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European Journal of Underwater and Hyperbaric Medicine

EUBS European Underwater and Baromedical Society Official NEWSLETTER

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EUBS EXECUTIVE COMMITTEE

EDITORIAL

Dear Readers!

Another year has passed too quickly and the Christmas Season has come upon us. Usually this means we all are extremely busy with all the necessary preparations for the season. It also means that we can expect presents from our family and loved ones. Since the Hyperbaric Community is rather small it has always been like a family to most of us.

Therefore it should not come as a surprise that you receive with this issue something extra. This Supplement has been made possible with the financial support of the European Science Foundation on behalf of the COST Programme. The ***European Code of Good Practice for Hyperbaric Oxygen Therapy*** has been finalized by the Workging Group Safety of the COST Action B 14 "Hyperbaric Oxygen Therapy" in May 2004 and was originally published on the website of this Action at ***www.oxynet.org*** in September 2004.

With the Supplement to this issue the ***European Code of Good Practice for Hyperbaric Oxygen Therapy*** gets published in a printed version for the first time. It is intended to have regular updates of this document, which will be available on the Oxynet, with translations into other European languages that must be have been verified by a member of the Workging Group "Safety" of the COST Action B 14. The original reference document will always remain the English version published on the Oxynet.

If you would like to make any comments or suggestions regarding the ***European Code of Good Practice for Hyperbaric Oxygen Therapy*** please contact Dr. Jacek Kot, our newly elected Member-at-Large, who was the Chairman of the Working Group "Safety". His email is ***jkot@amg.gda.pl*** in case you didn't notice already.

This document has been acknowledged in the Jury's Conclusions of the **7th ECHM European Consensus Conference on Hyperbaric Oxygen Therapy in Lille, France, 3 - 4 December 2004** as a valuable instrument to improve the safety of a hyperbaric facility. Our President, Dr. Noemi Bitterman was a member of that Jury and will present us her summary of the conference in the next issue of the EJUHM. The usual President's Column in the EUBS Newletter has been omitted for that reason in this issue.

Manuscripts that were omitted from the **Proceedings of the 31st EUBS Annual Scientific Meeting, Ajaccio, France 15 - 19 September 2004** by a computer problem at the congress' printer are published here in this issue to give the authors the opportunity for the usual "Mini paper". The meeting itself was marvelous as you can read in Dr. Lee Greenbaums report on pages 96 - 97 and I would like to extend my sincere gratefulness to Dres. Bruno Grandjean and Jean-Louis Meliet as Secretary General of the Meeting and Chair of the Scientific Committee respectively who have made this event a great success and a wonderful time for all of us attending.

Another report from an American member of our society on page 95 is about the **UHMS Annual Scientific Meeting in Sydney, Australia, 25 - 29 May 2004** organised by Dr. Mike Bennett. These meeting reports have always been welcomed by our members who were unfortunately unable to attend these important gatherings and I am grateful to Bill and Lee who have always supported me with their write-ups of the meetings.

With my best wishes for a wonderful Christmas and a Happy New Year!

Peter

EUBS GENERAL ASSEMBLY 2004

Minutes of the General Assembly 30th annual EUBS meeting: September 15-19 in Ajaccio, 18.09.2004

The EUBS president introduces the new society's secretary, Ms Tricia Wooding to the assembly. She is welcomed with applause.

The financial report has been printed in the actual issue of the EJUHM, which has been distributed to all attendants with the EUBS proceedings. The financial report is accepted. The actual membership status is of 283. This list will be printed as a new directory next year.

The action of the Belgian Society for Diving and Hyperbaric Society is presented as an original way to increases the EUBS membership number. They offered their members a discount package including their own membership + a discounted EUBS membership. Most of the Belgian colleagues bought the package, which meant 30 new members for EUBS.

Alf Brubback has been elected as a new vice president and Jacek Kot as the new member at large for a 3 year term. Both are warmly applauded by the members. There has been a significant increase in votes due to the efficient work of Ms Wooding.

Our President, Noemi Bittermann offers a nice present to Einar Thorsen for his work during his period as a member at large. Thanks are also addressed to both Peter Germonpré as the Webmaster of our website and to Peter Müller as an editor of the EJUHM for their outstanding voluntary work.

Dr Desola will host the next EUBS meeting September 7 to 10 in Barcelona. This will be a joint meeting with the International Congress on Hyperbaric Medicine with a separate registration and attendance. Several satellite meetings will take place or are planned at the location: European Committee for Hyperbaric Medicine, High Pressure Biology Symposium, the Latin American Chapter of the UHMS among others. The deadline for presentation will be March 15 of next year. Separate lectures will be given daily on non-medical topics

Dr Arvid Hope makes a short introduction on the 2006 EUBS Conference to be held in Bergen, Norway August 23-27.

Following meetings are now on the list:
2007 Croatia, 2008 Graz, 2009 United Kingdom, 2010 Greece and 2011 Egypt.

Alf Brubbak informs the members that the EXCOM will try to increase the audience and impact of the European Journal of Underwater and Hyperbaric Medicine. They plan to contact the editor of the "Journal of High Altitude Medicine and Biology". This journal is the organ of a society of 500 members only and had reached in only 5 years of existence an impact factor of 1.4. Alf Brubbak asks the society's member to submit actively papers to Peter Müller in order to support this launching.

Dr Noemi Bittermann congratulated Dr Bruno Grandjean and Dr Jean-Louis Meliet for an outstanding meeting. It was very convivial and of excellent technical quality. She thanked also the members for presenting good science. Three prizes reflected this statement. One on behalf of the EUBS:

Zetterström award (Free registration for the next meeting and publication in the EJUHM): Winner was Peter Germonpré et al. for the poster entitled Influence of scuba diving on asymptomatic isolated pulmonary bulla.

And two, each of 1'000 Euro, granted by the organizing committee for the 30th EUBS conference anniversary.

The price for the best presentation in diving medicine was attributed to the group of Aberdeen, represented by Ms J.I. Macdiarmid for the presentation called: What factors impact health related quality of life in professional divers and offshore workers? The ELTHI diving study.

The best presentation in HBO was attributed to Dr A. Mitrovic from Belgrade for her work entitled: Hyperbaric oxygenation and endometrial receptivity.

The Meeting ended in a convivial buffet with solid and liquid Corsican specialties.

Jörg Schmutz, Secretary

EUBS ANNUAL SCIENTIFIC MEETING 2005

A Joint Meeting with the International Congress of Hyperbaric Medicine (ICHM)
Barcelona, 7-10 September 2005
Organized by CRIS-UTH

First Announcement

Dear colleagues,

On behalf of CRIS-UTH, we are happy to invite you to attend the **31st Annual Meeting of the EUBS**, in September 2005, as a joint meeting with **the International Congress on Hyperbaric Medicine (ICHM)**.

As you well know, the EUBS was founded in 1973, and ever since then an annual meeting has been held, always organised by prestigious institutions. You will also remember that in 1963 Prof. Boerema created the first International Congress on Hyperbaric Medicine, which has been repeated every three years, changing each time of continent. These two prestigious institutions agreed to share a common meeting in 2005 and they have honoured us choosing Barcelona as the venue. Both societies will retain their traditions: special lectures, receptions, workshops, banquets, or awards. But there will not be two simultaneous congresses, but rather a large meeting of two prestigious societies that agreed to share **a** large unified **conference**.

Barcelona is a perfect city for all kind of international events. You probably remember the Olympic games, which were held in 1992, and you may also know of many international congresses of almost all major medical specialities being held here. CRIS-UTH already had the honour to organize the IX Congress of the EUBS, in 1983. We feel sure that those who attended have good memories of it.

We have learnt a lot since then and we have grown a little. This time we will be offering you a combination of three factors: a high-level scientific meeting, a good program of leisure activities before and after the conference, and some unique cultural opportunities. Barcelona is a typical example of Mediterranean culture, and is thus a perfect setting to mix all these activities.

Some of the most important societies or institutions in the field of both underwater and hyperbaric medicine will also have **Satellite Meetings**, congress, or workshops. These will include the European Committee for Hyperbaric Medicine (ECHM), the Congreso Latinoamericano de Medicina Hiperbárica y Subacuática (an UHMS chapter), the High Pressure Biology Symposium, and the Medical Commission of the European Diving & Technology Committee (EDTC), among others.

An **International Updated Course on Hyperbaric Medicine** is being organized during the days before of the conference, and some workshops and symposia will be offered as well in the surrounding dates.

However we will not be limited strictly to medicine. We will offer you **a daily lecture** and/or exhibition about, history, literature, music, or other interesting cultural activities.

The second announcement, and first call for papers, will be distributed by the end of 2004. The deadline for abstracts presentation will be March 2005. All activities will be Internet-based: no written-paper sheets or abstract forms will be distributed.

September is a perfect season for a short visit to Catalonia. The weather is still warm, and places are not as crowded as in summer. We will be offering you a wide range of leisure and sport activities to be enjoyed in the days before or after the Conference, of course including **diving excursions** to Costa Brava or to Balearic Islands.

Following what is an ICHM tradition, a 3-4 days **Hyperbaric Tour through the country** will be organised, visiting some of the main Centres of Hyperbaric Medicine located in beautiful resorts, like Santander, Malaga, Cartagena, Alicante, and Palma de Mallorca.

We hope we have convinced you that Barcelona-2005 offers you an excellent opportunity to combine the best Conference of the year with an enjoyable leisure experience, and may be a part of an unforgettable holiday.

Make a bookmark in your 2005 diary; you will not be disappointed.

Welcome to Barcelona !
Welcome to Catalonia !
Welcome to Spain !
Welcome to the Mediterranean !
Welcome to Europe !
Welcome to the International Conference on
Diving and Hyperbaric Medicine Barcelona 2005 !

Jordi Desola, MD, PhD
Chairman, Organising Committee EUBS-2005
President of the ICHM-2005
Director of CRIS-UTH, Barcelona

ANNOUNCEMENTS

THE UNIVERSITY OF AUCKLAND
FACULTY OF MEDICAL AND HEALTH SCIENCES

Postgraduate Diploma in Medical Science – Diving and Hyperbaric Medicine

Applications are now being accepted from registered medical practitioners for the Postgraduate Diploma Medical Science – Diving and Hyperbaric Medicine in the Faculty of Medical and Health Sciences, the University of Auckland. The Diploma can be completed in one year or spread over two years part time.

This Diploma is designed as a distance learning programme available internationally and without a resident component in Auckland. However, some courses require attendance at a recognised residential course in diving and hyperbaric medicine available within Australasia (or elsewhere on application) and one paper requires attachment to a recognised hyperbaric medicine unit. Graduates will be able to practice effective clinical diving medicine in a primary care setting or to commence practice within a hyperbaric medicine environment.

Programme Director: Assoc. Prof. Michael Davis
Faculty: Prof. Des Gorman, Head, Occupat. Med. Unit

Simon Mitchell	Drew Richardson
Chris Acott	Michal Kluger
Alison Drewry	Kathleen Callaghan

For further information, including fees, please contact the Course Coordinator: Jessica Rorich
Phone: +64-(0)9-373-7599, extn. 88489
Fax: +64-(0)9-308-2379
Email: <occmed@auckland.ac.nz>

Full information on courses and admission regulations is available in the University of Auckland Calendar or at <http://www.auckland.ac.nz>

London Hyperbaric Medicine

Hyperbaric Medicine
A Team Course for Health Care and Diving Professionals.

40 hours of theory and practical experience with both monoplace and multiplace chambers incorporating the British Hyperbaric Association (BHA) Core Curriculum. Approved for CHT and CHRN/ACHRN by The National Board of Diving & Hyperbaric Medical Technology (NBDHMT) Cost: £450

7th – 11th March 2005

Advanced Hyperbaric Technology and Safety Course

40 hours of theory and practical training for those responsible for the supervision and safety of hyperbaric facilities. Cost £450

4th - 8th April 2005

Course Director: Roly Gough-Allen
Contact for these and other courses: Ms Tricia Wooding
T: (+44) 0208 539 1222 E: mail@londonhyperbaric.com
Whipps Cross University Hospital, Leytonstone, London. E11 1NR

33rd South Pacific Underwater Medicine Society Annual Scientific Meeting

23 April – 1 May 2005

Coco Palm Resort and Spa
Dunikolhu Island, Baa Atoll Maldives

Guest Speaker: Michael Lang

The Theme of this year's meeting is "Evolving Diving Practices"

Michael proposed to present a selection of the following topics.

- Oxygen Enriched Air (nitrrox): A comparative Analysis of Community Practices
- Diving Shallow to Deep: Reverse Profile Diving Practices
- Advances in Wet Diving for Science: Roadmap to the Future
- Dive Computers, Ascent Rates and Multi-Day Diving
- Technical Diving History from the Science Perspective
- Antarctica: Research Under Ice
- Spitsbergen: Diving South of the North Pole
- Smithsonian Marine Science Network: Deep-time to Modern-Day Underwater Research
- Smithsonian Scientific Diving Program: Medical, Training and Operational Procedures

The Convenor for the meeting is Dr Catherine Meehan

Attendees are invited to present at the conference. Presentations do not have to comply with the theme of the conference, although it is advantageous. Intending peakers are reminded that it is SPUMS policy that they must provide the Convenor with the printed text of their paper and the paper in electronic form before their presentation.

The deadline for abstracts submission is 28 February 2005.

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Department of Circulation and Medical Imaging
Norwegian University of Science and Technology, Trondheim, Norway.

Ultrasound for monitoring decompression: Theory and practice

Trondheim, Norway; August 22. – August 24. 2005

Diving in cold waters

Stokkoya, Norway; August 25. – August 28. 2005

Preliminary program

Ultrasound for monitoring decompression

Ultrasound is increasingly important for monitoring decompression. The incidence of decompression sickness can no longer be used for evaluating decompression procedures and to evaluate the effect of different interventions. Furthermore, ultrasound can be used experimentally in many animals species. New ultrasonic methods and techniques for signal analysis may further increase its value for studying the effect of gas bubbles.

The course will give the participants the theoretical background for these different techniques and give the students practical experience in evaluating and analyzing the results. Practical use of the methods will also be demonstrated in the following course on cold water diving, where the students will be given the opportunity to monitor actual decompressions using ultrasound.

Diving in cold waters

Cold water diving introduces specific problems, both in terms of equipment and procedures. The course will give both theoretical and practical information and teach the students the use of appropriate equipment for this type of diving. Survival equipment and techniques will be demonstrated. There will be ample opportunity for testing your knowledge in actual dives , where you will be made acquainted with the different creatures living in the northern seas as well as have the opportunity to catch your own dinner !!

The first part of the course will be held at our laboratories in Trondheim. The second part will be held at the dive centre in Stokkøya, facing the Atlantic outside Trondheim. If you are interested in these courses, please send me an e-mail. Second announcement and further details will be posted on the EUBS and Stokkoya websites approx. Jan 2005. Participation is limited.

Further information:
Alf O. Brubakk
E-mail: alfb@medisin.ntnu.no
www.Stokkoya.no

CLASSIFIED

We are currently advertising NHS Consultant posts in Anaesthesia with the opportunity to do hyperbaric medicine, based in Aberdeen.

Dr Stephen Watt
University of Aberdeen
Department of Environmental and Occupational Medicine
s.j.watt@abdn.ac.uk

We are offering a position in Hyperbaric Medicine. It has to be a doctor who has finished a residency in his home country, but he (or she) does NOT have to have the USMLE. Theoretically they can stay for 4 years, tho most do not want to stay but for a year, and after that the visa and the license to practice both expire and they have to go home. Therefore, this is not a way to emigrate to the US or to get an independent medical license in the US.

The pay is about $55,000 US dollars, so unfortunately they are paid like a "Fellow" (PGY 4) but it is actually a Visiting Assistant Professorship in the Department of Anesthesiology.

Caroline E. Fife, M.D.
Hermann Center for Hyperbaric Medicine
Houston, Texas
Caroline.E.Fife@uth.tmc.edu

MEETING REPORTS

UHMS Meeting 2004 in Sydney a Smashing Success

R.W. "Bill" Hamilton

UHMS had its annual meeting in Sydney this past May 25 to 29, and by all accounts it was a great success. A second consecutive non-US location (last year was Quebec), this was one of the best attended UHMS meetings ever, at home or abroad, with a total of over 450 paid attendees. This was due in part to attendance by a lot people from the Southeast Asia-Pacific area, many from Europe and especially Scandinavia, but also because conference chairman Mike Bennett and his colleagues pulled together an outstanding scientific program and took full advantage of the incredible beauty and interest of Sydney itself. We missed a few Americans who were not able to attend or not willing to put up with the very long plane ride, but this was their great loss. This was more than offset by strong local attendance by what seemed to me to be a lot of old friends from all over the world. Mike Bennett sent out a series of newsletters prior to the meeting that helped drum up interest. One cautioned, for example, that water was scarce in Australia and visitors are required to shower with a friend; if one doesn't have a friend, the hotel will provide one.

UHMS has been struggling in recent years to take advantage of the poster format to enable more papers to be presented, yet to provide means for feedback and critique from the audience. This year they seemed to have it working well. Several papers from each session were selected for a "5-slide" presentation, and this was enough for the main points to be made, and for questions and discussion. The format allows one to switch sessions with reliable timing expectations, and to duck out for a committee meeting if need be.

One nice treat we have learned to expect at the UHMS meeting now are updates in a plenary session by an expert on several topics of interest, including for example DCS by Richard Moon, infections by Mike Bennett, chronic wounds by Bob Warriner, and flaps and graphs by Ian Millar, and we regretted that John Feldmeier was not there to talk about radiation injury. Several nice luncheon lectures presented frustration in that we could not hear them all. The strong program for associates staged by the HTNA (Hyperbaric Technician and Nurses Association, mostly Australian) deserves mention. A major feature of the meeting was the 2-day workshop on remote management of mild DCS, which was reported in the last EUBS journal. Another shorter but intensive workshop on intensive care patients was well appreciated.

Our hotel was the Four Seasons, located on the harbor with spectacular views in most directions. It was walking distance from Sydney's famous Opera House, and many of us took advantage of concerts there, where every seat is a good one. There is a lot more to do in Sydney, with many fine pubs among other things, and most of the city is accessible by walking. Some nice tours were available for accompanying persons or those willing to play hookey from the meetings. We also got to attend several interesting evening functions, which included among other things watching right up close to a sheep being sheared (with incredible skill!) and being able to play with some most interesting snakes and lizards. We were given many opportunities to enjoy some fine Australian wine, and the record should reflect that it was quite enough for some of us to enjoy each other and some very active dancing at the banquet. UHMS has a fun-loving group at all its meetings, but being in Australia made this aspect of it unexcelled—noone likes to have fun as much as the Aussies.

By way of business, a couple of issues are worth noting. One is a controversial proposal to move the excellent UHMS library to Duke University, another is a much-needed effort to revise the by-laws. Stay tuned.

One thing this reporter always looks for in a meeting is the availability of coffee, where the ideal standard is to have it available at all hours. Although the coffee service was somewhat structured, it was available most of the times when needed and it ran during the sessions, not just during breaks. It is a big mistake to think that coffee is not needed in the afternoon, but that was not a problem at Sydney. The ICE Australia organizers were attentive and available to deal with many special requests. Kudos especially to Kandis Taylor, who seemed to be the chief organizer for ICE.

We got a CD of the abstracts, but it would have been nice to have a paper copy of abstracts to follow and take notes on (I was supposed to print out my own), and I would also appreciate abstracts of the luncheon lectures and annual updates. The printed program was quite complete (including for example the committee meeting times and places) and like the conference had a great logo designed around the Sydney Opera House. It was nice to have a list of attendees, but unfortunately the list did not say where people were from, despite the title, "Demographics List."

The UHMS is staying closer to home next year with its meeting at the Flamingo in Las Vegas during 2005 June 15-18, to be followed by Orlando (2006) and San Diego (2007). Be there.

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EUBS Meeting 2004 in Ajaccio, Corsica

Lee J. Greenbaum

What a wonderful venue to have the Society's thirtieth annual meeting in September in Corsica. The registration for the meetings was proof that the membership looked forward to attending this meeting on this beautiful Mediterranean island.

The maritime city of Ajaccio where the meetings were held is open to major shipping and the airport is only a very short distance from the city. Since the area around the city is mountainous, the airport is located next to the beach and runs parallel to it. Apparently only pilots who have been trained to make the special landing approach are permitted to fly in and out of Corsica. The meeting center, Palais des Congres et Expositions Millenari d'Ajaccio is located at the water's edge at the foot of the city. It is a newly constructed meeting center with air conditioning and all of the modern accoutrements that are required for technical meetings. Therefore if you enjoy the marine environment, this was the place to come for a meeting.

Alf Brubakk opened the diving medicine session with an unusually clear and well documented presentation on the role of the endothelium in decompression illness. It is generally agreed that injuries to the diver are caused by gas bubbles, but are these bubbles responsible for any long term effects in the diver? It is possible that tissue bubbles may play a role in decompression sickness, vascular bubbles from the lungs and central nervous system, however, result in the serious or debilitating symptoms. It is therefore important to determine the effects of the bubbles and to find mechanisms to reduce the volume of bubbles and the prevention of their harmful effects and possibly, lasting effects.

It is Brubakk's and his collaborators' hypothesis that the main mechanism for injury to the central nervous system is the effect the bubbles have on the vascular endothelium. Data from the literature, coupled with their studies supports this concept. These studies were logically and very clearly presented. The balance of the presentation dealt with the prevention of serious injury. One tack that was taken was to investigate the effect of exercise and the production of NO prior to the dive. The maximum benefit
was seen when exercise was performed 24 hours before the dive. There was a significant reduction in bubble formation.

A number of other influences on bubble formation were also discussed, viz serum surface tension and bubble formation, the role of lipoproteins and endothelial adhesiveness and even the use of an NO donor (Nitroglycerin). This very scholarly lecture by Brubakk will no doubt help to move our physiopathologic understanding of decompression sickness forward, from a position were it had virtually stagnated for years.

It was quite appropriate that the paper by Madden, Laden and Greenman tied in very nicely to the invited lecture by Brubakk. The investigators hypothesized that gas emboli in the venous circulation have the potential to damage the vascular endothelium. The endothelial cells shed microparticles and these microparticles express the antigen of the cells from which they were derived. Twenty four divers were compressed to 2.8 atm for 78 minutes and decompressed using the standard USN air tables. The bloods were sampled for fluorescent-tagged antibodies before the dive, during the dive and up to 24 hours postdive. There was a significant increase in endothelial specific markers within the circulating microparticle population, which was indicative of endothelial damage.

The use of deep and shallow water stops following 25 meter no-decompression dives on the incidence of neurological symptoms was studied by Marroni and colleagues. The introduction of the deep water stop (50 fsw) appeared to decrease the degree of decompression stress, as observed by Doppler detected bubbles and the investigators concluded that the addition of the deep stop may reduce the incidence of spinal cord DCS.

Since cerebral lesions may occur in divers who have not committed any "technical errors", Simon and co-investigators studied the possible influence of inborn thrombophilic factors in 44 divers. There were elevated levels of homocysteinemia and a genetic predisposition to hyperhomocysteinemia.

An interesting investigation was presented by Agvald on the expired NO after venous embolization in rabbits. He and his colleagues hypothesized that pulmonary air emboli might produce changes in expired NO due to bubble-induced local reduction of NO scavenging from profusion, reduced inhibition from blood-born CO2 and or release of inflammatory mediators. The results showed an increase in eNO and a concomitant decrease in CO2. The authors stated that an intact NO production appears to be critical for the tolerance to venous gas emboli.

Doppler ultrasound signals are widely used to grade the quantity of circulating venous gas emboli (VGE) in divers. However current techniques depend on trained observers, which make the grading process subjective and time consuming. The process is confounded by signals arising from heartbeats. Chappell and Payne used the Hilbert-Huang transforms to investigate whether the features of the heartbeats and VGE were separable. They used the Doppler ultrasound signals from recreational divers after decompression. Intrinsic mode functions (IMF) provided a basis set for signal decomposition, each of which corresponded to a different time scale in the signal. The number of IMFs is then determined automatically by the algorithm, dependent on the number of distinguishable scales in the data. One might conclude that the Hilbert-Huang transform is a method by which

Doppler ultrasound data may be analyzed and the patterns from VGE identified independently of the heartbeat patterns.

Data presented in a poster on the effect of nitric oxide on vascular bubble formation in pigs by Mollerlokken and colleagues supports the hypothesis that a short acting NO donor will reduce the amount of gas bubbles by removing nuclei from the endothelium. Male pigs were randomly assigned to treatment and control groups and were compressed to 500 kPa for three (3) hours while breathing nitrox with an O2 content of 35kPa. Linear decompression was used at a rate of 200 kPa per hour. The treatment group received an injection of a short acting NO donor (glycernitrate 5mg/ml) 30 minutes before decompression while the controls received a 0.9% saline solution. The animals receiving the drug had far fewer vascular bubbles than the controls.

Linnarsson, Lindholm, Sundblad, Brodin and Kaijser investigated the hemodynamic changes that occur during apnea in exercising humans. Apnea during exercise is associated with a rapidly developing hypoxia and a cardiovascular diving response with bradycardia, arterial hypertension and a marked reduction in cardiac output. Did a pulmonary vasoconstriction contribute to the reduction of cardiac output and at the same time direct the pulmonary blood flow to the least hypoxic sections of the lung?

The exercising subjects were instrumented with a Swan-Ganz catheter in the pulmonary artery and a brachial catheter. They performed repeated 40 second breath holds at five minute intervals. Pressures were recorded in the pulmonary artery, right atrium and in pulmonary wedge position to estimate left atrial pressure. Cardiac output was determined repeatedly with thermodilution just before the end of the breath holds. Total peripheral resistance of the systemic circulation increased from 7.5 units and 6.2 units before apnea to 28 and 20 units during apnea, confirming that there was a marked systemic vasoconstriction. Increases of mean pulmonary arterial pressure were 7 and 5 mmHg were recorded along with increases of mean left atrial pressure of 17 and 10 mmHg. The authors concluded the observed changes in central hemodynamics can be explained by systemic vasoconstriction and bradycardia with no pulmonary vasoconstriction.

In the area of hyperbaric oxygen physiology, the dosimetric study of hyperbaric oxygen treatment for the reduction of secondary brain damage in rats by Palzur and his colleagues was able to show that HBO treatment in the first 12 hours post injury leads to a significant reduction in apoptotic cells. The anesthetized rats were subjected to dynamic cortical deformation. They were separated into eleven groups and subjected to one of the following treatment pressures: 1 ATA, 1.5 ATA, and 2 ATA with treatment days ranging one treatment for one day, two treatments in two days, three in three days, two treatments in one day. Normobaric oxygen provided some benefit but a greater reduction in apoptotic cells was recorded with hyperbaric oxygen and the authors concluded that HBOT is beneficial in reducing secondary brain damage.

Hyperbaric oxygen therapy is based on the elevation of tissue oxygen tension and also on regional blood flow. Restricted flow to the damaged area therefore the damaged area may not receive the full benefit of the elevated blood oxygen tension. Demchenko and Piantadosi investigated the relative contributions of FiO_2 and cerebral blood flow (CBF) to brain PO_2 while breathing oxygen under pressure in anesthetized ventilated rats. They were exposed to 2,3,5 and 6 ATA of oxygen for 75 minutes. During the HBO exposures when the hemoglobin was 100% saturated, brain PO_2 depends equally on inspired oxygen pressure and CBF. Alterations in CBF of -50 to +100% during HBO at 2 – 6 ATA decreases or increases brain oxygenation proportionately. If there is need to raise brain PO2 to specific levels, this is best achieved by combining HBO with agents that counteract the oxygen producing vasoconstriction and maintain normal or elevated CBF.

In the area of clinical hyperbaric oxygen therapy, a considerable amount of time was devoted to the specialty of baromedical nursing, viz administration and the exchange of information. This was a unique change in the format of the meetings, no doubt a welcome change. As for medical treatment, there were no major clinical trials reported. There were however a number of case reports and hopefully with time, these case reports will encourage the treatment facilities to initiate well designed clinical trials.

I was highly impressed with the number and high quality of the posters. This is certainly a wonderful trend. The more formal presentations were well managed by the chairmen of each of the sessions and almost every chairman was very studious in watching the clock and keeping the papers moving along and on time. One was equally impressed with the simultaneous translation service and the audiovisual equipment that was available for the Society's use. The organizers of the meeting, Bruno Grandjean and Jean-Louis Meliet are to be thanked and congratulated for an extremely well run meeting and for the very enjoyable social functions. There is no question that the social highlight of the meetings was the superb banquet dinner at the Dolce Vita on a balmy night.

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Manuscripts are accepted in English, and also in major European languages (French, Spanish, Italian and German) when accompanied by an English abstract.

Contributions should be sent to
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The **EJUHM** is composed on a PC using Word processing. Documents are acceptable on disc or by e-mail. Illustrations and tables should **NOT** be embedded in the Word document, only their position indicated. All tables are to be separate documents. Illustrations should be separate documents in Word or JPEG, clearly marked with the format used. References should be in the correct format, shown in the next column. Two printed copies of all text, tables and illustrations must accompany submissions.

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1. Thorsen E, Risberg J, Segadal K, Hope A. Effects of venous gas microemboli on pulmonary gas transfer function. Undersea Hyperbaric Med 1995; 22:347-353.
2. Hempleman HV. History of decompression procedures. In: Bennett PB, Elliott EH, Eds. The physiology and medicine of diving. London: WB Saunders, 1993:324-375.
3. Kindwall EP, Goldmann RW. Hyperbaric medicine procedures. Milwaukee, WI: St. Luke's Medical Center, 1970.

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