

Comment the Subject Orbit Around of His Eye and Relies on  
It to Level of Feet? – Study on 100 Case

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**Received:** March 21, 2019; **Published:** April 23, 2019

**Figure a**

**Figure b**

### Abstract

This approach is linked to a subject addressed by Dr. FAUCHET René in 1987.

On the importance of the horizontalization of the gaze and its involvement in the scoliosis.

The Work of Fauchet

On The scolioses cervico-dorsales malformatives With Deviation Side of D1 For Maintain His regard horizontal

- The power of visual information about the body position
- Incidence tonic source of constraints so bone what on the tissues soft car acting gently and long.

For the great scoliotic horizontaliser his gaze is imperative and he uses all the tricks to achieve it:

- Elevation of a heme-basin and nickname leg short
- Translation of trunk
- Elevation of a shoulder
- Translation of neck
- Tilt of the head (Fauchet page 1 76)
- But also support plantar specific.

### Preamble

The tracing of vertical of barré and of axes would pupillaires showed what the topics lined a eye with their vertical gravity median that it y has a anomaly structural or functional or not.

Hence the question of whether the fixation point was not the eye I called the eye 'Lazy or fixed' because moving less or not (Visual anchor) while the subject.

Seems wrap around with postural adaptations going up to the foot.

This pi and true point fixed must for close the chain and get a compromise with its trends postural and the laws of the gravity compensate all the anomalies their in 3 D.

Aligning the second eye with the middle of the joint Warm-tarsienne homolatérale was discovered secondarily during the study.

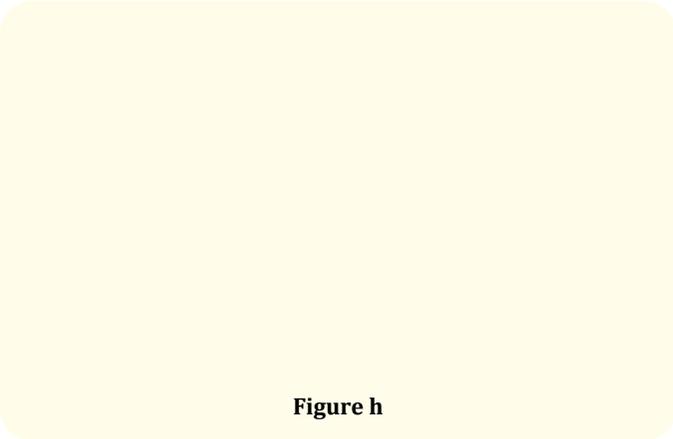
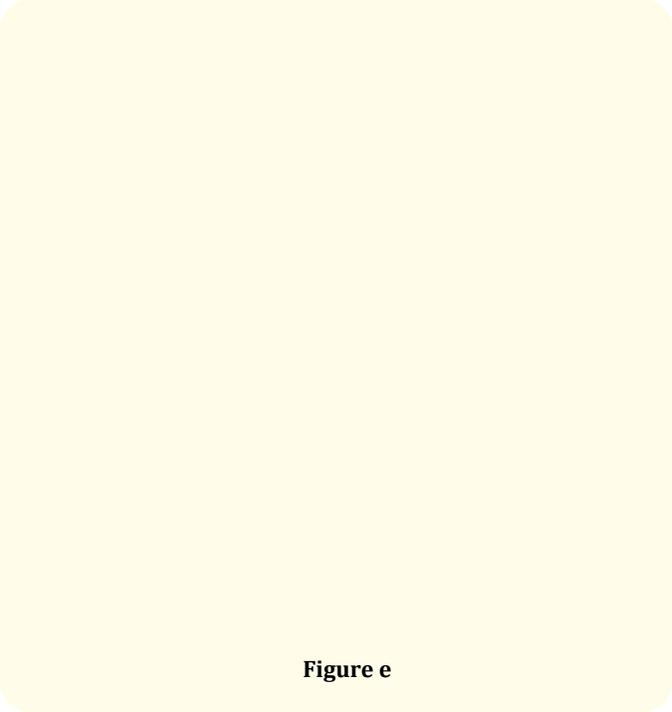
This static tonic organization was walking with a deviation and A Asymmetry.

These topicsoften a scoliose but not always.

Notion eye fixed center

**Keywords:** Posture; Fixed Eye; Podals Supports; Visual Anchor; Vertical Gravity

Figure c



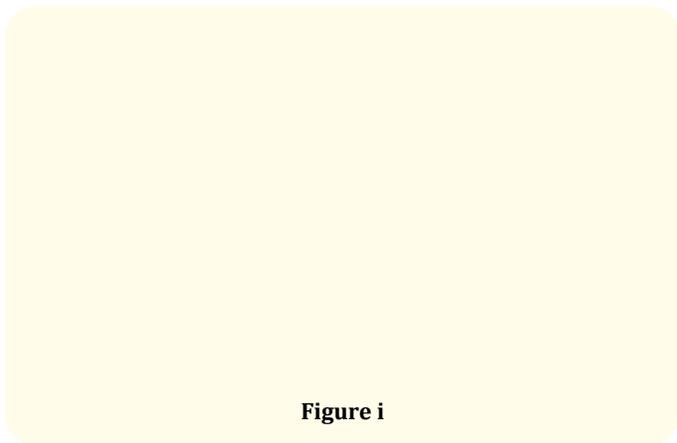


Figure i

### Introduction

Balance in standing station and postural control involve the afferents

- Visual,
- Vestibular,
- proprioceptives
- And extéroceptives.

The role of the position of eyes in the posture at of people having of troubles orthopedic of trunk or of members lower is studied in correlation with the support podaux.

### Materials and Methods

Distribution of ground supports and stabilometric examinations

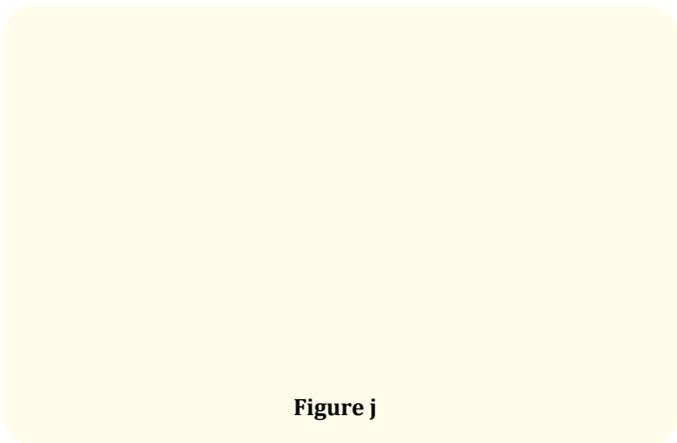


Figure j

Standing on plateforme of force to 4 quadrants type cybersabots from ouaknine (51sec) with placement 15° feet in laying down the regard right before oneself:

- 2 sessions of which we retain only the last session YO/YF.

Photographs of face with laser level type bosh to objectify the vertical or uses of markers horizontal and present vertical.

The subject is barefoot, standing and two meters and must stare straight ahead at him.

The position of the feet is variable but the preference for parallel feet would be logical.

Device photo and camera are mounted on a portico for ensure stability repeat of shots and placement correct.

Tracing of the gravitarian verticals passing through the intermalleolar medium and by the second eye.

Collection of angles by report à the vertical of lines would pupillaires and would acromiales with the software KINOVEA.

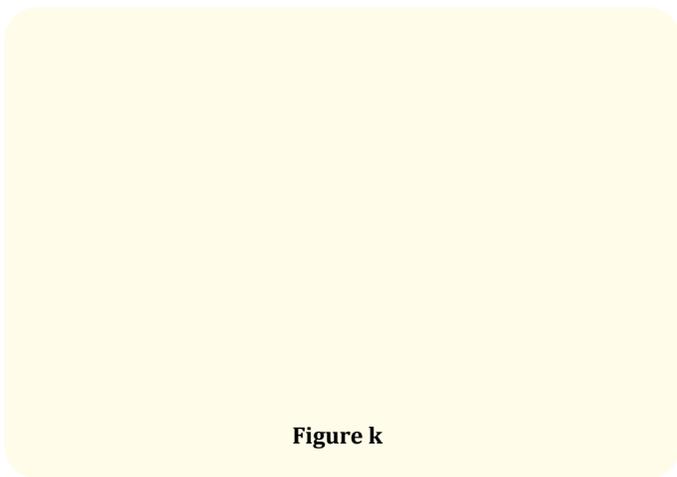


Figure k

### Results

99 patients studied (62 scolioses-7 scholiotic attitudes 30 others), 32 men's and 68 womens.

The age way is of 38 years with of extreme of 8 à 83years. Eye left centered (n = 42)/right eye centered (n = 57).

Left eye fixed, right eye aligns (n = 33.3%) compared to the Warm-straight tarsal and the support of the Coast right was 49% of the total support.

Right eye fixed, left eye aligns (n = 50.5%) compared to the Warm-tarsal left and the support on the left side was 51% of the total support.

The non-alignment annex of the second eye concerns 16.16% of the subjects.

Association Significant Between the eye side And Deviation Would Scapular  $p < 0,005$  and the eye left deviates more more the eye right aligns with the foot right and least we find of deviation would scapular.

Conversely Plus we have a left eye/left foot and the more we have a bi scapular deviation

$R = 0,35$   $p < 0,01$ .

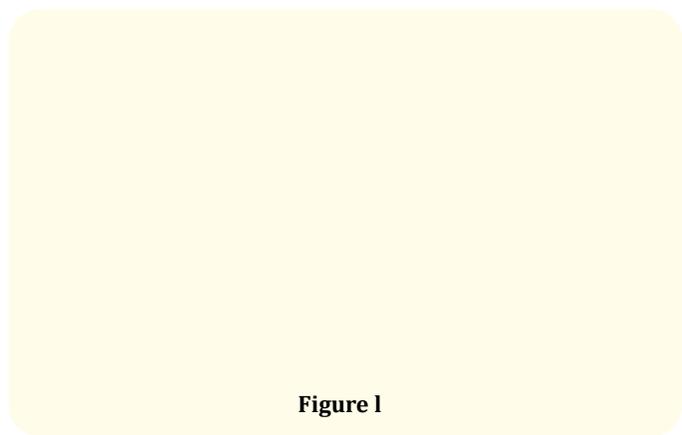


Figure 1

**A/ A leave of a Analysis Statistical In Components Main ACP à The French (on the 10 variables**

Eye-SEX -BIPUPILLARY TILT- Value BIPUPILLARY-BISCAPULAR INCLINATION -VALUE of BISCAPULAIRE- HYPOCONVERGENCE- Scoliosis AGE-ALIGNMENT 2nd EYE and Foot HOMOLATERAL on get out that the 2 main factors represent 38.25% of the variance in the results.

**B/A 2e type of analysis statistical a analysis of the variance anova 2 Fact Sex Eye dominant) Comes Complete This ACP.**

- Fixed eye and bi-scapular inclination
- Effect of the fixed eye and the alignment of the 2nd eye and the homolateral foot (figure 3)
- Effects of scoliosis on the genus and on the determination of its fixed eye

**C/ Effets de l'œil fixe Yourr les paramètres stabilométri Thates**

From a Anova 2-factor (sex and eye) on all parameters stabilométriques standards and Transformed from Fourier

Effect only on FFT and not on standard parameters.

Respectively In X In A plan frontal What Yourr The Bands Of Frequency Between 0,5 And 2 Hz And On The Frequencies Total at  $p = 0.04$  and  $p = 0.03$  (figure 6).

On Find Also A Difference Significant Between The Men And The Women In Function Of Their Eye Fixed In Y (in the The plan Antero posterior On The Bands Of Frequency Between 2 And 40 Hz à  $p = 0,03$  (Figure 7).

**D/gender effects on parameters stabilométriques**

LFS length and speed where women have lower values than men

**E/ Effets de l'hypo-convergence d'un œil gauche ou droit verYours sans hypo-convergence**

Hypo-convergence Left = more focused and in before/hypo-convergence Right = More in back on the heels Left

**A/ A leave of a Analysis Statistical In Components Main ACP à The French (on the 10 variables)**

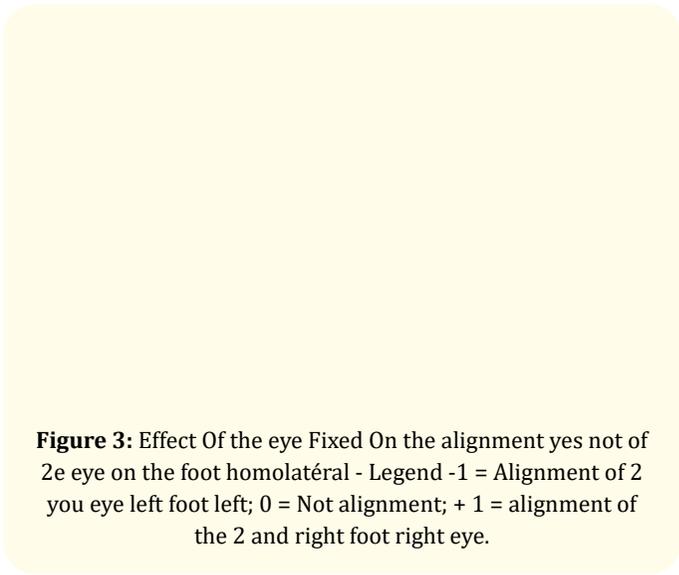
(EYE-SEX-BIPUPILLARY INCLINATION-BIPUPILLARY VALUE-BISCAPULAR INCLINATION-BISCAPULAR VALUE- HYPOCONVERGENCE- Scoliosis AGE-ALIGNMENT 2nd Eye And Foot HOMOLATERAL on get out What The 2 Factors Main Represent 38,25% Of The variance of Results.

The Factor 1 Is Responsible Of 21,5% Of This variance. (Figure 1) One can observe What: More i have a alignment of 2e Eye right with the foot homolatéral right more i have a eye fixed left and more my tilt would scapular is performed to the right and least this tilt is strong (so I 'm More horizontal).

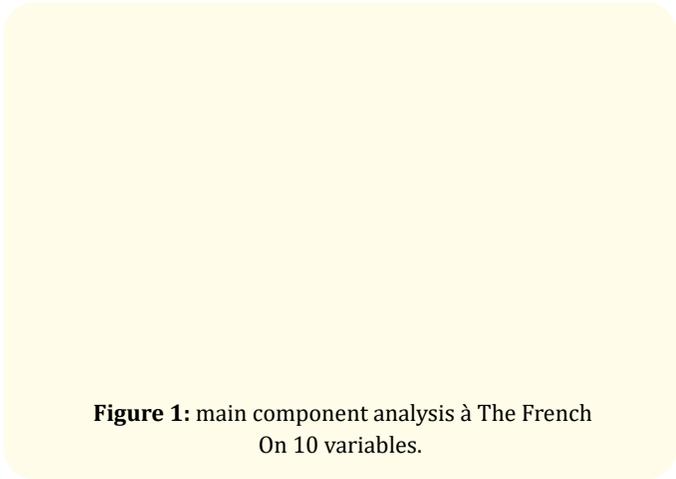
Conversely More I have A Alignment Of 2nd. Eye left with the foot homolatéral left more i have a tilt would scapular to the left and more i 'm inclined

The Factor 2 Is Responsible Of 16,75% Of The variance of Re- sults. (Figure 1) It can be observed that: The more I am a woman, the more I have a fixed eye left and the more I have scoliosis.

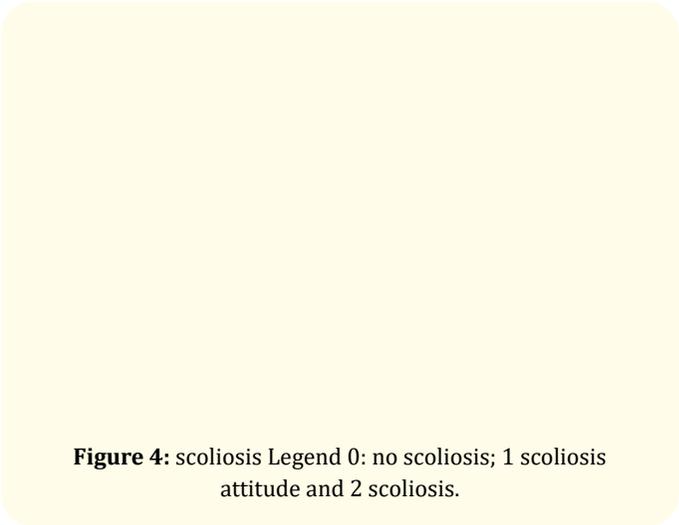
Yes Conversely if I am a man, the more I have the fixed eye right and the less I have scoliosis.



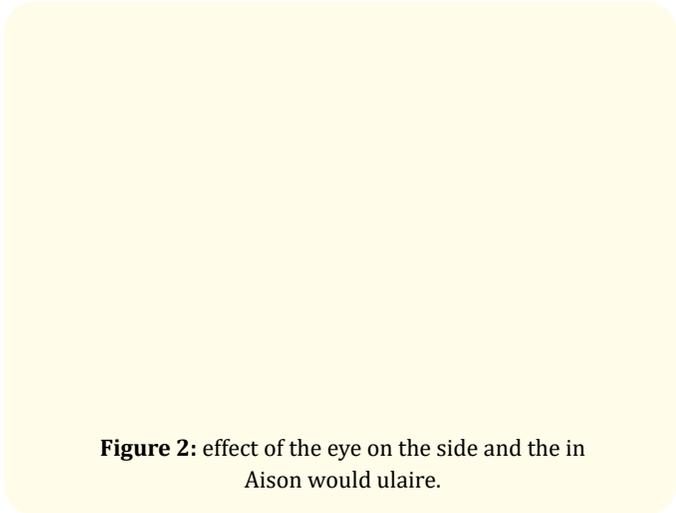
**Figure 3:** Effect Of the eye Fixed On the alignment yes not of 2e eye on the foot homolatéral - Legend -1 = Alignment of 2 you eye left foot left; 0 = Not alignment; + 1 = alignment of the 2 and right foot right eye.



**Figure 1:** main component analysis à The French On 10 variables.



**Figure 4:** scoliosis Legend 0: no scoliosis; 1 scoliosis attitude and 2 scoliosis.



**Figure 2:** effect of the eye on the side and the in Aison would ulaire.

**B/ A 2e type of analysis Statistical A Analysis Of The variance Anova 2 Fact Sex Eye dominant) Comes Complete This ACP.**

Fixed eye and bi-scapular inclination

On observe A Association Significant Between The Side Of the eye Fixed And tilt Of The Deviation Would scapular  $p < 0,005$  A Eye Left Deviates More Between the eye And the alignment homolateral foot eye  $p < 0,01 \times 10^{-11}$ .

A Eye Fixed Left is associated à of Slopes Essentially To The Right While that a Eye Fixed Right is associated à of Slopes Is à Right Is à Left (Figure 2).

Effect of the fixed eye and the alignment of the 2nd eye and the homolateral foot (figure 3)

A very significant effect is observed at  $p < 0,01 \times 10^{-11}$

Effects of scoliosis on the genus and on the determination of its fixed eye

There is a significant link between the kind of the person and a scoliosis at  $p < 0.000002$

The more I am a woman and the more I have scoliosis (figure 4).

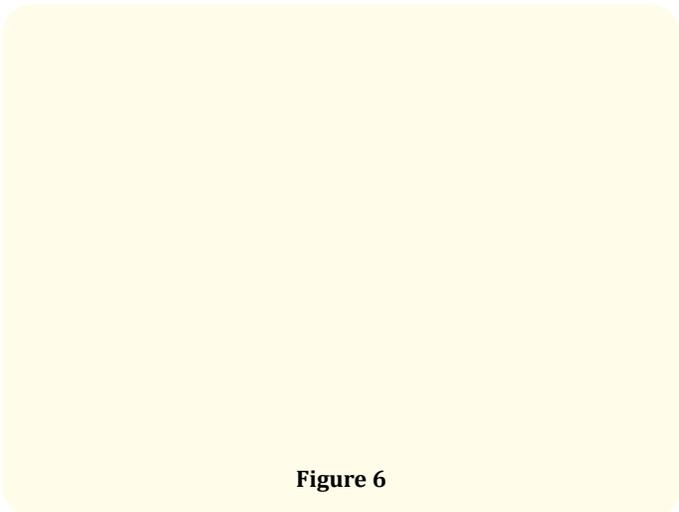
It is also observed (figure 5) that there is a relationship between scoliosis and the choice of the first fixed eye  $p = 0.05$

**C/ Effets de l'œil fixe Yourr les paramètres stabilométriques**

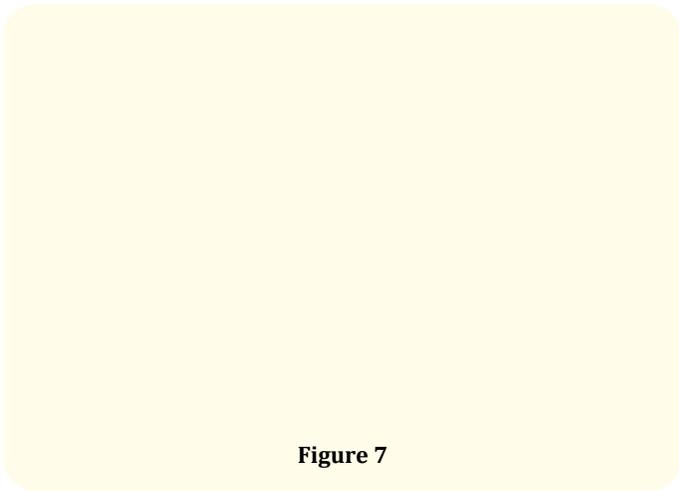
A leave of a anova à 2 factors (sex and eye on all the settings stabilométriques standards and processed of fourrier:

It is clear from the Way significant one Effect Of the eye Fixed only on FFT and not on the parameters standards. Respectively in x in a plan frontal what on the bands of frequency between 0,5 and 2 hz and on the frequencies total top = 0.04 and  $p = 0.03$  (Figure 6).

On Find Also A Difference significant between the men and the women in function of their eye fixed in Y (in the the plan antero posterior on the bands of frequency between 2 and 40 Hz à  $p = 0,03$  (Figure 7).



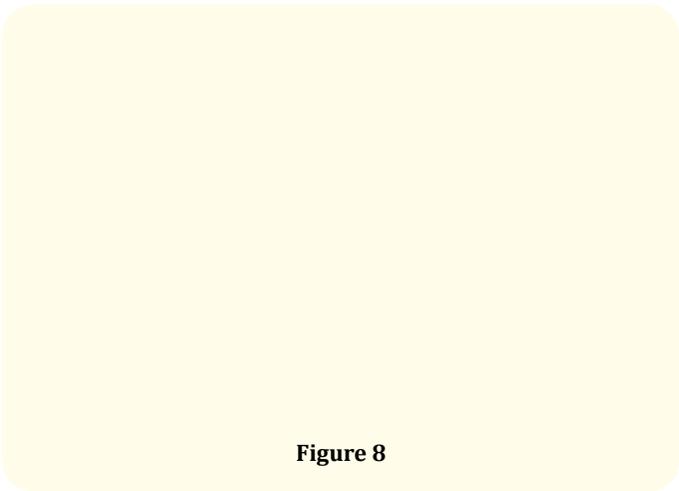
**Figure 6**



**Figure 7**



**Figure 5**



**Figure 8**

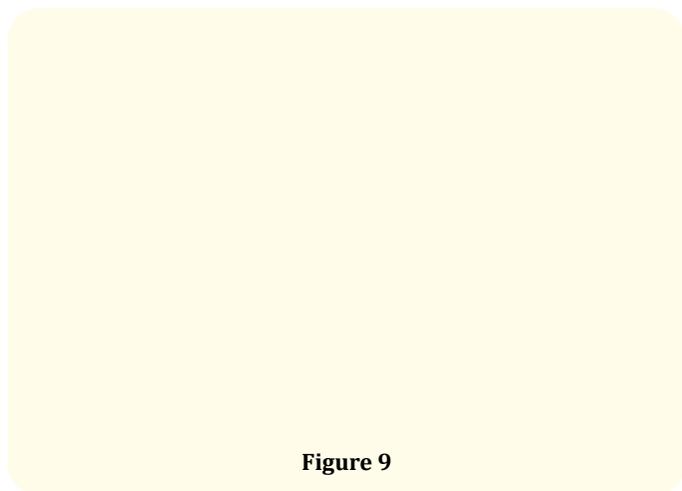


Figure 9

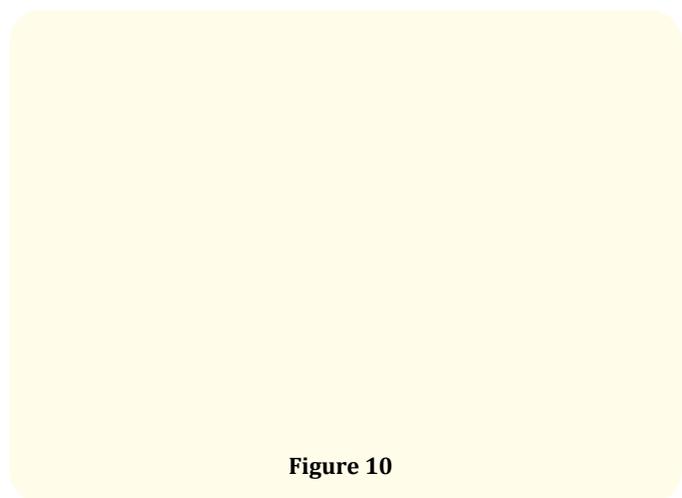


Figure 10

#### D/gender effects on parameters stabilométriques

The is interesting of note the differences significant between the men and the women of a point of view stabilométrique

On settings

- Length And (Length of in X and length in and respectivement à  $p < 0,006 ; 0,01$  and  $0,01$  (Figure 8)
- The LFS (Length of in function of the surface) à  $p < 0,003$  (Figure 9).
- And Speed at  $p < 0.003$  (Figure 10).

Where women have lower values than men.

#### E/ Effets de l'hypo-convergence d'un œil gauche ou droit versus sans hypo-convergence

- Those that have a hypo-convergence left are more focused and in before
- Those that have a hypo-convergence right are more in back on the heels left to  $p < 0.05$  (Figure 11).

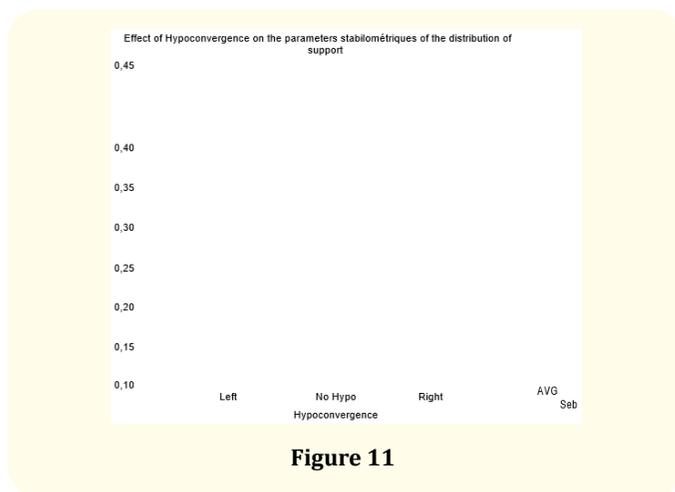


Figure 11

#### Discussion and Conclusion

Update à Day of an organization of behavior postural using a point fixed represented by a eye:

- Remarkably a eye aligns vertically with the middle inter-malléolaire,
- The 2<sup>nd</sup> eye a a alignment preferential with the centre of the joint warm tarsienne homolatérale.
- The alignment with the warm-tarsienne contralateral a been found at of people in course of decompensation painful.

The choice of a eye director for organize the posture is discussed but can also be interpreted as a answer à a fix of mobilization of the eye where his positioning central do requiring more his mobility (“notion eye lazy centered yes fixed”).

Role of the action of the eye in this configuration with action permanent on the subject source of constraints à distance, of pain and of strains (wolf and delpech laws and adaptation-shrink soft tissues).

Why the subject does not detect this Shifting?

The anomalies is found ok course in the walking and in all the positions other what standing. correlations between alignment of second eye à left and scolioses at the women.

**The Work de baron jean-bernard**

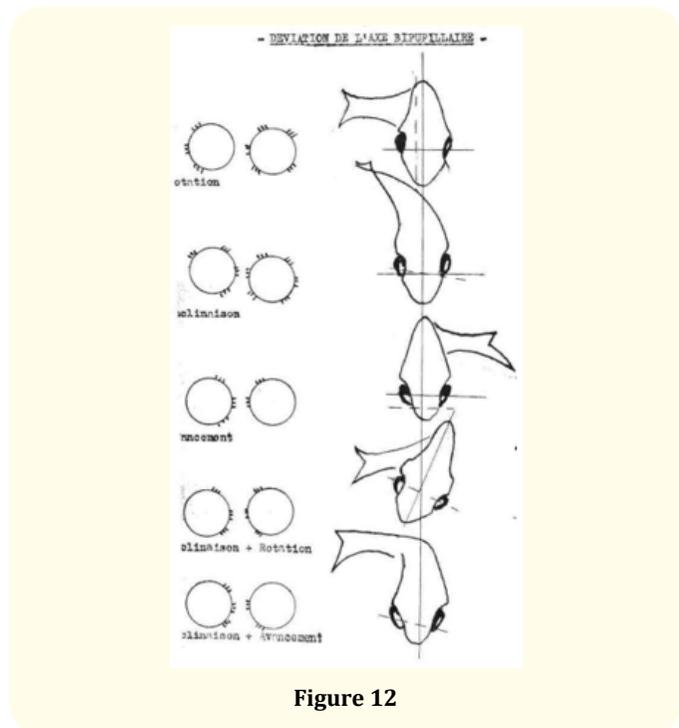
They have me aware à the action tonic induced by the muscles extra-ocular in function of the axis would pupillary for of variations lower à 4° on the axes horizontal and vertical and this in out of any vision highlighting the role of the proprioception of the muscles oculomoteurs: of changes in tone of the eye motor muscles producing posture variations.

The position of the Globes in the orbit varies the position of the body in space with a action that does not exhaust with time. (BARON PAGE 2).

The extraordinary was therefore that the major effects were caused only by the cause

**Minor:** an oculomotor imbalance less than four degrees.

First known experience of Physiology of a nonlinear dynamic system: the system postural D'aplomb [1-13].



**Figure 12**

Gentaz R

“L ' POSTURAL EYE” is the eye that ensures the best regulation of our balance And is located on the right side in 55 % of case (and therefore left in 45%).

The system Oculo-postural, stimulated by the visible vertical of a single eye, further brakes the oscillations

Side that sagittal movements;

The There is no link between the side of the postural eye and the other manual or podales lateralities.

The results are identical regardless of sex, Size The weight, age or ethnicity of the subject normal.

Beyond 3 meters, no significant difference

(QRBG = 1) is observed between surfaces in both Visual conditions YO YF

**The preferential eye of sight- the eye dominant**

The dominant eye manifests itself in tasks of aiming when the choice of an eye is required, in vision Monocular.

The subject tends to adopt the eye which, once aligned with the target, allows it to feel better condition to situate himself in the ES-SPACE of action.

He then uses this eye as an egocentric landmark [18.20]. Test hold-in-card on calls the dominant eye who guides the coordinated movements of both eyes.

on rather calls it Director eye, in practice ophtalmologique, and the qualified if “dominant” is reserved for sensory function. - Guy Azémar

**The role of phories on posture**

Eric MATHERON\*, Patrick OAK \*\* And France MOUREY \*\* IN-SERM-ERM 207, University of Burgundy Chu Champmaillot Dijon France.

**The work of Gagey Pm**

The observed asymmetries of orthostatic posture are not and encourage them to seek a law of Organization for these asymmetries of postures

Tilt Of the axis bipupillaire on horizontal/deviation the course of the test of romberg.

Axis bipupillaire: right inclined (BPD) 61% / tilted left (BPG): 39%

- Deviation à the test of romberg.
- Rotation horizontal of basin.

The association is a lot more strong between tilt of the axis bipupillaire (BPD, BPG) and the movement observed during the romberg test (YFGRD, YFDRG).

### The work of Fauchet

On The scolioses cervico-dorsales malformatives with deviation side of D1 for maintain his regard horizontal

- The power of visual information about the body position
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For the great scoliotic horizontaliser his gaze is imperative, and he uses all the tricks to achieve it:

- Elevation of a heme-basin And Nickname Leg Short
- translation of trunk
- Elevation of a shoulder
- Translation of neck
- Tilt of the head (Fauchet page 176)
- But also support plantar specific.

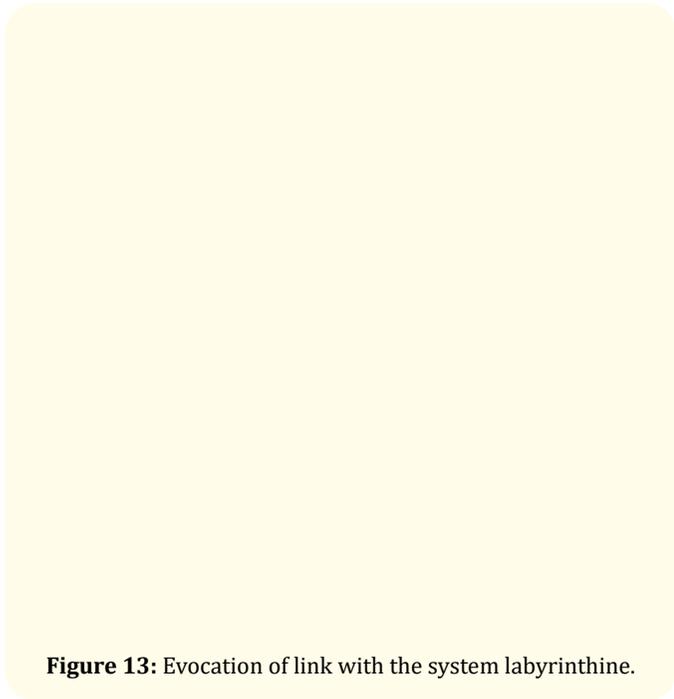


Figure 13: Evocation of link with the system labyrinthine.

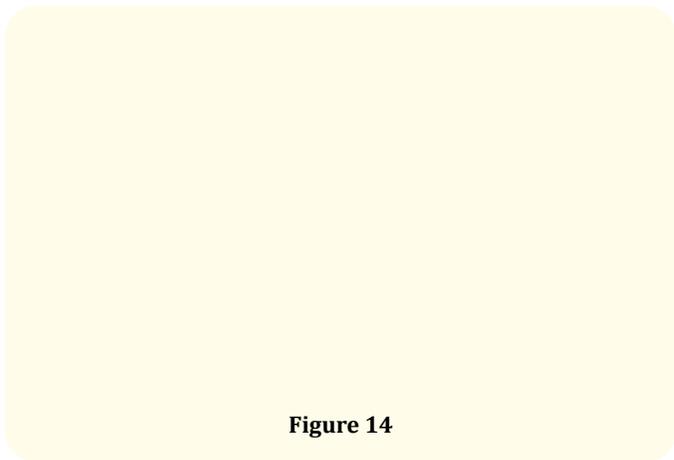


Figure 14



Figure 15: Compensation Insufficient.

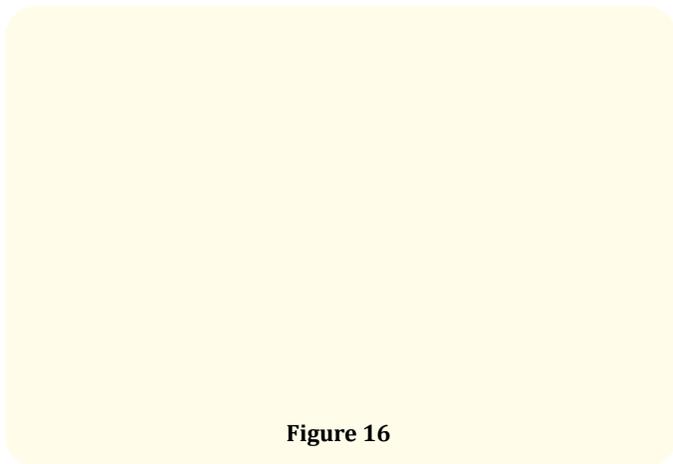


Figure 16

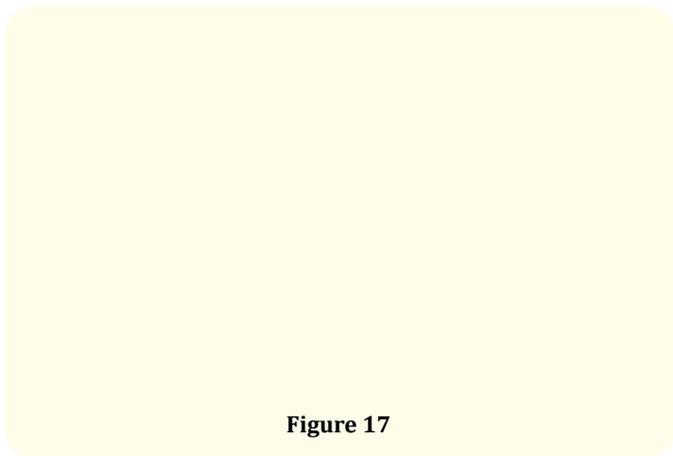


Figure 17

DESSEI ... Nobility...

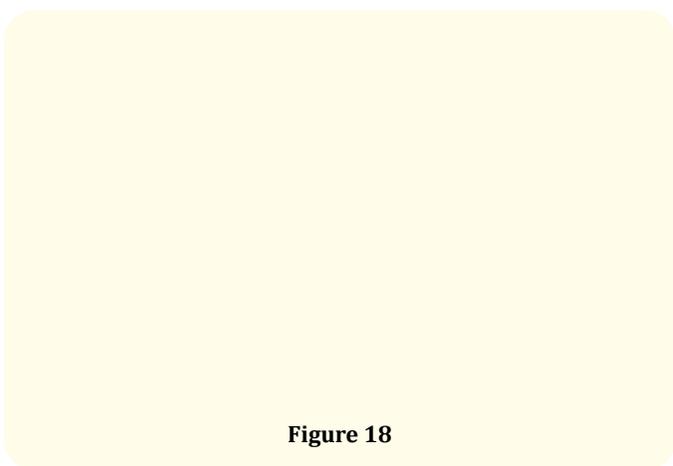


Figure 18

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Volume 2 Issue 4 May 2019

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