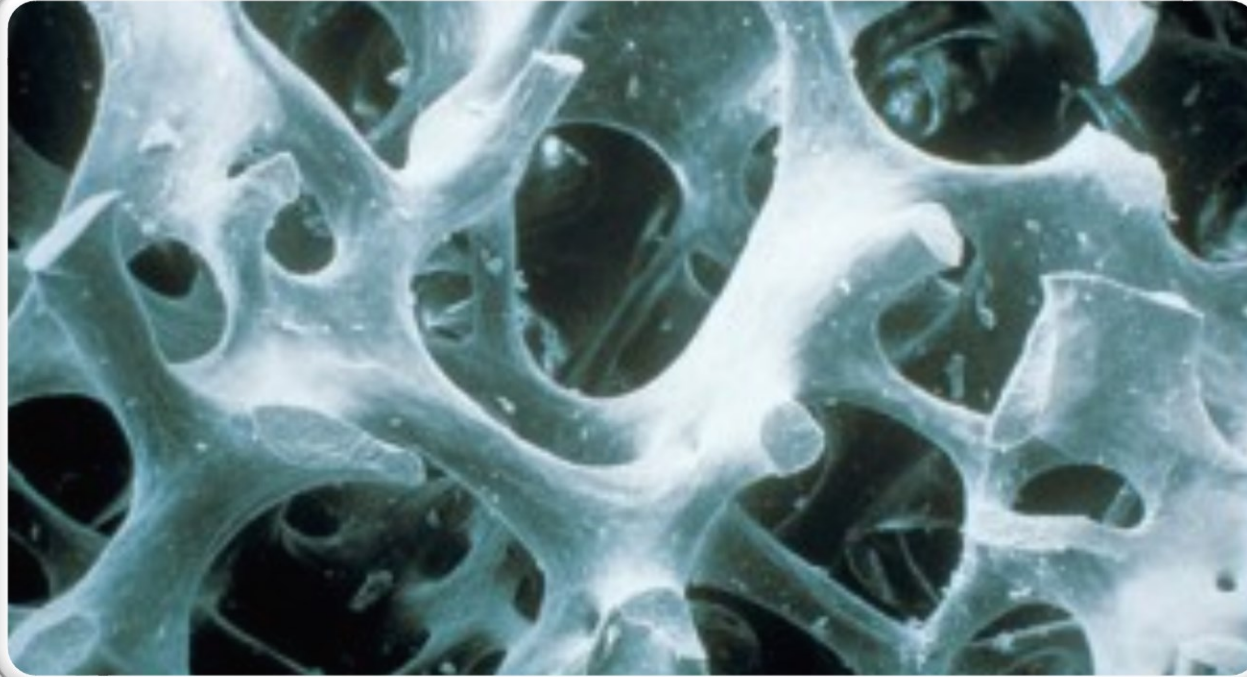




BONE GRAFTING

WHAT IS BONE GRAFT ?

- BONE GRAFT : SURGICAL PROCEDURE THAT REPLACES MISSING BONE IN ORDER TO REPAIR BONE FRACTURES THAT ARE EXTREMELY COMPLEX, POSE A SIGNIFICANT HEALTH RISK TO THE PATIENT, OR FAIL TO HEAL PROPERLY.

https://en.wikipedia.org/wiki/Bone_grafting

WHEN ?

- FRACTURES
- FUSION
- REGENERATION
- IMPLANT DEVICES

GOAL ?

- STIMULATE HEALING
- PROVIDE SUPPORT

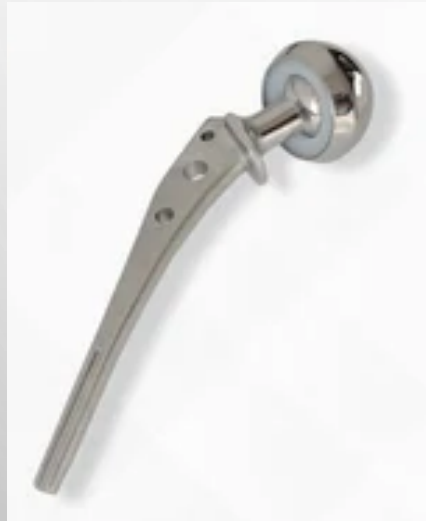
HOW ?

- PROGRESSIVE FUSION

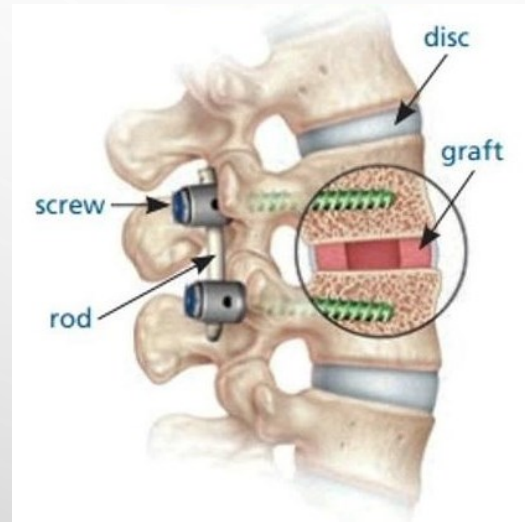
RISKS ?

- BLEEDING
- INFECTION
- PAIN
- NERVE INJURY
- REJECTION OF THE GRAFT
- INFLAMMATION

HIP JOINTS



SPINAL IMPLANTS



KNEE PROSTHESES



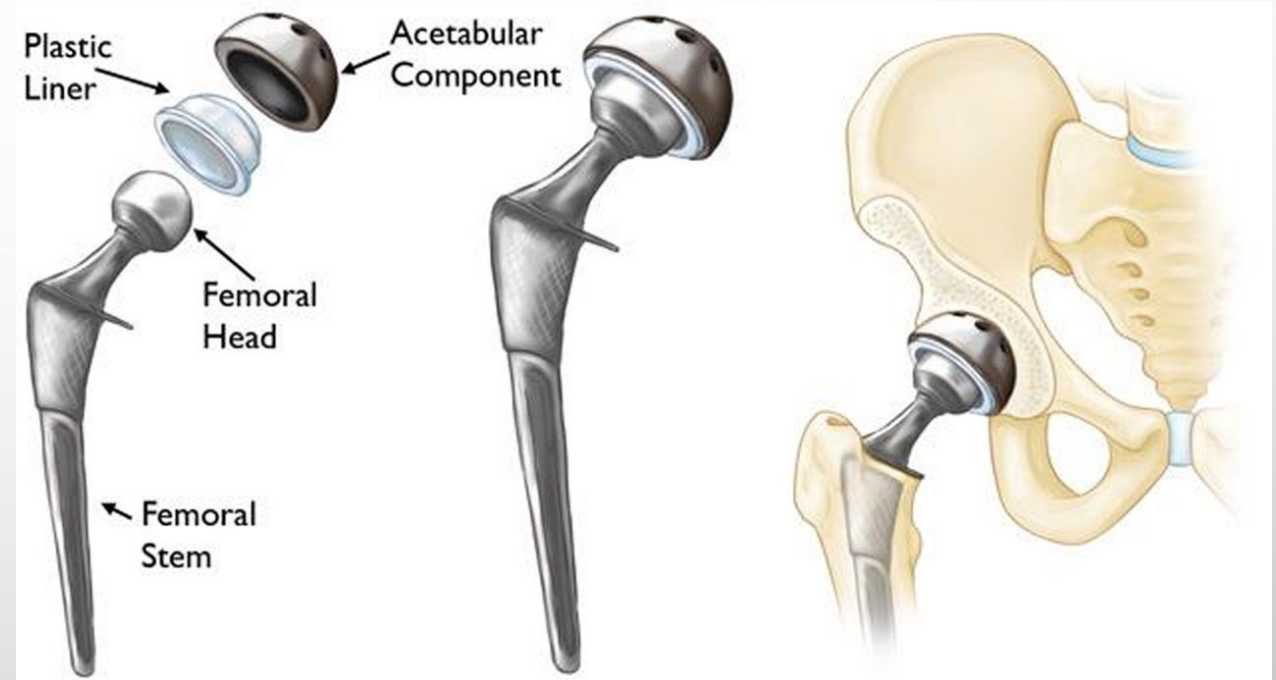
WHY HIP JOINTS ?

CAUSE

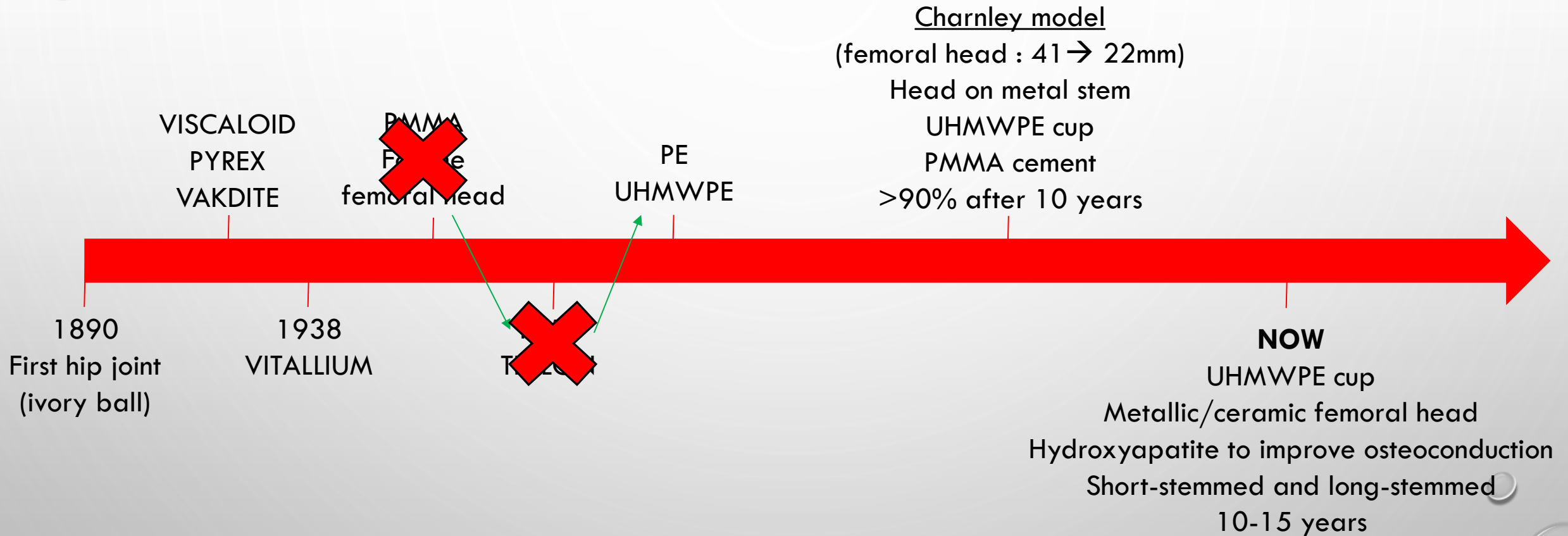
- ARTHROSE
- FRACTURES

GOAL

- RELIEVE PAIN
- RESTORE MOBILITY
- RESTORE BONE STRUCTURE

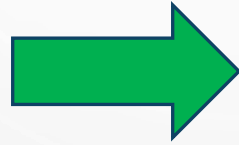


EVOLUTION



LIMITATIONS

- OSTEOINTEGRATION INCOMPLETE
- LIFETIME
- WEAR PARTICLES



FUTURE DEVELOPMENTS

- NEW MATERIALS :
 - HIGHLY CROSS-LINKED PE
 - CERAMIC-ON-CERAMIC
- NEW TECHNIQUES
 - SURFACE REPLACEMENT

SPINAL IMPLANTS

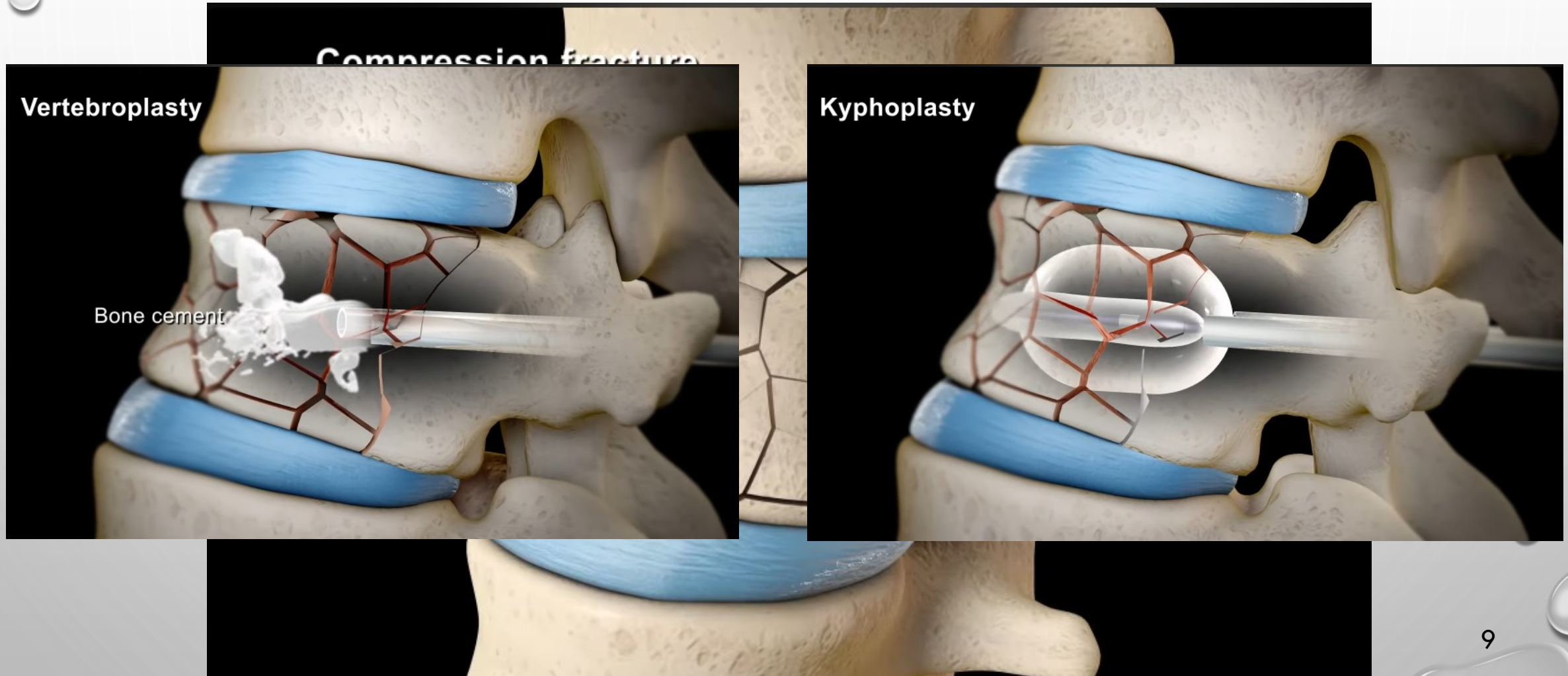
DISORDERS

- BONE DEFORMITIES
 - SCOLIOSIS
 - KYPHOSIS
- BONE DEGENERATION
 - VERTEBRAL COMPRESSION FRACTURES
- DEGENERATIVE DISK DISEASE
 - HERNIATION
 - RUPTURE
 - SPINAL CORD STENOSIS

TREATMENTS

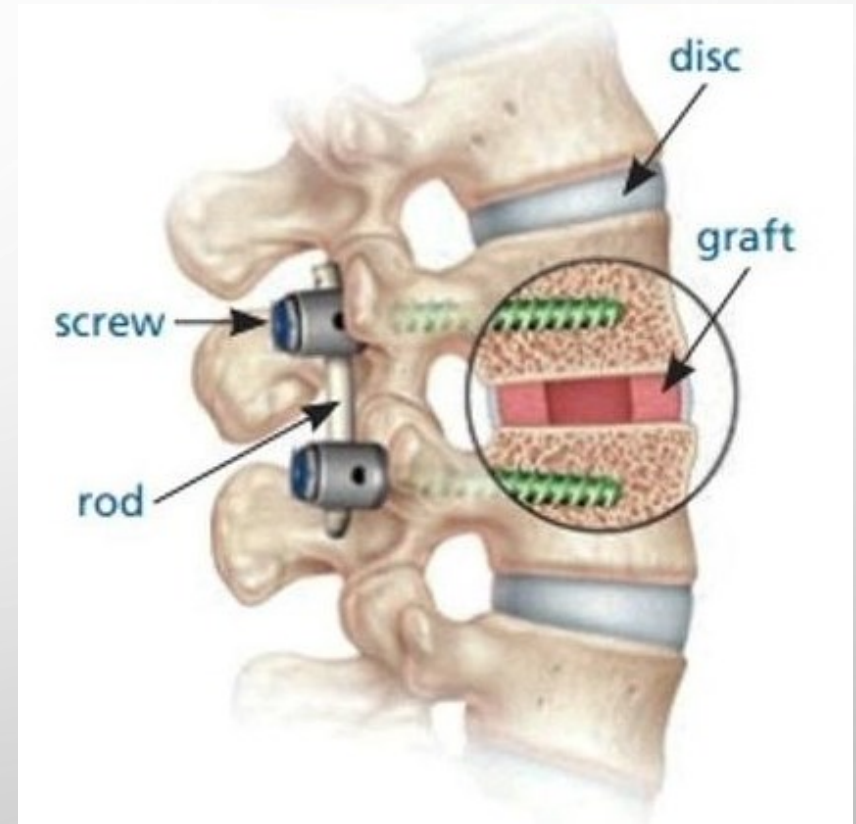
- SPINAL FUSION
- VERTEBROSITY
- KYPHOPLASTY
- VEPTR (VERTICAL EXPANDABLE PROSTHETIC TITANIUM RIB)
- POSTERO-LATERAL GUTTER SURGERY

VERTEBROSITY / KYPHOPLASTY



SPINAL FUSION

1. BONE GRAFT PLACED IN POROUS CAGE
2. RETIRE THE DISK
3. CAGE PUT BETWEEN TWO VERTEBRAE
4. FIX THE CAGE WITH PLATE AND SCREWS
5. RETIRE THE SCREWS



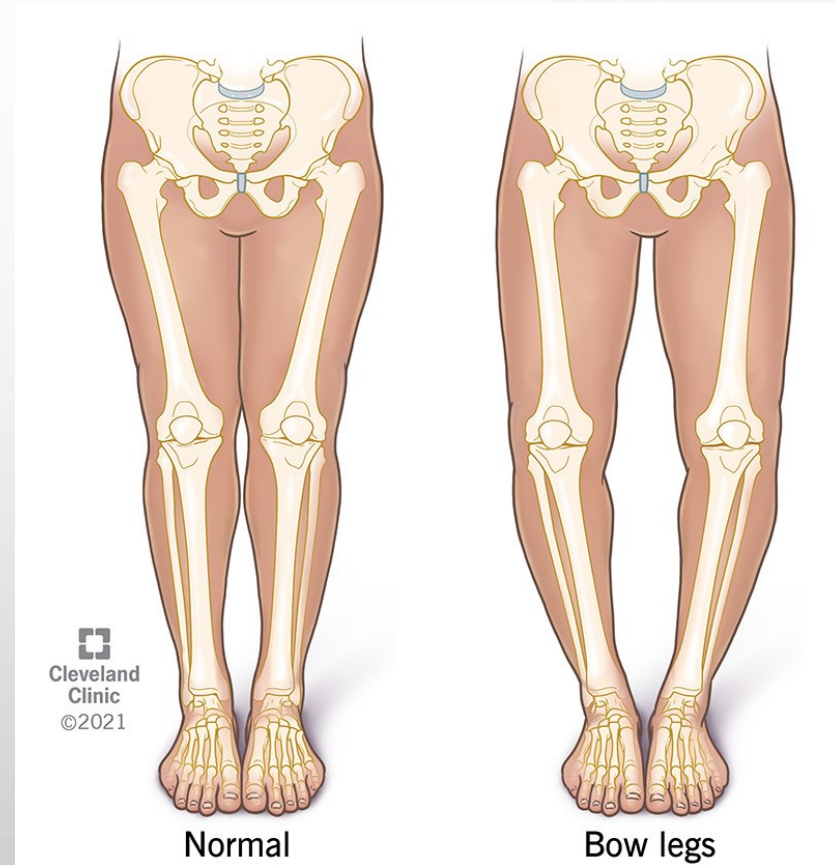
FUTURE DEVELOPMENTS

- NEW MODELS (DYNESYS FROM ZIMMER, WALLIS FROM ABBOTT SPINE, ETC)
- USE OF RHBMP-2 TO STIMULATE BONE GROWTH
- DISK AND NUCLEUS REPLACEMENT

KNEE PROSTHESES

GOAL

- RELIEVE PAIN
- RESTORE MOBILITY
- AVOID OSTEOLYSIS



PROBLEMS

- PAIN
- PROSTHESIS COLLAPSED
- BONE LOSS
- INSTABILITY

PERSPECTIVES

- INCORPORATE MORE ANATOMICAL FEATURES
- IMPROVE THE KINEMATICS

MARKET

COVID-19 → ELECTIVE

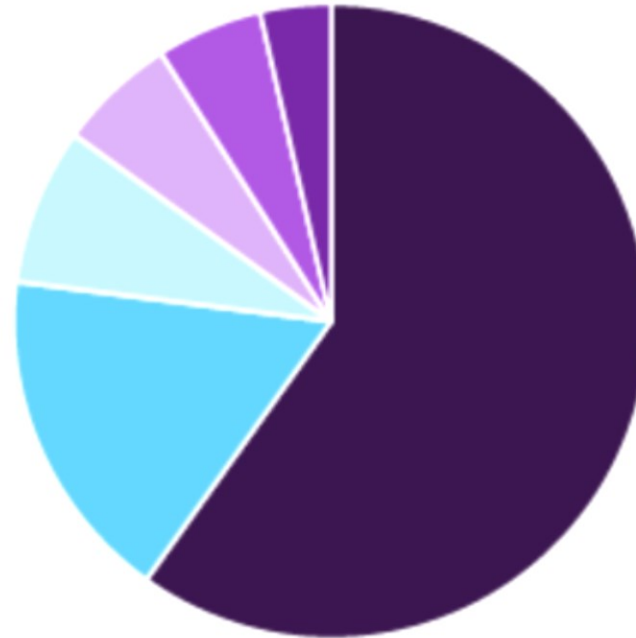


- STRATEGIES DEV

LIOS AND COMPETENCY

Bone Grafts & Substitutes Market

Share, by Application, 2024 (%)



● Spinal Fusion ● Dental ● Joint Reconstruction
● Foot & Ankle ● Craniomaxillofacial ● Long Bone



GRAND VIEW RESEARCH

\$3.1B

Global Market Size,
2024

Source:
www.grandviewresearch.com

CONCLUSION

- NOT ONLY REPLACE MISSING BONE OR FRACTURE
- A LOT OF POSSIBILITIES
- HIGH SUCCESSFUL RATE BUT SOMETIMES NOT AN OPTIMAL SOLUTION
- MARKET IS INCREASING

THANK YOU !

REFERENCES

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- MARKET : <HTTPS://WWW.GRANDVIEWRESEARCH.COM/INDUSTRY-ANALYSIS/BONE-GRAFTS-SUBSTITUTES-MARKET>

QUESTIONS ?