



MIDWEST
ORTHOPAEDICS
AT RUSH

Intra-articular VEGF and MMP-1 are the Primary Drivers of Worse Baseline KOOS Symptoms and Quality of Life Subscores at Time of Knee Chondroplasty

Brian Cole MD MBA, Tristan Elias BA, Erik Haneberg BS, Navya Dandu MD, Johnathon McCormick MD, Corey Beals MD, Alexandra Walker BS, Zachary Wang BS, Adam Yanke MD PhD

Midwest Orthopaedics at Rush

AANA Poster #59



Disclosures



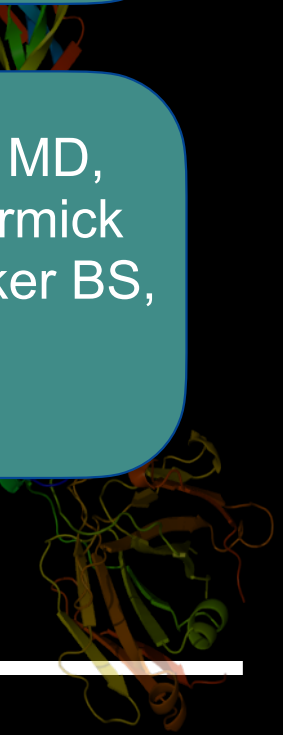
Brian Cole MD, MBA

Aesculap/B.Braun: Research support; American Journal of Orthopedics: Editorial or governing board; American Journal of Sports Medicine: Editorial or governing board; Arthrex Inc: IP royalties, paid consultant, research support; Arthroscopy Association of North America: Board or committee member; Athletico: Other financial or material support; Bandgrip Inc: Stock or stock options; Cartilage: Editorial or governing board; Elsevier Publishing: IP royalties; International Cartilage Repair Society: Board or committee member; Journal of Shoulder and Elbow Surgery: Editorial or governing board; Journal of the American Academy of Orthopedic Surgeons: Editorial or governing board; JRF Ortho: Other financial or material support; National Institutes of Health (NIAMS & NICHD): Research support; Operative Techniques in Sports Medicine: Publishing royalties, financial or material support; Ossio: Stock or stock options; Regents: Paid consultant, research support, stock or stock options; Samumed: Paid consultant; Smith & Nephew: Other financial or material support

Adam Yanke MD PhD

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Tristan Elias BA, Sachin Allahabadi MD,
Navya Dandu MD, Johnathon McCormick
MD, Corey Beals MD, Alexandra Walker BS,
Zachary Wang BS,
Nothing to Disclose



Purpose

Characterize the synovial environment of patients undergoing arthroscopic chondroplasty

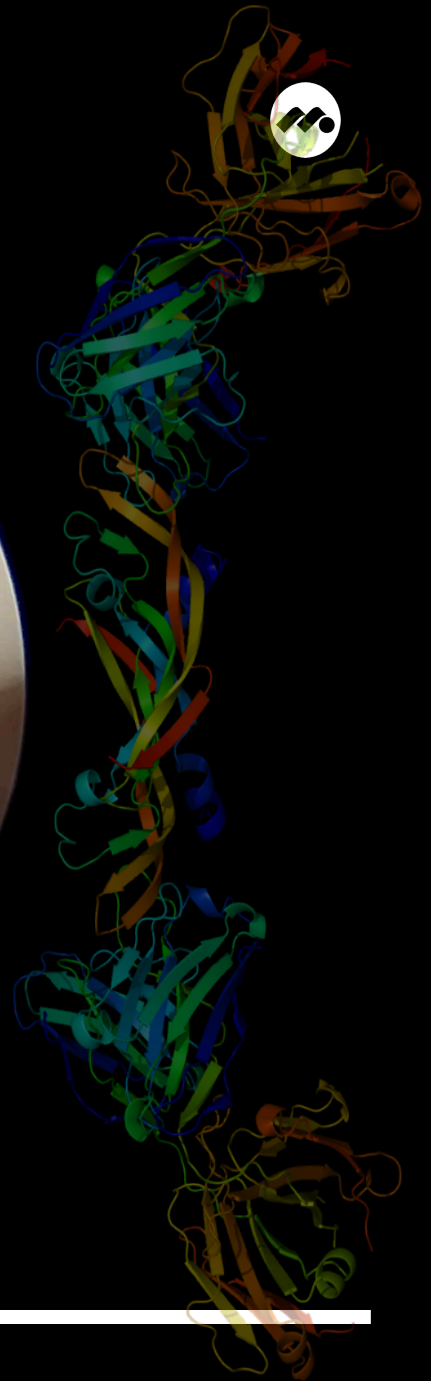
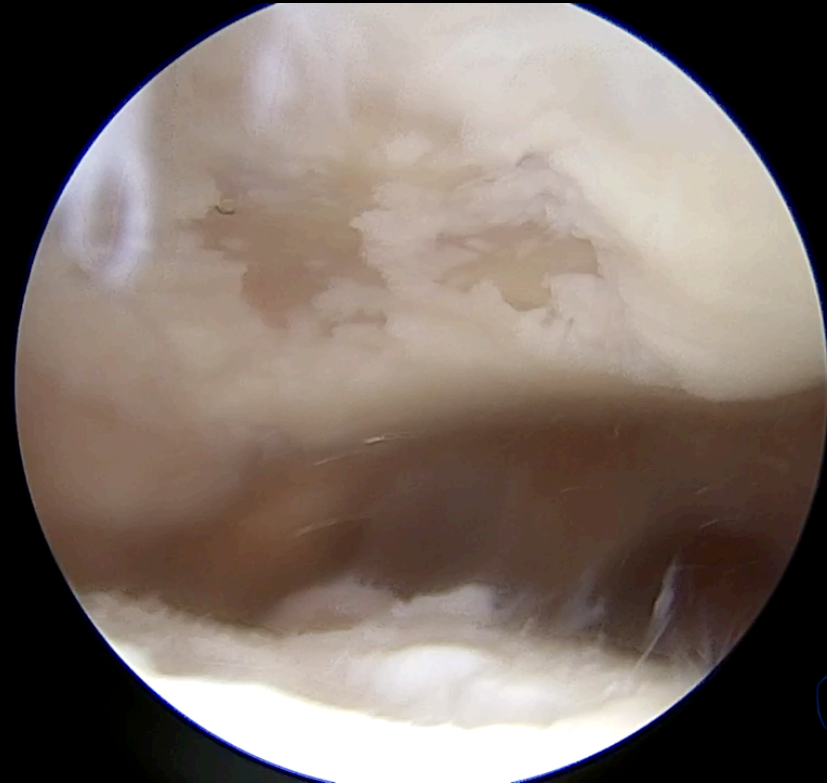
Investigate the relationship of synovial inflammatory cytokines with baseline PRO scores and defect characteristics



Methods

60 Patients undergoing
arthroscopic chondroplasty

Synovial fluid aspiration
at time of surgery

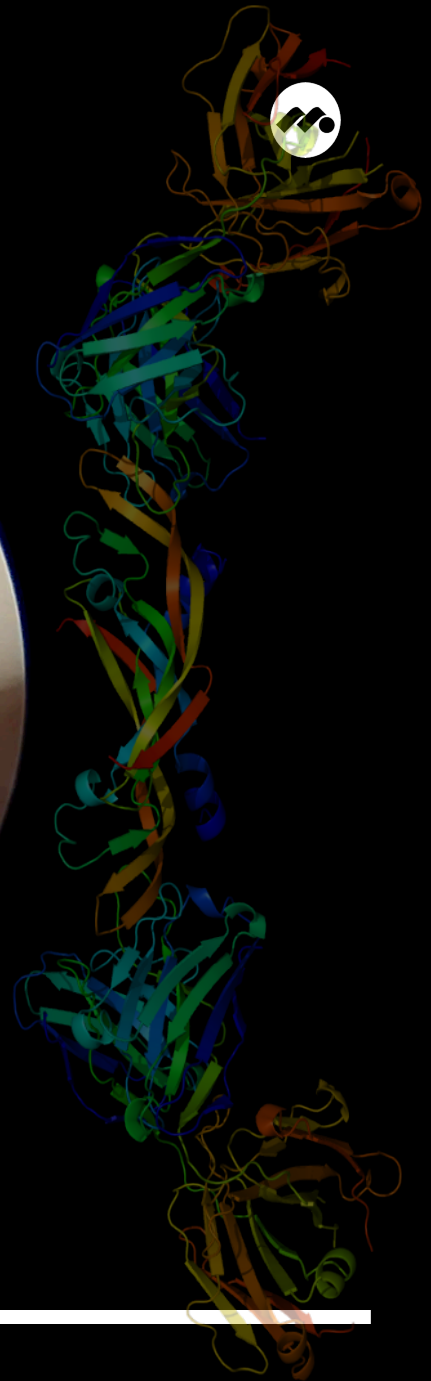
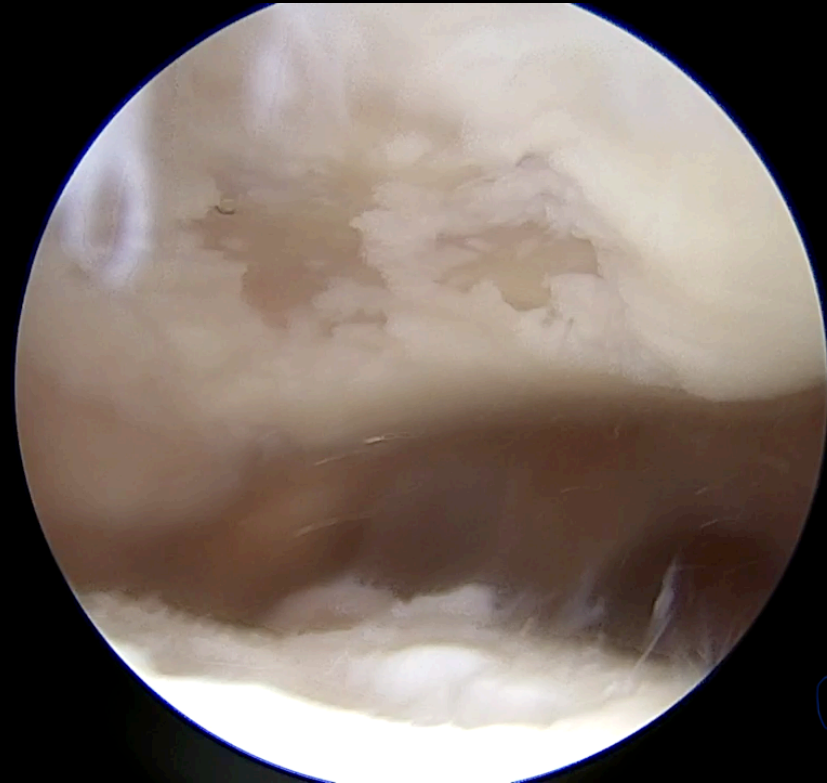


Methods

60 Patients undergoing
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Synovial fluid aspiration
at time of surgery

Preoperative PROs



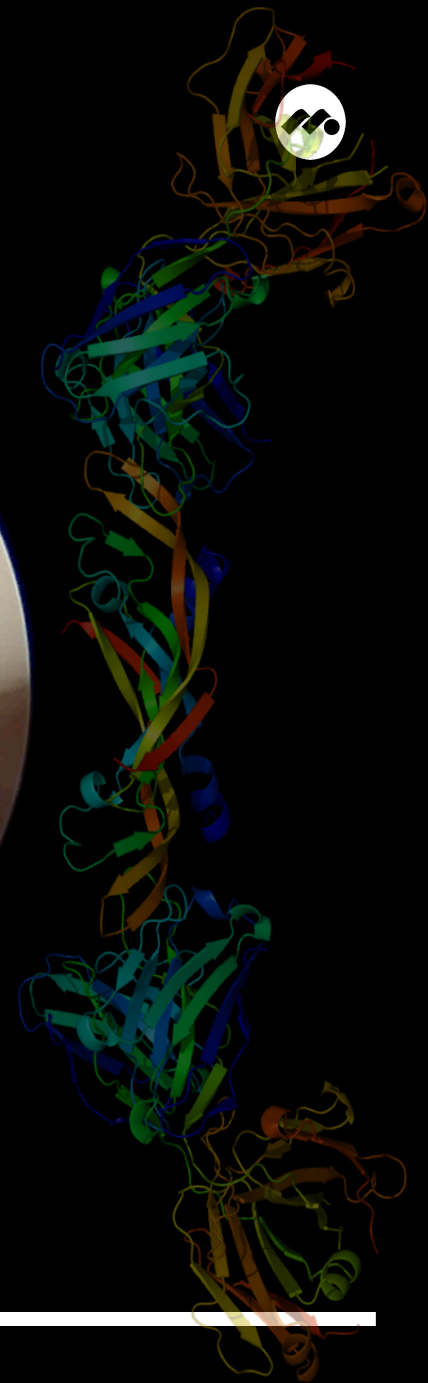
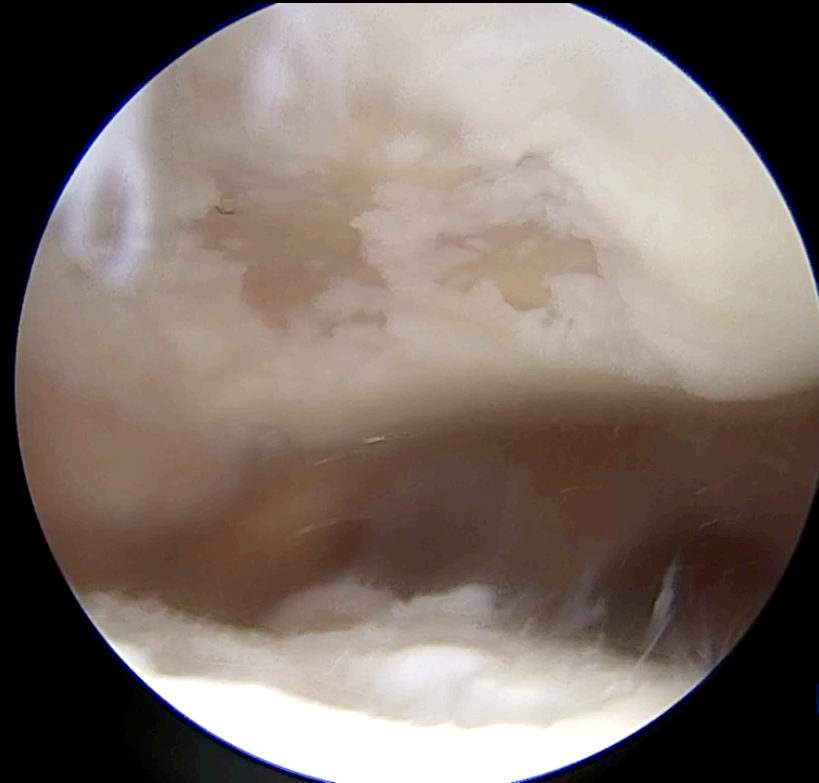
Methods

60 Patients undergoing arthroscopic chondroplasty

Synovial fluid aspiration at time of surgery

Preoperative PROs

Intraoperative defect characteristics recorded



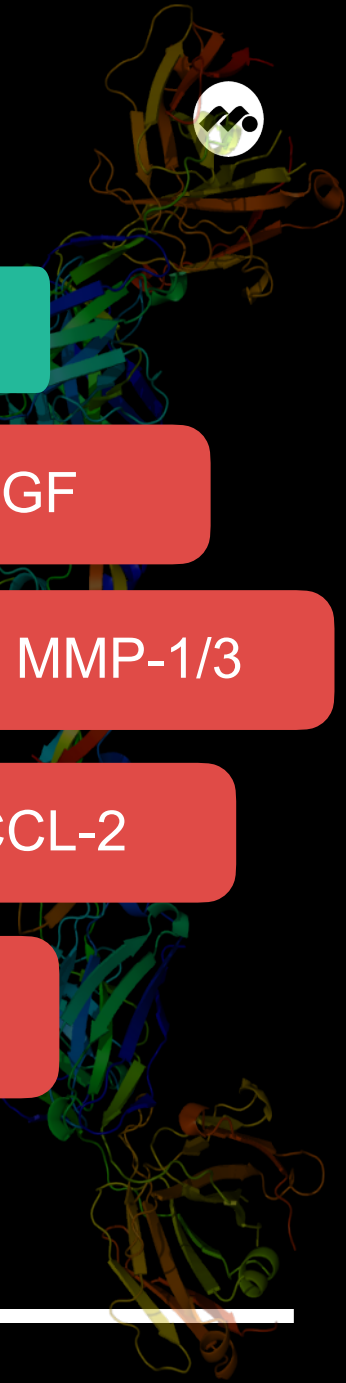
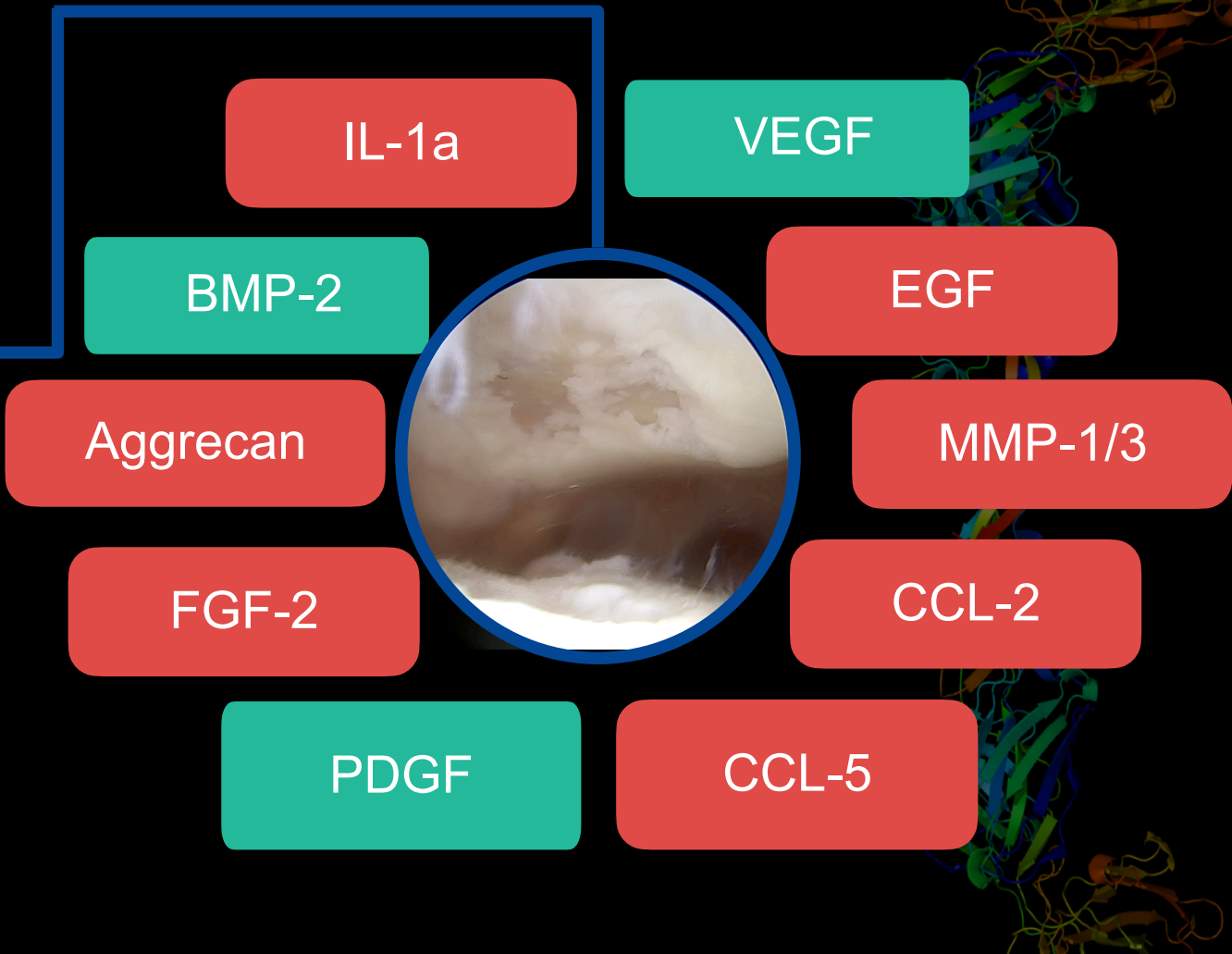
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Methods

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KOOS Jr

KOOS Symptoms

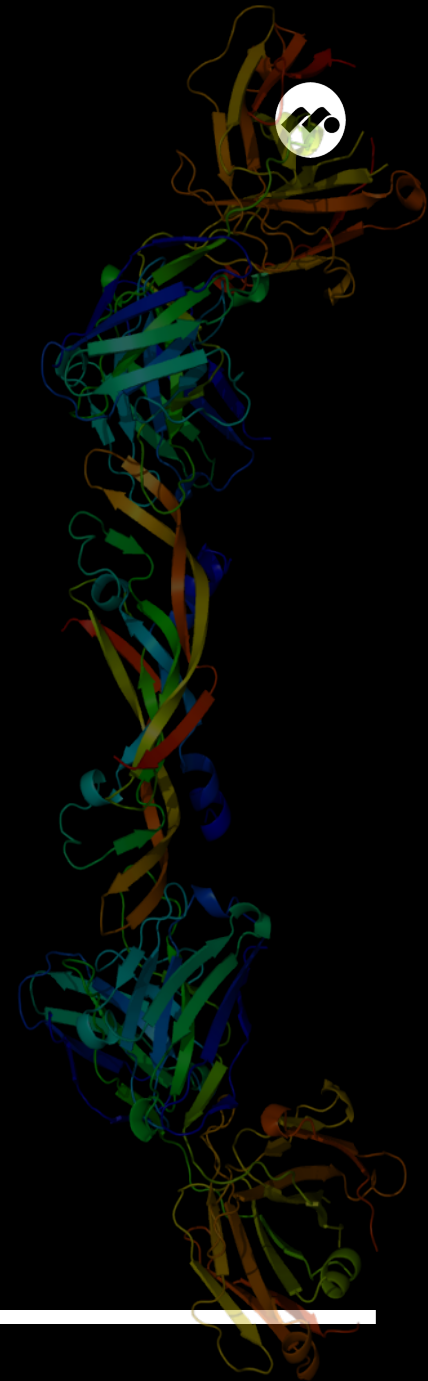
KOOS QOL

KOOS ADL

KOOS Pain

KOOS Sports

IKDC



Methods

60 Patients undergoing arthroscopic chondroplasty

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Preoperative PROs

Intraoperative defect characteristics recorded

Total Defect Area

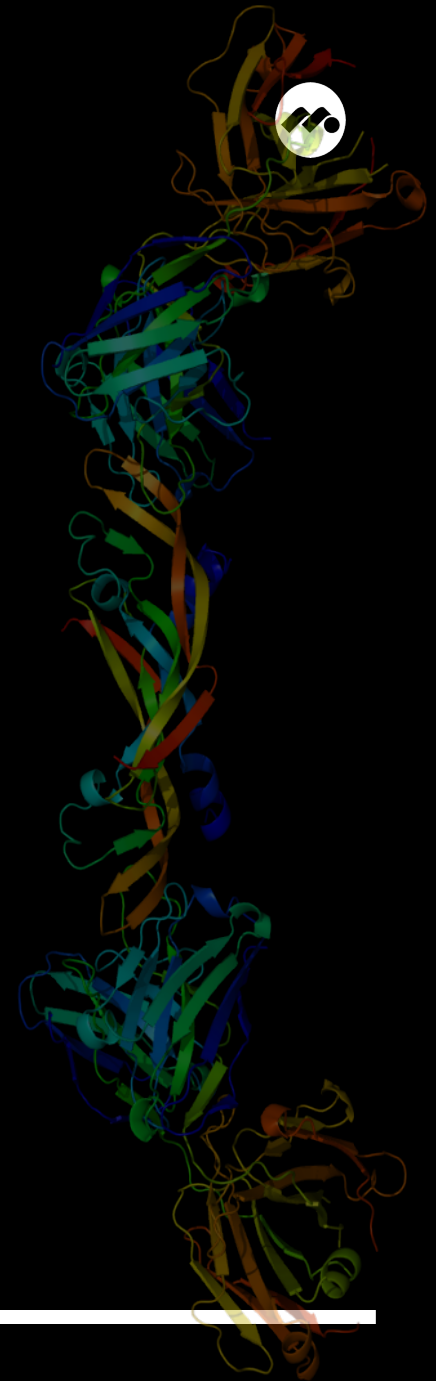
ICRS Grade

Number of Defects

AMADEUS Score

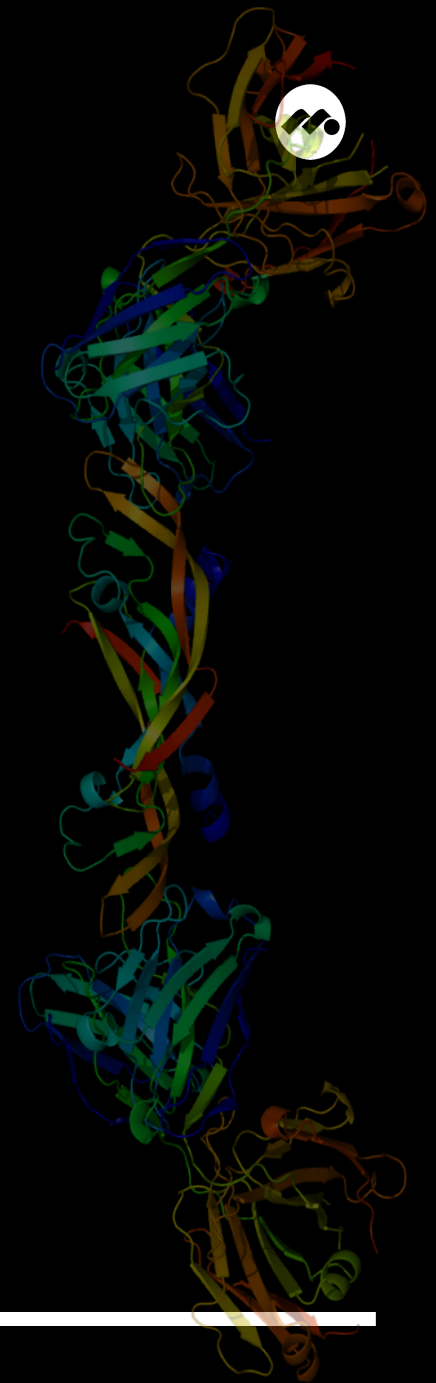
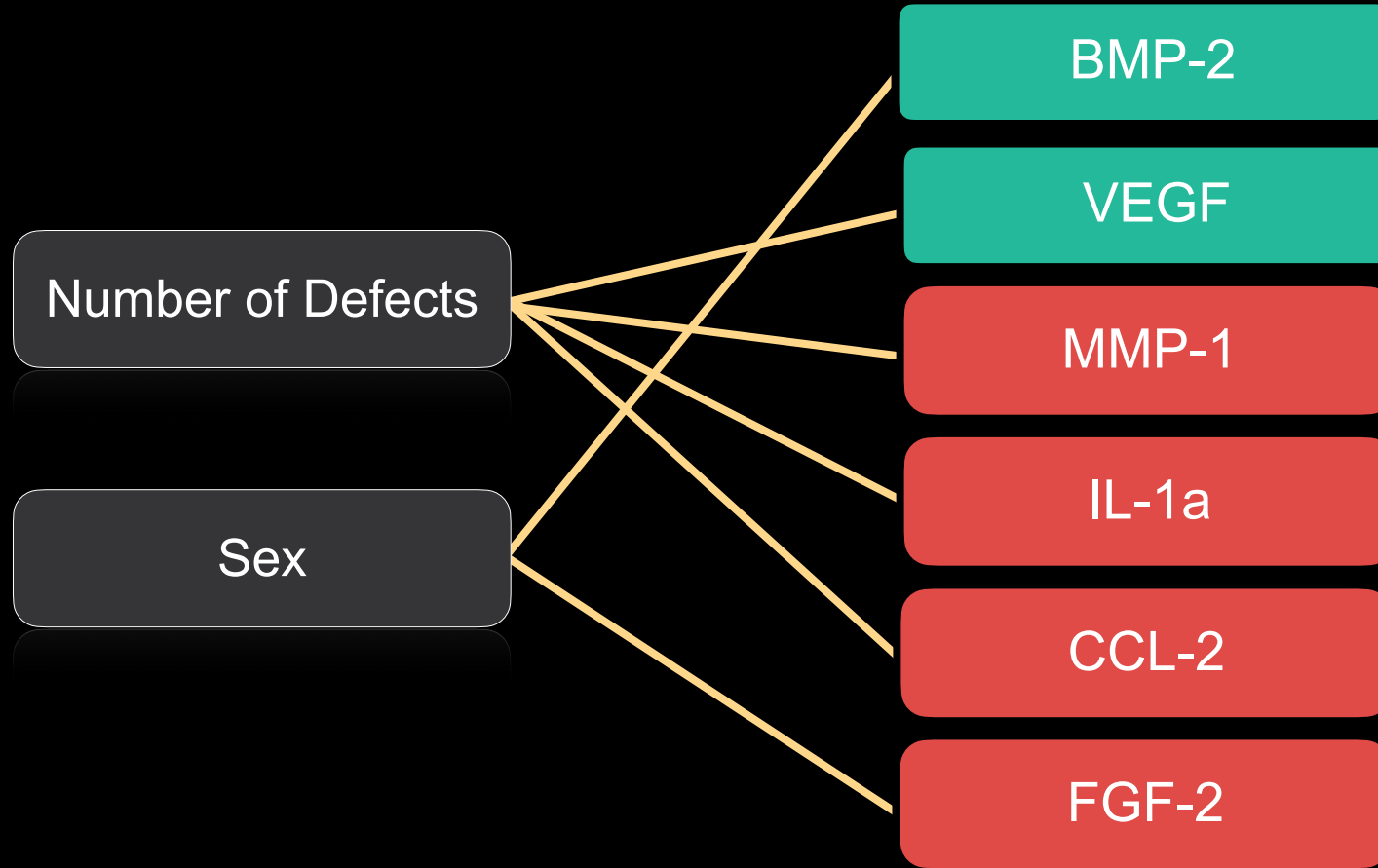
Age

Sex



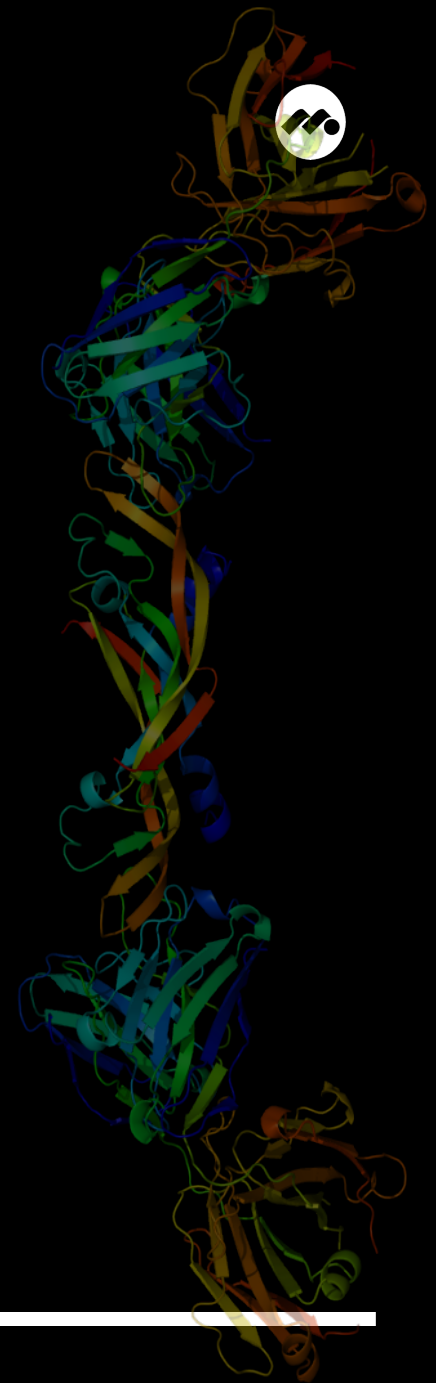
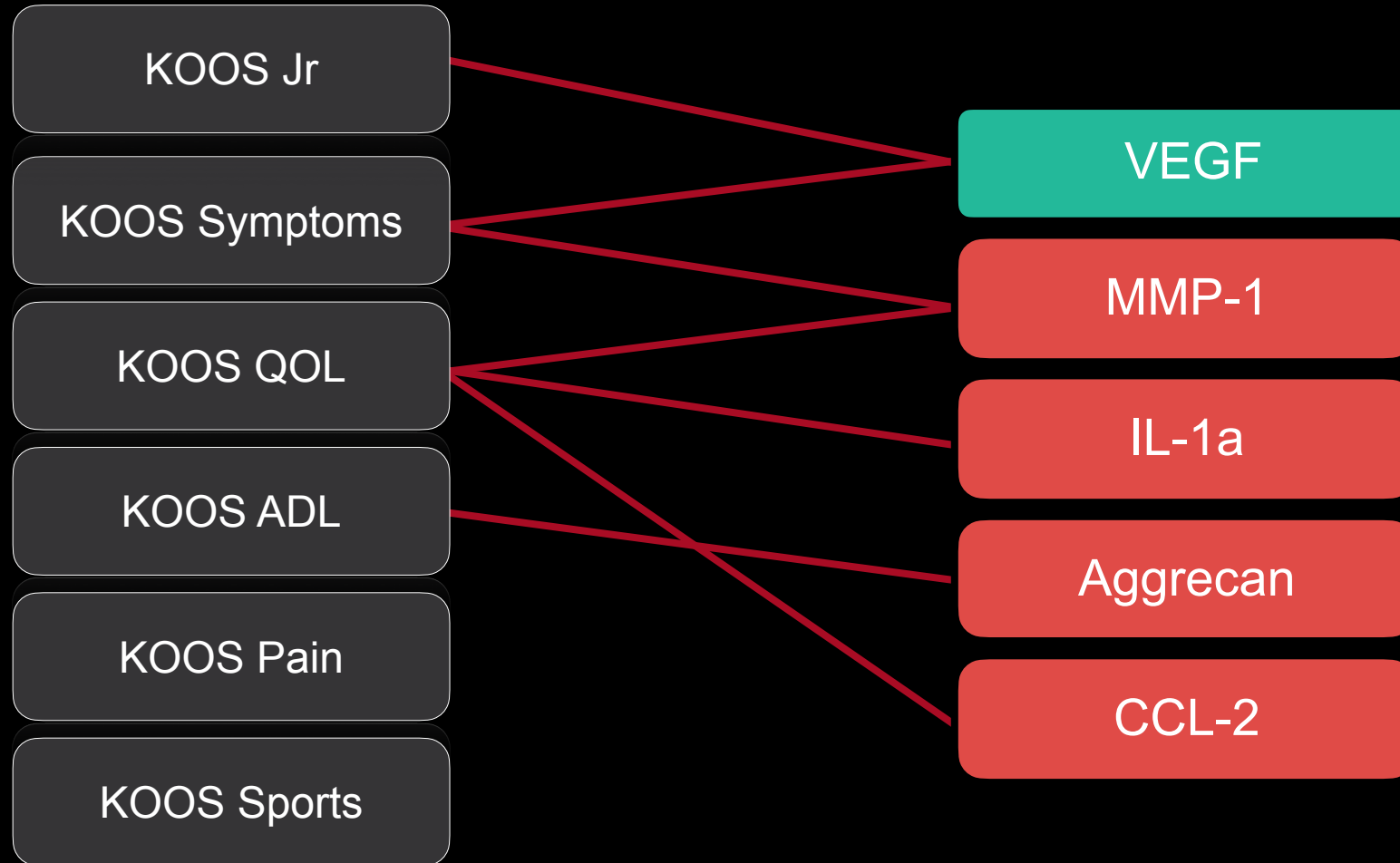
Results

Univariate Correlations



Results

Univariate Correlations



Results

Univariate Correlations

KOOS Symptoms

VEGF

$P = 0.002$ $\rho = -0.406$

MMP-1

$P = 0.026$ $\rho = -0.302$

Total Defect Area

$P = 0.002$ $\rho = -0.441$

Number of Defects

$P = 0.016$ $\rho = -0.332$

KOOS QOL

MMP-1

$P = 0.002$ $\rho = -0.306$

IL-1a

$P = 0.002$ $\rho = -0.324$

Aggrecan

$P = 0.002$ $\rho = -0.293$

ICRS Grade

$P = 0.173$ *n/a

*Grouped by ICRS Grades, not as a continuous measurement — Kruskal-Wallis test used

Results

Multivariate Regression

KOOS Symptoms

VEGF

$P = 0.023$

Total Defect Area

$P = 0.186$

KOOS QOL

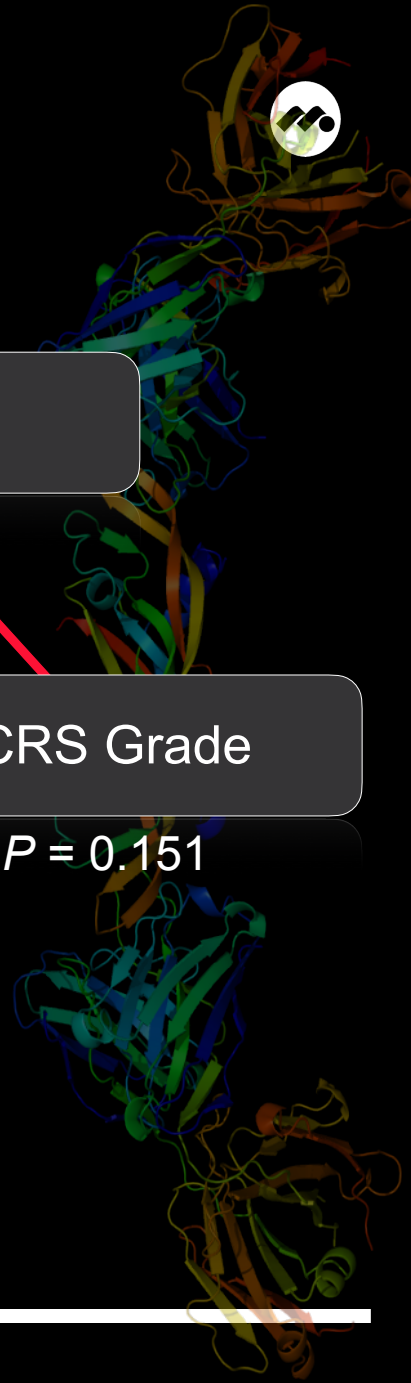
MMP-1

$P = 0.045$

ICRS Grade

$P = 0.151$

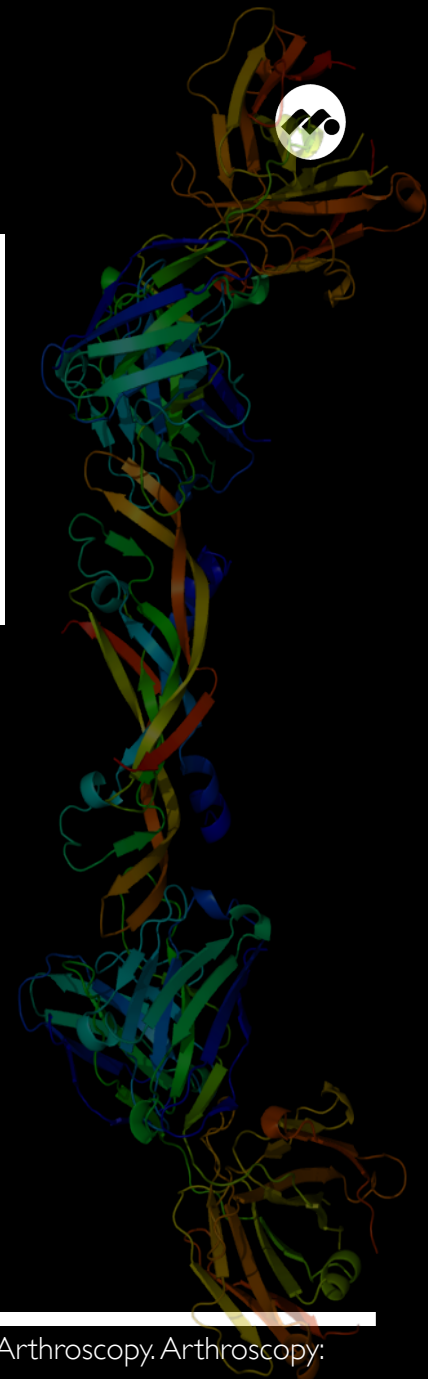
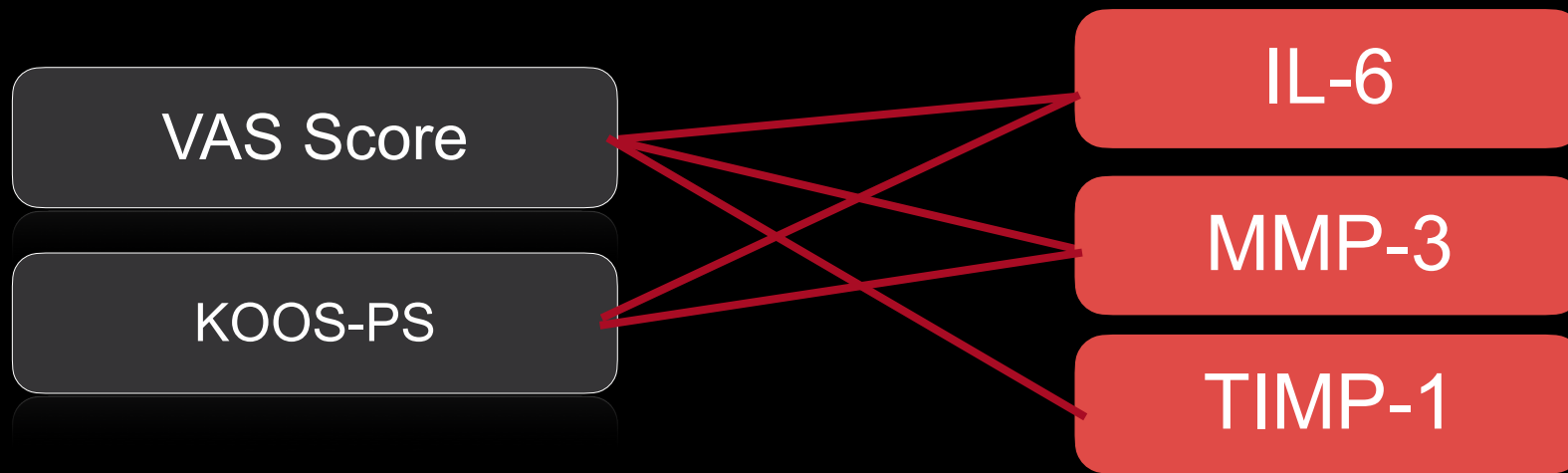
Cytokines drive baseline PRO's more so than defect characteristics



Discussion

Correlation of Synovial Fluid Biomarkers With Cartilage Pathology and Associated Outcomes in Knee Arthroscopy

Vanessa G. Cuéllar, M.D., Jason M. Cuéllar, M.D., Ph.D., Thorsten Kirsch, Ph.D., and Eric J. Strauss, M.D.

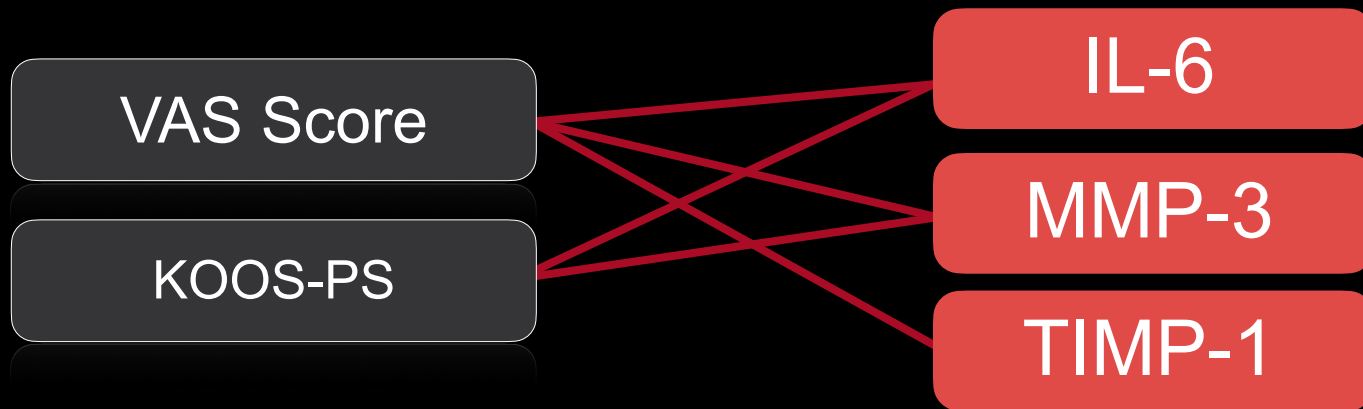


Discussion

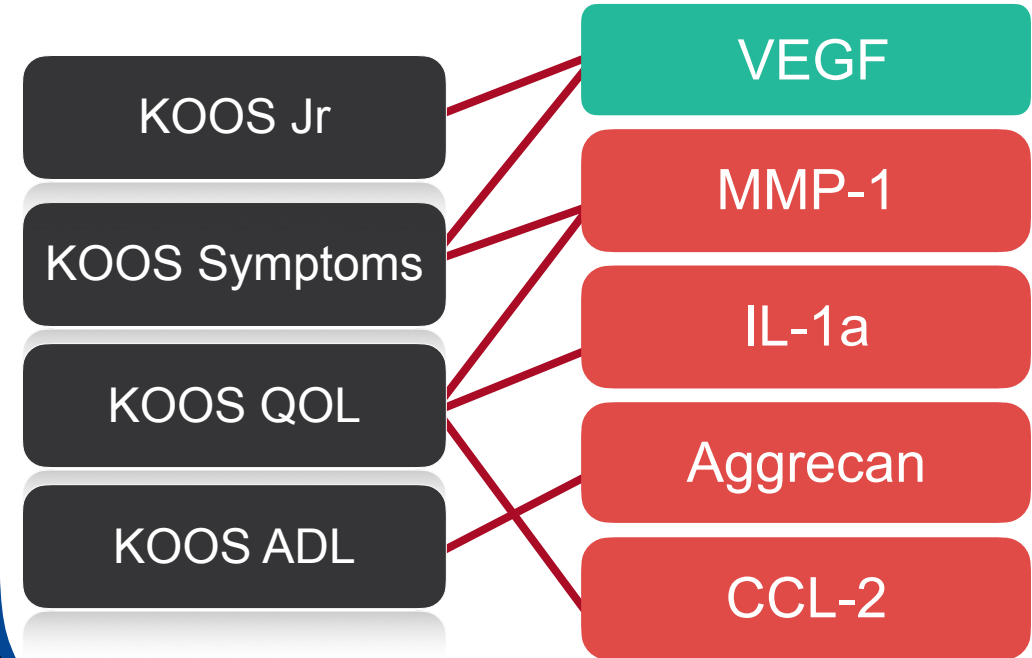


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Our Study

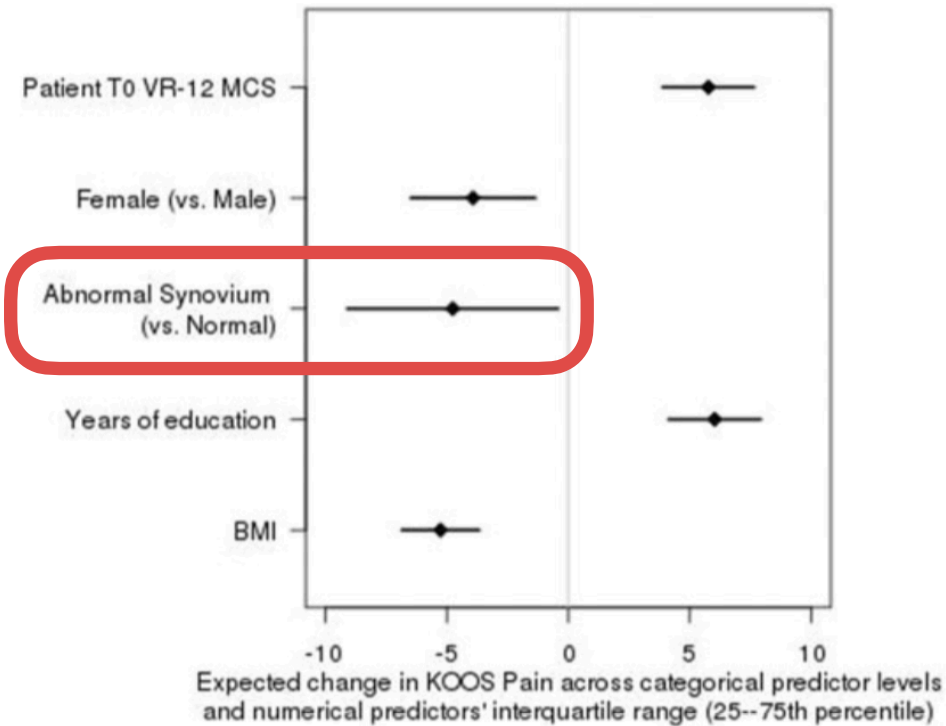


Discussion

Predictors of Pain and Function Before Knee Arthroscopy

Cleveland Clinic Sports Knee Group*†

Investigation performed at Cleveland Clinic Sports Health, Cleveland, Ohio, USA



Our Study

KOOS Jr

KOOS Symptoms

KOOS QOL

KOOS ADL

VEGF

MMP-1

IL-1a

Aggrecan

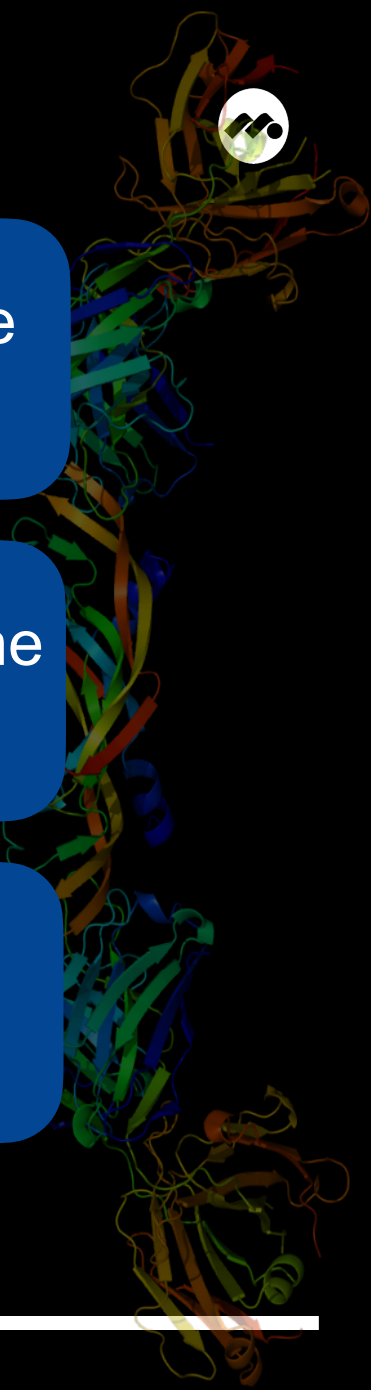
CCL-2

Conclusion

Elevated inflammatory cytokines appear to be the driving force behind worse baseline KOOS Symptom and QOL subscores

Number of defects and sex are independently correlated with the synovial profile of the patient

Future Area of Study:
Investigation of the effect of inflammatory cytokines on the healing environment after OCA





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THANK YOU!

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 www.YankeMD.com