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A well known modified lower face profile analysis for all ethnic types and its contribution to cephalometric skeletal classes

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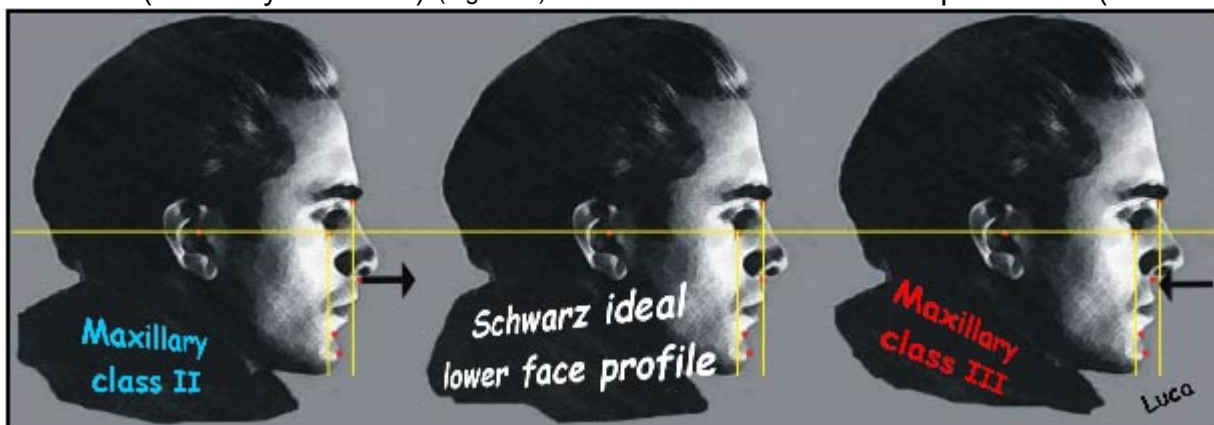
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Abstract:

A very common skeletal/soft-tissue lower face profile evaluation in Germany is the so-called Kieferprofilfeld (KPF). It probably dates back to A.M. Schwarz. This analysis consists of a simple visual appraisal to estimate the comparison between the single patient's profile and the ideal straight profile. The aims of this publication are to discuss this method and identify its ethnic and conceptual limits. With my modified version of it (KPFm), very simple solutions are presented.

Introduction: Observing the facial profile has clinical importance, as many facial and skeletal abnormalities can be recognized without any cephalometric evaluation. Analogous to skeletal classes, the soft tissue sagittal relationship can also be ascribed to certain sagittal factors. The maxilla can be either protrusive (maxillary Class II) or retrusive (maxillary Class III) (Fig. 001). There can be mandibular protrusion (mandibular



Class III) or retrusion (mandibular Class II). Finally, we can observe the combination of both phenomena. For simplicity, we will not consider the following three conditions in this publication: 1) The soft tissue Class I with mandibular sagittal compensation of vertical maxillary excess and/or deficiency. 2) Class II caused by vertical maxillary excess and consequent posterior rotation of the mandible. 3) Class III because of a vertical maxillary

deficiency with anterior rotation of the mandible. This publication is based on the very practical intuition of A.M. Schwarz, whose classification is not precisely referenced (1,2,3). The Schwarz Kieferprofilfeld (KPF) has been handed down to many orthodontists in German orthodontic Schools. By discussing it, I will show you some conceptual limits. In order to properly analyze facial balance in a patient, we need a very simple and practical guide. When a patient walks into your office, carefully look at his face while smiling. Before doing an intraoral examination, you must accurately assess the aesthetic condition of potential basal problems. Skeletal classification should be first evaluated on the soft tissues. Only after doing this do you get the "know how" for an accurate cephalometric interpretation of hard tissue relationships. A lack of such

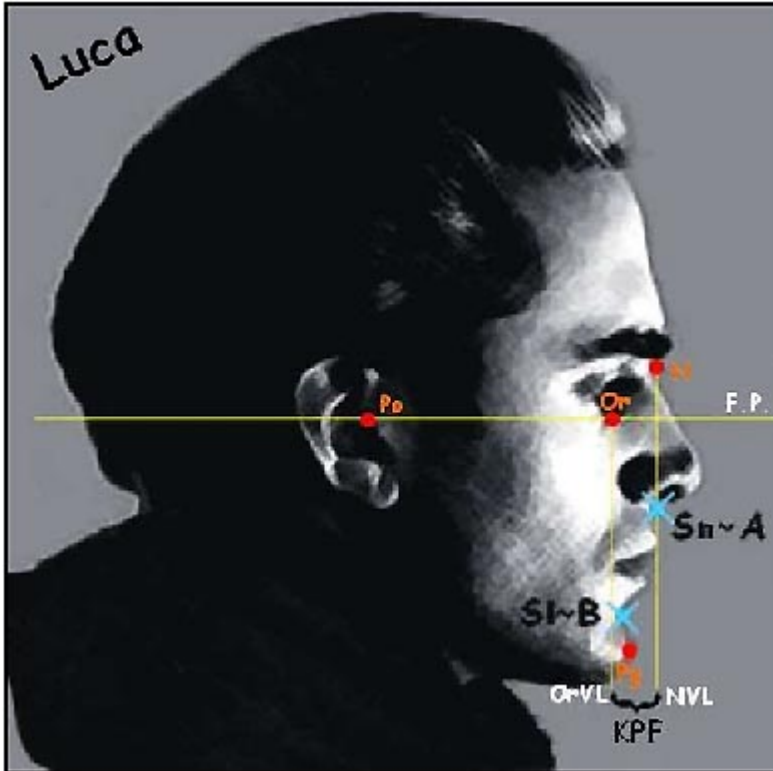


approach could affect important decisions about diagnosis, treatment planning, and prognosis. It is obvious that, in some cases, the variable thickness of the soft tissues generates discordance between cephalometric data and facial analysis. As long as they do not affect the functionality of the oral system, aesthetic criteria should always lead therapeutic decisions. Aesthetics is quite dynamic since it results from many aspects such as personal taste, mass media and regional aesthetic cultures. In the present historical period, we can recognize that in fashion, for each ethnic look, there is not just our clinical "ideal" of beauty, but also many other "ideal types". Schwarz has described only one "ideal" facial type. Such an attitude is a very common failure of all modern aesthetical standardizations, for which no valid geometrical and typological selection criteria has been determined. If most analyses tend to describe a facial model similar to that of Schwarz (Northern European standards), some other "ideal variants" with both jaws protruded/retruded can be described. The important factor here is that the lower facial profile usually has to be in a Class I relationship (straight lower facial third profile).

Materials: Images of famous top-models have been traced, then digitalized and finally warped. The KPF method (Jaws profile field technique) and its limits are here illustrated and solutions are proposed. The attractive top-models selected for this purpose are just a sample of the Homo sapiens ethnical variability.

Results: In many common patients' faces, the A.M. Schwarz Kieferprofilfeld (KPF) cannot work properly. Furthermore, at least visually, it is inadequate for many ethnic looks. My "modified" version of it (KPFm) is intended to improve his very authoritative and worthy methodology. For the numerous facial human typologies, the KPFm firstly proposes an always-appropriate visual analysis (see Transposition of the jaws profile field KPF and new ideal lower face profiles). Secondly, the modified KPF provides cephalometric skeletal data just by evaluating directly the soft-tissues' Class relationships. In fact, the Sn and SI are approximately the projection on soft-tissues of A

and B cephalometric points (see Sagittal jaws position by using the new reference soft tissue point SI). Skeletal movements as in orthognathic cases can be planned by referring to their aesthetical meaning. That is to say, that a skeletal Class II or III must not be corrected in the conventional Class I, if such a modification affects facial aesthetics. In all cases, soft-tissue classes can be properly evaluated only if the profile reference points are reliable. The chin reference point Pogonion used by Schwarz, for example, is not reliable, since it shows considerable individual and ethnic variability. A point which is more reliable than Pogonion is the Sublabiale point SI, i.e. the projection of hard-tissue B point on the soft tissues. In Figure 001, the points Sn and SI have been marked as



reference points of my KPFm. A few anthropometrical soft-tissue reference points/planes/lines are required:

N: Nasion. It is the uppermost nasal point, at the level of its root. It is the projection of the hard-tissues Nasion. It is marked in red.

Or: Orbitale. It lies slightly below the lower eye-lid's inferior area. It is marked in red.

Pg: Pogonion. It is the frontmost chin point. It is marked in red.

Po: Porion point, i.e. the uppermost external acoustic meatus. It is red.

SI: Sublabiale. It is the transition point between the lower lip and the chin. It is the projection of the hard tissue B point.

It is marked in blue.

Sn: Subnasale. It is the transition point between the nose and the upper lip. It is the projection of hard tissue A point. It is marked in blue.

F.P.: Frankfort horizontal plane.

OrVL: Orbitale vertical line.

NVL: Nasion vertical line.

KPF: Schwarz Kieferprofilfeld. KPFm: modified Kieferprofilfeld.

Fig. 003 KPF's representation in a biometrical lower face profile (orthotype profile). Here, KPF and KPFm coincide.

Discussion: Schwarz realized that, in many faces, there is an anterior-posterior harmony between the lower facial third and the area between the Orbitale point and the Nasion. If we consider the Frankfort horizontal plane as a reference line (F.P., Fig. 003), we can draw two vertical lines through Or and N. (Orbitale-vertical line OrVL and Nasion-vertical NVL). The sagittal distance OrVL-NVL between these two vertical lines is the KPF, i.e. Kieferprofilfeld (Sagittal jaws profile field). The jaws field's width varies, therefore, depending on the sagittal entity of the middle-upper part of the face. According

to Schwarz, an ideal profile exists if the point Sn lies on the NVL (first condition, specific for nord-européide ethnical looks) and if this field approximately contains both Sn and Pg, so that we see a straight profile. i.e. a Class I sagittal profile (second condition, valid in all ethnical looks). 1) We have the first condition when the lower face profile type, depending on the maxilla collocation, is biometrical or ideal (orthotype). 2) We have the second condition when, depending on the chin position, the lower face profile is straight (Class I lower face). Let's now discuss these two conditions by the following classification according to Schwarz.

1) LOWER FACE PROFILE TYPE (Where lies Subnasale?)

(Protruded, biometrical or retruded lower face)

We have orthotype lower profile (Class I) if Sn lies at the Nasion vertical line, or in the area forwards or backwards of $\frac{1}{4}$ of KPF. We have a protruded lower facial third variant (maxillary Class II) if Sn lies ahead of NVL more than $\frac{1}{4}$ of KPF. We have a retruded lower face variant (maxillary Class III), if Sn falls behind NVL more than $\frac{1}{4}$ of KPF. Beware of this kind of generalization! From Figure 006, in fact, you can see that a retruded lower face profile is possible also for deviations of less than $\frac{1}{4}$ of KPF, if the KPF is by itself very wide (nasal root sagittal very high or Greek nose). Pay the same attention in the matter of protrusion as well. On the other hand, we have the reverse conditions when a face has a low nasal root (African and Slav noses).



Fig. 004a BIOMETRICAL ORTHOTYPE and monoprotuded variants,
Lower face: inclined backwards - straight - inclined forward



Fig. 004b BIOMETRICAL ORTHOTYPE and monoretruded variants,
lower face: inclined backwards - straight - inclined forward

2) LOWER FACE PROFILE INCLINATION, DUE TO THE POSITION OF THE CHIN (Where does Pogonion lie?)

(lower face inclined backwards - straight - inclined forwards)

According to the classification by Schwarz, we can theoretically have approximately 12 "one-jaw sagittal position" variants, that is to say, four for each of the three possible lower facial profile types. Clinically, all combinations are possible. In most cases, we have very good harmony in the profile, if the condition of straight profile (Class I) is respected. In the ideal case of Sn lying at NVL, we have straight lower face profile (Class I) if Pogonion lies in the area between the NVL and $\frac{1}{2}$ of KPF (the jaws profile field width). We have lower face inclined forwards, if the lower part of the lower jaw (Pg) lies in front of the nasion vertical or directly at it (mandibular Class III). We have the inclined backwards lower face, if the lower part Pogonion lies behind the Kieferprofilfeld of more than $\frac{1}{2}$ of its width, i.e. at about the orbitale vertical line and even behind it (mandibular Class II).

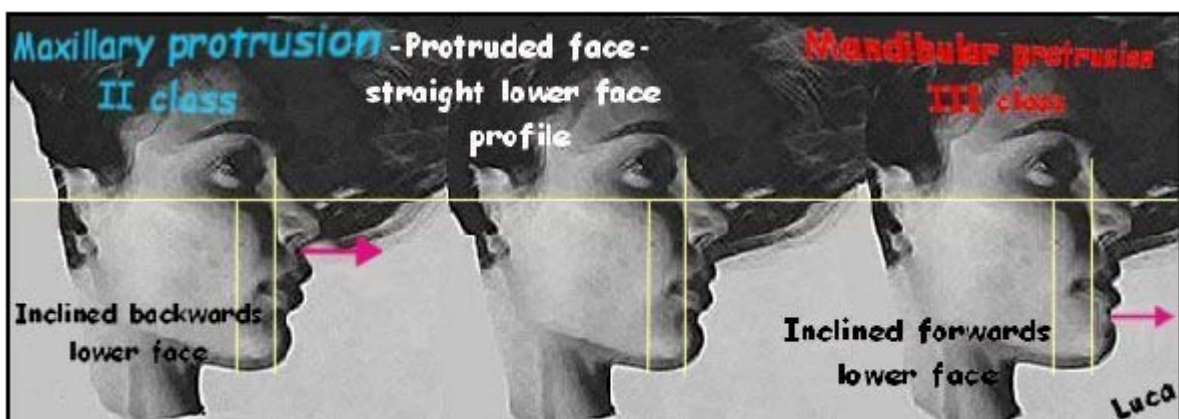


Fig. 005a BIPROTRUDED TYPE and monoprotuded variants,
Lower face: inclined backwards - straight - inclined forward

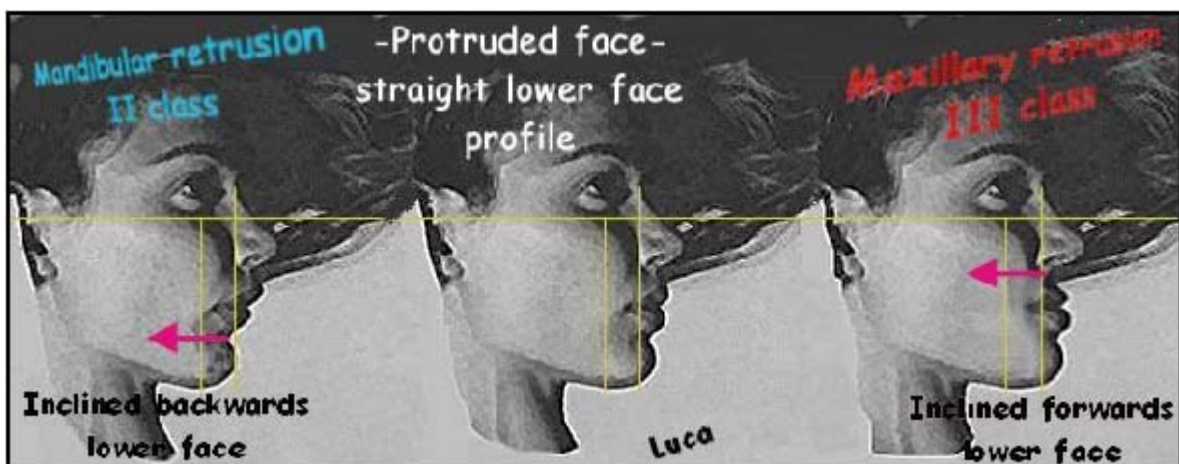


Fig. 005b BIPROTRUDED TYPE and monoretruded variants,
Lower face: inclined backwards - straight - inclined forward

The described biometrical straight profile is simply a universal beauty ideal and as such it can be criticized a lot. However, such a model in the sagittal/anterior-posterior plane represents an important reference for the skeletal movements of our therapies. As you can see in Figures 001, the ideal face can be considered also an average between two very common skeletal deformities (lower face Class II and III). The Schwarz ideal biometrical face, actually, is not the only possible standard, because there are, for many

patients of all ethnic backgrounds, even more proper different ideals to be considered, i.e. the bimaxillary protruded ideal (Figures 005) and a bimaxillary retruded ideal (Figures 006).

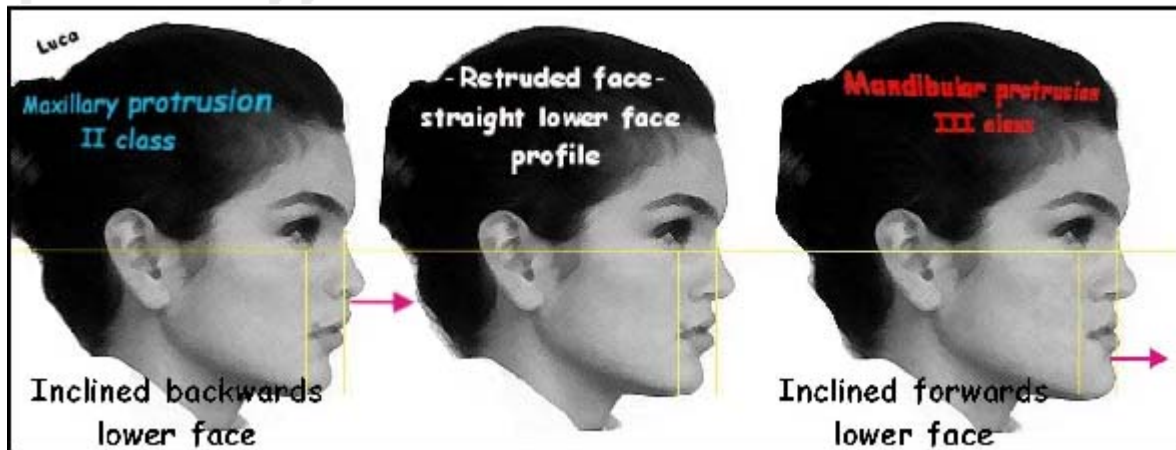


Fig. 006a BIRETRUDED TYPE and monoprotuded variants,
Lower face: inclined backwards - straight - inclined forward

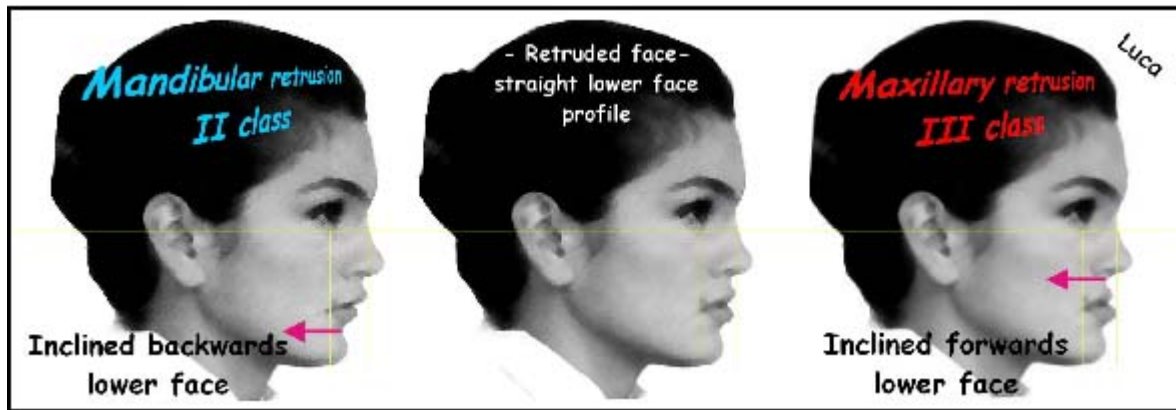


Fig. 006b BIRETRUDED TYPE and monoretruded variants,
Lower face: inclined backwards - straight - inclined forward

The three top-models above-described are just a few of the many hundred ideal models that I have collected from the Internet and later analysed. They all provide the most topical and reliable reference for my aesthetical standards but also the key to simplification of the 12 above-mentioned one-jaw variants. That is the reason why such combinations, visually, are difficult to be evaluated only with the classical KPF. With the KPF-modified, instead, we will have both a better vision of the sagittal jaws relationships and also a simplified identification of the possible skeletal dysgnathia. In fact, by using the KPFm, all problems can be described by referring to the sagittal dominance/deficiency of just one jaw (the mandible). Such simplification is possible in each one of the tree possible lower face profile type (both in biometrical cases both in conditions of bimaxillary protrusion or retrusion). Classical evaluations, on the other hand, always refer to details in terms of one-jaw sagittal dominance/deficiency of both jaws (above described for didactical aims), so that we had four one-jaw variants for each one of the three possible lower face profiles: maxillary Class II and mandibular Class II, maxillary class III or mandibular class III. In other words, Schwarz suggested 12 possible soft tissue "orthopaedic" facial problems that must be corrected in the universal biometrical type. This is a mistake, since it represents specifically the north-europide

ethnic look. Surgical and orthodontic therapies today still refer to such universal beauty canons (see also my next publication about universal beauty canons). Actually, according to my philosophy and resulting from the analysis of the basic features for ethnical variability in modern fashion, the 12 dysgnathias should theoretically and always be modified in the reference ideal - like showed in figures 004 (biometrical type), 005 (biprotruded type) and 006 (biretruded type). By using my method, the four one-jaw variants of monoprotusion and monoretrusion in each type can be reduced to the number of two for each one of the three possible lower face profile types: the II and III mandibular classes ($2 \times 3 = 6$ one-jaw variants instead of 12!).

General Remarks:

Schwarz identified three types of lower facial profiles depending on the Sn: the protruded, the retruded and the orthotypes (the last is called ideal or biometrical and is the average between the other two typologies). According to Schwarz and many other researchers, the aesthetical ideal target of orthopedic therapies for European faces is satisfied when Sn is to be found at the NVL or very near to it (biometrical condition) and when the lower facial profile is straight, i.e. Class I by virtue of the position of Pogonion (profile inclination condition). Numerous authors with many solutions have investigated such relationships. Schwarz as well supplied a method for the identification of the beautiful ideal straight lower facial profile or soft-tissue I Class. The classical KPF works very properly in the face of biometrical type and with biometrical chin protrusion (see especially Fig. 003). I say in advance that there are however many "beautiful" superstars, whose faces do not show a soft tissue Class I. It is obvious that the KPFm too cannot be as precise as the human eye and aesthetically experienced in evaluating new forms of harmony. In particular, Schwarz, referring to his ideal, stated that when the subnasal portion of the lower face is positioned forward (jaw protrusion) or backward (jaw retrusion) of the vertical plane through the Nasion NVL, the face is possibly affected by a jaw sagittal dysgnathia, ie. Not a straight lower facial profile (Class II or III). However, if we have bimaxillary protrusion or bimaxillary retrusion, we can have another forwards or backwards soft tissue Class I, which is equally harmonic. In the Schwarz classification, these two alternatives can never be an ideal (in Schwarz's ideal face the KPF contains the jaws). Where orthodontists and surgeons have a great number of patients of Northern European descent, Schwarz's opinion and those similar to it belonging to many other important authors have promoted such common therapeutic misrepresentation. The other jaw relationships, which do not correspond to a straight profile, have to be corrected in the straight and biometrical solutions. Many operators frequently consider bimaxillary protrusion/retrusion as a type of non-ideal compromise. Such considerations belong to our western vision of beauty and can no longer be applied.

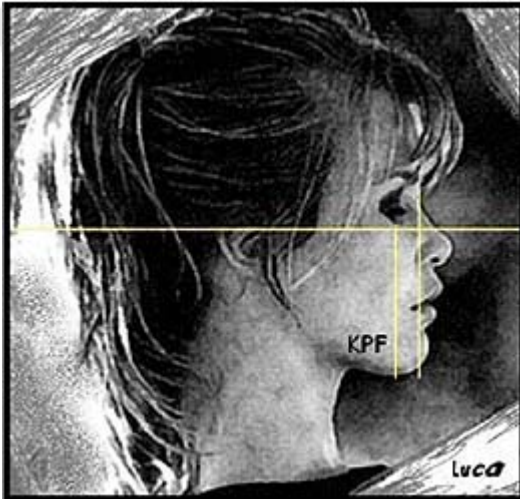


Fig. 007a: KPF East European Biprotuded or aesthetical protruded lower face type in females (Straight lower facial profile)

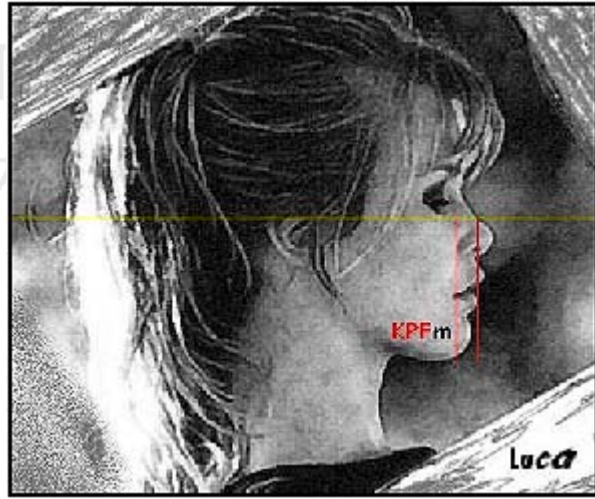


Fig. 007b: KPFm East European Biprotuded or aesthetical protruded lower face type in females (Straight lower facial profile)

If our judgment of Class I as an ideal doesn't change, it is extremely difficult to account for the broad range of aesthetics of the general population. Commonly, most top models exhibit faces that do not have a straight profile according to Schwarz, since they have a biprotuded or biretruded Class I. Sometimes they even have malocclusions associated with Class II and Class III patterns. In the past orthodontists have made the mistake of treating to an ideal flat profile. Today, as part of our aesthetic goals, we try to achieve an ideal straight profile. Such tendency to look for only one model for all patients can be discussed only through systematic Continuing professional education. Mass media plays a crucial role in influencing the modern aesthetic preferences and that must be the critical source for our observations. The main flaw in all normal modern standards for Euepeans (4,5,6,7) is the fact that only one standard is used for patients of all backgrounds. Only a few operators pay attention in enlarging/interpreting the standards for more different facial types (8,9). The human variability promoted by fashion in mass media expresses non-verbal messages. Such resources, unfortunately only visually, are the best books for each operator until now. As an example, a European face (and many other types of faces) is particularly beautiful and popular if the lower facial third tends to be bimaxilly protrusive. Such a condition is based on the lower facial third being ahead of the nasal vertical line (a simple monoprotusion would correspond to a disharmony associated with Class II or III). This is true in both sexes but especially in women (see Fig 008).

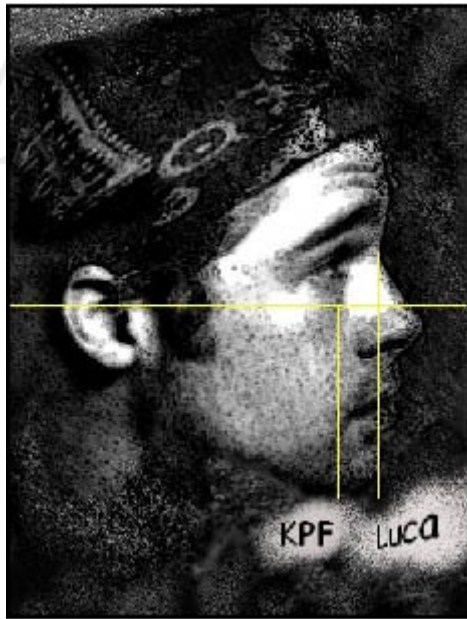


Fig. 008a: KPF East-European Biprotruded or aesthetical protruded lower face type in men (straight lower facial profile)



Fig. 008b: KPFm East-European Biprotruded or aesthetical protruded lower face type in men (straight lower facial profile)

The middle ideal value of Schwarz (with Sn along the Nasal vertical line) and the ideals achieved by many other anthropometrical researchers usually represent the aesthetical goal of our orthopedic therapies. Many operators have been accurately trained to satisfy such a target, i.e. to choose the functional therapy in the direction of the ideal biometrical straight facial profile. Books do not offer us other alternative standards. Consequent decisions, if not updated in the area of aesthetics, can probably affect the aesthetics of the psychologically "normal" individual. Most operators certainly feel less skilful or even unprepared when they realize that the best indicated aesthetical target is a bimaxillary protrusion or retrusion rather than the biometrical standard type. In addition, the classical Schwarz KPF does not help to visually identify harmony in such cases. But the individual variability and multiethnic modern society require such aesthetical considerations. This should be taken into account when the bones of our young patients still have enough growth potential to be treated with orthopedics or when we prepare adult patients for orthognathic surgery. It is also possible that Schwarz's analysis was mainly intended to clinically identify monoprotusion and monoretrusion cases in looking for a clinical diagnosis or classification of soft-tissue/skeletal discrepancies. Our patients often exhibit not only dental problems, but also monoprotusion or monoretrusion or the combination of the two as their main problem. If classical treatment directs us to correct their malocclusion within the range of "normal "ortho" values, the question is: "Is the treatment correct for that particular face?" Standard values lead us not to respect the different facial types of many patients, and the aesthetic goal is approximately the same for all patients (i.e. a biometrical face). In addition, when operators observe faces of top-models, they usually do not like their appearance as much as patients do. However, Patients' inclinations are more important than our professional tastes, especially when our therapies offer us the opportunity to reach both our goals and their goals. Consequently, in many cases, we must first identify the patient's facial type affected by a routinely skeletal deformity and, if our therapy can, try to correct this dysgnathia in the direction of his/her natural facial type and not of our academic standards. If necessary, we may have to create a bimaxillary protrusion or a bimaxillary retrusion: What's important is to keep,

almost in any case, the straight lower face profile (Class I), but purposely even some of those deviations from it (Class II and III), which are frequently "described" by fashion criteria. When possible, therefore, each treatment plan should be individualized with proper aesthetics to the facial biotype of the patient.

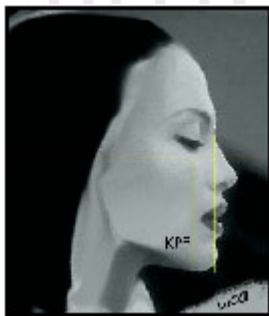


Fig. 009a:
Mediterranean KPF

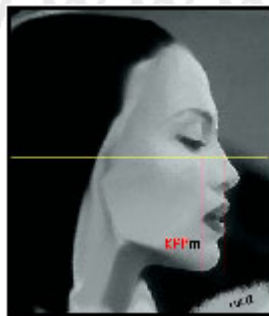


Fig. 009b:
Mediterranean KPFm

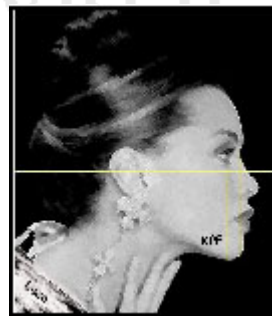


Fig. 010a:
KPF Mulatto European woman

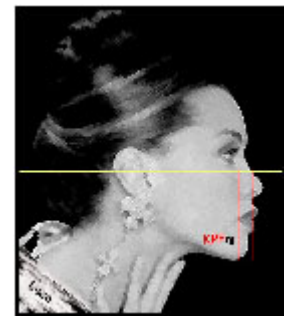


Fig. 010b:
KPFm Mulatto European woman

The following is the first limiting factor of the classical KPF according to Schwarz and its solution.

1) Transposition of the jaws profile field KPF and new ideal lower facial profiles

With regards to the PROFILE TYPE (the question was: " **Where does Sn lie?** "), we appraise the sagittal position of the maxilla with respect to the nasal root. The proportion between the field OrVL-NVL and the sagittal distance Sn-Pg is sometimes not reliable. It means, that any kind of KPF (classical or modified) is seldom, a faulty reference, so that a few faces cannot be evaluated correctly with such methods. The reason for this can be the variability in the different ethnic European looks (evaluated by Schwarz for his classification. However, in most cases, the transposed-modified KPF is useful in visually evaluating all deviations from the facial standards of Schwarz. Shifting the KPF to a new position, or more precisely relocating the field in function of the position of Sn in the single patient, we have a modified KPF that accommodates the variability in all faces. This transposition is very simple to execute and through a visually reliable field, we will analyze each patient. Moreover, we have the added benefit of the profile considerations that we need. Instructions about the KPFm construction are given below.

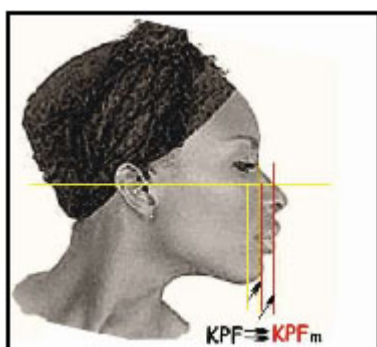


Fig. 011:
Sudanese profile KPF and KPFm
We transpose the field so that the NVL passes through the Sn (the first condition of ideal for lower

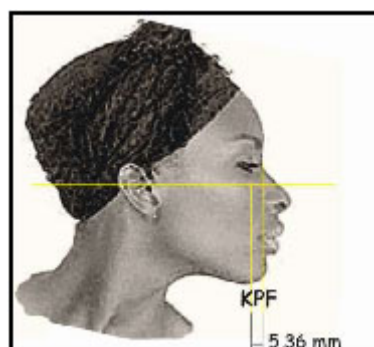


Fig. 012:
Sudanese: traditional profile KPF
The jaw profile field (KPF) is 5.36 mm wide.

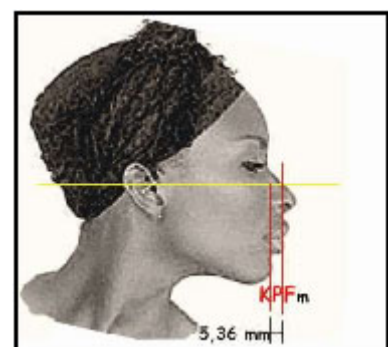


Fig. 013:
Sudanese profile KPF modified:
The new modified jaw profile field (KPFm) is still 5.36 mm wide and allows a much better visual

facial type of Schwarz) and that the area in it remains of the same width.

evaluation of the general lower face profile inclination. Another limit in the classic KPF is the chin as the lowest-anterior reference point for the profile. A solution will be given in the second section

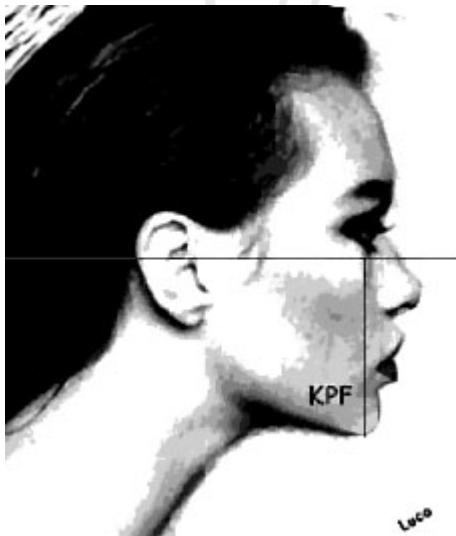


Fig. 014a:

KPF East-European

Here I intentionally made a KPFm wider than the classical KPF (sagittal distance OrVL-NVL).

We have to be careful in transposing the KPF field; the width of the KPF and KPFm must coincide, especially when they are so narrow as in this case. Here small mistakes will clearly affect the evaluation. She in fact shows a Class II sagittal relationship between the jaws, but an incorrect larger KPFm could lead to the evaluation of a soft tissue Class I.

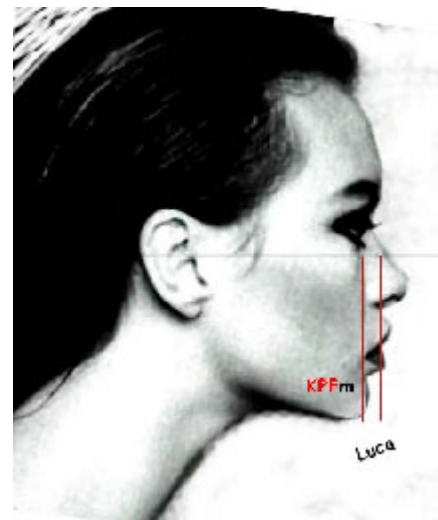


Fig. 014b:

KPFm incorrect East-European

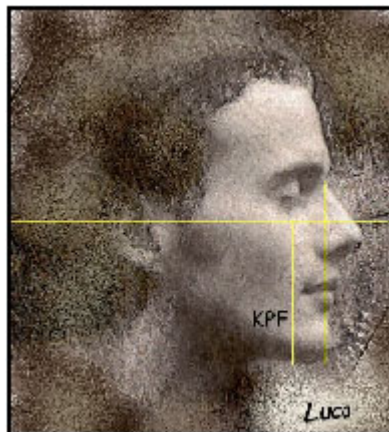


Fig 015a: North-European Profile

As already mentioned, this kind of transposition is not only necessary for ethnic "deviations" from ideal standards, but also in very common faces

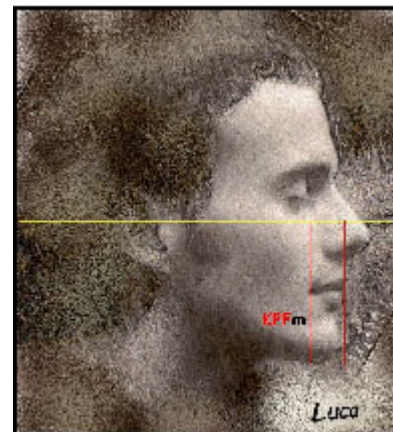


Fig 015b: North-European Profile KPFm

The use of the transposed KPFm is even clearer in this intraethnic "deviations".

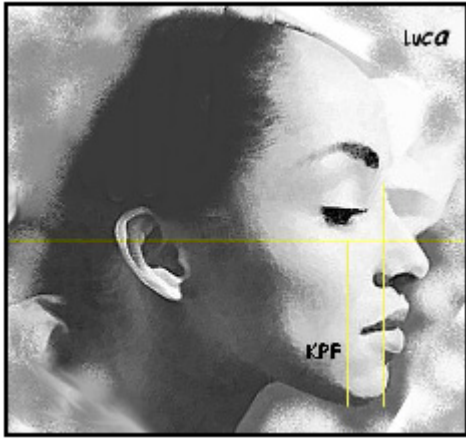


Fig. 016a: BANTU woman KPF

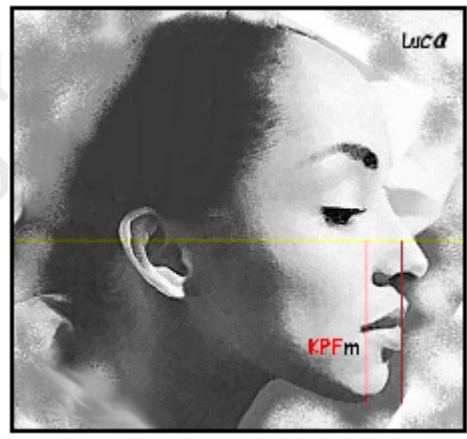


Fig. 016b: BANTU woman KPFm

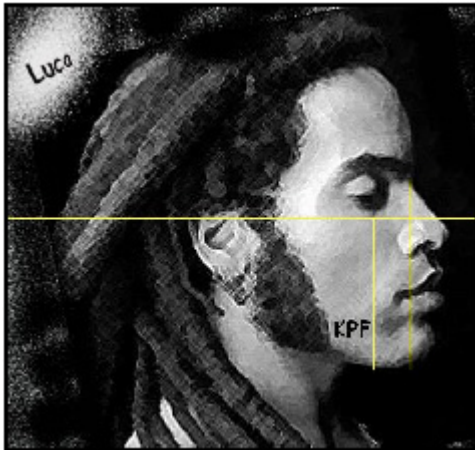


Fig. 017a: Mulatto European KPF



Fig. 017b: Mulatto European KPFm

The singer-model shown in Figures 017 shows a lower third bimaxillary protrusion but this profile is definitely well balanced. Observe now that, according to Schwarz, this profile should be evaluated as a Class III since the Pogonion touches the NVL. If we use the point SI instead of Pg to evaluate the sagittal position of the lower jaw, a straight-harmonic profile is observed, and not a III Class relation (the chin is an anatomical component that must be very dominant to achieve contemporary beauty). If compared to the information delivered by the KPF, visually KPFm better shows what we need to evaluate for our orthopedic movements. Secondly, it gives us a better idea of the position of the jaws by using Sn and SI, rather than Sn and the chin (Pg). Furthermore, the KPFm works better than the classical KPF in evaluating attractive profiles, as Sn-SI inside KPFm is considered aesthetical in a wider range than in the classical KPF (consequently, it better describes the human face variability promoted by fashion today).

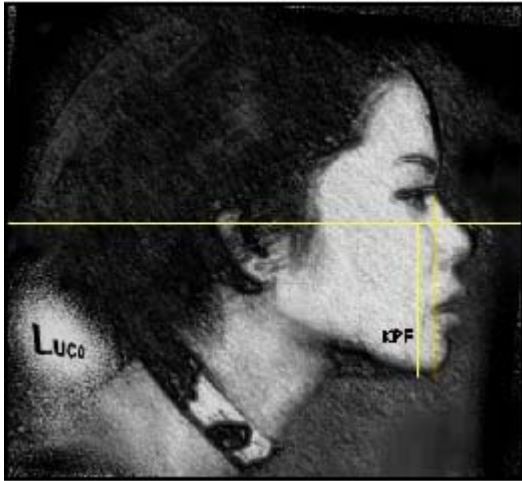


Fig. 018a South-mongoloid woman KPF



Fig. 018b South-mongoloid woman KPFm

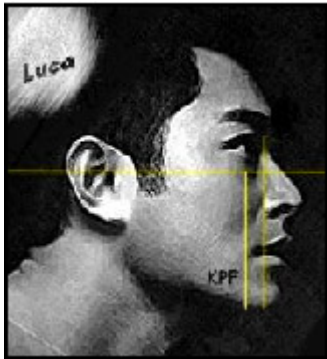


Fig. 019a Central-Mongoloid man KPF

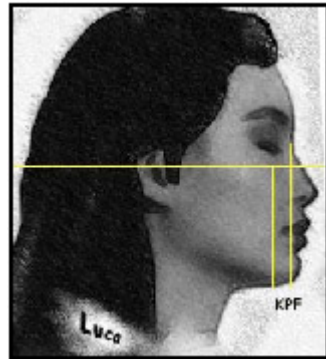


Fig. 020a Central-Mongoloid woman KPF

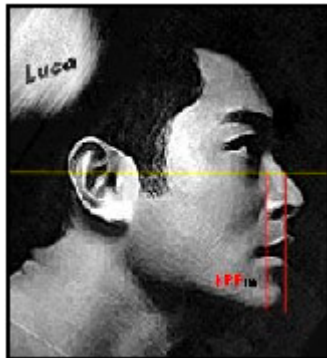


Fig. 019b Central-Mongoloid man KPFm

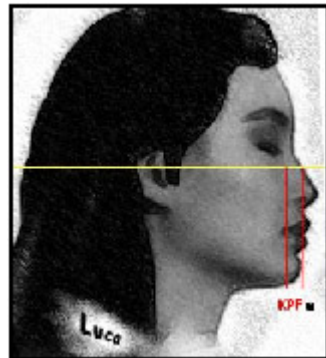


Fig. 020b Central-Mongoloid woman KPFm

In Figures 019, analogously to what happened with the European faces, we observe a mild bimaxillary protrusion depending on individual variability. In fact, in this ethnic look (Chinese type), the "flat face" is endemic/typical. The flat face commonly indicates a biometric type along with a very flat nose and a flat supraorbital area. Analogous considerations are to be done for the woman presented in Figures 020: with her, we are approaching the flat facial type even more.

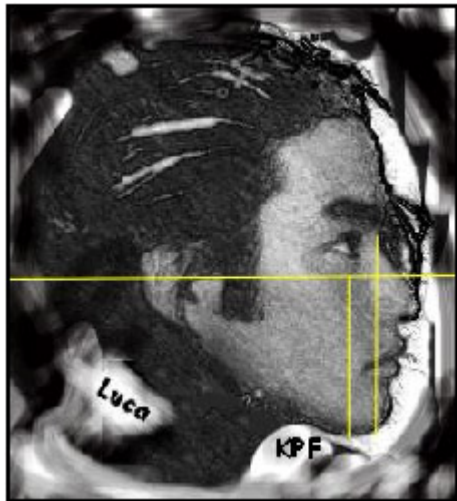


Fig. 021a South-mongoloid man KPF

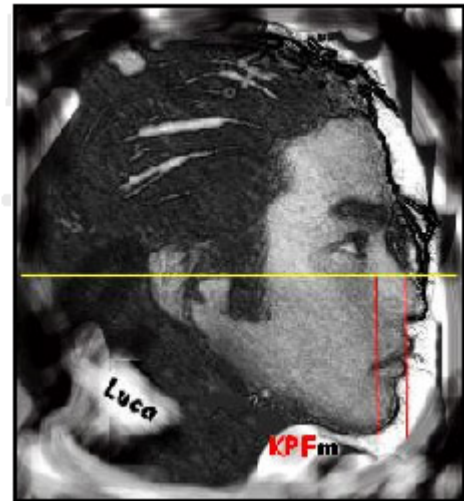


Fig. 021b South-mongoloid man KPFm

After the observation of these ethnic illustrations, let us make some considerations. Every time that we have partial ethnic/evolutionary phenotypic remains like maxillary monoprotrusion/-retrusion, we can have some skeletal/profile problems. The complete evolutionary information would have provided a harmonized bimaxillary protrusion/retrusion. Phylogenic, this kind of malposition, are more common where the ethnic looks are still similar to the extinct human species, which exhibited clear bimaxillary protrusion. This expression of primordial features can be ethnically easy to understand. It is unclear when it happens in Europeans. There is supposedly a casual natural DNA-recombination. Such spontaneous individual variations also happen frequently, affecting the consistency in evaluating the normal KPF in many patients, and not only in Germany or in other Northern regions. A frequent position of Sn ahead of Nasion (protruded lower face) is even more important in nations in which the population does not look like Northern Europeans. The tendency for a protruded face is bigger there than here. The opposite phenomenon (retrognathia) is obviously more common in northern population than in southern populations. This is mainly because of ethnical and evolutionary reasons, but also because of casual DNA-recombination. All features interact with the growth environment. As many as more than 70 percent of patients in Germany belong to the ethnic background which Schwarz designed his ideal around. This ethnic group is characterized by N and Sn contained together in the same vertical line, with a small percentage of variations (for ethncl or casual reasons, less than 30%). This translates to the classical KPF working visually with over 70% of central and northern Europeans and North Americans, but not the remaining 30%. However, it would visually work even less for facial types found in other parts of the world (40% and 20% and also with a reduced amount). In other parts of the world, in fact, the representation of Mongoloid, Negro, and many European looks of the are endemic.

2) Sagittal position of the jaws by using the new reference soft tissue point SI

(lower face inclined backwards - straight - inclined forwards)

The second limiting factor is presented in this section along with a solution. Such a solution can be obtained, only in the ideal profile type, by using both my "modified KPF" and classic KPF. In all other morphological modern human types, only my KPF can visually detect the problem. Remarks: The solutions are described by the expression "in my opinion". The word skeletal, in the following examples is used to describe the sagittal position of the soft tissues.

Let us secondly consider the PROFILE INCLINATION: (the question was: " **Where does Pg lie?** "). Such individuation of the Pogonion is intended to evaluate the sagittal position of the mandible with respect to the nasal root and in particular of the chin, so that the inclination of the lower face profile can be described. However Pg is not reliable for evaluating the inclination of the profile or in considering the sagittal relationships between the two jaws. Conditions of very large or very small chins are relatively common in the clinical routine. The four possible examples are all intentionally affected from chins being too large/too small in order to show how erratic using Pogonion can be in giving the sagittal impression of the mutual jaw position. The use of Pogonion as a reference point can lead to problems in diagnosis, therapy and prognosis. To simplify things, in all four examples Nasion and Subnasale are situated on the same vertical (ideal case).

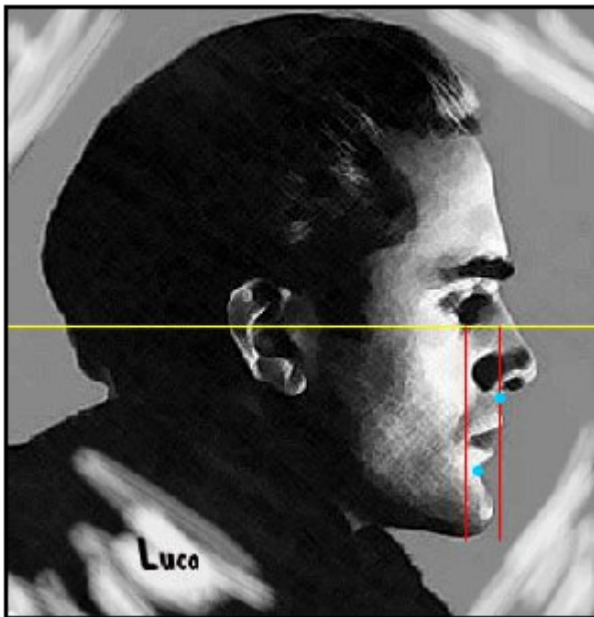


Fig. 022 Lower face profile inclined forward but "skeletal" straight in my opinion

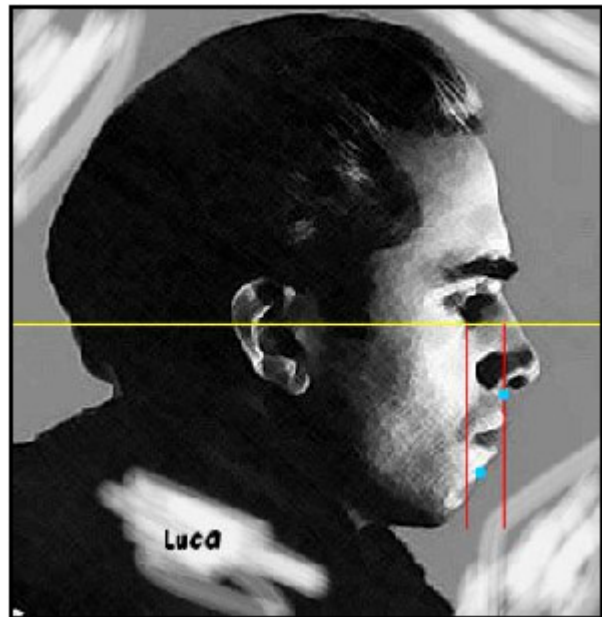


Fig. 023 Lower face profile inclined backward but "skeletal" straight in author opinion

In the facial type of fig. 022, the classic KPF suggests a mandibular setback (the profile results, in fact, to be FORWARD inclined). If we consider the modified KPF for evaluation, however, SI is correctly positioned (straight in my opinion"). That is to say, that this is a problem that can be solved by a reduction genioplasty. The virtual patient has a chin which is too protrusive/prominent rather than a skeletal Class III profile. If I opt for a mandibular setback following the indications of the classical KPF, I will in fact create a skeletal Class II! In figure 023 we have the opposite situation of 022: In the facial type of this patient, the classic KPF proposes to advance the mandible (the profile results, in fact, to be BACKWARDS inclined). If we consider, however, the modified KPF, SI is instead correctly positioned (straight in my opinion"). i.e. that this is a problem of the chin, because he has a chin which is too retrusive/receding that must be augmented. Such a condition has nothing to do with the skeletal Class II profile. If I opt for a mandibular advancement, I will create a skeletal Class III!

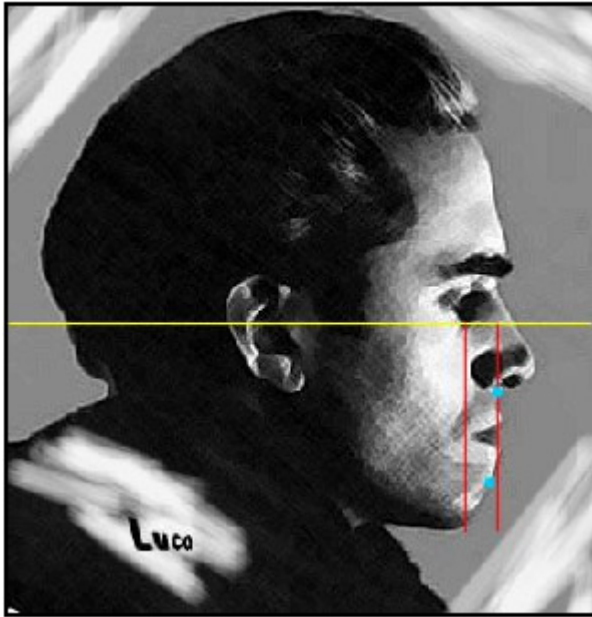


Fig. 024 lower face profile straight but "skeletal" forwards in author opinion

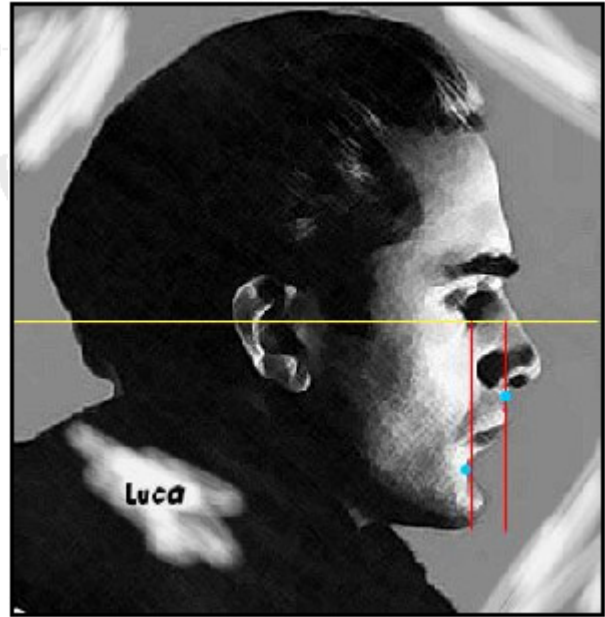
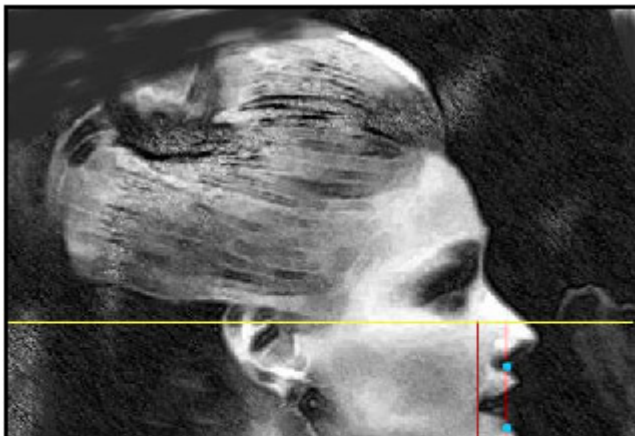


Fig. 025 lower face profile straight but "skeletal" backwards in author opinion

In the facial type of Fig. 024 the classic KPF indicates that I must do nothing with my therapy (the profile is shown to be STRAIGHT). In addition, despite this evaluation, it is now very easy to recognize the tendency toward Class III. If we consider the modified KPF, SI is actually "forwards in my opinion" (skeletal Class III), so that we must treat with a mandibular reduction if our target is also to obtain a Class I. That is to say that this is a combined skeletal and chin problem. If you want to obtain a skeletal Class I, you also need to augment the retrusive receding chin. In Fig. 025 we have the opposite situation of Fig. 024.: In the facial type of this patient, the classic KPF points out that you must not do anything (it shows it to be a STRAIGHT profile): In any case, it is now very easy to recognize the tendency towards a Class II. If we consider the modified KPF, SI is actually "backwards in my opinion" (skeletal Class II), so that we must do a mandibular advancement in order to obtain a Class I. i.e. a skeletal and combined chin problem. If we want to obtain a skeletal Class I, we also need to do a reduction genioplasty to reduce the protrusive prominent chin.

Solutions: we will not have any problems with the Pogonion anymore, because with the KPFm we are considering the sagittal distance Sn-SI, i.e. SI instead of Pogonion. Remarks: remember the new reference soft tissue point SI.



Conclusions:

We have a straight profile when the sagittal value Sn-SI is 10-90% of the KPFm. In faces with a very high nasal root (Nasion) such as a Greek nose and in people who are currently internationally recognized as beautiful also if they have such a nasal root, the sagittal distance Sn-SI this value must be within 20 and 80% of the KPF. When the nasal root is sagittal low (the



nasal root is very hollow in Slav and typical Negro noses), then the Sn-SI can tend to equalize the field KPFm without getting into a Class II profile; or even to be zero without getting into a Class III soft-tissue profile

(range for the straight profile 0%-100%).

Fig. 026 Each kind of ideal cannot be perfect

The title of the last figure is "Each kind of ideal cannot be perfect". The face pictured is that of a top female model. It serves as an example of beauty outside of literature standards. It shows some mild dysgnathia, somewhat visible that normal people perceive as fascinating. Each method, while seemingly complete, will never lead to the absolute truth, since the factors to consider in matters of beauty are too many (psychology, culture and ethnicity, personal taste, mass media, and power of individuality are just a few aspects).

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To cite this article please write:

G. Perseo, A well known modified lower face profile analysis for all ethnic types and its contribution to cephalometric skeletal classes. Virtual Journal of Orthodontics [serial online] 2002 May 15; 4(3): Available from URL:<http://www.vjo.it/043/kpfm.htm>

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Virtual Journal of Orthodontics ISSN - 1128 6547
Issue 4.3 - 2002 - <http://www.vjo.it/vjo043.htm>
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