بسم الله الرحمن الرحيم


# شبكة المعلومـــــات الجامعية

# التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

# جامعة عين شمس

## التوثيق الالكتروني والميكروفيلم

## ﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

## يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

**To be kept away from dust in dry cool place of**
**15 – 25c and relative humidity 20-40 %**


# بعض الوثائق الأصلية تالفة


# بالرسالة صفحات

# لم ترد بالأصـــل

# EVALUATION OF THE ROLE OF GLUCOSAMINE SULFATE AND VITAMIN C AS A CHONDROPROTECTIVE AGENTS IN KNEE OSTEOARTHRITIS

## Thesis

*Submitted In Partial fulfillment of the requirement of M.D. degree in*

**"Physical Medicine & Rehabilitation"**

*By*

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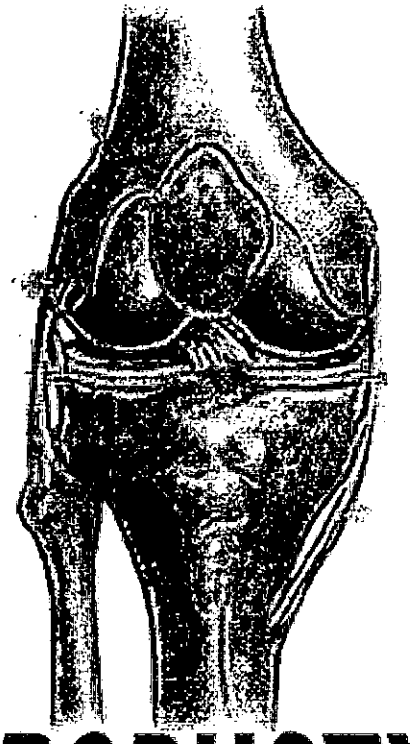
# CONTENTS

# ABBREVIATION

| | | |
|---|---|---|
| **AA** | : | Ascorbic acid |
| **AC** | : | Articular cartilage |
| **ACR** | : | American college of Rheumatology |
| **ADL** | : | Activities of Daily Living |
| **AFGF** | : | Acid fibroblast growth factors |
| **AMI** | : | Arthrogenous Muscle Inhibition |
| **ASU** | : | Avocado/ Soybean unsaponifiables |
| **BFGF** | : | Basic fibroblast growth factors |
| **BMPs** | : | Bone morphogenetic proteins |
| **CAT scan** | : | Computerized axial tomography |
| **CMCJ** | : | Carpometacarpal joint |
| **CMTs** | : | Chemically modified tetracyclines |
| **CNS** | : | Central nervous system |
| **COMP** | : | Cartilage oligomeric matrix protein |
| **Cox** | : | Cyclo-oxygenase |
| **CPPD** | : | Calcium pyrophosphate dihydrate |
| **CS** | : | Chondroitin sulfate |
| **DHA** | : | Dehydroascorbic acid |
| **DMOAD** | : | Disease-modifying anti-osteoarthritis drugs |
| **Dpry** | : | Deoxypyridinoline |
| **ECM** | : | Extracellular matrix |
| **EGF** | : | Epidermal growth factor |
| **GAGPS** | : | Glycosaminoglycan polysulfuric acid |
| **GAGs** | : | Glycosaminoglycans |
| **GF** | : | Growth factor |
| **GRE** | : | Gradient-echo |
| **GS** | : | Glucosamine sulfate |
| **HRP** | : | Horseradish peroxides |

| | | |
|---|---|---|
| **HYA** | : | Hyaluronan |
| **IA** | : | Intra-Articular |
| **ICE** | : | Intercellular converting enzyme |
| **IF** | : | Interferential therapy |
| **IGF** | : | Insulin-like growth factor |
| **IL-1 R** | : | Interleukin -1 receptor |
| **IL-1** | : | Interleukin -1 |
| **IL-1Ra** | : | IL-1 receptor antagonist |
| **iNOS** | : | Inducible nitrous oxide synthase |
| **JSN** | : | Joint space narrowing |
| **JSW** | : | Joint space width |
| **LAP** | : | Latency associated peptide |
| **LFI** | : | Lequesne function Index |
| **LIF** | : | Leukemia inhibitory factor: |
| **LT** | : | Leukotrienes |
| **MAb** | : | Monoclonal antibodies |
| **MM** | : | Matrix metalloproteinase |
| **MPa** | : | Mega Pascal |
| **MPA** | : | Methylprednisolone acetate |
| **MRI** | : | Magnetic resonance imaging |
| **MTF** | : | Medial tibio-femoral |
| **MTX** | : | Methotrexate |
| **Na PP** | : | Sodium pentosan polysulfate |
| **NO** | : | Nitrous oxide |
| **NSAIDS** | : | Non steroidal Anti-inflammatory drugs |
| **OA** | : | Osteoarthritis |
| **PA** | : | Plasminogen activator |
| **PDGF** | : | Platelet- derived growth factor |
| **PEMF** | : | Pulsed electromagnetic fields |
| **PG** | : | Proteoglycan |
| **PGG2** | : | Prostaglandin G2 |

| | | |
|---|---|---|
| **PGH2** | : | Prostaglandin H2 |
| **Pyr** | : | Pyridinoline |
| **RA** | : | Rheumatoid arthritis |
| **ROM** | : | Range of motion |
| **ROS** | : | Reactive oxygen species |
| **TB** | : | Tuberculosis |
| **TENS** | : | Transcutaneous electrical nerve stimulation |
| **TGF** | : | Transforming growth factor |
| **TIMP** | : | Tissue inhibitor metalloproteinase |
| **TNF-R** | : | Tumor necrosis factor receptor |
| **TNFα** | : | Tumor necrosis factor alpha |
| **VAS** | : | Visual analogue scale |
| **WOMAC** | : | Western Ontario MacMaster University Osteoarthritis Index |



# INTRODUCTION

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Osteoarthritis is defined as a chronic disorder characterized by softening and disintegration of articular cartilage, with reactive phenomena such as vascular congestion and osteoblastic activity in the subarticular bone, new growth of cartilage and bone (i.e. osteophytes) at the joint margins and capsular fibrosis. [1]

OA is extremely prevalent in society and is a major cause of disability. So it is important to treat osteoarthritis effectively.

Glucosamine metabolites are vital for the production of cartilage glycosaminoglycans (GAGs) such as hyaluronic acid, chondroitin sulfate and keratin sulfate.

Pharmacokinetic studies in animals and man have confirmed that glucosamine salts are absorbed at greater than 90% when given orally and the body has the ability to convert performed glucosamine to glucosamine 6 phosphate and N-acetyl-d glucosamine. So, it seemed logical to look into glucosamine as a therapeutic agents for osteoarthritis which characterized by cartilage destruction. [2]

Vitamin and mineral deficiencies associated with increased incidence or pathology of degenerative joint disease. So vitamin C have been used therapeutically for osteoarthritis presumably by enhancing articular cartilage stability. [3]

# AIM OF THE WORK

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The aim of this study is the evaluation of the role of glucosamine sulfate and vitamin C as a chondroprotective agents in knee osteoarthritis.