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# Technology Review



## **GOLD THREAD IMPLANTATION**

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## **1. INTRODUCTION**

Many procedures are available for skin rejuvenation and wrinkle removal. Gold thread implantation is a technique which originated from France about 30 years ago by Caux and is becoming popular to rejuvenate skin. It is a non-invasive technique<sup>1</sup>. In the past many type of materials, such as simple catgut, composed catgut and synthetic threads were used to promote skin support. Gold, however, is safer due to its purity, density, colour and malleability<sup>2</sup>.

## **2. OBJECTIVE**

To evaluate the safety and effectiveness of gold thread implantation for skin rejuvenation.

## **3. METHODOLOGY**

Electronic databases like Pubmed, Ovid, EBSCO and PROQUEST were searched. A general search was also conducted using Google. There were no limits on year of publication applied. The following keywords were used either singly or in combinations: *Gold thread implantation, gold implants, effectiveness, safety, risk, harm.*

In addition, cross-reference searching was carried out from reference lists and bibliographies of the full text articles retrieved.

## **4. TECHNICAL FEATURES**

Gold thread implantation is a procedure which involves the implantation of gold threads into the dermis of the skin<sup>1</sup>. The operation is performed under local anaesthesia or sleep inducement. Two types of threads are used: the first type is made of pure 24 carat gold, and the second is made of polyglycolic acid. The gold thread is interwoven with polyglycol, and is placed under the skin using a special device which slides the tissues apart. Since the device does not penetrate deep into the skin (3-5mm), damage to large blood vessels and nerves is prevented. A web of golden threads is created under the skin. Around each gold thread, elastic collagen tissue is formed after 2-6 weeks, providing a good matrix for the skin. The polyglycol thread dissolves after 60 days of implantation<sup>3</sup>.

Gold is inert, not rejected by the body. It leads to the intensification of capillary blood microcirculation in adjacent tissues, hence increasing the supply of oxygen and nutrients to the cells<sup>3</sup>. Once gold thread is implanted into the skin, collagen and elastin production is stimulated, which is a natural reaction to foreign body grafted into our body. Around every implanted thread arises a framework of new cells with their blood supplies. This stimulates oxygen supply to the skin, removes tiredness and rebuilds cells. Skin, thus, becomes firmer and smoother. The flow of nourishing substances levels ageing process<sup>4</sup>.

Threads can be implanted into many different parts of the body such as the face (cheeks, chins and temples), neck, décolletage, breasts, buttocks and shoulders<sup>4</sup>.

Skin rejuvenation is evident in 2 months and achieves its maximum in 6 months. The results last 8-12 years, depending on individual body type, age, patient's lifestyle and initial state of patient's skin<sup>3</sup>.

## **5. RESULTS AND DISCUSSION**

### **5.1 Effectiveness**

There is no evidence available on the effectiveness of gold thread implantation in skin rejuvenation.

Gold implantation is also used for medical purposes, but in a different form. Gold weight implantation is used in paralytic lagophthalmos due to facial palsy<sup>5-16</sup>. A study by Tower and Dailey (2004) reported this method to be simple and effective, with adequate function and excellent cosmetic outcome<sup>7</sup>. Another study reported that the treatment is well tolerated; patients found the return of lid motility from restored muscle function to be functional and had a cosmetic advantage<sup>16</sup>. An increase in visual acuity was also reported, apart from a reduction of lagophthalmos and keratopathy<sup>8</sup>.

### **5.2 Safety**

There are minimal side effects, like bruising<sup>1</sup>, from gold thread implantation. Contraindications to the surgery are few, mainly those to anaesthetics, poor blood coagulation, diabetes and pregnancy<sup>4</sup>. No adverse reaction such as inflammatory reaction, infection, allergic or immunologic reaction, was observed in a study in which gold was used in odontologic treatments. This was thought to be due to the purity of gold<sup>2</sup>.

Although the use of gold weight for the treatment of lagophthalmos is found to have low post-operative morbidity rate<sup>7</sup>, it does come with some minor complications such as extrusion<sup>5,7,8,9</sup>, infection<sup>6,13</sup> and ptosis<sup>6</sup>.

## **6. CONCLUSION**

There is insufficient evidence on the safety and effectiveness of gold thread implantation for facial rejuvenation. However, evidence has shown that gold, when used as gold weights in the treatment of lagophthalmos, is effective and safe, with only minor complications.

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