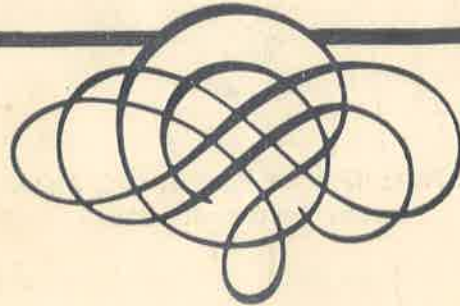




THE  
INDIAN JOURNAL  
OF  
OCCUPATIONAL  
THERAPY



OFFICIAL PUBLICATION OF  
THE ALL INDIA OCCUPATIONAL THERAPISTS' ASSOCIATION

VOL. XV

DECEMBER 1987

NUMBER 3

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24/12/87

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Indian Journal of Occupational Therapy is the official publication of A.I.O.T.A. It is published three times in a year. This publication is received by the members of A.I.O.T.A. without any separate subscription. For non-members the subscription rates are as given below.

### Subscription :

INDIA : Individual Copy : Rs. 7-00  
Annual : Rs. 20-00

OVERSEAS : Annual : U.S. \$ 7 or its equivalent in any currency. Issues could be obtained by Airmail on the payment of U.S. \$ 3 extra.

All Cheques and Money orders to be, made out to "All India Occupational Therapist Association."

All correspondence to be addressed to

Managing Editor IJOT

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Published by — Dr. (Mrs.) R. D. Jagasia,  
Managing Editor  
O. T. Training School & Centre,  
Seth G. S. Medical College,  
Parel, Bombay-400 012. (INDIA).

Printed by — O. T. PRINTING UNIT,  
O. T. Training School & Centre,  
Seth G. S. Medical College,  
Parel, Bombay-400 012. (India).

# THE INDIAN JOURNAL OF OCCUPATIONAL THERAPY

Vol XV

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## From Managing Editor's Desk

Dear Friends,

In this year's last issue we are publishing two articles. One is on Performance on Konfliktograph of Normals & Psychotics and the other is on the study of Ligament injury with Lenox Hill Derotation Brace. We are sure that these two articles will broaden the view of our therapists towards the newer approaches in treatment of patients.

In addition there is more news about the 26th AIOTA conference to be held at Jaipur. Hoping to see you all at the conference.

Wishing you a Happy and Prosperous New year.

**Dr. Mrs. Rajni Jagasia**  
Managing Editor

## CONFERENCE NEWS

Provisional programme of the XXVI A.I.O.T.A. Conference to be held at S.M.S. Medical College, Jaipur from 21st to 23rd December, 1987.

Venue	S.M.S. Medical College Auditorium	
Date	Programme	Time
Monday 21-12-87	Registration	9.00 A.M.
	Inauguration (SMS Med. Col. Auditorium)	10.30 A.M.
	Inaugural Tea.	11.30 A.M.
	Scientific Session I	12.00 Noon
	Lunch	1.00 P.M.
	Guest Lecture	2.00 P.M.
	Scientific Session II	2.30 P.M.
	Tea.	4.00 P.M.
	Scientific Session III	4.30 P.M.
	Dinner.	8.00 P.M.
Tuesday 22-12-87	Continuing Medical Education	9.00 A.M.
	Programme on Hand Rehabilitation	
	Film by Hindustan Ciba Geigy	10.30 A.M.
	Tea - Sponsored by HINDUSTAN CIBA GEIGY	10.45 A.M.
	Medical Education Programme continues	11.00 A.M.
	Lunch	1.00 P.M.
	Guest Lecture	2.00 P.M.
	Scientific Session IV	2.30 P.M.
	Tea.	4.00 P.M.
	General Body Meeting.	4.30 P.M.
BANQUET	7.30 P.M.	
Movie at RAJ MANDIR	9.00 P.M.	
Wednesday 23-12-87	Visit to Rehabilitation Research Centre and Artificial Limb fitting Centre.	9.00 A.M.
	Concluding Session	10.30 A.M.
	Refreshments	12.00 Noon
	Sight Seeing programme.	1.00 P.M.

N.B. Charges for the movie and sight seeing programme will be declared on the spot. Names to be given on the 21st Dec. 1987 to Dr. M. L. Sharma, Chairman of the committee.

- Registration fees including catering charges for 21st & 22nd Dec. only.
- Transportation will be arranged by the committee.

## Performance on Konfliktograph of Normals & Psychotics

\* Dr.Mrs. Anjali Joshi

\*\* Prof.(Mrs.) M. M. Shahani

### Introduction :

Studies in visual perception have been the most popular topic of research in psychology & Psychophysics. Visual perception has the most vital part to play in learning process. It also gives us the clue for reaction time i.e. the motor response to a visual stimulus. Visual perception and reaction time studies can throw a lot of light on an individual's attention and performance.

Deterioration in attention, motor performance is often seen in mentally sick persons which could be attributed to number of factors.

A study on konfliktograph was conducted to compare the reaction time, attention span and performance of psychotics with that of normal individuals.

### Methodology :

For this study Konfliktograph machine was used to test reaction time. It also tests visual perception and visuomotor performance of an individual.

This instrument is a rectangular box of metal. Four lamps of two colours arranged in pairs are fitted on the sides. Upper surface is provided with a clip holder for a paper on which subject is asked to respond to the signal.

The rear wall of the instrument, examiner's stand has four indicator lamps with push buttons for a light stimulus. Main switch and pilot lamp are also fitted on the wall.

### Subjects :

Hundred normal subjects and fifteen psychotics, out of which thirteen are males and two females were tested on the konfliktograph machine.

- a) With the mean age of 19 years for normals and mean age of 26 years for psychotics.
- b) Abnormals had no illness other than psychosis.
- c) Duration of illness from 1 month to 6 years.

A brief check of near vision of all the subjects was done. None of the subjects had seen or worked on the apparatus before.

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\* Junior Occupational Therapist, K.E.M. Hospital, Parel, Bombay-400 012.

\*\* Head of the dept., O.T. School & Centre, Seth G S. Medical College & K.E.M. Hospital, Parel, Bombay-400 012.

**Procedure :**

Before proceeding to the experiment the subjects were explained the purpose and method of performing the task.

Subjects were shown the lights for one second and were asked to respond to it by writing R for Red and G for Green or cross for Red and a circle for Green on the lined and numbered paper which was fixed on the upper surface. After the subject had responded to the stimulus the next one was given, but each light i.e. the stimulus was shown to the subject for only 1 second. Subjects were asked to respond as quickly and as correctly as possible on the correspondingly numbered column and row of the paper.

As the first signal was given, stop watch was switched on and time taken by an individual was thus noted.

After four single light stimuli an interval of few seconds was given and then the six, two light stimuli were given to the subjects. Neither was the prior notice of the rest interval given nor the pattern of signals told to the subjects.

The time taken by the subject to respond to single light stimulus and for two light stimuli was noted.

The sequence pattern of colours was as follows :

1. Right side Red.
2. Right side Green.
3. Left side Red.
4. Left side Green.
5. Right side Red and Green.
6. Left side Red and Green.
7. Right side Red and left side Green.
8. Right side Green and left side Red.
9. Right side Red and left side Red.
10. Right side Green and left side Green.

**Results :**

To analyse the performance results on Konfliktograph, statistical method was adopted.

Time taken by normal subjects and psychotics for single and two light stimuli was calculated and its mean was found.



The results were :

**TABLE 2**

Subjects	No. of persons	(Mean) of time taken
Normals	100	8.82 seconds
Patients	15	17.52 seconds

**TABLE 3**

Subjects	No. of persons	Mean of time taken
Normals	100	23.86 seconds
Patients	15	37.96 seconds

Also the number of errors were calculated. Since ten stimuli were given, number of errors varied from 0 - 10.

Tabulated form of that is as shown below :

**TABLE 4**

Errors	No. of Normals	No. of patients
0	13	1
1	11	—
2	16	—
3	4	—
4	10	—
5	16	—
6	6	—
7	4	—
8	17	—
9	3	10
10	0	4
<b>Total No. of persons</b>	<b>100</b>	<b>15</b>

I observed during the experiment that the normal subjects could comprehend the instructions well but still made mistakes while performing the task. e.g. they responded to all the first four single stimuli on the same line. They realised the mistakes immediately and wanted to correct them.

While psychotics showed disinterest initially but later appeared attentive.

It was difficult for them to comprehend the instructions and found the task difficult.

Few of them made a mistake in identifying the colours if asked for the second time. Abrupt pauses especially during the two light stimuli were very frequent.

### Discussion :

From the methodology and observation one can say that the konfliktograph is a machine which judges not only the reaction time but partly the visual perception (conflicting colours) and also visuo-motor spatial performance (stimulus appearing on right and left side) of an individual. Here when one judges for it, the attention and motivation of a subject also comes into the picture.

The time taken by an individual to write the word R or G is less than that taken to do the same task after seeing and perceiving the colour shown on the machine.

It can be seen from Table No. 2 and 3 that the mean of time taken by a normal individual to respond simultaneously to two signals is more than double the time taken for a single stimulus. This contradicts the summation and facilitation factor of reaction time. According to which, if two or more stimuli are presented simultaneously, then the reaction time is found shorter than that, for any one of them if presented alone. Probably this contradiction could be attributed to complexity of task and disjunctive reaction.

The psychotics or maladjusted individuals have been those who have lacked the ability to organize their thoughts, feelings, attitudes and actions in a way which would permit them to function within the society for either a brief or extended period of time. Psychotics form a major group of mentally sick. Regression is an overwhelming factor which affects the performance of schizophrenics. Also affected thinking, perception, motivation and behaviour are the four factors which attribute to poor performance.

Inability to comprehend a new task and difficulty in fine motor coordination, confusion, low attention span and lack of drive or initiative and also lack of confidence are the factors which brings down the performance in schizophrenic patients.

It was found that reaction time increased when more complicated stimuli were introduced. Even in normals errors were seen due to visio spatial discrimination. This was seen more deteriorated with the abnormal psychotics.

So it was observed from this study that the work performance and reaction time of a psychotics are poorer than that of normals and it worsened as the complexity of task increased. Thus the result of the study can throw a light on the working performance of an abnormal individual.

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This study considered a relatively small sample group. therefore a more detailed study is required to confirm the findings.

### **Acknowledgement :**

My sincere thanks to Professor (Mrs.) M. M. Shahani for her guidance.

Also my sincere thanks to the Dean of Seth G.S. Medical College and Department of Psychiatry for permitting me to study the patients and other hospital data.

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## **NEWS**

The Japan Occupational Therapy Association is organizing the Asian—Pacific International O.T. Conference for the first time from September 5th to the 9th 1988. The theme is Realistic Approaches - "Looking Ahead Towards Comprehensive Rehabilitation" For further information.

Contact : Tsuyoshi Sato, WFOT Delegate, c/o Sapporo Medical College, School of Allied Health Professions, Minami 3, Nishi 17, Chuo-ku, Sapporo, 062 Japan.

## APPEAL FOR INDIVIDUAL W.F.O.T. MEMBERSHIP

Individual Membership of W.F.O.T. is available to Occupational Therapist who are the members of A.I.O.T.A. The fees for this is 10 Swiss franks per year. The application forms can be had from Hon. Secretary, A.I.O.T.A and should be filled in by interested person and forwarded to the Secretary at A.I.O.T.A.

The individual members are entitled to receive the biannual yearly Bulletin and assist in promoting the work of the W.F.O.T.

At the time that, WFOT fees are called for from member countries i. e. by 31st March, the names and a list of individual W.F.O.T. members shall be forwarded to Ms K. Sinclair, Treasurer W.F O T. (As per WFOT Directive )

It is important that; the person desiring to become WFOT individual member, should be member of the National Association i. e. AIOTA and its Hon. Secretary has to countersign their application for membership.

### RESPONSIBILITIES OF THE INDIVIDUAL MEMBERS (W.F.O.T.)

- 1) To promote the understanding of the principles and practice of Occupational Therapy.
- 2) To promote the Organisation of training schools and Occupational Therapy Associations in countries where they do not exist.

### WFOT FROT Foundation Grant

#### Objective :

To provide opportunities for Occupational Therapists to extend their knowledge of a particular aspect of Occupational Therapy, gain specialised skills and mature professionally in order that their service in Member Countries may be enhanced and the body of knowledge of Occupational Therapy can be extended.

#### Purposes of the Award :

To assist an individual to :

- attend a study course pertinent to Occupational Therapy. This Course should be offered by an Occupational Therapy Association or any educational authority approved by the World Federation of Occupational Therapists.

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- Observe and participate in a therapy programme in another country.
- Undertake research in Occupational Therapy.
- Obtain a higher qualificational Therapy.

To assist a group of Occupational Therapists to :-

- Obtain 'expert' input for workshops, short courses and programme development.
- Undertake research in Occupational Therapy.
- Development of educational material used in Occupational Therapy.

### **Eligibility :**

Professional Occupational Therapists who :

- i) Are an individual member of WFOT
- ii) Have completed a minimum of 2 years of clinical work post qualification. For forms & further details please contact Hon. Sec. A.I.O.T.A.

### **Procedure :**

- (i) The award may be made at each bi-ennial Council Meeting of the WFOT
- (ii) The final decision of whether the Award will be made and to whom, will be voted on by council. The Congress Committee in consultation with the Executive Committee will recommend likely candidate for the Award.
- (iii) The Congress Committee Chairperson will invite applications one year prior to the next Council Meeting. Applications should be submitted on the prescribed form and received by the Chairperson by the stated date, 3 months prior to the next Council meeting.
- (iv) All applications must be accompanied by a recommendation from the applicant's national association and submitted by the applicant.
- (v) The successful applicant will be notified by the Executive Secretary directly following the Council Meeting.
- (vi) The successful applicant will be required to submit a report to WFOT Executive within 6 months of completion of the Award.
- (vii) Unsuccessful applicants will be notified by the Executive Secretary, directly following the Council Meeting.
- (viii) The maximum funds to be allocated bi-ennially will equal interest on the principal of the fund.

## THE STUDY OF LIGAMENT INJURY WITH LENOX HILL DEROTATION BRACE

\* Dr. Mrs. Savita Savardekar

\*\* Dr. G. H. Purohit

### Introduction :

With modern high speed vehicular trauma and increasing athletic participation, traumatic lesions of the ligaments of the knee are becoming increasingly common.

Knee ligaments are often injured or strained in athletic activity, especially when the contact of the foot on the ground is not proper or accurate as in football, badminton, hockey, gymnastics etc. Vehicular accidents especially on motor-cycles are the commonest cause of knee ligament disruption. The patients with ligament injury often complain initially of sudden repeated falls while walking or running. Considering this drawback in maintaining the functional achievement for knee injuries a

### " LENOX HILL DEROTATION BRACE "

was introduced conservatively as post operatively at the Orthopaedic centre of the K.E.M. Hospital

### Methodology And Material :

A study of 20 cases of ligament injuries around the knee joint was carried out. Group I was treated with the brace and group II was treated without the brace.

	Group I	Group II
Mean age	30 yrs	30 yrs
Males	10	8
Females	Nil	2
Athletes	8	7
Patients with anterior cruciate instability	4	3
Antero-medial instability	2	3
Antero-lateral instability	4	4

For the diagnosis of ligament injury Drawer's test, varus and valgus stress test and arthroscopic investigations were done.

After the clinical tests were performed it was decided whether the patient should be treated conservatively or operatively. This was done according to Palmer's classification.

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\*\* Asstt. Professor, O.T. School & Centre, Seth G.S. Medical College & K.E.M. Hospital, Parel, Bombay - 400 012.

Grade Zero : No complaint of instability. No interference with athletic activities.

Grade One : There is disability under stress. The knee is not as sound as the other one.

Grade two : Instability is such that certain athletic activities are possible but not contact games like foot ball

Grade three : Instability is such that no athletic activities are possible. There is no serious interference with physical work

Grade Four : Instability is so gross that even active physical work is impossible.

If laxity was graded as grade one or two then patient was treated conservatively and if it was graded as three or four it was treated surgically.

All patients were given A.K. plaster after operation with Knee in 90% of flexion for a period of 6 - 8 weeks. After removal of plaster the knee was placed in Brace allowing only 40% - 60% range at knee joint for another 4 to 6 weeks Patient was advised not to sit crosslegged & brace was to be used for 24 hours. The patients was encouraged to do flexion exercises, to maintain, as well as strengthen the muscles and increase range of motion. This was done primarily to strengthen hamstrings and to prevent anterior subluxation of the tibia or femur.

Lenox Hill derotation brace was introduced only when patient achieved quadriceps power 4 and 10 less of knee extension.

The Lenox Hill derotation brace consists of the unequal lengths of aluminium strips with hinge joint. The shorter strip is maintained parallel to the limb either on the medial or lateral aspect according to the instability i.e. if instability is on the medial aspect the strip should be on the lateral aspect. The longer strip is named as rotating strip. This strip is moulded over the anterior aspect of the thigh just above the knee joint and the lower part is moulded over the anterior aspect of the leg just below the knee joint. Thus giving the appearance of English letter 'C' or also called as knee disc.

Hinge joint of both the strips coincide with anatomical knee joint Both moulded strips are then padded with foam and rexine.

The two inches niwar knee-cap straps are then fixed one above and one below the knee joint with the buckles. The two three inches niwar straps on leg pads are wrapped around thigh and calf respectively and secured at their ends by velcro attachments as shown in the fig. 1 & 2

The broad elastic strap is named as Derotation strap is attached to the lower end of the shorter aluminium strip. The Derotation strap is then passed beneath the lower knee cap strap, spiraled upwards over the rotating strap and terminated in its velcro attachment, the upper end of the shorter aluminium strip.

Lenox Hill Derotation Brace ( A-P view )

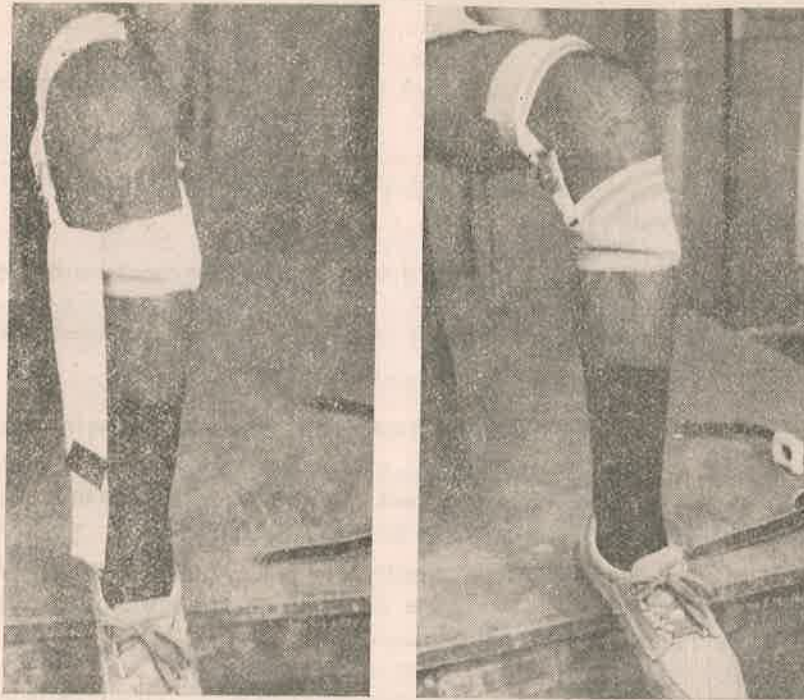


Fig 1 & 2 :- The niwar knee-cap strap to be tied as shown,

In cases of combined anterior cruciate and medial collateral ligament, shorter strip is placed laterally and the derotation strap goes from antero-medial side, extends on the posterior aspect of thigh, gets attached laterally to the upper end of the shorter aluminium strip. Similarly for the anterolateral instability shorter strip has to be placed-medially and the derotation strap will go from anterior to lateral and then posterior aspect of thigh to attach medially to the upper end of the shorter aluminum strip.

The brace with its sliding axis of motion corresponds to the axis of movement in the knee. The Combination Lenox Hill brace includes not only the sliding axis of motion, but also a below knee leg pad and derotation strap. It is designed to resist the combination of antero-medial rotatory, antero-lateral rotatory and antero-medio-lateral rotatory instabilities. It is functioning effectively even when the patient is actively participating in sports.

**Results :**

The results of the study are given as follows :

Following types of ligament instabilities were treated and instabilities were graded from the radiological examination. The tables show quantitative improvement in the patients with and without brace.

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**Table 1**

Table 1(A) gives the description of anterior cruciate instabilities, pre-operatively, one month after the removal of plaster in extension limitation brace and six months after the operation, with Lenox Hill derotation brace.

( A )

No. of Patients	Pre-operatively	One month after the removal of plaster with extension limitation brace.	With Lenox Hill derotation brace after six months
Four			
1	13 mm	1 mm	2 mm
2	10 mm	1 mm	1 mm
3	15 mm	1 mm	1 mm
4	11 mm	1 mm	1 mm

( A 1 )

Table No. 1 (A1) gives the discription of anterior cruciate instabilities without any brace.

No. of patients three	Pre-operatively	One month after the removal of plaster	Without Brace after six months
1	15 mm	2 mm	4 mm
2	11 mm	3 mm	5 mm
3	10 mm	2 mm	6 mm

**Table No. 2**

Table No. 2 (B) gives the description of antero medial instability with extension limitation brace and Lenox Hill derotation brace.

( B )

No. of patients	Pre-Operatively		One Month after the removal of plaster with extension limitation Brace		With Lenox Hill derotation brace After six months	
	Valgus	Drawer's Test	Valgus	Drawer's Test	Valgus	Drawer's Test
two						
(1)	5 mm	10 mm	1 mm	1 mm	2 mm	1 mm
(2)	5 mm	10 mm	1 mm	1 mm	2 mm	1 mm

(B1)

Table No. 2 (B1) gives the description of antero-medial instability without extension limitation brace and Lenox Hill derotation brace.

No. of patients	Pre-operative		One month after the removal of plaster		Without brace after six months	
	Valgus	Drawer's Test	Valgus	Drawer's Test	Valgus	Drawer's Test
Three						
1	7 mm	15 mm	2 mm	2 mm	5 mm	5 mm
2	5 mm	10 mm	2 mm	3 mm	5 mm	6 mm
3	5 mm	9 mm	3 mm	1 mm	4 mm	5 mm

**Table No. 3**

Table No. 3 (C) gives the description of antero-lateral instability with extension brace and Lenox Hill derotation brace.

No. of patients	Pre-operative		One month after the removal of plaster		With Lenox Hill derotation brace after six months	
	Varus	Drawer's Test	Varus	Drawer's Test	Varus	Drawer's Test
Four						
(1)	6 mm	8 mm	1 mm	1 mm	2 mm	1 mm
(2)	7 mm	12 mm	2 mm	2 mm	2 mm	2 mm
(3)	5 mm	10 mm	1 mm	1 mm	1 mm	1 mm
(4)	7 mm	15 mm	2 mm	2 mm	2 mm	2 mm

Table No 3 (C1) gives the description of antero-lateral instability without extension limitation brace and Lenox Hill derotation brace.

(C1)

No. of patients	Pre-operative		One month after the removal of plaster		Without Brace After six months	
	Varus	Drawer's Test	Varus	Drawer's Test	Varus	Drawer's Test
Four						

1	5 mm	12 mm	1 mm	2 mm	5 mm	6 mm
2	8 mm	15 mm	1 mm	2 mm	4 mm	5 mm
3	5 mm	10 mm	2 mm	1 mm	4 mm	6 mm
4	7 mm	13 mm	1 mm	1 mm	3 mm	5 mm

From results two groups are formed

A - without brace

B - with brace

Comparison of two groups A & B is done after raw data collection Using the Student's 't' test we found the following Lenox Hill derotation brace is responsible for stability of knee joint with the minimum shift of tibia on femur. The value was also found to be highly significant.

### Discussion :

It is observed from the results that the knee ligaments are most commonly injured in athletic activities.

From the study of 20 cases it was found that 15 patients were sportsmen, out of which 6 patients were football players 4 were hockey players, 2 were kabaddi players, 2 were badminton players and 1 was a cricket player 5 cases were the result of fall. Out of these 15 players 8 were given the Lenox hill derotation brace.

As reviewed in the literature all patients were given first plaster for 8 weeks in 90° of flexion position at the knee joint Extension limitation brace was given immediately after plaster was removed to 10 patients and they were allowed to do active flexion movements between 45° to 90°. Other 10 patients were allowed to do exercises immediately after the removal of plaster. These patients achieved full flexion and extension within the period of two months and started weight bearing as quadriceps power was 3+ +. However it could be seen from the case study that these patients were complaining of laxity at the end of two months. This is known because of the improper position of the knee during treatment. It takes at least 9 months to one year for complete repair recovery of the injured tissues.

The patients who were given Lenox Hill derotation brace achieved full flexion but 10° to 20° limitation in extension

These patients were allowed to walk on crutches with partial weight bearing. Therefore they did not complain of pain and laxity around the knee joint The follow-up was taken after 6 months and it was found that the patients who were given Lenox Hill derotation brace achieved full flexion and extension without any laxity and limitation of the joint movements.

Patients who did not use the brace still complained of laxity around the knee joint. However in group B two patients who inspite of using Lenox Hill derotation brace could not achieve good results. This is because they did not follow proper instructions of required exercises and rest. Their constant problem was instability while walking.

The athletes who were not given Lenox Hill derotation brace, also complained of instability, pain and recurrent effusion due to stress and strain of the games. It was also observed that some of the patients, who were given the brace did not follow proper instructions. They discarded the brace because they did not want to use crutches constantly. The assessment of the injured knee with or without brace was done with Drawer's test. This was the only objective test possible for the final evaluation.

It can be seen from the studies therefor that the Lenox Hill derotation brace is essential for complete recovery in terms of stability and the proper functioning of the knee after the injury.

### **Conclusion :**

Study of two groups of patients with brace and without brace showed following results.

Out of 10 patients treated with brace 8 patients showed complete improvement regarding stability of the knee joint.

Other group treated without brace continue to have the ligament laxity and instability for a long time.

This study shows that the players were better subjects to treat with the Lenox Hill derotation brace. As they had strong motivation to resume their playing activities, they followed the instructions properly.

### **Acknowledgement :**

I am very thankful to Mrs. M. M. Shahani, Professor and Head of Occupational Therapy Department, Seth G. S. Medical College and K. E. M. Hospital, Bombay and Mr G. H. Putohit, Assistant Professor of Occupational Therapy in the same institute, for their guidance and encouragement given throughout this study.

I am also grateful to Dr. G. B. Parulkar the Dean of Seth G. S. Medical College and K. E. M. Hospital, Bombay for allowing me to carry out this study.

Lastly I thank Dr. M. L. Saraf, Department of Orthopaedics, Seth G. S. Medical College and K. E. M. Hospital, Parel, Bombay-12.

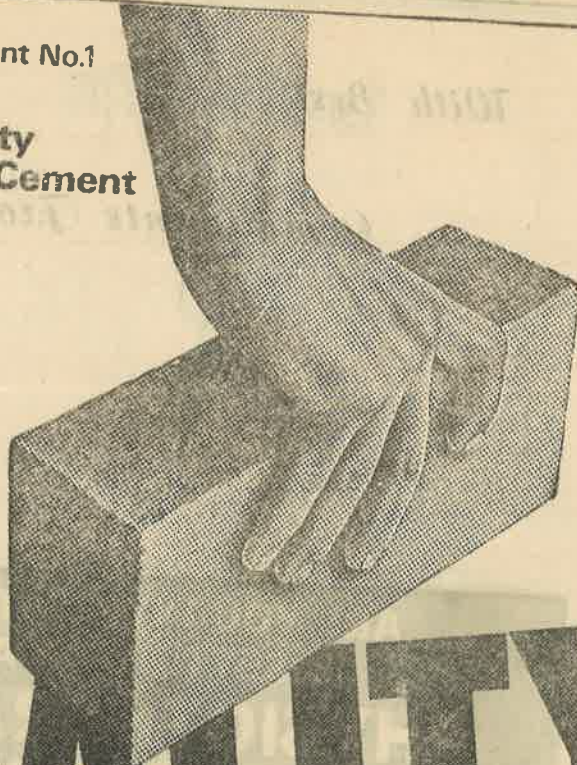
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