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Integrating Medicine in Ecosystems of Implantable Medical Devices (IMD) Investigational Medical Device: The Revolutionary Science of Applied Machine Learning to 3D Printing of Implants and Prosthesis

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Abstract

Introduction: In this series we merge our Dossier with actuarial science and applied science dictated by 3D printing and Implants. The Revolutionary invention of implants has propelled science and physics to a advantage point were Machine Learning is captured through Implant Monitoring in Body Compartments. We will discuss the different body compartments and the implants and provide photo images of implants and the mechanisms within the systematic functionality of integration and assimilations.

Keywords: Implants, Medical Devices, Simulation, Actuarial Science, Applied Physics, Computer Aided Technology, 3D Printing and Modelling, Ecology of Integrated Medicine, Ecosystems of Implants.

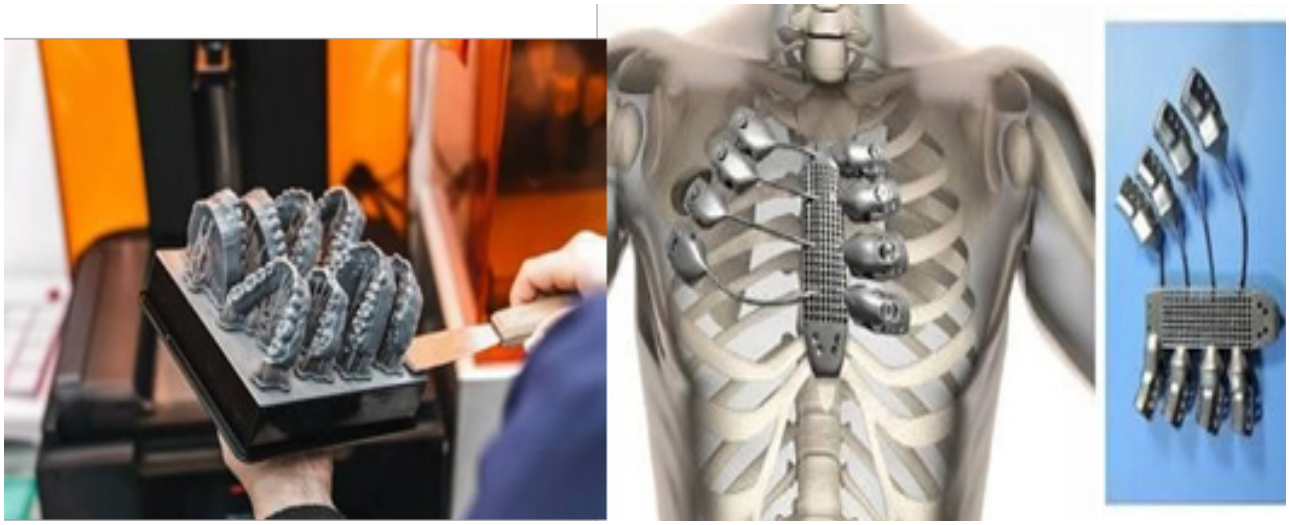

Figure 1.1 Above we show the laboratory photos of perioperative implants, thoracic implantable pace makers, and pulse oximetry monitors, below we show pelvic implants, and cranial skull implants, with mesh, and site selection.

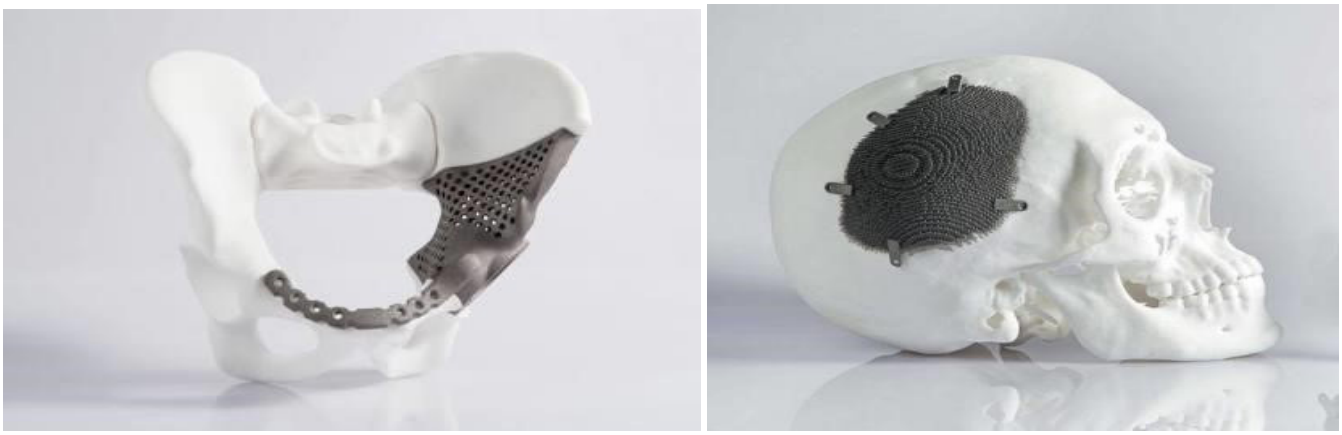

Figure 1.2 (Mesh Implants from 3D Printing CDIO (Centre Disease Innovations and Optimization)

Methodology to 3D Printing and Production of Implants:

1A- Positioning and accurate impressions are started during the MeSH implant 3D Imaging and Printing and sizing. It is crucial is achieving a passively fitting multi-implant system.

2A- The 3D Printing and Sizing System, simulates the microtextured surfaces, and creates a macro-morphology and surface micro-topography to influence the stability of the implant

3A- Prints are generated (thread, organ shape, and design), Macro-morphology presents a radiographical standard implants.

4A- Interface measures the internal prosthetic with variety or organ size and conical shapes, and blind design creates a clone of the implants for the body compartment assigned.

Figure 1.3 (3D Printing for Aerospace Medicine, Osteoporosis, and Spinal Stenosis, Industrial Medicine)

Experimental Cases utilizing Implants and Integrative Medicine:

1B the study is a blind design were the Ecosystem of the Materials and Method comes into alignment with the natural interface of the implants (neck, spine, pelvic, perioperative, skull, thoracic).

2B Participants, Clients, Customers present with fixed implant-prosthetic rehabilitation.

3B the participants in the study receive an evaluation of pre-existing conditions and
Patient-specific implants designed according to patient-derived CT data for excellent reconstructive results.

4B- One reference is the Stryker CMF PEEK Customized implants for cranial and craniofacial skeleton reconstruction MeSH, PSI/ Phasic ST VH by BD.

Figure – Macro Morphology of implant through Ecosystems of CT Data.

Integration of Implants in Physiology and Manipulation of Joints and Osteopathic structure:

With the Customization of the implants we then use the Ecosystem and 3D Printed implants made of synthetic materials like medical-grade plastic or metal to integrate the implants for mobility and reconstruction of Osteopathic structures. One case we use the PSI Cranial product (patient-derived CT Data) to implant malleable hexagonal patterns for adaptation to ecosystems of Craniomedially and Craniofacial, with the manipulations of the structure we use reconstructive capabilities to make the titanium mesh adapt to the surrounding bone edges. In this case the Cranioplasty Repair Surgery was noted in the Medical Dossier for excellent reconstructive results.

In order to reconstruct the MeSH all procedure involve the Additive Manufactured polyether ether keta on (PEEK). We also use Titanium surgical MeSH for (skull, spine, pelvic, thoracic, lower limbs, perioperative, and bone (unspecified) Osteopathic Structures are assigned MeSH Codes and ICD-11

Codes ICD-11 codes for 3D Reconstruction and Implants are:

PK90-PK9C.4 Surgical or other medical devices, implants or grafts associated with injury or harm therapeutic use.

PK90.2- Anaesthesiology devices associated with injury or harm, prosthetic or other implants, materials or accessory devices.

PK91- Cardiovascular devices, implants or grafts associated with injury or Harm in therapeutic use.

MeSH Identifiers:

D009141 Muscoskeletal, Skeletal
D014566 Obstetrics, Gynaecological
D002319 Cardiovascular, Lymphatic
D004064 Accessory Digestive Organs
D009420 Nervous System, and CNS

Figure 1.4: Vacant Slide Printing of Cardiac Pathways, and 3D Modelling of Cardiac Compartments, for Internal medicine, Endocrinology, Cardiac Cath, Electrophysiology, and Neuropathology.

Conclusions to Implants and Ecosystem of Investigation Medical Device for the Future:

Exploring the evolution of digital solutions to implants in maximize skills in Ecosystem of prosthetics. Coding tools for ISO/ MeSH TR/TC, and Manufacturer ID with comprehensive conversions to the body tool is crucial for successful development of the Reconstructive Surgery, the Implant procedure and innovative scanning technologies. The fitting, the solutions, the sizing, the adaptation of the implant is important through Integrative medicine, and manipulations. It is a medical design and innovative conceptual idea that optimizes mortality and morbidity. All address indications that implant is medically necessary and in a single cell system, that is an implant case. It is a therapeutic device (ATMP) or (IMP) there as advanced therapeutic product or investigational medical product.

We will continue our series from 2020 Investigational Implants in our next Journal and Case Review and Reports.

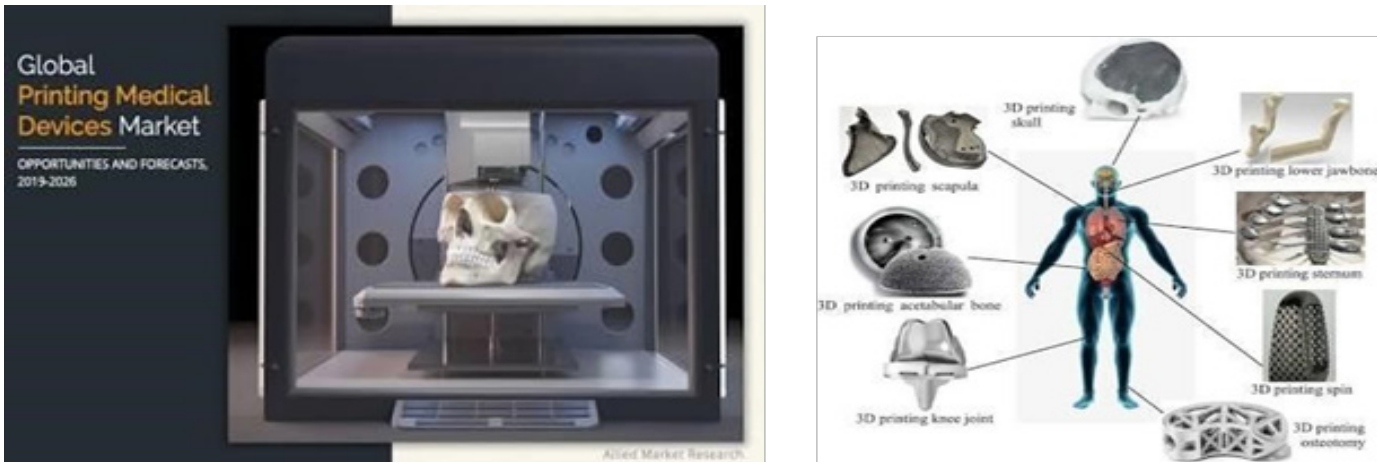

Figure 1.5: 3D Printing Laboratory and Linux Computers for Compression and Dye Capture print, and reprints resizing, and 360 image capture. Features and Body Compartments that receive authentic print quality in sequence by Body mapping.

Conflict of Interest:

We are a private publishing firm, and hold trademarks and patents for all of our articles and case studies. We also are a Private Equity Laboratories.

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References:

1. NIH. National Library. MeSH Unique ID Indexing Information. MeSH. 2025. MEDLINE/PubMED NLM Catalog
2. ISO. Progressive Implantology. ISO TR/TC List 11.060.15. 2025
3. FormLabs. 3D Printing for Biocompatible Materials. In House. 2025
4. DioImplant. Implants for Ecosystem Prosthesis. CIO ECO CAD. 2025
5. Cleveland Clinic. Prosthesis: Definition and Types. UCG Conferences. 2025. New South Wales FMA/NSW.