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Hydroxyapatite implants

What is hydroxyapatite?

Hydroxyapatite is a component of bone. It is a calcium phosphate mineral that is also found in rocks and sea coral.

Plastic surgeons use hydroxyapatite implants made from sea coral that have been treated so that their structure and chemical make-up is almost identical to the hydroxyapatite of human bone. When implanted into the body the synthetic implant is accepted by the body and because of its porous nature allows normal tissue integration to take place. Also, the process to create hydroxyapatite implants from sea coral involves intense heat that removes all the proteins thus rendering the structure totally non-immunogenic (i.e. it does not provoke allergic reactions).

In addition to solid hydroxyapatite implants there is also a hydroxyapatite injectable (or spreadable) paste. Unlike solid hydroxyapatite implants the paste is non-porous so bone and soft-tissue ingrowth does not occur.

Where can hydroxyapatite be used?

Facial augmentation with hydroxyapatite has been used for the following corrections:

- Cheek
- Chin
- Jaw
- Nose
- Browbone

Solid hydroxyapatite can be carved and trimmed to the requirements of the correction. Because bone and soft tissue growth into the pores of the implant occurs quickly after implantation, the implant is securely held in place. Over time the implant is partially resorbed and replaced by natural bone.

Am I suitable for hydroxyapatite implants?

Most people tolerate solid hydroxyapatite implants very well. The body accepts the implant and bone and soft tissue ingrowth throughout the implant takes place immediately after implantation.

There have been reports of severe swelling and long painful recoveries after hydroxyapatite injectable paste implants. Also the augmentation effect appears not to be long lasting. Further work with hydroxyapatite injectable paste is required to determine its full use and suitability for facial augmentation.

How are hydroxyapatite implants inserted?

The procedure is carried out at your doctor's rooms. The length of time will depend on what corrections are being made but usually take up to about one hour.

Procedure for hydroxyapatite (solid) implantation

1. Implantation site is prepared with an antiseptic solution.
2. Local anaesthetic is used to numb the site.

3. Small incision is made at the implantation site.
4. Tissue from the area is gently lifted to create a small tunnel or pocket for the implant.
5. Implant is inserted and trimmed if necessary to fit the requirements of the correction.
6. Implant is secured in place by suturing the incision(s).
7. Sutures removed after 5–7 days.

Insertion of hydroxyapatite injectable paste implants is similar to that of other injectable augmentation products such as [collagen](#) and [hyaluronic acid](#).

How long do hydroxyapatite implants last?

Solid hydroxyapatite implants are permanent. It is thought that due to the porous nature of these implants they lack strength but this is possibly made up for by the ease of bone tissue growth into the pores of the implant once inserted. Over time they are partially resorbed and replaced by natural bone.

As mentioned earlier, patients have reported loss of augmentation with hydroxyapatite injectable paste implants. Although there are no clinical trials to support this, the injectable paste form is possibly a less permanent implant than the solid form.

Are there any side effects from hydroxyapatite implants?

Implants are usually well tolerated. You can expect some discomfort directly after the implantation. There may be some swelling, aching, and numbness but these usually resolve after a week or so.

The following complication may rarely occur:

- Infection of the implant site
- Extrusion (part of the implant comes through the skin)
- Induration (hardening of the area operated on)
- Seroma (dense pocket of fluid below the skin)
- Inadequate healing
- Overcorrection or undercorrection

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emedicine, the online textbook

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