

## RESPONSE TO THE EVALUATION REPORT

This is the response and observations of the evaluation report by Bengt Saltin, Peter Norsk and Johan Konfstad at the University of Copenhagen, Panum Institute of Physiology, to my dissertation “Human Adaptation to High Altitude and to Sea Level: Acid-Base Equilibrium, Ventilation and Circulation in Chronic Hypoxia”, based on 6 scientific publications in prestigious journals.

### NEW KNOWLEDGE

As I understand from the guidelines:

*5. (2) The degree can only be awarded if the dissertation demonstrates that the author has obtained new scientific results which in themselves have “contributed substantially to the advancement of science”...*

I can appreciate from the assessment report **that the opponents have granted me not only one original idea, but three !!**

That is a great honor !

Too bad that several other new findings and ideas, were overlooked or maliciously ignored (see below).

*The first*, is regarding the three novel tables of high altitude acid-base correction charts of the nomogram by the great Ole Siggaard-Andersen. Incidentally, it becomes clearly evident that the reviewers have not made a precise and exact analysis of my dissertation. It is true that in the first paper, Prof. Poul-Erik and I have used for the first time the term THID. But it is also clear that they have missed a fundamental point stated in it and referenced to in the bibliography. Ole Siggaard-Andersen is the author of the change from the use of the term Base Excess (BE), a term he himself previously created and was one fundamental aspect of the “Trans-Atlantic Debate”, for Titratable Hydrogen Ion, which he introduced as an honest wish to correct the terminology and clearly identify a true quantifiable substance in Acid-Base Equilibrium. He also took the bold approach of inverting the scales labeled BE for THI in his traditional and famous nomogram. That is worthy of admiration. We added to this terminology the fourth letter D that stands for Difference, which in our criteria is absolutely precise and fortunately acknowledged by the assessment committee.

I must add that this is not merely from a “didactic point of view”, but rather from a practical and quantifiable measurement that will save lives at high altitude.

In the Evaluation of the overview it is stated “the development of the three tables based on the Siggaard-Andersen nomogram are interesting and should be applied for clinical purpose but adds very little new scientific knowledge to what is already know”. This is completely contradictory to what is stated in the Conclusion of the analysis of paper A; “This is important for the growing high altitude populations around the world” and “The new knowledge gained from this report is that a better understanding and a more correct

picture is obtained of the acid-base relationship under hypoxic conditions”. And then again under Final Conclusions - Strengths: “Introduction of THID.....in addition the altitude specific acid-base charts for 2,500, 3,500 and 4,500 m.a.s.l. **is** (should be are) also novel as well as the altitude correction factors in the **van** Slyke equation (should be Van)”.

Noteworthy is that this evaluation of my dissertation is filled with typographical and grammatical errors traducing poor English and lack of knowledge. See the corrections at the end. This traduces the intention to deprecate my dissertation instead of making a serious and responsible evaluation. When someone is doing something wrong, the subconscious produces mistakes.

*The second*, are the new high altitude diving tables. Those are also lifesavers, since decompression sickness is a serious ailment.

*The third* is recognition of the work of the High Altitude Pathology Institute, a world-renowned center. But the database is not the most important thing. It is the people that work within and their theories and scientific work.

## **NEW KNOWLEDGE THAT IS “OVERLOOKED”**

I strongly appreciate these three “strengths and novelties” of my dissertation but unfortunately several fundamental points were missed:

- 1) The high altitude adaptation formula, a truly “first in high altitude medicine”, as stated by some Japanese colleagues.
- 2) The use of the term polyerythrocythemia, which is novel.
- 3) The triple hypoxia syndrome, superficially presented but transcendental.
- 4) The modification of the Van Slyke Formula !!!

In Chapter B, they affirm that the football observations in Mt. Sajama are merely “anecdotal”, at 6542 m ? They could not be worse off! This “anecdotal” observation that has “no data” (see fig. 7), has been one (along with the triple hypoxia syndrome, CMS and exercise studies in our Chacaltaya Glass Pyramid) of the fundamental pillars of the Theory of Adaptation of Man to the hypoxic levels of the summit of Mount Everest, that is an original idea of Prof. Gustavo Zubieta-Castillo (senior) and recently published in a chapter of an important book:

Zubieta-Castillo, G., Zubieta-Calleja, G.R., Zubieta-Calleja, L. and Zubieta-Calleja, N. Facts that Prove the Adaptation to Life at Extreme High Altitude (8848 m) is possible. In: Adaptation Biology and Medicine: Health Potentials. Eds. Lukyanova, L., Takeda, N. and Singal, P.K., Narosa Publishers, New Delhi, India, Vol. 5, 347-355, 2008.

I did not include this important paper, of which I am a co-author, simply because of my respect to the original work of Gustavo Sr. This paper was selected to be published in India, after the Adaptive Medicine Congress, VIII World Congress held in Moscow in June, 2006.

In publication C, it is evident that the opponents have never seen the equipment used to measure saturation changes, ETCO<sub>2</sub>, pulse and ventilation at high altitude. This comes as no surprise, since the author of the dissertation is the inventor of such equipment and the High Altitude Pathology Institute in La Paz, Bolivia is the only one that has such software and has made observations with it. It is also evident that they have no experience with SaO<sub>2</sub> changes during normal breathing at high altitude. Furthermore, one can clearly appreciate that the opponents did not even understand the publication. They stress “the extent to which this finding can be extrapolated to other parts of the body is not answered”. I only showed circulation from the lungs to the finger and this publication has nothing to do with “other parts of the body”. Nor does it pretend to be an encyclopedia of high altitude.

Lack of knowledge of high altitude is also evident, as I have worked for over 28 years seeing patients and performing research at 3500 m. This was one of the observations made when originally I sent the protest letter to the dean at Panum questioning the opponents (please see the appendix). Unfortunately, my observations had been turned down without academic or other argumentation according to the secretarial answer delivered when the secretary knew that I had left Denmark in order to return to my country.

In one section where Chapter C is evaluated, it is concluded that no new knowledge is produced. Here it is again evident that they have no idea of what they are talking about. If they had read the literature, they would know that we have a minority point of view within a group of eminent lowland world scientists in the International Consensus Group on the Definition of High Altitude Diseases (High Alt Med Biol 2005;6:147-157). Our different and original points of view (Gustavo Zubieta-Castillo, Sr. and Gustavo Zubieta-Calleja, Jr.) date several decades back. And this recent publication is an improvement of the knowledge. The term polyerythrocythemia allows a precise definition of the nature of the increase of RBC's. It can be due to ventilatory or respiratory disease under the conditions of severe hypoxia. This differentiates it from the terms “increased polycythemia”, “erythrocytosis”, “excessive erythrocythemia”, with which the disease has been identified as hematologic and also referred as “loss of adaptation” to high altitude. Etymologically, the term is precise: Poly = increase, Erythro = red and Cythemia = blood cells. Only this, is enough to throw overboard the classical concept of “loss of adaptation” and the wrong concepts about the origins of CMS. Only this, in this dissertation, is more than enough to enter the realm of history in medicine.

Space travel is related to high altitude hypoxia. This has not been understood. I have not affirmed that the space capsules have hypoxic environments, as it is inherently expressed. This has been on-line since December 14<sup>th</sup>, 2007 at (<http://zubietas.blogspot.com>). In the dissertation I express that less muscular use during micro gravity (a term Peter Norsk, strongly dislikes) in space is one fundamental cause of the anemia. This comes as a consequence of the hematocrit studies in publication F. I later found out through Jack Loeppky from Canada, that had worked with NASA in the US, that some proposals to the NASA had been made regarding lower cabin oxygen pressures. No mention is made in these (as far as I know) in relation to the explanation of the anemia of space travel as

I propose in the dissertation. This proposal is based on the analogy of observations during hypoxia. It is understood that research with time will prove if I am wrong.

Saltin wants more and more data. He does not understand that some scientist are very good at making precise measurements (which I could easily topple, had I been granted resources) and others are creators of innovative and significant advancement of science. The data are used as references but the new ideas behind are the transcendental point.

I sense a “discriminatory” attitude, which was also evident during my stay at the University of Copenhagen. I only reported on one case (myself) on the hematocrit changes with altitude in publication F, because I received absolutely no support neither in equipment or resources during my “ad-honorem” stay in spite of numerous requests. While at the Panum Institute, I heard of millionaire budgets being handled irresponsibly. Fortunately, I had the extraordinary collaboration of Prof. Poul-Erik Paulev, who not only established an office for me, beside his, at the Panum Institute but also kindly and generously granted me the hematocrit centrifuge in his private lab to carry out our studies. With absolutely no funds or support, we carried out the hematocrit studies on myself, Prof. Paulev and his lovely wife Kirsten. Curiously, private subjects are more cooperative than the scientific institutions.

With respect to the methodology of presenting 6 publications, I understood from the rules of the presentation, that I was free to present them as I felt convenient.

*5. (1) A doctoral dissertation may consist of one dissertation or several dissertations<sup>3</sup> related in subject matter or method. If a dissertation consists of several dissertations a compressed account describing the results that the author claims to have obtained from the research must form part of the dissertation.*

This is why I showed the relationship between my lifetime experience with chronic hypoxia and my work during my stay at the University of Copenhagen. These joint publications were carried out with the internationally renown Prof. Poul-Erik Paulev at the Panum, whose on-line book of Physiology is continually read and several scientific authors worldwide ask for his permission to publish his innovative and interesting graphs.

Noteworthy in this evaluation is:

- 1) The long time for the presentation of the final results of the evaluation:  
*10. (2) Unless a different term has been specified in individual cases, the report shall be submitted not later than eight months after the formation of the committee.*
- 2) The disorganized repetition of the evaluation of the different chapters.
- 3) Why not present 3 different evaluations (of each opponent) instead of this terrible and forced mix-up ?
- 4) Peter Norsk, the other initially questioned opponent participates in the conclusions although he affirmed and reaffirms that he has no knowledge in the field of high altitude medicine and physiology..
- 5) There is no “very little new scientific knowledge”. Truth in science is either true or false (much like digital logic: 1 or 0). There are no in-betweens.
- 6) The author was a witness of the study being carried out by Saltin’s team in Chacaltaya with a millionaire cost. They even had an Italian Chef that provided them with the food. During our visit we witnessed many difficulties

in the measurements. We understand that it is difficult to make measurements at such altitude. Had they read our work beforehand, they would have realized the negative effects of pulse oximetry variations during high altitude measurements. This gave them a lot of trouble.

- 7) They have the ignorance to affirm, that my hematocrit in La Paz (50 %) is in the “low range”. Based on what data is this wrong affirmation made? How many normal Aymara or Bolivian resident hematocrit measurements have they made in La Paz? Only 8 in one of their papers. What is worse, is that on this same paper, of which Saltin is a co-author that leads in the way it is published, the hematocrit has an average of  $50.2 \% \pm 1.2$  (AJP-Regul Integr Comp Physiol. Vol 287 Nov 2004 par R1203). And those values were measured in El Alto (not Plano as they frequently and mistakenly use) at 4100 m. which is 600 meters higher than where I live. With that limited data they pretend to be experts in high altitude medicine in my country. They are further disregarding one of the most important variables of adaptation to high altitude, the hematocrit.
- 8) They also affirm that the reduction of the hematocrit upon return to sea level “is much smaller and slower than what is commonly reported”. I am simply reporting on real data and I do not manipulate it to suit peer-reviewers. That is why the **Science, Honor and Truth Medal** was inspired by the 4<sup>th</sup> World Congress on Mountain Medicine and High Altitude Physiology. In 2008, it was awarded to Prof. Poul-Erik Paulev at the **II Chronic Hypoxia Symposium** (<http://www.zuniv.net/symposium2>), as the most distinguished physiologist, representative of the true Danish scientists. (<http://www.altitudeclinic.com/award.html>).

## FINAL COMMENTS

If Saltin is a representative (with the support of Norsk) of the scientific activity at the Physiology department of the Panum Institute of the University of Copenhagen, and with the self evident manipulation of my dissertation and several other attitudes that I observed while there (that I will eventually mention), then the Physiology department has entered a decadence that in the 21<sup>st</sup> century is intolerable.

### Who is responsible ?

I by no means withdraw my dissertation as suggested in the letter sent by the secretary (that is hardly understandable, see below). Several prestigious colleagues from outstanding universities around the world have read my dissertation. When I referred to them, what happened with my observations to the opponents and subsequent invalidation of these observations at the University of Copenhagen (see below), they were surprised of the evident biased opinion. Some colleagues even referred to this as an “International Scandal”. Consequently and for the sake of history I choose not to remove my dissertation and to let history itself be the evaluator. I am confident that my standing is based on the solidity of the new knowledge and contribution to science therein. Quoting Gustavo Zubieta-Castillo Sr: “Truth accepts neither modesty nor arrogance, only truth itself”

Finally, I must once again stress my admiration for the opportunity to answer this report, that is a consequence of the extraordinary Scandinavian Society which I strongly admire and to which I owe much for learning about one of the most advanced societies on planet Earth. During my stay in Denmark, I wrote an article in the Copenhagen Post expressing such admiration (Date).

Prof. Dr. Gustavo Zubieta-Calleja  
High Altitude Pathology Institute  
La Paz, Bolivia

27 Dec, 2009

**MISSPELLINGS, GRAMMATICAL ERRORS AND TYPOS**  
in the Evaluation Report of my dissertation by Saltin, Norsk and Konfstad.

Page1:

devided  
each sumarizes each  
la Paz  
in Journal of Physiology and Pharmacology

Page2:

clinical story  
emphazises  
van Slyke

Page 5:

in the light of the literature in the area  
patient (singular)

Page 6:

Plano Alto ??  
El Plano ??

Page 7:

In this chapter time needed for adaptation to various altitudes are investigated.  
and that the they deviate

Page 8:

subejts

Page 11:

The hematocrit is used for the the diagnosis CMS  
Andesregion

Page 13:

conglomerat

Page 14:

It cannot be recommended that this dissertation is accepted...