

FISIOGRAFT nanoH.A.reinforced

The first material which thanks to nanotechnology, integrates with the mineralized structure of the bone



the beginning of bone neogenesis

absorbable space maintainer

with synthesized carbonated nanohydroxyapatite:

- constitutes a center of nucleation for the formation of bone
- totally integrated with the new bone



*"Give me a place to stand
and I can lift the world"*

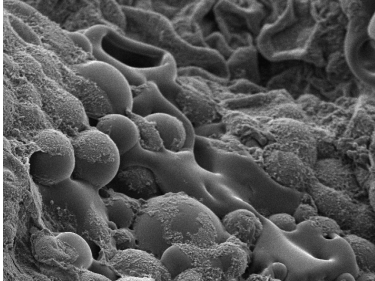
Archimedes from Siracusa (287 – 212 a.C)



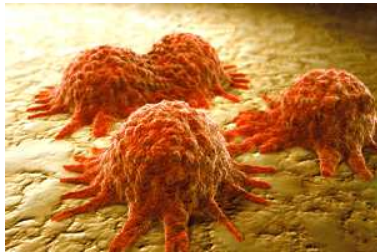
Via Cimarrone, 68 - 48033 Casalecchio di Reno (Bologna) - ITALIA
Tel. +39 051 878363 - Fax +39 051 878668 - e-mail: ghimas@ghimas.it

FISIOGRAFT nanoH.A.reinforced

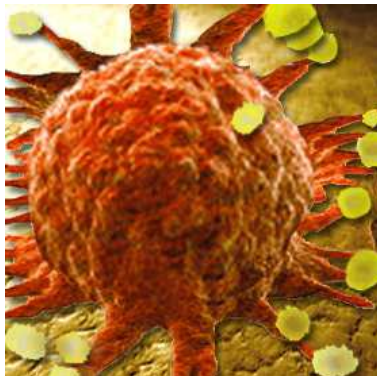
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SEM: culture of osteoblasts on nanohydroxyapatite



Osteoblasts adhere and proliferate optimally on the nanohydroxyapatite¹



The hydroxyapatite produced by the osteoblasts joins with the nanohydroxyapatite.

Use nanotechnology of the future... today!

This is the only nanohydroxyapatite that has structural, dimensional and biofunctional characteristics that replicate those of the natural hydroxyapatite present in the cementum and bone.

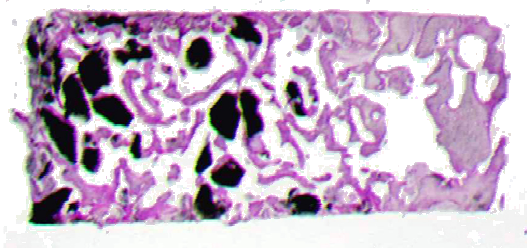
The granules of nanohydroxyapatite-dextran are smoothed to eliminate any sharp angles which may form after the granules are crushed, afterwards they pass through a calibrated filter to select particles with dimensions between 500 and 750 μm .

Biomimicry and biofunctionality

From a biological point of view, the rounded form of the granules is determinant since it improves the biofunctionality of the osteogenic cells, which show a preference for rounded surfaces.

Thanks to the characteristics of the nanometric dimension, the nanohydroxyapatite functions as a nucleus for the aggregation of hydroxyapatite produced first by the osteoblasts and then by the osteocytes.

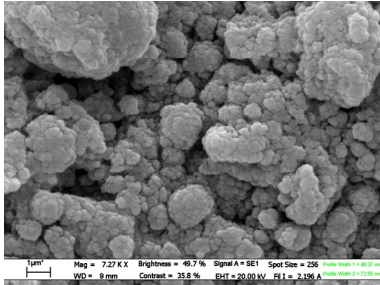
Certainty with the results



The histomorphometric analysis of a core taken at the implant site 4 months after a major lift of the maxillary sinus shows:

- ❑ **42% of neofomed bone,**
- ❑ **21% of nanohydroxyapatite**
- ❑ **37% medullary spaces.**


42%
of new bone
after 4 months





SEM photograph
FISOGRAFT nanoH.A.reinforced

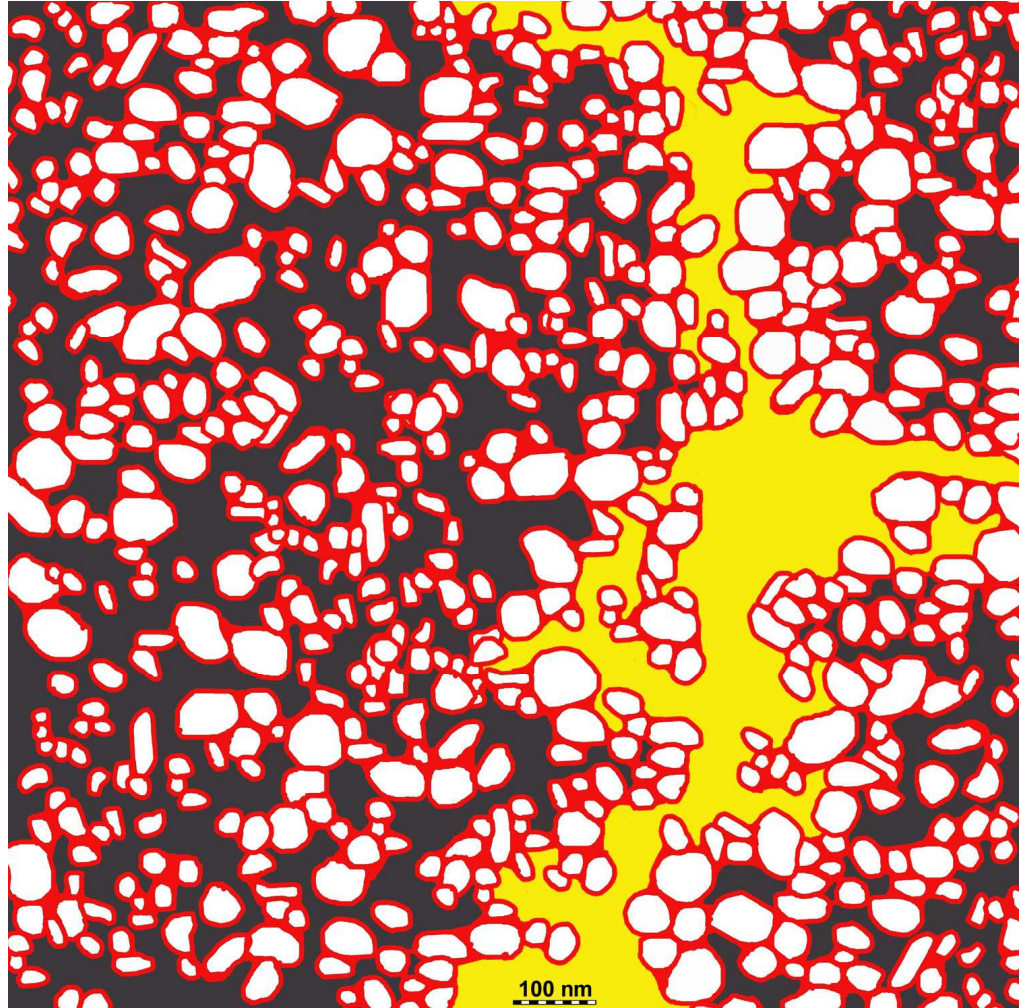


Ready -to-use syringe of
FISOGRAFT nanoH.A.reinforced

 nanohydroxyapatite covered with dextran (red)

 mixture of polylactic and polyglycolic copolymers and polyethylene glycol (PEG)

 40-50% porosity inside the granules



The components of **FISOGRAFT nanoH.A.reinforced**

- a portion is partially absorbed to leave space for new bone: the polylactic and polyglycolic copolymers undergo hydrolysis and are degraded over a period of time (3-6 months), the dextran and polyethylene glycol are removed from the site by organic fluids within 7-15 days;
- the portion that is not absorbed, goes on to become nuclei of ossification for the hydroxyapatite produced by the osteoblasts: in fact, the particles of nanometric hydroxyapatite, for their dimensional and chemical-physical characteristics, remain at the site and constitute aggregation points for the hydroxyapatite produced by the osteoblasts, until they are completely incorporated by new bone.

Method of application:

The syringe of **FISIOGRAFT nanoH.A.reinforced** is ready for use and does not require any preparation

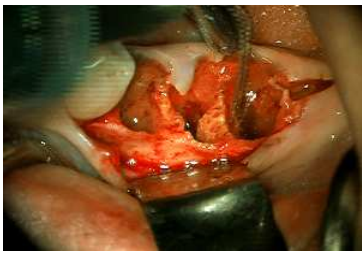
simplicity of use

indications

- ⇒ **implantology**
 - Post extraction sites
 - Dehiscences and bone defects
 - Major and minor augmentations of the maxillary sinus
- ⇒ **Periodontology**
 - Filling of pockets with one or two walls
 - Treatment of grade II forcation defects
- ⇒ **Oral surgery**
 - Post cystectomy defects, resections of the root apex and extractions of impacted teeth and/or multiple extractions

*In all the applications, fill the defect with **Fisiograft nanoH.A.reinforced** by compacting it, but not excessively,*

Clinical case of a surgical procedure - filling post extraction sites



Post extraction alveoli 3.5 and 3.6. The yellow color is due to washing with tetracycline.



Filling is facilitated by the ready-to-use syringe of **FISIOGRAFT nanoH.A.reinforced**



Material in position before being compacted into the alveoli



Additional filling of the defect. The syringe makes filling the site very simple and easy.

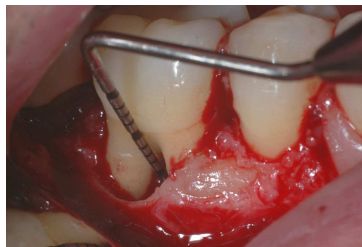
(Photos courtesy of dr. Bo)

The ready-to-use syringe of FISIOGRAFT nanoH.A.reinforced permits the product to be easily applied. The granules remain in position facilitating the surgical phases.

Clinical case of a surgical procedure for treating bone defects



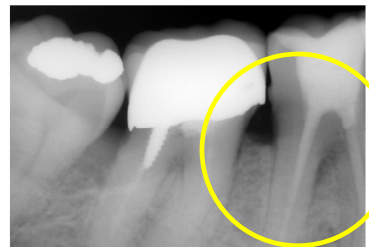
Rx Grade II forcation at 4.6



Probing the grade II forcation



Application of **Fisiograft nanoH.A.reinforced**

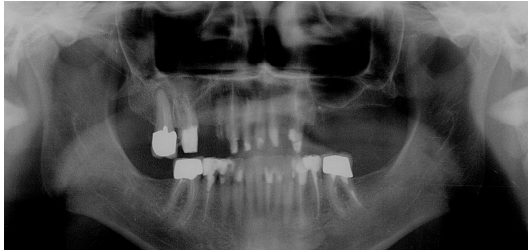


Rx Control at 3 months

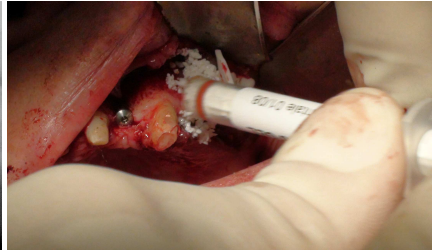
(Photos courtesy of prof. Andrea Pilloni and dr. Dominici)

A radiological control made only 3 months after the surgery shows in the forcation defect a pronounced radio-opacity. FISIOGRAFT nanoH.A.reinforced induced bone neogenesis even in this serious case of an advanced Grade II B class forcation.

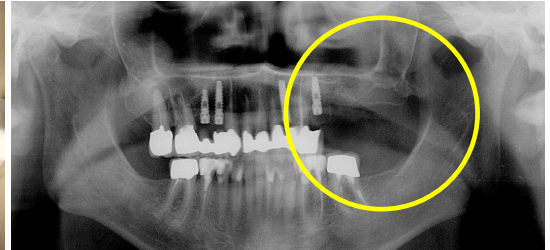
Clinical case of a maxillary sinus floor elevation



Rx pre-operative



Filling with Fisiograft nanoH.A.reinforced



Rx Control at 4 months

(Photos courtesy of Dr. Andrea Samori)

Application of the material facilitated by the ready-to-use syringe of **FISIOGRAFT nanoH.A.reinforced** (generally 2-3 syringes of product are needed), permits accelerating the surgical phases.

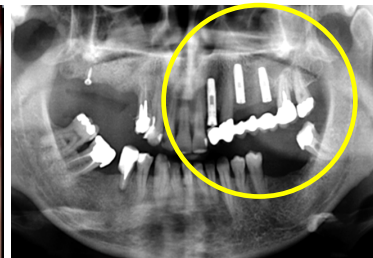
OPM at 4 months shows the successful bone neogenesis of the floor of the sinus.



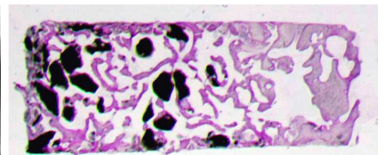
Rx pre-operative



Filling with Fisiograft nanoH.A.reinforced



Rx Control at 4 months



Histology at 4 months of a core taken at the implant site

(Photos courtesy of prof. Antonio Scarano)

Confirming the evident radiological result, histomorphometric analysis shows the presence of **neofomed bone (42%)**, nanohydroxyapatite (21%) and medullary spaces (37%).

This result obtained with FISIOGRAFT nanoH.A.reinforced only 4 months after the surgery is similar to that obtained after 6-8 months with autologous bone or with other space maintainers, as described in the literature^{2,3}.



Rx Root fracture at 2.5 with a large circular defect



Rx Control at 3 months



Rx Control at 6 months



Rx control at 9 months: complete

(Photos courtesy of dr. Vittorio Farina)

The evolution of the radiological picture shows the formation of a progressively increasing radio-opacity at the defect site treated with **FISIOGRAFT nanoH.A.reinforced** as early as 3 months, with **complete bone regeneration after 9 months**.

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BIBLIOGRAPHIC REFERENCES

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3. Piattelli A: Biomateriali utilizzati in rigenerazione ossea. Implantologia-Orale. 2003; 4: 77-80



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and I can lift the world

Archimedes from Siracusa (287 – 212 a.C)



Via Campana, 85 - 00183 Roma (Italia) - ITALIA
Tel. +39 06 478353 - Fax +39 06 478358 - e-mail: ghimas@ghimas.it