

## LETTERS TO THE EDITOR

### THE VALSALVA MANOEUVRE

118 Remuera Road  
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24/5/96.

Dear Editor

I was prompted to write this letter after reading the excellent review by Dr David Taylor.<sup>1</sup> Delonca, in an article on methods of equalising middle ear pressures for divers on descent, quotes from a book written by Valsalva called "Tractus de Aure Humana" or *A Treatise On The Human Ear*.<sup>2</sup> In another historical publication I read that in this book about the human ear, Valsalva described his manoeuvre as a means of treating discharging ears in adults. In other words by blowing air up the Eustachian tube it forced pus from the middle ear through the perforated tympanic membrane and this resulted in a cure of the chronic suppurative otitis media.

From my investigations the Valsalva manoeuvre is in fact the method used by divers to force air up the Eustachian tube and this interpretation of the manoeuvre is accepted by all Ear Nose and Throat surgeons. However there seems to be some conflict of opinion with physicians. When I asked a physician what was meant by the Valsalva manoeuvre, he described what Dr Taylor states in his introduction, a forced expiration against a closed glottis. Dr Taylor described a "standardised" Valsalva manoeuvre, which is neither of the above. As far as pressure effects are concerned there is a difference between expiration against a closed glottis and holding the nose and blowing hard down through the nose.

I have often wondered whether Valsalva wrote 2 books, one for the physicians and one for the ear surgeons or whether or not some person many years ago misinterpreted what Valsalva wrote so that the physicians are firmly convinced that their interpretation is the true one and the Ear Nose and Throat surgeons are all wrong.

Dr Taylor states that complications are usually seen when Valsalva is performed either "too forcefully" or "for too long a period." He does not define what he means by either of these indices. I have maintained over the past 30 years that a person should not hold the nose blocked for more than 5 seconds at a time and none of my patients have come to any harm. I consider that carrying out the Valsalva manoeuvre and raising the pressure for less than 5 seconds will not cause any problems and none have been reported to me.

It is difficult to define "forceful" and this leads to many people having problems inflating their ears because

they blow gently down through the blocked nose and this does not provide sufficient back pressure to inflate the ears. Some patients I have told to blow hard and they immediately clear their ears within 1 or 2 seconds and their problem is solved. If one states that forceful attempts are to be avoided, then instructors tend to tell their people to be gentle and thus cause problems. Ear surgeons use a Politzer bag to forcefully inflate the middle ear producing much higher pressures than the expiratory muscles can ever produce. So I consider that it is the rare person who is capable of providing sufficient force to cause any trouble in inflating the normal ear. I have had one patient in 45 years.

I disagree that a sudden clearance of a blocked Eustachian tube allows the transmission of pressures into the middle ear chamber driving the tympanic membrane outwards and jerking the stapes (also) outwards. The linkage between the 3 middle ear ossicles is relatively loose to allow for sudden excess movements of the eardrum without transferring forceful movements to the inner ear. The tympanic membrane when moved quickly in or out, as is commonly and frequently done with the pneumatic speculum or with the more violent Politzer bag, does not involve shifting the stapes outwards. In fact if the middle ear pressure is raised, then the stapes is likely to be pushed into the vestibule rather than to be pulled out. That is my explanation for alternobaric vertigo.

The article otherwise is a tremendous achievement by David and will remain as a standard reference to anybody interested in the physiological and patho-physiological effects of the Valsalva manoeuvre whether it be the physicians' definition of the Valsalva or the ear surgeons' definition.

Noel Roydhouse.

### Reference

- 1 Taylor D. The Valsalva manoeuvre: a critical review. *SPUMS J* 1996; 26 (1): 8-13
- 2 Delonca G. Considerations on manoeuvres to equalise the pressure in the ear of the underwater diver. (Title translated from the French.) *Bull Medsubhyp* 1970; 3: 10-24

### Key Words

ENT, physiology.

*This letter has been shown to Dr Taylor whose reply follows.*

242 Myers Street  
Geelong, Victoria  
23/8/96

Dear Editor

Thank you for giving me the opportunity to reply to Dr Roydhouse's letter.

I must confess that I found writing this paper somewhat frustrating. There were many areas which have been poorly written about in the literature. In fact, I had most difficulty in finding references relating to the middle and inner ears and the effects of barotrauma. My review is what I have been able to glean from the available literature.

I agree that Valsalva appears have written two descriptions of his manoeuvre. I found references that Valsalva described the manoeuvre as forced expiration against a closed glottis. I am therefore very interested to hear that he described it as a way of clearing out suppurative middle ear disease. I think that there is probably room for both definitions i.e. one against a closed glottis and another while holding the nose, as divers do.

The "standardised" manoeuvre has an open glottis to allow measurement of pressure yet has the soft palate blocking the transmission of pressure to the nasopharynx and therefore the Eustachian tubes and middle ears. I am confused as to the correct definition of the Valsalva manoeuvre!

It is not possible to really explain to a diver what we mean by "too forcefully" or "too long a period". I could find no help in the literature on this point, apart from a description of the standardised manoeuvre. I think the suggested time limit of 5 seconds is appropriate. If a diver needs to blow harder than he is used to, then he should be aware that perseverance with the manoeuvre may lead to complications.

David Taylor

#### Key Words

ENT, physiology.

#### MEDICAL ASSESSMENT OF FITNESS TO DIVE

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23/8/96

Dear Editor

The Medical Guidance, MA1, used as the basis for fitness assessment of North Sea divers and followed internationally, is about to change. It is now recognised that, apart from police and military divers who are

administered separately, there are 5 distinct categories of working diver in the UK: offshore, inland, scientific, media and the professional instructors of recreational diving. Each group will dive using a separate Approved Code of Practice.

A meeting will be held from the 14th to the 16th of March 1997 in Newcastle upon Tyne to discuss these changes.

Many of the changes to the Medical Standards for Diving for four of these categories arise from the 1994 Edinburgh meeting and it is proposed that the fifth group, the scuba instructors, have a different examination. Some of the proposed changes in the 1997 version of the Medical Guidance may need interpretation or clarification by the HSE at this meeting.

The academic program will begin on the Friday morning, 14th of March, with Ralph Mavin, HSE's Chief Inspector of Diving, outlining the new Diving Regulations and its various Codes of Practice. The apparent differences between the different Codes of Practice will be highlighted. Dr Stephen Doherty of EMAS will then present the medical views of HSE relating to the procedures and responsibilities required from Approved Doctors for record keeping, appeals and other matters. The competent medical interpretation of the Guidance in relation to each diver being examined will depend upon the knowledge and skills of the examining doctor. The new structure will require appropriate training of Approved doctors to a high standard and, to maintain consistency of medical standards, will need them to maintain continuing medical revision.

A review of the major organ systems will be led by some of the key speakers from the Edinburgh meeting and there will be special emphasis on those aspects of the new Guidance in which some important changes are likely to be made, such as accepting some sports diving instructors with insulin-dependent diabetes. The meeting will be held in the Copthorne Hotel, Newcastle upon Tyne, situated beside the river some 10 minutes from the main railway station and linked by a regular metro service to Newcastle's international airport. The meeting will close at lunchtime on Sunday 16th of March, 1997.

This will be a milestone meeting for all Medical Examiners of Divers. PGEA and CME approvals are expected.

Details from Biomedical Seminars, 7 Lyncroft Gardens, Ewell, Epsom, Surrey GU27 2HX, UK. Fax + 44-181-786-7036. E-mail 106101.1722@compuserve.com .

David Elliott

#### Key Words

Fitness to dive, medical standards, meeting.