situations.**
- 6- Try to avoid unnecessary talks and to go straight to the subject as this would save time and be more informative.**
- 7- Present within as small number of slides as possible as this would make your talk more focused and easy to memorize by your listeners.**
- 8- Submit your slides with a permission to print them, no later than a month earlier to the course date to allow us to print them in the course hand-out book. This book is going to be distributed with other course materials upon registration to all the delegates the morning of 29th Sept.2016.**
- 9- Try to make your take home message in one slide, and to be in as few points as possible. This slide is going to be collected from all the lecturers to be presented in the summary talk by the end of the course.**

Section two

The Program

Preserving the knee joint course

The Program

29th Sept. 2016:

Registration: 8.00 am

Welcome reception: 8.30:9.00

Opening words: 9.00: 9.10

I -The meniscus and preservation of knee function:

Session No.1:Basic knowledge: (9.10:11.10)

Chairman:

1. The normal meniscus function:
This is why we should save the meniscus a.
Revisit the anatomy. (9.10: 9.20)
b. Meniscus function, what a load! (9.20: 9.30)
2. Traumatic meniscal injuries:
What effects do they do to the knee function?
 - a. The non-radially oriented hoop interruptions (The vertical, oblique and cleavage tears) (9.30:9.40)
 - b. The radially-oriented hoop interruptions (The radial and roots tears) (9.40:9.50)
3. Meniscal repair: which is more preservative, a healed meniscus or no meniscus?
 - a. Repairability and overview of different techniques (including the possibility to need tunnels) (9.50:10.00)
 - b. Outside-in sutures. (10.00:10.10)
 - c. How to augment the biology? (10.10:10.20)
 - d. The long term results of meniscal repair. (10.20:10.30)

(3)

4. Serious complications:
Post-menisectomy syndrome and post-menisectomy osteonecrosis
How to prevent and how to manage? (10.30:10.40)
5. Meniscal substitution and meniscal replacement: where are we now and how practical are they to apply to our patients? (10.40:10.50)

-**Discussion** (10.50:11.10)

- **Short break** (11.10:11.20)

- **Session No.2: Consensuses and debates:(11.20:12.45)**

Moderator:

Panel:

Keynote lecture:

- Meniscal tissue resection:

If there is no chance to repair, how to be more preservative?
(11.20:11.35)

Round table discussion: Degenerative meniscal tears

- Are those tears the cause or the result of knee dysfunction? (11.35:12.05)
- The Esska 2016 consensus for degenerative meniscal tears.
(12.05:12.10)

Debate and mini battle:

Meniscal repair versus meniscectomy in elite athletes and high demand patients.

Moderator:

- Resect and get early to pitch (work). (12.10:12.20)
- Repair and have better later function. (12.20:12.30)

- **Discussion** (12.30:12.45)
- **Coffee break and Al Zuher prayers.** (12.45:13.15)

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II- The Cartilage and preservation of knee function:

Session No.1: Cartilage defects:(13.15:15.20)

Chairman:

1. The normal Cartilage composition and function: All for one, Does everything else in the knee works to preserve it?!
(13.15:13.25)

2. The subchondral bone (The 5th cartilage layer), recent trends:
 - a. Grading and healing potentials of cartilage loss.
(13.25:13.35)
 - b. Bone marrow oedema, AVN, SONK and SIFK, what does the radiology tell us?
(13.35:13.45)
 - c. Management of osteochondral defects (OCDs) in the different age groups.
(13.45:13.55)

3. Focal Cartilage lesions:

a. Non-cell based repairs:

- microfractures, literature update. (13.55:14.05)
- Filling the defect, osteochondral grafts. (14.05:14.15)
- Filling the defect, acellular scaffolds (MaioRegen) and AMIC (chondroglide). (14.15:14.25)

b. Cell based and cartilage engineering repairs:

- ACI, MACI, MASI, would the answer be in the biology? (14.25:14.35)

- **Lunch, Asr prayer and visit industrial exhibition.** (14.35:15.20)

Session No.1: Cartilage defects (Cont.) :(15.20:16.15)

-**Roundtable discussion:** Managing unexpected events (15.20:15.50)

Panel:

Moderator:

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- Algorithm updates for treatment of focal cartilage defects. (15.50:15.55)

- **Discussion** (15.55:16.15)

Session No.2: Diffuse Cartilage wear:(16.15:17.50)

Chairman: Prof. Roushdy Alsallab

1. Early cartilage disease, pathogenesis and prevention,

- a. Thetibiofemoral joint. (16.15:16.25)
- b. The patellofemoral joint, any special considerations? (16:25:16.35)

2. Conservative measures of cartilage treatment, an evidence based approach

- a. Injectable and non injectable drugs. (16.35: 16.45)
- b. Physeotherapy and bracing. (16.45:16.55)

3. How can instability be a factor in knee degeneration and to what extent can soft tissue reconstructions save it? The word of biomechanics (16.55:17.05)
4. The impact of other joint pathology (hip & ankle) on knee degeneration. (17.05:17.15)
5. Extensor tendon mechanism injuries and dysfunction, knee preservation management. (17.15:17.25)
6. Algorithm updates for treatment of mild to moderate degrees of diffuse cartilage disease. (17.25:17.30)

- **Discussion** (17.30:17.50)

- **Maghreb Prayers**

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-**Workshop:** Meniscal and cartilage repair.

- **End of day one.**

30th Sept. 2016

III- Osteotomies around the knee and preservation of its function:

Session No.1:Thinking of osteotomy:(09:10.40)

Chairman:

1. Basic science:
 - a. Physiological axes and biomechanics of axis correction. (09:9.10)

b. The failing compartment (pathology of mechanical overloading till OA)
(9.10:9.20)

2. Indications:

a. When to do osteotomy for uni-compartment arthritis: The typical indication and the proper selection. (9.20:9.30)

b. Other indications for osteotomy:
Patellofemoral arthritis, ligament deficiencies, Intra articular deformities...
(9.30:9.40)

c. Arthritis of the contralateral compartment:
To what extent should we consider arthroscopic findings and to where we should go with the axis? (9.40:9.50)

d. combined procedures, osteotomy plus... (9.50:10.00)

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Key note lecture:

The evolution of surgical osteotomy techniques and fixation devices.
(10:10.15)

- **Discussion (10.15:10.30)**

- **Short Break (10.30:10.40)**

Session No.2: Technical aspects :(10.40:11.45) Chairman:

a. Where does the deformity come exactly from?
(10.40:10.50)

- b. Closing vs opening wedge osteotomies. (10.50:11.00)
- c. Uniplanar vs biplanar osteotomies. (11.00:11.10)
- d. The hinge point, how to keep it and what to do if got broken.
(11.10:11.20)
- e. How to enhance biology, to graft or not and when to put weight.
(11.20:11.30)

- **Discussion** (11.30:11.45)

- **Gomaa prayers and lunch**

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Session No.3: Getting more in depth: (13.00:14.05)

Chairman: Prof. Ahmed Abdul-Azeez, Prof. Maher Assal

1. Success rate and possible complications of osteotomies around the knee.
(13:13.10)
2. Round table discussion and case presentations: complex deformities around the knee and double osteotomies. (13.10:13.40)

- **Discussion** (13.40:13.55)

-**Short Break** (13.55:14.05)

Session No.4:Other solutions :(14.05:16.35) **Chairman:**

1. The distraction concept and the kinespring. (14.05:14.15)
2. The role of autografts and allografts in mega-cartilage defects.
(14.15:14.25)
3. Debate and minibattle:

Moderator:

Bone on Bone arthritis in malaligned knees of relatively younger patients:

- Realignment procedures... (14.25:14.35)
- Arthroplasty procedures... (14.35:14.45)

- **Discussion** (14.45:15.00)

(9)

IV- Summary and course recommendations. (15.00:15.15)

- **Coffee break and Asr prayer** (15.15:15.45)

V- Saw bone workshop: (Reserved places only) Biplanar Medial open wedge high tibial osteotomy fixed by locked osteotomy plate

A- Surgical Tips:

1. How do I do osteotomies around the knee?
2. How do I do osteotomies around the knee?
3. Digital planning and modern techniques of biplanar HTO and DFO using locked osteotomy plates.

B- Step by step surgical practice on saw bones.

-End of the course

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Section three

The general Content
and points to be
covered throughout the
course

The general Content and points to be covered throughout the course:

Session no.1:Basic knowledge:

Lecture no.1:

- a. The anatomy, the recent classification of each meniscus into 6 different zones with its mechanical characteristics and healing potentials and the relevant surgical applications.
- b. The normal meniscus composition and loading capabilities, its water content and hoop function and applied biomechanics.

Lecture no.2:Traumatic meniscal injuries:

- a. - The general classification and mechanism of injury of meniscal tears.
 - The deleterious effects and the possible complications of the vertical, oblique, flap and cleavage tears.
- b. The total menisectomy effect of the radial and roots tears, possible causes and management.

Lecture no.3: Meniscal repair:

- a. The indications for repair and the chances of healing
Overview of the surgical techniques of meniscal repair including the techniques for root and radial repairs using bone tunnels.
- b. Being the most commonly done and the cheapest technique, a separate lecture has been specified to the outside-in sutures. The feasibility and the technical details are to be covered as much as time allows.

- c. **Biological methods that potentiate healing including fibrin clot, rasping of the edges, trephination, PRP and bone marrow and stem cells are to be covered on evidence basis.**

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- d. **The long term literature results of meniscal repair, especially those compared to meniscectomy, are to be discussed to raise up the confidence in doing more repairs and saving the meniscus.**

Lecture no.4: Serious complications:

- **Pathogenesis, management and prevention of post-meniscectomy syndrome and post-meniscectomy osteonecrosis are to be covered.**

Lecture no.5: Meniscal substitution and replacement:

- **The different partial compensatory substitutes for meniscal tissue loss like the CMI (collagen meniscal implant) and the actifit and total replacement by meniscal allograft. A general idea about the indications and the results of each of them are to be given together with a trial to answer the questions of how practical is to apply to the Egyptian patients.**

Session no. 2: Consensuses and debates:

Keynote lecture: meniscal tissue resection, how to be more preservative?

Some ideas:

- **The less tissue you resect, the better would be the outcome**
- **Trying to avoid injuring the cartilage**
- **Pie-crusting for tight medial compartments**
- **Considering repair for the remaining parts of a badly torn meniscus**

Round table discussion:

This session will be running in the form of asking questions by a moderator of the session and answering through 3 guests sitting on the panel.

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The 1st question should be:

Are those tears the result / or the cause of knee dysfunction?

Many surgeons do scopic partial menisectomy for atraumatic degenerative meniscal tears accusing that tear to be the main cause for the knee pains patients have. On the contrary, there is increasing evidence that degenerative tears are the end result of long standing knee wear and overload at which the meniscus is still doing some load absorptive function. Resecting the meniscus then, would rather lead to more wear and progression of osteoarthritis.

The following issues are also suggested to be asked about:

- No strong evidence to suggest that pains in degenerative tears come from the torn menisci (the work of Martin Englund)**
- MRI of the contralateral asymptomatic knee would show a similar meniscal tear**
- The wide spread prevalence of degenerative tears among middle and old aged population**
- The temporary effect of pain relief achieved by the scope is probably due to the wash out of pain mediators**

By the end of that session, the Esska 2016 consensus for management of meniscal tears is to be announced in a single slide over 5 minutes.

The answers should not be too long considering time limits.

Debate and mini battle: Meniscal repair versus menisectomy in elite athletes and high demand patients.

The debate and minibattle should discuss the controversy of whether to resect the torn part of the meniscus in elite athletes and high demand patients like workers whose working conditions necessitate a lot of kneeling or to repair them.

Points like pressure of the coach, spectators and contract obligations on the patients (job necessities) and good short term of results for the 1st lecture are to be discussed, while points like better performance on the short term, long term results and better preserving knee function are to be discussed in the 2nd lecture.

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The debate should consider the view of either lecturer, as both of them have highly respectable perspectives.

II- The Cartilage and preservation of knee function:

Session No.1: Cartilage defects:

- 1- The normal cartilage composition from the view of being the most precious tissue in the knee that all other structures have a protective function towards it. The biological limits of cartilage regeneration and repair are also to be covered.
- 2- A) ICRS grading is to be mentioned in relation to healing potentials.
B) The different terminology describing subchondral bone lesions in the MRI are to be discussed by a consultant musculoskeletal radiologist.
C) Grading and different treatment options of OCDs in both skeletally immature and older patients.
- 3- A) Non-cell based repairs of focal cartilage lesions:
 - a. Non cell based repairs:
 - Literature update of micro fractures, what's with and what's against.
 - Filling the cartilage defects by autologous osteochondral grafting considering its indications, technical tips and expected results - A general idea about the recently developed synthetic scaffolds like MaioRegen and Chondroglide.
 - B) Cell based and cartilage engineering repairs:

An idea about the cell based methods and cartilage engineering is to be given especially regarding indications and feasibility to apply in Egypt without going too much into the technical details.

ACI= autologous chondrocyte implantation

**MACI= matrix-induced autologous chondrocyte implantation MASI=
matrix-induced autologous stem cell implantation**

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Session No.1: Cartilage defects (Cont.)

The round table discussion at this session should discuss the possible solutions to manage expected events found incidentally while scoping for another reason.

The following are goodpoints to discuss at this session:

- Incidentally discovered cartilage lesion while scoping for another reason -
Iatrogenic cartilage lesions**
- Differences in management in relation to the location of the defect**
- Focal cartilage lesions in moderately arthritic knees**
- Postoperative management and weight bearing**
 - Assessment of cartilage healing**
- Algorithm updates for treatment of focal cartilage defects (single slide) to be explained.**

Session no.2: diffuse cartilage wear:

1. Early cartilage disease:

- a. This is a talk about management of early osteoarthritis of the tibiofemoral joint. It should approach some of the debated definitions of early OA, as well as the pathogenesis and prevention. Talking about pathogenesis may include the effect of some relevant factors like obesity, impact sporting activities like football or lack of sports and muscle weakness with some possible preventive ways. The lectures may choose certain points to focus on them.**
- b. The special considerations of early diffuse cartilage wear of the patellofemoral joint are to be discussed. The younger age sector, the effect of maltracking of the**

patella, jobs and habits that require prolonged squatting can all be points for discussion. The lectures may choose certain points to focus on them.

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2. Conservative measures of cartilage treatment: **The following items are to be covered:**

a. Non injectable therapies and injectable therapies:

The effect of the different chondro- protectedrug categories like glucosamine, chondroitin, collagens and oral hyaluronate based formulas and anti-inflammatory medicines Injectable therapies like.

The effect of cortisone, PRP, stem cells and hyaluronate is to be covered.

b. The efficacy of physiotherapy as well as bracing measures in managing early OA.

3. Ligament deficiency and arthritis:

In this talk, the presenter should give the biomechanical explanation of secondary arthritis occurring as a result of chronic ligamentous deficiency. It should also demonstrate the evidence-based relation between soft tissue reconstructions and saving the knee from getting into a state of secondary arthritis.

4. The impact of the near-by joint injuries and diseases (hip and ankle) on knee function is to be discussed.

5. Extensor tendon mechanism injuries whether open or closed ruptures are discussed through the same approach, how to preserve the knee function. Adjusting patellar height and leaving no extension lag are crucial points.

Using strong suture material (like polyester tape) in repairs to allow early range is another good point that can be high lightened.

6. Algorithm updates for the everyday-practice in managing mild to moderate osteoarthritis through a single slide with explanation given by the presenter.

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30th Sept. 2016

III- Osteotomies around the knee and preservation of its function:

Session No.1: Thinking of osteotomy:

1. Basic science:

a. Physiological axes and biomechanics of axis correction.

The normal axes and angles around the knee together with load distributions across its surface and how effective are realignment procedures (biomechanically) in improving the overloaded compartments are the main points.

b. The failing compartment (pathology of mechanical overloading till OA)

The sequence of pathological effects that occur in the overloaded compartments starting by getting the meniscus torn and extruded then the cartilage ulcerated followed by subchondral bone oedema/necrosis till destroying the whole compartment.

The importance of detecting failing compartments early.

2. Indications:

a. When to do osteotomy for uni-compartments arthritis?

The typical indication and the proper selection.

Who is the best patient to benefit from osteotomy and how predict and avoid common complications like DVT? Points like obesity, osteoporosis, smoking, age and general condition are to be high lightened.

b. Other indications for osteotomy:

Derotation osteotomy for patellafemoral arthritis, changing the slope for ligament deficiencies, hypoplasia of tibial condyles and correcting intra articular deformities

c. Arthritis of the contralateral compartment:

To what extent should we consider arthroscopic findings and to where we should correct?

This talk should consider the importance of arthroscopic assessment before doing osteotomy, the range of acceptance of the degree of arthritis of the contralateral

compartment and to where we should correct starting from Fujisawa point and the concept of generalized over correction and ending by the most recent research done by Feucht M.J et al to individualise the degree of axis correction according to the pathology the medial compartment has.

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d. Combined procedures, osteotomy plus....

Osteotomy plus ACL reconstruction and other ligament deficiencies,
Osteotomy plus meniscal or cartilage repair....

Keynote lecture:

The evolution of surgical osteotomy techniques and fixation devices.

This talk should cover history of osteotomies starting by the early years of the 19th century on. It should also cover the progress of osteotomy techniques since 1966 when Coventry devised his closing wedge technique till the evolution of Tomofix and carbon peek plates.

Session No.2: Technical aspects:

a. Where does the deformity come exactly from?(What is the CORA and where is it?)

The analysis of the deformity on long leg films applying the axes and angles around the knee to know whether the deformity is tibial or femoral, metaphyseal or diaphyseal intra or extra articular and the impact of this assessment on surgical planning.

b. Closing vs opening wedge osteotomies

Advantages and disadvantages and preference doing each of them. c.

Uniplanar vs biplanar osteotomies

Advantages and disadvantages and preference doing each of them. d.

The hinge point, how to keep it and what to do if got broken?

The idea of keeping the hinge as much as possible, to open the wedge using the proper technique not by applying valgus force. The idea of the lag (golden) screw to effect lateral cortex compression.

Takayushi classification of the hinge break and how to manage it

(18)

e. How to enhance biology, to graft or not and when to put weight?

The issues of whether to graft or not, to graft with autologous bone as a synthetic material, how big is the gap that should be filled with a graft. To leave the hematoma or to put a drain. Is there a difference in the time needed for weight bearing if we graft the wedge?

Session No.3: Getting more in depth:

1. Success rate and possible complications of osteotomies around the knee

How effective are osteotomies in general, in relieving patients' symptoms (evidenced by long term results). The possible complications including the serious posterior vascular injuries and the aberrant posterior tibial artery and how to manage it.

2. Round table discussion and case presentation

Complex deformities around the knee and double osteotomies.

3 Guests and a moderator discussing more complex clinical cases requiring double osteotomies.

Session No.4: Other solutions:

1. The distraction concept and the kinespring.

An idea about distraction concept with the kinespring as an example, showing the literature results. Any place for a combined traction and osteotomies management?

2. The role of autografts and allografts in mega cartilage defects.

The autologous posterior femoral condyle when taken to compensate for huge cartilage defects (The mega-oats technique). The role of osteochondral allografts and its availability in our country.

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Debate and minitable:

Bone on bone arthritis in malaligned knees of relatively younger patients: -

Realignment procedures....

- Arthroplasty procedures...

The pros and cons of each solution against the other.

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