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The Quarterly Newsletter of the Snell Memorial Foundation

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This is the forty first of the Foundation's newsletters to the helmet manufacturing industry. The fortieth was sent out in February. Comments and items for inclusion in subsequent issues are invited.

**Manufacturers' Meeting**

The Foundation held it's annual Manufacturers' Meeting this last February in Indianapolis on the Friday before the opening of the Indianapolis PowerSports Expo. Dr. Chilcott welcomed all the attendees on behalf of the Foundation. Steve Johnson, Randy McCarty and Ed Becker represented the Snell laboratory staff. The discussion ranged from the upcoming transition to

Snell 2005 standards, to the development of children's motorsports helmets to the basis for some of the new impact test evaluation policies being adopted. Some of these same topics are addressed in this newsletter. A copy of a powerpoint presentation prepared for the meeting is available to interested manufacturers.

**Response to Magazine Article**

The June 2005 issue of Motorcyclist magazine includes a rehash of an item that appeared in the same magazine back in 1991. Although alarming at first, none of the ideas presented either in the earlier article or the new rehash have any real weight. At best, both are thinly disguised and highly biased attacks on Snell standards and on Snell certified helmets.

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Since these articles purport to deal with helmets and head protection, however, the first of them created quite a bit of short lived disruption when it appeared and this rehash promises to do the same. Concerned riders have been e-mailing the Foundation since the rehash first appeared. It's the sensible thing to do, especially for anyone who hadn't seen the '91 article and who may be unfamiliar with the personalities and issues. As a service to these riders, the Foundation has posted a response to the article on the website [www.smf.org](http://www.smf.org).

I urge everyone who's seen this newest item to read through the response and, if they find it persuasive, to pass it along to their friends.

### **Children's Facial Proportions**

**A**nthrotech, formerly the Anthropometry Research Project of Yellow Springs, Ohio, has just completed a study of children's facial anthropometry. This same organization researched children's head sizes and published results in 1997. In this recent effort, they re-analyzed the three dimensional scans of children's heads collected for the earlier study and located specific anatomic landmarks. Their subsequent analysis tracks facial development throughout childhood and should prove invaluable in the design and development of children's full face headgear and in children's helmet retention systems.

**T**he first study was authored by Dr. Bruce Bradtmiller and the more recent study by Dr. Martin Friess. The Foundation was pleased to fund both studies and is grateful to Dr. Bradtmiller and Dr. Friess for these valuable contributions to helmetry. This latest study will be printed and distributed to interested parties soon and will be made available for download on the Foundation's website.

### **Neck Strength in Children**

**T**he Foundation is also funding an investigation of neck muscle strength in children. Dr. Randal Ching at the University of Washington will measure forces children of various ages can exert volitionally using their neck musculature and attempt to draw useful inferences about children's capacity to wear and manage heavier motorsports helmets. This effort will continue through 2005 but, it is hoped, the results of this study will be written up and ready for distribution before next spring.

### **Workshop on HIC and Helmet Standards**

**O**n May 6<sup>th</sup>, 2005 Snell sponsored a Workshop on Criteria for Head Injury and Helmet Standards in Milwaukee, Wisconsin. The workshop was hosted by the Department of Neurosurgery of the Medical College of Wisconsin. More than twenty respected experts in medicine, biomechanics, and helmet standards development participated in the workshop. The purpose of the workshop was to address the scientific and experimental basis of the Head Injury Criteria (HIC) and to investigate various applications of the Criterion to different test standards.

**D**r. Daniel Thomas, Vice President of the Snell Board of Directors made opening remarks at the beginning of the workshop. Edward Becker led the morning session with a presentation comparing the test results of paired helmets which had identical design configuration by the same manufacturer but made to meet different standards by Snell and EC. He demonstrated that the EC helmets routinely failed the peak G impact test criterion in the Snell standard while some models of Snell certified helmets failed to meet the HIC requirement in the EC standard. Dr. Thomas Gennarelli, Professor and Chair of the Dept. of Neurosurgery at the Medical College of Wisconsin, welcomed the participants as the local host and made his presentation on traumatic brain injury from the perspective of clinic medicine. Other presenters include Mr. Andrew Mellor from FIA, Professor Yoganandan from Medical College of Wisconsin, and Dr. James Newman with Newman Biomechanical Engineering Consulting, Inc. Mr. Mellor introduced the new FIA Super Helmet Standard and the justification for the increased impact severity in the new FIA standard based on injury data from race accidents and studies done in Europe and Britain. Prof. Yoganandan's presentation illustrated a brief history of helmets and a historical review of the evolution of HIC based on basic research at Wayne State University on human brain injury tolerance. Dr. Newman's

presentation on HIC gave a detailed illustration of the evolution of its computational formula and its relation to the GADD Index as well as various applications of the HIC to different helmet test standards. In the afternoon, a lively discussion among all participants came to a consensus that HIC is irrelevant in helmet testing but some kind of time duration criterion would be more applicable.

A summary of the workshop is being drafted. The finalized publication as a monograph will be available later in the Summer.

### 2005 Decals

The new SA2005, SA2005 and K2005 decals will appear similar to the M2000, SA2000 and K98 versions. Over the past few years however, we have had an increase in the number of reports of decal white outs, where all of the color printing disappears from the decal. We have located a number of cleaners that we can attribute this phenomenon too, and it is likely other substances can cause this effect. All of the new decals will incorporate an improved laminating process to help alleviate this problem. Of course helmet users must also be reminded that the use of certain chemicals can adversely affect the helmets liner, and ultimately its performance as well as the labeling.

We have been asked to design and make available a two-part decal to help in the tracking of Snell certified helmets in inventories. We have come up with a two-part decal that would be distributed on the same roll system as the current decals do. The secondary decal is 1"x 3/4", and is equipped with a bar-code identical to the serial number of the adjoining certification decal to be placed in the helmet. The secondary decal can be used on packaging, or for reporting purposes. We are also investigating the practicality of incorporating a bar-code onto the certification label as well. These items will not be required and the standard single part decals will remain available.

### DVDs to Motorcycle Dealer Stores

Since January 2005 we have been distributing free DVDs on how to buy a motorcycle helmets

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through motorcycle dealer stores. So far over 8,000 DVDs have been sent to over 600 dealer shops that have requested them. Each store also received a free DVD display holder designed to stand on a counter or a shelf. A number of stores have already called for refills. We are asking for tax deductible donations to the Snell Safety Education Center to reduce the burden of the cost for those free educational materials.

### M2005 & SA/K2005 Standards

Advance testing to M2005 and SA/K-2005 Standards has been proceeding. Quite a few models have already met Snell 2005 certification test requirements. Until the 2005 standards take effect, many of these models will be distributed and sold with M2000, SA2000 or K-98 certification labels.

M2005, SA2005 and K2005 labeled helmets will not be made available to the public until October, 2005. However, this is not necessarily a reason to delay helmet purchases. The Snell 2005 standards represent only an increment of

improvement on existing requirements. Many Snell M2000, SA2000 and K-98 headgear already meet them. If you need a helmet now, don't put off the purchase until next October. A well fitting, comfortable and good looking Snell 2000 helmet will not turn into a pumpkin at midnight, September 30, 2005. You will not have to run out immediately to buy another. By the same token, if you need a helmet late next fall and while you're looking over the Snell 2005's, you happen to find a new Snell 2000 configuration that fits well and comfortably and looks good on you, well hey, you can stop looking right there.

If you're looking for a Snell certified helmet for use in organized competition, however, please consult the rule books and, maybe, the officials before making a purchase. We recommend that these organizations allow helmets certified to the appropriate, current or immediately previous Snell standard but this is purely a recommendation. Racing organizations set their own policies for helmets.

### Scrutineers

Helmets used in competition are usually subject to safety inspections by official scrutineers working for the track, the organizer or the racing association. These scrutineers may only have a few seconds to consider a helmet. In that short period, they are likely to consider only the helmet and brush off any explanations or extenuations provided by its owner as so much moonshine.

The policy is reasonable, even the most sensible helmet owner may have his judgement swayed by sentiment for a lucky headgear or by the price tag on a new one. If the scrutineer won't accept your current helmet, the Foundation will not question his ruling and you shouldn't either. Retire the helmet and replace it.

### Production and Distribution Reports

Random Sample Testing (RST) is an essential part of the Snell certification program. This checks the manufacturer's quality control and assures the consumer that the same quality of head protection that we saw in certification process will be found in follow-on production. Riders can buy with confidence because they know our RST program gets and tests helmets from the same stores they use. Your company's quarterly report on production and distribution of Snell products are required by the Snell licensing agreement. This information helps us make timely decisions to conduct RST on specific models and quantities. Hong Zhang will be contacting your company to submit these reports every three months.

### Cloth Certification Labels

The Foundation does not plan to provide cloth labels for the M2005 and SA2005 programs. These labels had been provided in the past as an alternative to the commonly used adhesive certification labels. The cloth labels were intended to be sewn to the helmet comfort liner or to the chin strap. However, there has been no demand for them in the past few years.

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