

The Dentalfacelift and Oralift facial rejuvenation

Dr Nick Mohindra examines the occlusal vertical dimension and how it can help with anti-ageing



Figure 1: Patient has achieved golden proportion after increase of OVD



Figure 2: Before increase in OVD there is a loss of lower facial height

Most of us are aware of the ever increasing interest in looking younger and in anti ageing treatments and products. With the marked increase in life expectancy, the quest to look youthful is likely to continue as will the exploration of new methods to combat the ageing process. Traditionally cosmetic surgeons have provided these treatments, but now some people are looking for a non-surgical effective alternative. Some of them are looking to their dentists to provide them with treatments such as Botox™ and fillers, tooth whitening, 'Smilelifts', 'Dentalfacelifts' and Oralift. The author is going to concentrate on the Dentalfacelift and the Oralift facial rejuvenation.

Both these procedures involve increasing occlusal vertical dimension (ovd). The Dentalfacelift involves increasing ovd permanently, whereas the Oralift procedure increases the vertical on a temporary basis.

Vertical dimension can be increased in edentulous patients by much greater amounts than had previously been believed (Mohindra, 1996). In 2002, a paper was published entitled 'The effects of increasing vertical dimension on facial aesthetics' (Mohindra and Bulman, 2002). This has provided the foundation for work that has been done subsequently. This must be regarded as anecdotal evidence until the data that has been gathered in the form of observation, case histories and photographs can form the basis of another scientific paper.

Increasing ovd in edentulous patients involves making new dentures at the increased vertical. This can be achieved in a few weeks. In the case of dentate patients, it usually involves full mouth reconstruction. In some cases this could be carried out by crowning all the teeth, which is clearly invasive. It is sometimes possible to do this with onlays and ve-

neers which need minimal or no preparation of the teeth. There are a number of reasons for increasing ovd:

- 1) to eliminate the need for occlusal reduction where clinical height has been lost due to wear
- 2) to create more inter occlusal space to accommodate restorative materials
- 3) for the relief of TMD symptoms, although the case for this has not been proven
- 4) for the purpose of restoring or improving facial aesthetics
- 5) for the anti ageing effects. I will look at the last two in some detail.

Improving facial form

The human face is supposed to have an ideal form and the rules are governed by the golden proportions ratio (Levin, 1978), which is 1.618 to 1. If you look at the design of a leaf or the rhythm of the heartbeat this ratio occurs. The ideal face shape would be oval with the ratio between the corners of the mouth to the chin and the corners of the mouth to the eyes being in that ratio. The ratio between the nose to the chin and the nose to the eyes would be the same. However, something I have learned is that rules do not have to be strictly adhered to and that personal judgment must also be used. I believe the golden proportions ratio is inherently built in us so that when we judge something to be attractive, more often than not, the classic ratio occurs.

Increasing the vertical dimension will often help improving the facial aesthetics of a person with a square-shaped face. This may also help improve the facial form of a skeletal class 2 patient. In such a case, after treatment, the chin seems to come down and forward to give the appearance of skeletal class 1 in profile. This seems to achieve golden proportion



Dr Nick Mohindra qualified as a dentist from Edinburgh in 1969. After gaining general dental experience at a number of practices in London he relocated to South

Wales in 1973 to undertake a practice principal position. He has lectured to post-graduate groups at Liverpool University and to BDA groups in the South East. In the 1990s Dr Mohindra developed an interest in TMD (temporomandibular disorder) syndrome, which led him to working with and researching difficulties faced by edentulous patients, which in turn led to an interest in facial aesthetics. In 1999, Dr Mohindra decided to leave general practice to concentrate his work in this field and to set up Added Dimension Dentistry in London, where he continues his work.

Facial aesthetics



Figure 3: Patient before increase of OVD



Figure 4: Patient looks so much better. Patient admitted that she used to be a model when she was younger. She is delighted to have regained her youthful look



Figure 5: Reduction of wrinkles around the eyes after 10 days of using Oralift (intermittent increase of OVD)



Figure 7: Improvement in redness of the skin and thread veins after using Oralift

in a skeletal class 2 patient, which up to now has not been thought possible. Similarly, for a patient with a skeletal class 3 relationship, the form can be improved by allowing the mandible to come down and backwards. Increasing the vertical can also help to improve facial asymmetries. When we increase lower facial height, patients can look between five and 20 years younger, and all features of the face improved, one must be cautious as all asymmetries or skeletal discrepancies may not be improved in all cases. Maxillo facial surgery maybe needed in some cases. However, the author believes that in some cases, maxillo facial surgery and fixed orthodontics can be avoided by this method.

When the lower facial height is compromised, the smile window (which is the distance between the upper lip and the lower lip when the patient is smiling) is very narrow. Tooth display is minimal. Increasing the vertical dimension will widen the smile window and when designing the smile following the principles of smile design, the result will be a much wider smile window, increased tooth display and a more attractive smile. If the ver-

tical has been increased too much, the tooth display will become excessive and in such a case, one should reassess the vertical dimension.

The anti ageing effect

No one can prevent normal chronological ageing, but pathological aging can be slowed down. The loss of muscle tone, circulation, immune capacity, skin elasticity and flexibility occur much more quickly in some people than in others (Anton et al, 2005). This is due to gene expression. Genes do not change but their expression does.

[Genotype]+ [diet, lifestyle, environment]= [Phenotype]

In other words, at the age of 90 one should ideally be able to lead an active fulfilling life. This could involve having a good diet full of anti oxidants, doing moderate exercise, avoiding excesses of any kind such as alcohol, tobacco and sun. As we know, some people seem to achieve this. The author has treated patients in their eighties who regularly go hill walking and enjoy life to the full. At the same time, there are patients in their eighties who

are crippled or are suffering from Alzheimers. We are not the prisoners of our genetic destiny, as there is a level of plasticity in our gene expression. The author believes that changing the ovd permanently or temporarily changes gene expression and may provide part of the answer for the anti ageing effect. Hopefully, clinical trials will show this hypothesis to be true. The exciting thing about scientific research is that when a new avenue is opened, it does not always give us answers but leads to more questions.

To understand if increasing the ovd is anti-ageing, we have to look at what ageing does to the face i.e. understand why and when wrinkles appear (Nassif and Kokosca, 1999), why and when jowls appear. We must also understand the theories of ageing (Johnson et al, 1999) and study the effect of the treatment on these features and finally, we must look at the long term effects of the treatment. Finally, we must have scientific evidence to back the claim. There are many theories of ageing and these include:

- 1) the free radical theory
- 2) geno instability



Figure 8: Lips are fuller after two months Oralift treatment



Figure 9: After the Dentalfacelift, an irregular smile window has been changed to a classical smile window, and there is increased tooth display.



Figure 10: Dramatic improvement in skin above and below the eyelid – Dentalfacelift

- 3) genetic programmed extension mechanisms
- 4) cell death (apoptosis) and
- 5) systemic ageing.

The free radical theory of ageing was initially proposed by Harman (1956). This provides the most plausible and currently acceptable global mechanism to explain the ageing process: 'The basic principle is that ageing and its related disease processes are the net result of free radical induced damage and the inability to counterbalance these changes by anti oxidative defences. The generation of reactive oxygen and nitrogen species (ROS and RNS) activates redox sensitive transcription factors leading to the generation of pro-inflammatory molecules and a state of chronic inflammation. Conversely, chronic inflammation itself results in the generation of ROS and RNS, thus activating a feedback loop that amplifies the process of damage and deterioration in target cells and organs. This oxidative stress and subsequent chronic inflammation have been implicated as mediators of almost all the ageing associated maladies.' (Sarkar and Fisher, 2006).

I believe the long-term studies that I have of increasing the ovd permanently or temporarily indicate that the early stages of chronic

inflammation may be being reversed. This is obviously my hypothesis based on the continuing work I am doing increasing the vertical dimension of occlusion. I hope that this can be translated into a scientific study and that clinical trials will show this to be the case.

Some of the changes that I have observed on the facial features which have led me to this hypothesis are as follows:

- 1) Improvement in 'the ageing triangle'. Cosmetic surgeons refer to this triangle in youth as having the base at the cheeks and the apex pointing towards the chin. As we age, the southwards migration of the soft tissues and the clockwise rotation of the bony midface leads to the formation of jowls and the base of the triangle is now at the jowls and the tip points towards the chin. This appears to be reversed by increasing the ovd permanently and temporarily by the use of the pivot appliance.
- 2) Improvement in head posture: as we age our posture deteriorates due perhaps to the loss of muscle mass. This seems to be improved by the treatment.
- 3) Improvement in skin and hair quality.
- 4) Long term case histories seem to show that even after nine years the patients look younger than when they first came for treatment.

Why would this treatment have an anti ageing effect? I believe that stretch induced by increasing the ovd temporarily or permanently alters the resting position of the mandible, which causes an increase in protein activity in the muscles and a release of mechano growth factor (mgf) (Goldspink, 1998). This growth factor seems to cause muscle hypertrophy and also seems to trigger the local repair mechanism of the body. There may be a change in muscle to fat ratio which leads to a change in how fat is stored in the face (Donofrio, 2000). There may be a change in composition of muscle fibres (Newton et al, 1993), which leads to a long term reduction in free radicals. Fibroblasts when stretched may produce new collagen which causes thickening of the skin and increased elasticity. Improved head posture may lead to increased circulation to the head and neck.

Again, I must stress that these hypotheses are based on case histories and must be confirmed by scientific evidence and clinical trials.

References

Mohindra NK (1996). A preliminary report on the determination of the vertical dimension of occlusion using the principle of the

Facial aesthetics



Figure 10: As soon as the vertical dimension has been increased, there appears to be an improvement in neck alignment and head posture



Figure 13: Skeletal Class 2 discrepancy improved without the need for surgery- Dentalfacelift



Figure 11: Dramatic improvement in firming of the jawline and skin after the Dentalfacelift



Figure 14: Skeletal CL 3 discrepancy improved without the need for surgery- Dentalfacelift



Figure 15: Effect of Dentalfacelift on facial asymmetry



Figure 12: After using Oralift for seven years patient looks younger than when she first started treatment



Figure 16 (above): Effect on hair: grey hairs appear to have diminished after Dentalfacelift



Figure 17: Long term results of Dentalfacelift - above - before treatment, three years after, five years after, six years after, seven years after and left, eight years after

mandibular position in swallowing. *Br Dent J* 180: 344-348
 Mohindra NK, Bulman JS (2002). The effect of increasing vertical dimension of occlusion on facial aesthetics. *Br Dent J* 192: 164-168
 Levin E (1978). Dental esthetics and the Golden Proportion. *J Prosthet Dent* 40:244-252
 Anton B, Vitteta L, Cotizo F, Sali A (2005). Can we delay Aging? The Biology and Science of Aging. *Ann N Y Acad Sci*. 1057:525-35

Nassif P S, Kokosca MS (1999). Aesthetic Facial Analysis. *Facial Plast Surg Clin North Am* 7:1-15
 Johnson FB, Sinclair DA, Guarante L. (1999). Molecular Biology of Ageing. *Cell* 96: 291-302
 Sarkar D, Fisher PB (2006) Molecular mechanisms of aging-associated inflammation. *Cancer Lett* 236:13-23
 Goldspink G (1998). Cellular and molecular aspects of muscle growth, adaption and ageing. *Gerodontology* 15: 35-43

Donofrio LM(2000). Fat Distribution: a Morphologic Study of the Ageing Face. *Dermatol Surg* 26:1107-1112
 Newton JP, Yemm R, Abel RW, Menhinick S (1993). Changes in human jaw muscles with age and dental state. *Gerodontology* 10: 16-22
 Harman D. Aging: a theory based on free radical and radiation chemistry. *J Gerontol*. 1956 Jul;11(3):298-300