Anatomik Modeling

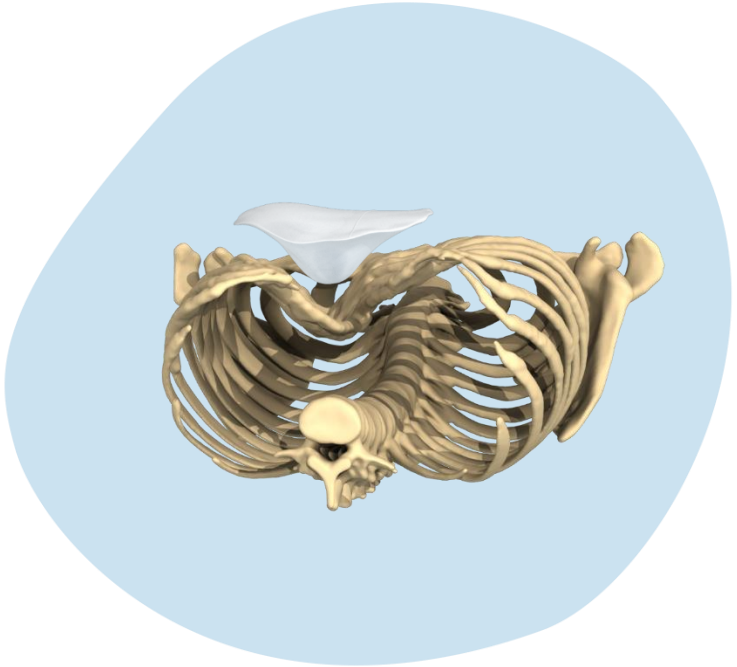
3D custom-made implants

Sebbin

PARIS

3D CUSTOM-MADE IMPLANTS

For Correction of Pectus Excavatum and Poland Syndrome



An Innovative Partnership

Anatomik Modeling

3D custom-made implants

Specialist in designing 3D custom-made implants, after 10 years of collaboration with the University Hospital in Toulouse

Scientific support of Pr. Chavoin

Sebbin

PARIS

Experts in the conception and manufacturing of silicone gel implants

Working in partnership with surgeons for patient's care in plastic and aesthetic surgery

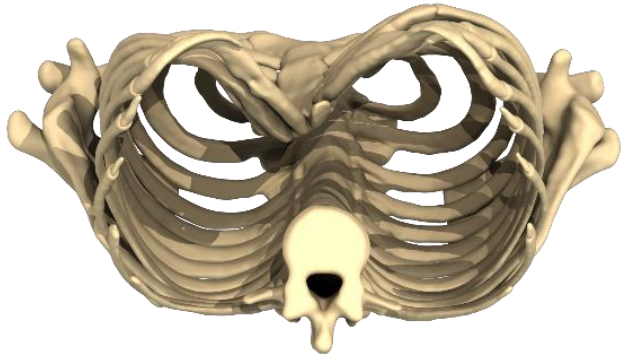
A 100 % Personalized Solution

Perfectly suitable for deformities such as Pectus Excavatum and Poland Syndrome

Thoracic Deformities

Pathologies - Pectus Excavatum

- Congenital thoracic deformity caracterised by a medial or lateral depression of the sternum
- It is the most common congenital thoracic malformation
- Very rare functional troubles, with major psychological impact



1 to 2%

of people affected

Only 15%

of people affected by the Pectus Excavatum undergoe surgery

Occuring in 1 over 300

births

Pathologies - Pectus Excavatum

3 TYPES ACCORDING TO CHIN

Type 1
Symmetrical, deep and focuses on the sternum

Pectus Excavatum Type 1 in a Woman

Type 2
Symmetrical, shallow, extends to the pectoral regions

Pectus Excavatum Type 2 in a Man

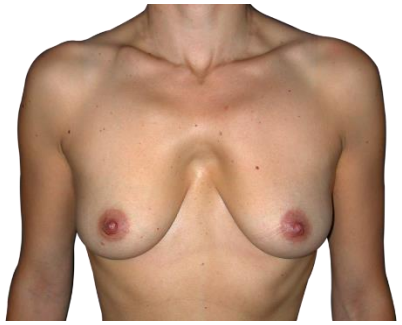
Type 3
Asymmetrical and extends to the pectoral regions deviation is mostly on right side

Pectus Type 3 in a Man

OTHER TYPES

Ravitch Revision in a Man

Pectus Arcuatum
Mixed Pectus
Revisions



Pectus Arcuatum in a Woman

Pathologies - Poland Syndrome

- Relatively rare malformation
- Complete or partial absence of the pectoralis muscle
    - Frequent occurence : Depression under the clavicle and mammary asymmetry in women
- Can be associated with a homolateral hand deformity

Occuring in 1 over 30 000 births

Pathologies - Poland Syndrome

3 TYPES

Type 1
Correct subcutaneous plane

Poland type 1 in a Man

Type 2
More atrophic subcutaneous plane

Poland type 2 in a Woman

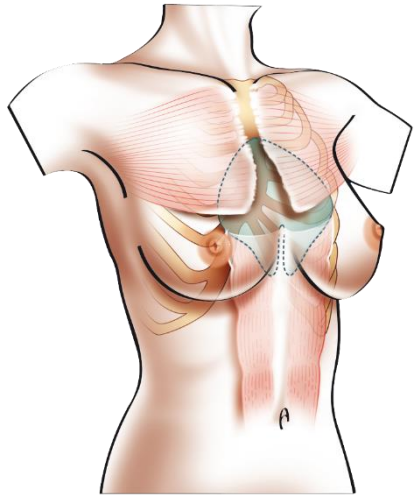
Poland type 2 in a Man

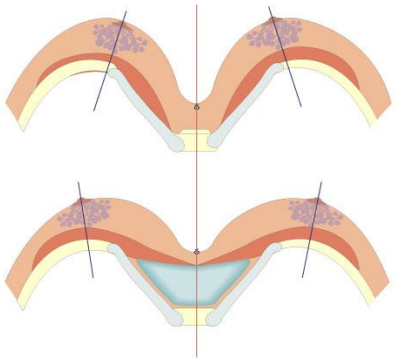
Type 3
Atrophy of subcutaneous plane with thoracic deformity

Poland type 3 in a Woman

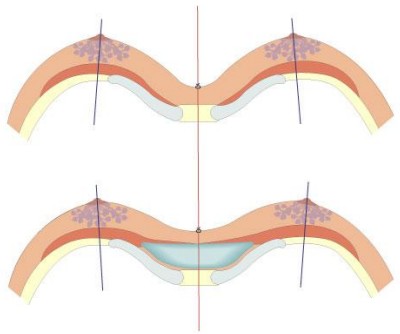
Pathologies - Mammary Deformities

- The Pectus Excavatum and the Poland Syndrome affect the mammary shape in women (convergence, asymmetry, divergence…)
- The thoracic deformity should be treated primarily
- Mammary implants can be placed in a secondary operation if necessary (minimum 6 months later)

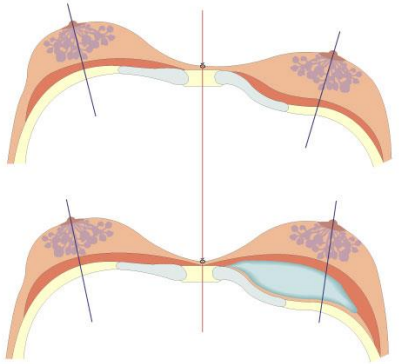




Pectus Type 1
Strong Convergence

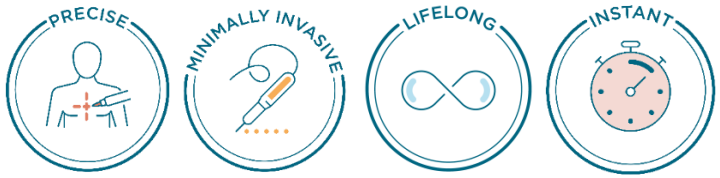


Pectus Type 2
Slight Convergence

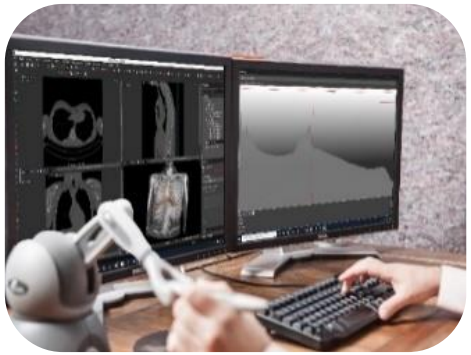


Pectus Type 3
Asymmetry

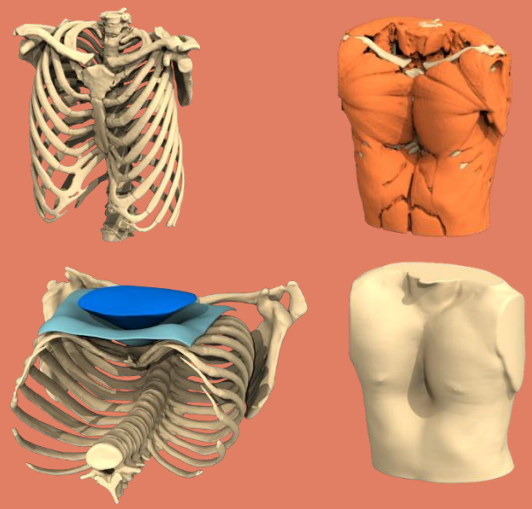
Custom-Made Solution



Precise Technology - Conception



3D Reconstruction of
patient's body
from a CT scan



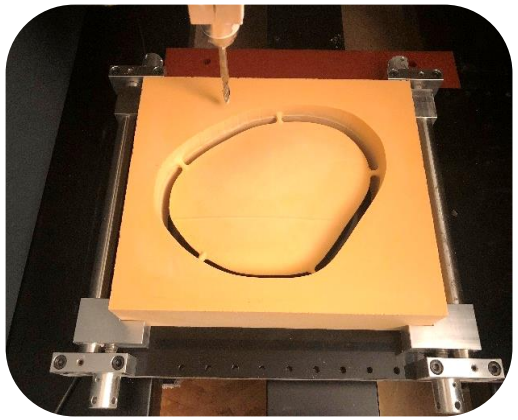
Virtual aided design of the implant
using the patients anatomy.
Taking into account anterior anatomical plane
and posterior surgical plane of the thorax

Control and optimisation of the
result with the surgeon

Precise Technology - Manufacturing

- Manufacturing of the implant’s prototype from the 3D design

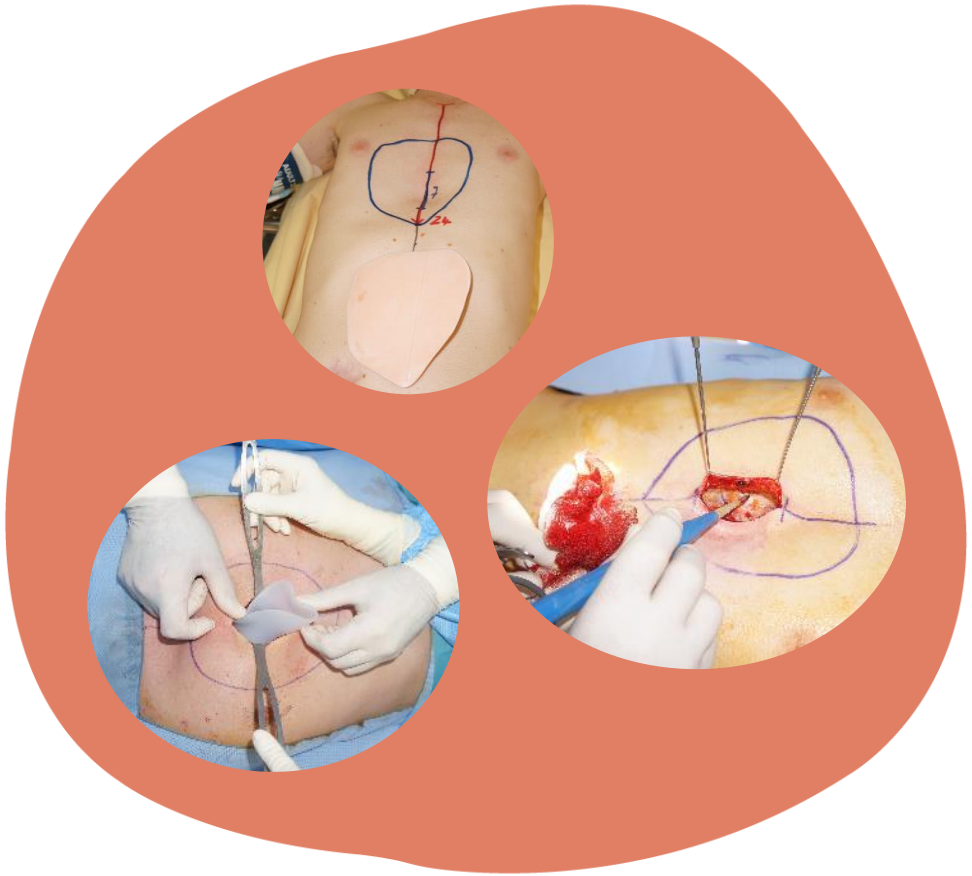
- Manufacturing of a mould in which, the silicone elastomer will be injected



A Simple and Minimally Invasive Surgery

The Surgical Technique *(Pectus Excavatum)*

- Pre-operative marking, utilzing the prototype and its anatomical markers
- Incision, vertical median - 7 cm length
- Dissection in retro-muscular (pectorals) and retro-aponevrotic (abdominals)
- Preparation of the cavity to fit the implant
- Insertion of the flexible implant in deep position
- Suture in 3 planes



The surgery time is generally **1 hour**

1 to 2 days of hospital stay

A Simple and Minimally Invasive Surgery

Post Surgery

- Moderate pain
  Treatable with simple painkillers
- Low post-operative care
  Suture, no drain
  Dressing maintained 8 days
- Compression bra
  Duration 1 month (24/7)
- Follow-up consultation every 8 days
  With drainage puncture of seroma if necessary
- 15 Days off-work
  Progressive return to sport, not before 3 months

Contention bra

Puncture of seroma

Rapid Recovery

Lifelong Implants

Medical Grade Silicone Elastomer

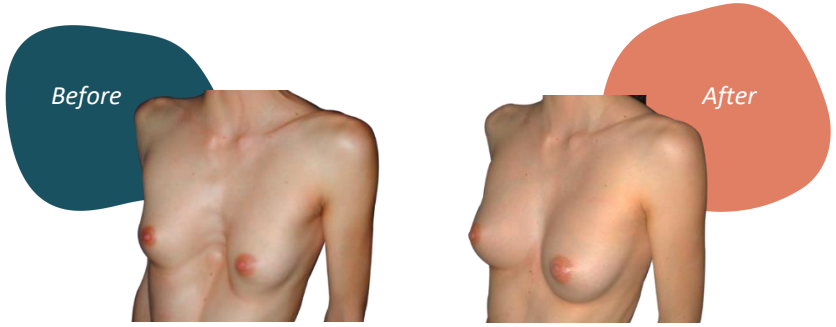
- Semi-rigid rubber
  No risk of rupture or retraction
  No risk of rejection, encapsulation and stabilisation of the implant

- Smooth Surface
  No cases of lymphoma reported

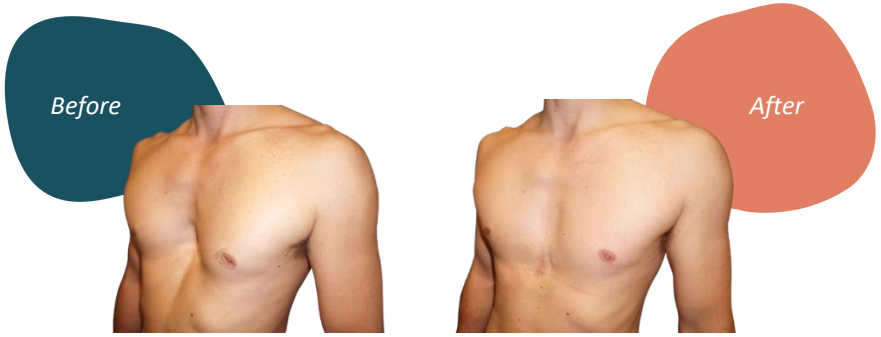
Lifelong implants, no need of replacement.

Immediate Aesthetic Results

Pectus Excavatum



Pectus Type 1 in a Woman



Pectus Type 1 in a Man

Pectus Arcuatum in a Man

Pectus Type 3 in a Woman

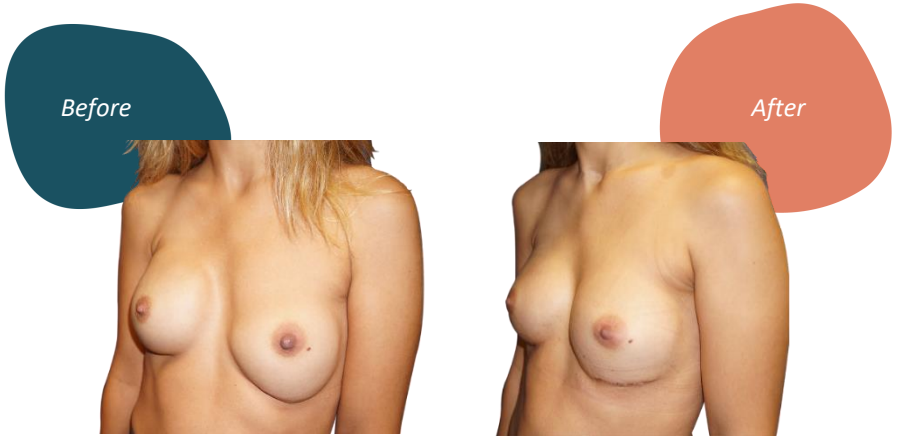
Nuss Revision in a Woman

Ravitch Revision in a Man

Immediate Aesthetic Results

Poland Syndrome

Poland type 1 in a Man



Poland type 3 in a Woman

Poland type 2 in a Man

Poland type 2 in a Woman

Custom-Made Implants

A good alternative to traditional orthopedic techniques

In the absence of functional troubles

In complex cases of Asymmetrical Pectus or Pectus Arcuatum

For secondary surgeries after failure of Nuss or Ravitch

For all patients from 15 to 65 years old

Functional tests can be performed to validate the choice of the technique

A Simple Process

1. **CT SCAN**

   The patient's entire chest is scanned

   - Supine with arms along the body
   - 1 to 1.2 mm thick DICOM standard-format cuts
   - Medical tomography with a CT scan or mediastinal filter to achieve a good contrast

2. **PATIENT SCAN AND PRESCRIPTION SENT**

3. **QUOTE DRAWN UP**

4. **QUOTE APPROVED AND ORDER CONFIRMED**

5. **3D IMPLANT DESIGNED AND APPROVED BY THE SURGEON**

6. **IMPLANT MANUFACTURED AND STERILISED**

7. **DELIVERY**

8 to 12

weeks from the validation of the implant design by the surgeon

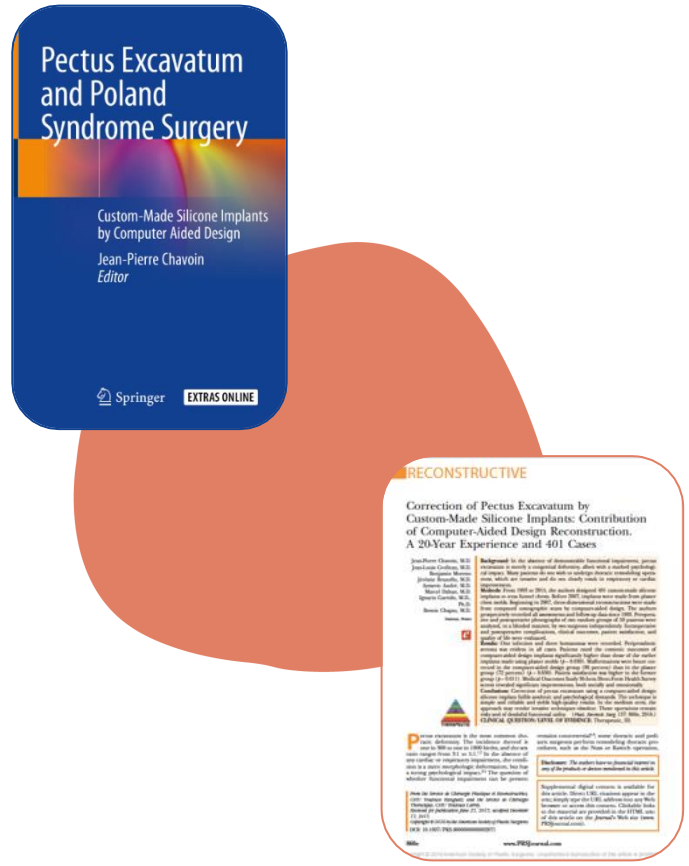
Litterature Available

1- Chavoin J.P., et al. Correction of Pectus Excavatum by Custom-Made Silicone Implants: Contribution of Computer-Aided Design Reconstruction. A 20-Year Experience and 401 Cases. Plast Reconstr Surg. 2016.

2- Chavoin J.P., et al. Correcting Poland Syndrome with a Custom-Made Silicone Implant: Contribution of Three-Dimensional Computer-Aided Design Reconstruction. Plast Reconstr Surg. 2018.

3- Chavoin, J.P., (Ed.) Pectus Excavatum and Poland Surgery. Custom-Made Silicone Implants by Computer Aided Design. Springer. 2019.

4- Chavoin J.P., et al. The Role of Computer-Aided Design Implant Insertion in Revision Pectus Surgery. The Annals of Thoracic Surgery Volume 112, Issue 5, November 2021, Pages e387-e390.



A Large Surgeon Network

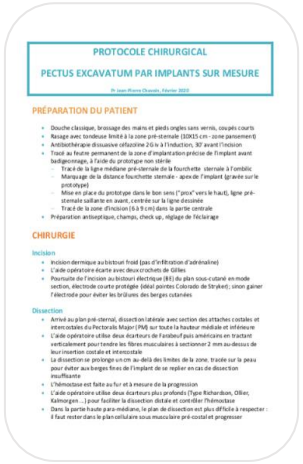
Around 200 referral surgeons worldwide

- Thoracic, Plastic, Pédiatric surgeons
- Trained to the technique of custom-made implants
- Personal consultation with Pr Chavoin
- Visible on AnatomikModelings website (12k visitors a month) and are able to be directly contacted by patients

Documentation

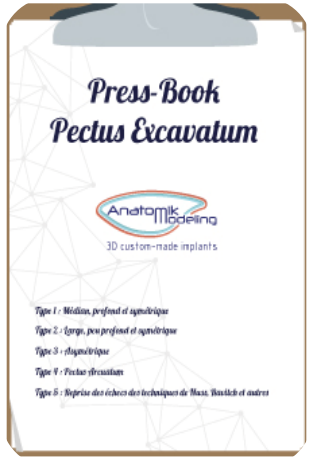
Documentation on the technique of custom-made implants
(surgical protocols, surgical videos, webinars…), can be found on the professional page at:

www.anatomikmodeling.com/en/professionals



Surgical Protocol

Patient Information Form



Clinical Cases Book

Registered Webinars

Surgical videos

Anatomik Modeling

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