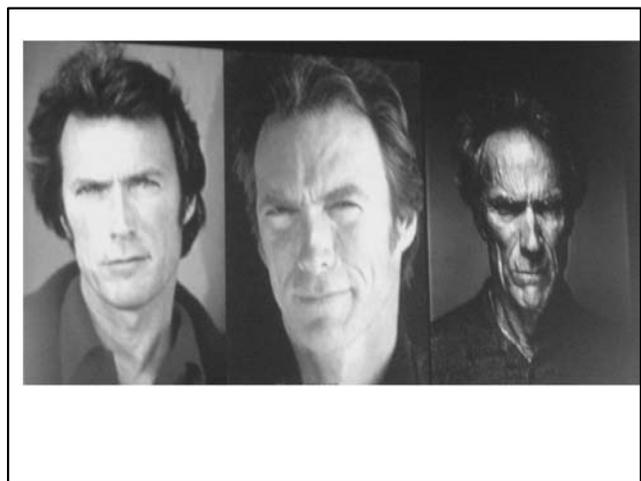
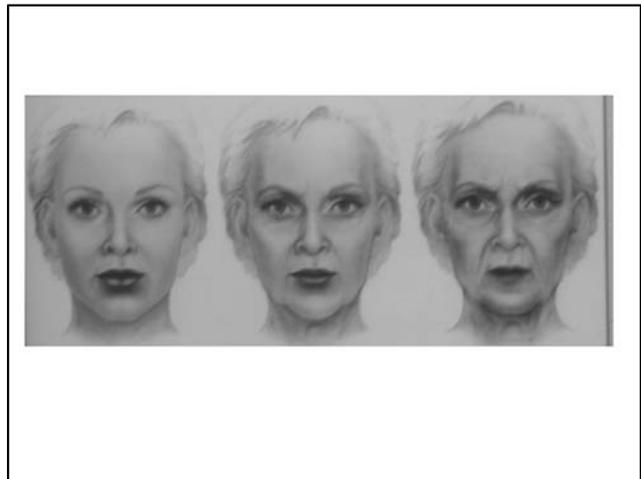


[연수강좌]

Transdermal augmentation

안 지 현

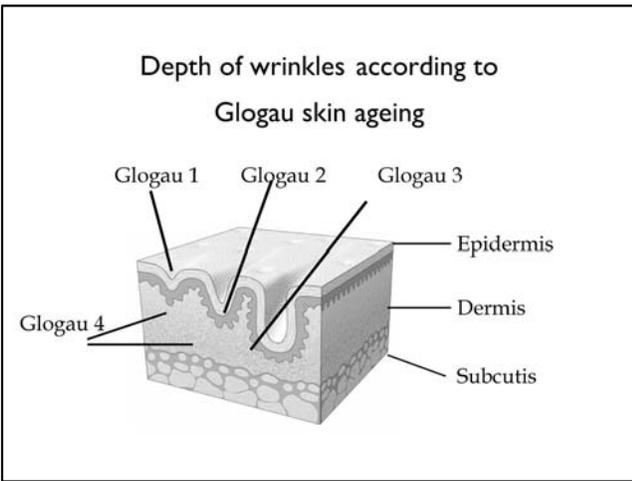
AnG클리닉



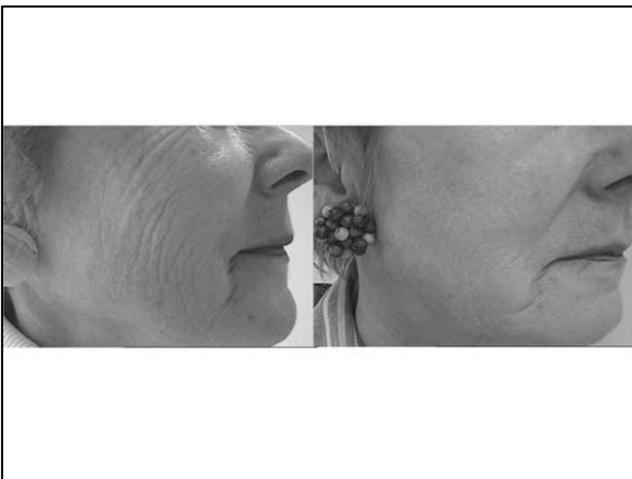


Ageing of skin texture

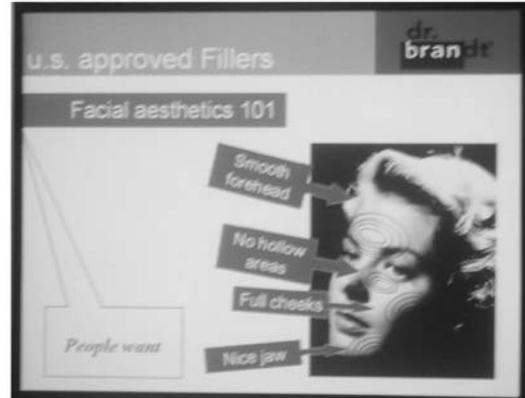
Symptoms
Flattening of the epidermis
reduction of collagen and Glucosaminoglycans and (!)

A diagram illustrating the changes in skin texture with age. It shows three cross-sections of skin. The first shows a thick, wavy epidermis with a dense network of collagen fibers in the dermis. The second shows a thinner, flatter epidermis and a less dense collagen network. The third shows a very thin, flat epidermis and a sparse collagen network. Arrows point to the changes in the epidermal thickness and the dermal structure.

2. Various Filler

A collection of images related to various fillers. It includes a syringe with a needle, a small vial, and a syringe labeled "fat". The text "Zyderm/Zyplast:" is visible at the bottom left.

An anatomical diagram of an elderly woman's face with labels for various signs of aging: Temporal atrophy, Lateral eyebrow ptosis, Lateral orbital bunching and "crow's feet", Malar and eyelid bags, Skeletonization of the zygoma, and Submalar hollow. To the right is a photograph of a younger woman's face, with a "Relative axis of nasolabial" line indicated. The number "24" is visible in the bottom right corner.



The Perfect Filling Substance

- It must be easy to obtain or fabricate
- It has to be biodegradable or retrievable
- It must be nonteratogenic and noncarcinogenic
- It must provide proven, predictable, and persistent correction through reproducible implantation techniques
- The techniques should be easy to learn, produce results predictably, and be persistent

The Perfect Filling Substance(Cont.)

- It should require infrequent visits to maintain correction
- It must be noninflammatory, nonmigratory, and multipurpose
- It should be cost effective and have minimal malpractice potential
- It must be authority approved

History of Filler

Soft Tissue Augmentation

- Paraffin
- Silicone
- Gore-Tex
- Collagen
- Polymers & Synthetic
- Hyaluronic Acid

Available Filling Agents

- Autologous filling agents
Lipotransfer
- Homologous filling agents
Dermalogen, Alloderm, Cymetra, Fascian
- Heterologous filling agents
Zyderm, Zyplast, Fibrel

Available Filling Agents(Cont.)

- Foreign Filling Agents
Matridex, Teosyal, Juviderm,
Restylane,
Polyacrylamide gel
Radiesse

Approved fillers

- 1. versatility
- 2. predicted result : injector confidence
- 3. durable : relative longer lasting
- 4. no species, or tissue

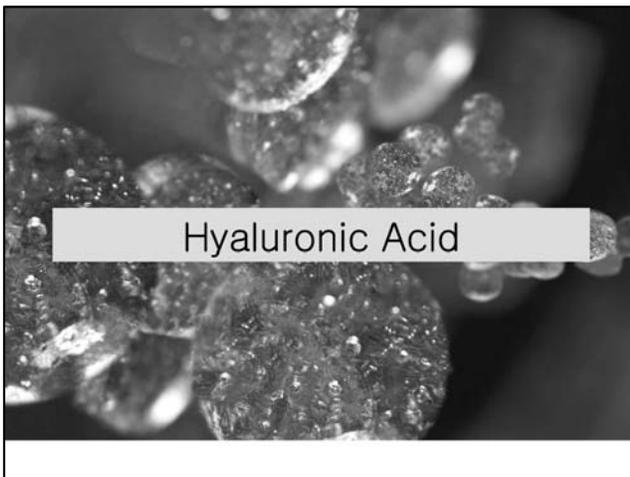
Limitations

- Technique dependent : start with little go slow
- Hurts more : assess need for anesthesia
- Safety for long-term results

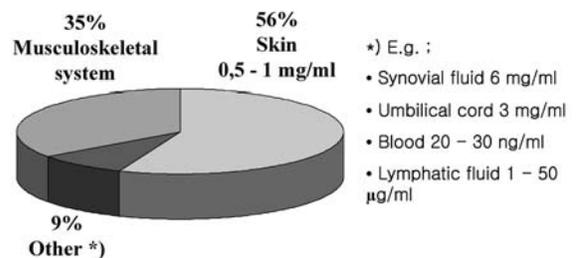
Fillers for Soft-Tissue Augmentation



Bovine collagen was the only FDA-approved product for soft-tissue augmentation for many years. More than 150 types of fillers are available worldwide. Currently approved fillers: hyaluronic acid gels, recombinant human collagen, injectable poly-L-lactic acid for HIV lipotrophy. FDA is continuing to screen materials and approvals for additional fillers are anticipated.



Hyaluronic Acid in the Body

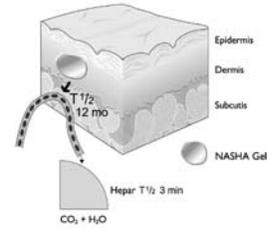


Character of HA

- High biocompatibility
- Hydrophilic – 1000 Times
- Non-selective species
- Linear polysaccharides
- D-glucuronic acid와 N-acetyl glucosamine의 반복되는 dimer(이중체)

Degradation

- Degradation – through the action of hyaluronidase & free radical
- Lymphatic drainage → blood circulation → Catabolism in sinusoidal liver
- Receptor mediated uptake & lysosomal hyaluronidase
- In blood, Half-life of HA is only a few min



In skin

- In skin half-life is < 24 hours
- In a normal human body about 3g of H·A is catabolized each day.

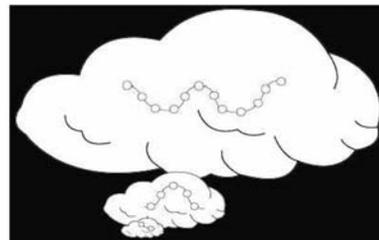
The stabilization is essential in order to improve the shelf life and the residence time.

Stabilization of HA

- Conversion of the viscous sol form to cross-linked hydrogel
- Resistance to degradation
- Retaining the biocompatibility & Pharmacological properties of native HA

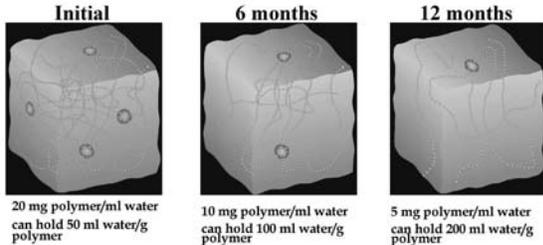
Water binding of Hyaluronic Acid

Dependence on molecular weight



Isovolemically degraded

– because they can hold more water the less concentrated they are –



Initial
20 mg polymer/ml water
can hold 50 ml water/g
polymer

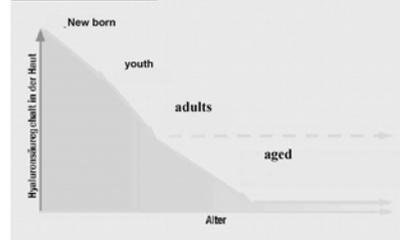
6 months
10 mg polymer/ml water
can hold 100 ml water/g
polymer

12 months
5 mg polymer/ml water
can hold 200 ml water/g
polymer

Decrease of hyaluronic acid



needs to be replaced

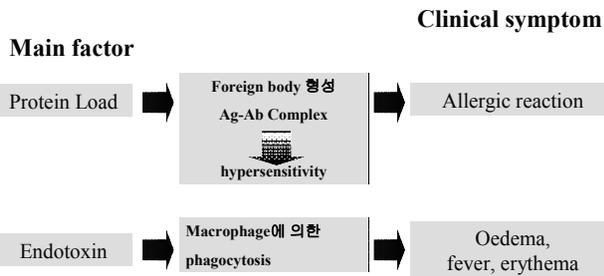


age	content of hyaluronic acid in the skin by age
19-47	0,0330%
60	0,015%
70	0,007%

Longas M; Evidence for structural changes in dermatan sulfate and hyaluronic acid with aging, Carbohydrate Research (1987) 159: 127-136

Klaus Fritz – Hautärzte und
Laserzentrum Landau

Protein load & E.U level



What is a Good Filler? Safety

- Endotoxin Unit level : 0,2 EU/g (cf: EP 12.5EU/25mg)
 - 60 times
 - 멸균공정에서 생성된 균체내독소
 - bacterial fermentation
 - 균주 : Stretococcus zooepidermicus



- Endotoxins이란?
 - pyrogen
 - fever
 - oedema
 - erythema, redness
 - ⇒ free radicals 생성

EXP)	ENDOTOXIN UNIT LEVEL
RESTYLANE	0.5 Eu/g
TEOSYAL	0.2 Eu/g

	RESTYLANE	JUVEDERM	TEOSYAL
MANUFACTURER	Q-MED	LEADERM	TEOXANE
NATION	SWEDEN	FRANCE	SWISS
DISTRIBUTOR	CONTACT KOREA	WOORI TRADING	ORIENT
PROTEIN LOAD	107ppm/mg 155ppm/mg 13-17ppm/mg	39ppm/mg	>9ppm/mg (2,7G,30G)
ENDOTOXIN UNIT LEVEL	0.5 EU/G		0.2 EU/G
CONCENTRATION	20 mg	18 ~ 24mg	25mg(27G,30G) 15mg(MESO)
DURATION	0.6 M – 1 YEAR	0.6 M – 1 YEAR	1 YEAR – 1.5 YEAR
GEL STRUCTURE	BIPHASIC ASPECT	MONOPHASIC ASPECT	MONOPHASIC ASPECT
DOSAGE	1 MI	1.2MI (0.6 x 2 Syr.)	2 MI (1 x 2 Syr.)
SPEC	RESTYLANE TOUCH	No.18	MESO
	RESTYLANE	No.24	30G
	PERLANE	No.30	27G

Matridex

- The hyaluronic acid derivative
- Partially cross-linked hyaluronic acid created via bacterial fermentation
- dextranomer
- It is biocompatible and biodegradable
- It is indicated for rhytides, depressions, and lip augmentation

Matridex의 Components

◆ Active components

Hyaluronic acid	25 mg
Cross-linked hyaluronic acid	25 mg
Hypromellose	15 mg
Dextranome DEAE	25 mg

◆ Excipients

L(+)-lactic acid	3.3 mg
Sodium chloride	6.9 mg
Phosphate buffer	
Water for injection	1 ml



What are HA & CL-HA?

◆ Hyaluronic acid

- 체내 구성물질로서 조직의 수분유지기능에 중요한 요소
- Hydration으로 인한 Augmentation 효과

◆ Cross-linked Hyaluronic acid

- HA가 쉽게 흡수되는 것을 보완 cross-link시킴.
- Insolubility in water, high hydration, viscoelasticity의 특징으로 지속력 증가

Ref) Journal of Biomedical Materials Research 1993;27:1129-34

Advantages of Hyaluronic Acid

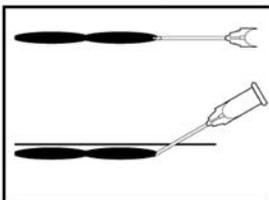
- Non-animal
- No skin test needed
- Biodegradable
- Instant result
- Long-lasting
- Hyaluronidase(Hylase)

Injection of Hyaluronic Acid

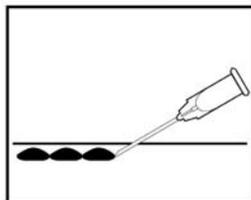
- Inject through 27 or 30 gauge needles
- Requires a full correction for the defect; but, not overcorrected
- After the injection, the material should be lightly massaged to conform to the contour of the surrounding tissue
- Additional implantation may be necessary to achieve the desired level of correction

Injection technique

Linear threading technique

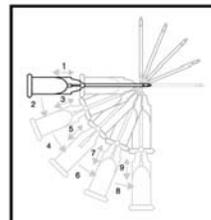


Serial puncture technique

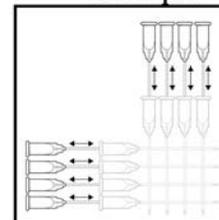


Injection technique

Fan technique



Cross-hatching technique



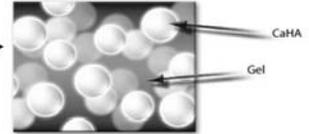
Calcium Hydroxylapatite for Soft-Tissue Augmentation



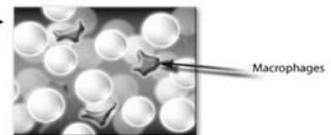
FDA-approved for vocal cords, as a tissue marker, and for periodontal use as a bony only
 Approved for other usages in soft tissue, so found safe for soft-tissue use
 Nasolabial fold and HIV Facial Lipatrophy studies are finishing 12-month follow-up after patient injections completed.

Mechanism of Action

● *Radiesse (CaHA+Gel) initially performs as a filler*

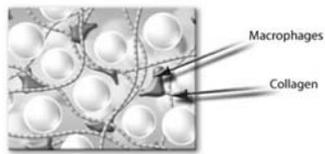


● *Macrophages start to degrade gel carrier (2-3 Months)*

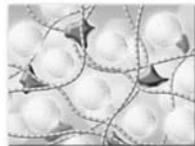


Mechanism of Action

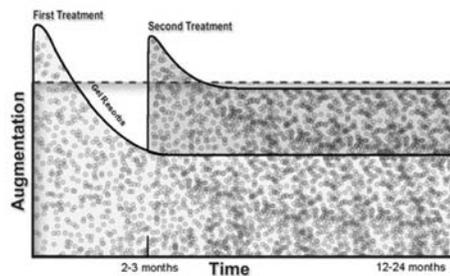
Macrophages dissolve gel carrier as new collagen forms "scaffold" around particles. Collagen surrounds microspheres of CaHA and provides for a long term augmentation (1-2 year augmentation)



CaHA particles start to degrade and are metabolized by macrophages (2-3 years)

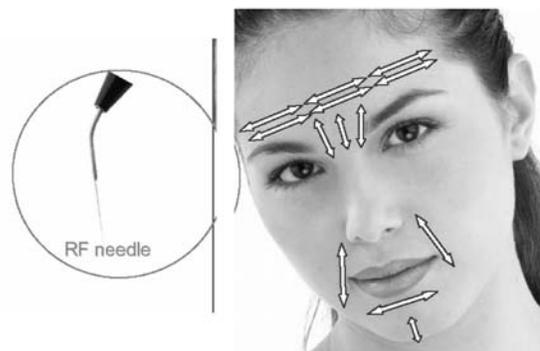


최적의 Follow-up time?

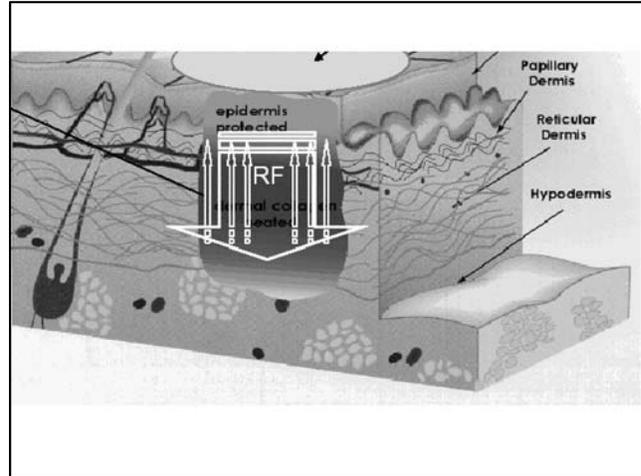
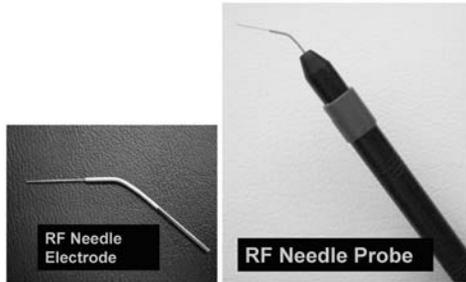


Radiesse advantage

- Long lasting results (up to 24 months)
- Immediate visible improvement
- Increased patient satisfaction
- No skin pre-testing required
- Natural product formulation — No animal or derived human components
- Superior versatility – can shape and contour face



RF NEEDLE PROBE

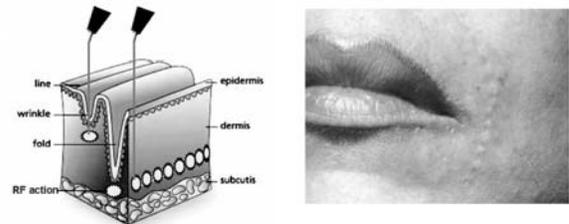


Fibrologie

- Specific and precise RF energy delivered into target tissue.
- 1. inflammatory reaction & collagen retraction, edema
- 2. fibroblasts stimulation
- 3. new collagen & elastin network organisation

FIBROLOGIE™ SUBRADIO TREATMENT

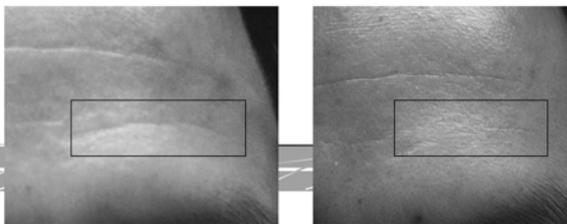
- Sub Sub-Radio Probe Radio Probe™



1. 이마주름

Before

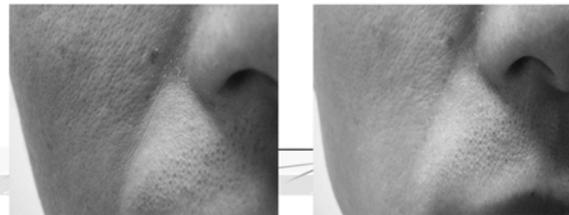
After



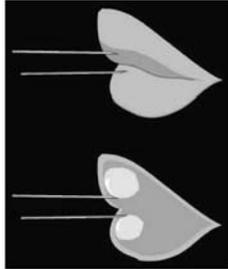
2. 팔자주름

Before

After



Lip augmentation
- fullness of the lip -



Before

After



Before

After



Before

After



Before

After



Before

After



[Transdermal augmentation]

