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The Australasian Society for Motorsports Medicine and Rescue

Contents

Race control

Welcome to the June edition of the ASMMR newsletter. There has been a fair bit of rally and F1 activity. Mark Webber repeated his LeMans car flip in his Red Bull car on the streets of Valencia. Notably, there will be a World Motor Sport Council conference held there in two months time. It was a potentially serious incident, from which Webber was lucky to be able to climb out of the car himself. Luckily, this month's Rescue Review takes a look at the various options for removing the helmets of injured competitors. Ideally the best method is for the competitor to be able to remove it themselves.

Good luck.

Matthew Mac Partlin

Rescue review – Helmet removal

A motorsports competitor may require assistance with removing their helmet for a number of reasons. This is of greatest importance when the competitor is unconscious with an airway that is at risk while wearing a full face helmet.

There are a number of different helmet designs, some specific to the category of motorsport. Open face helmets are common in club and rally events. Full face helmets are typical of professional

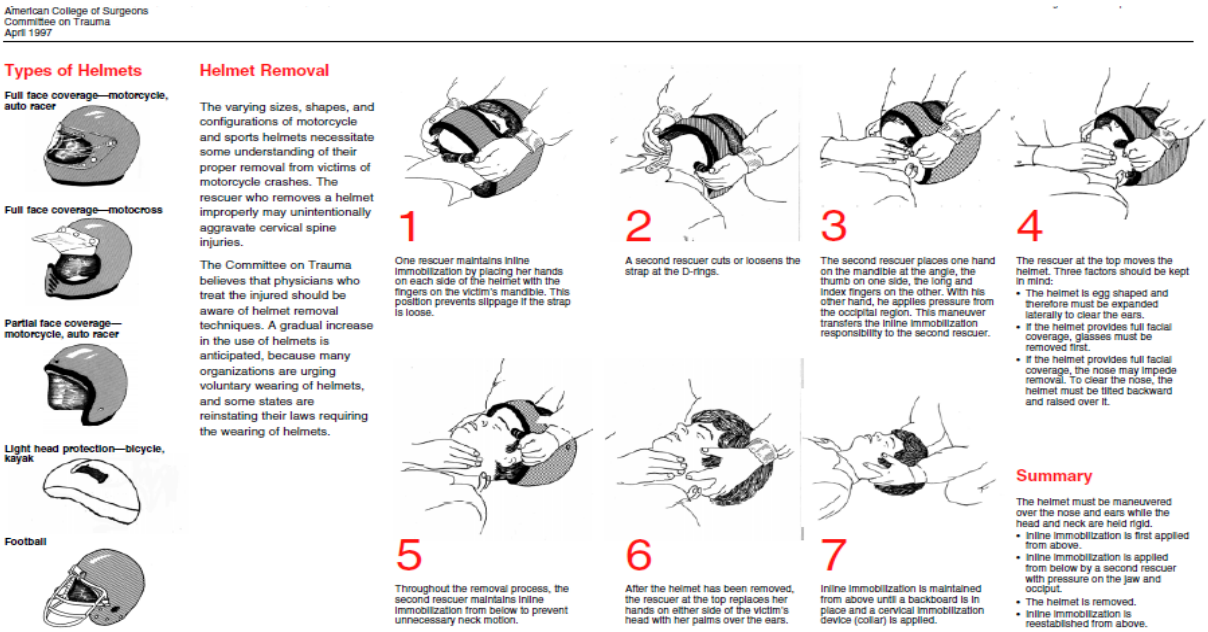
categories and motorbike events. Partially open face helmets and visorless full face helmets are found largely at rallies.

The major concern that arises for helmet removal is excess movement of a cervical spine injury. A conscious patient can alert rescuers to the presence of neck pain or neurological deficit, but an unconscious or confused patient cannot. Additionally, a conscious competitor may not initially be aware of a neck injury. In general, it is standard procedure to assume a cervical injury in any significant impact and as such helmet removal is undertaken with due care. This involves in-line stabilisation of the cervical spine and removal of the helmet without applying excessive tractional or rotational forces.




The most common barrier to helmet removal is the chin strap – don't forget to undo it before attempting to remove the helmet. After that, there are a number of methods of helmet removal that may be employed. Clearly an open face helmet presents relatively little difficulty, while a fully closed helmet can be tricky.

The first technique to become standardised was and still is manual removal with a two-person technique. It was written up by the American College of Surgeons Committee on Trauma in 1981 and was revalidated in April 1997 and remains the most commonly practiced technique. A step by step guide can be found at http://www.facs.org/trauma/publications/helmet.pdf.



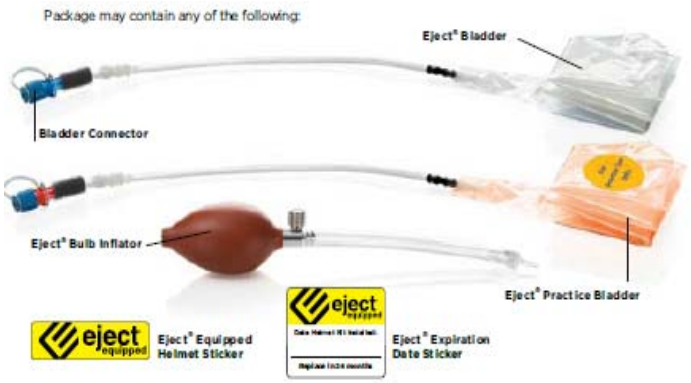
An additional tip to make it easier for the chin bar to clear the person's nose is to lift the rear of the helmet first and then lift the chin bar. This also helps to clear the helmet in the confined space of a closed cockpit vehicle.

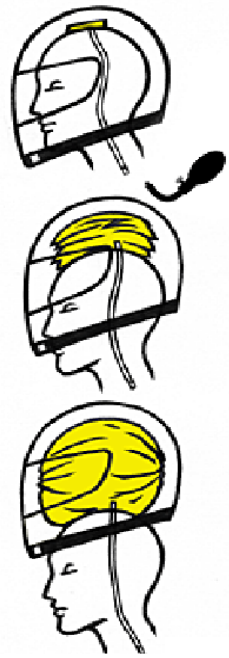
While it looks simple on paper, it is often demonstrated on a volunteer who is lying on the floor or sitting on a chair. It can be a lot more difficult attempting the maneuver when the victim is trapped in a closed roll cage, especially if the vehicle is not out in the open on its wheels.

In an attempt to simplify helmet removal in difficult circumstances, a number of devices have been developed. The simplest is essentially a modified plaster saw, such as the Helmet Emergency Access Device (HEAD). It works on the same basis as a plaster saw, including that the blade oscillates rather than rotates so that injury to any skin is negated. It is usually used to remove the chin bar of a full face helmet, but can also be used to split the helmet in half. However, composite helmet designs can make it difficult to cut through with the saw and there may be concern over the clouds of fiberglass dust that the saw ejects.

A second device that assists by pushing the helmet off the victim's head is also used. It consists of a pre-packed, thin walled bladder that can be placed between the top of the competitor's head and the helmet before the race or inserted after the accident. Examples include the Hats-Off© and Shock Doctor Eject® Helmet Removal System devices. There are a number of videos on You Tube that show these devices being installed and used. While initially appealing, there are some concerns:

a) The number of people needed for proper use is more than 2 → 1 to maintain in-line immobilisation, 1 to inflate bladder, 1 to guide the helmet.
b) The presence of a skull fracture, which is then exacerbated by the increasing pressure of the bladder in the enclosed helmet cavity and may result in, or worsen, a depressed skull fracture. This may be somewhat mitigated by following manufacturer recommendations to check the surface of the helmet for damage before using the device, although this reason is not explicitly outlined.
c) If the bladder is not placed in the correct position carefully it may not expand correctly and may make helmet removal even more difficulty





Another removal assist device is the Arai Removal Assist Hood®. It is donned by the competitor before putting on his/her helmet. Again, there are You Tube videos demonstrating its use available (http://www.youtube.com/watch?v=3pfEWsUAKLk).

Unfortunately, there is very limited evidence (even manufacturer's) to support a particular technique or individual device's efficacy. Most trials have been conducted on healthy, conscious volunteers or cadavers, which are likely to have very different mechanical dynamics to an unconscious, spinal injured patient. Additionally, all studies to date have very small sample sizes. Most rescuers employ the ACS Committee on Trauma technique and it is taught on most trauma life support and motorsport training day courses.

There is a little bit of lingering confusion about the relative merits of leaving the competitor's helmet on for transportation. This seems to come from a gridiron (American football) practice and lay-rescuer concern about exacerbating a cervical spine injury. In general, it is unlikely that leaving the helmet in place affords any ongoing protection and is likely to be superceded by impaired airway management. Additionally, when performed carefully, removal of a victim's helmet can be effected with little impact on the cervical spine.

References
American College of Surgeons Committee on Trauma, April 1997 - http://www.facs.org/trauma/publications/helmet.pdf

Hats-Off device (Europlaz Technologies Ltd. US$45.00)

Shock Doctor Eject Helmet Removal System - http://www.shockdoctor.com/assets/pdfs/Consumer%20IFU_9.pdf (US$59.99). Similar to the Hats-Off device.

Arai Removal Assist Hood - http://www.youtube.com/watch?v=3pfEWsUAKLk

Evidence report by the Centre for Evidence-based Purchasing, the Policy and Innovative Directorate of the NHS, UK, November 2007

Recent race results

Formula 1

More sparks in the Mark Webber F1 road show. He was launched into the air off the back right wheel of Heiki Kovaleinen's lotus into a back flip, reminiscent of his 24Hour LeMans flip. He landed on his roll-bar and rolled on to his wheels, sliding straight into the tyre wall at Valencia's turn 12 at a smidge under 300kph. I wonder if he had read last months edition of the ASMMR newsletter. Fortunately, he was able to climb out unassisted and take a ride in the medical car. No doubt it will be a discussion topic at the upcoming World Motorsport Council conference, also in Valencia, this September. The European GP sees the McLaren's back on top, for now. By the way, did anyone spot Flavio Briatore lurking about the pit lane?

1. Lewis Hamilton - Vodafone McLaren Mercedes 127	6. Robert Kubica - Renault F1 Team 83	11. Rubens Barrichello - AT&T Williams 19
2. Jenson Button - Vodafone McLaren Mercedes 121	7. Nico Rosberg - Mercedes GP Petronas 75	12. Vitantonio Liuzzi - Force India F1 Team 12
3. Sebastian Vettel - Red Bull Racing 115	8. Felipe Massa - Scuderia Ferrari Marlboro 67	13. Sebastien Buemi 7
4. Mark Webber - Red Bull Racing 103	9. Michael Schumacher - Mercedes GP Petronas 34	= Kamui Kobayashi 7
5. Fernando Alonso - Scuderia Ferrari Marlboro 98	10. Adrian Sutil - Force India F1 Team 31	15. Vitaly Petrov - Renault F1 Team 6
		16. Jaime Alguersuari 3

Next race: Silverstone, UK, 11th July.

World Rally Championship

For anyone who watched the New Zealand Rally … what an event! If you missed it, you missed one of the most phenomenal comeback drives in a professional rally event. Loeb truly is a master rally pilot. However, you also missed a race where even the best got caught out several times and the lead on the final day changed hands with every stage, right down to the final time point. It was great and a well earned win for Jari-Matti. A great drive from Ogier was undone in the final stages when the pressure started to get to him. Unfortunately it also put Hirvonen's performance in a less glowing light, having lost less time than Loeb on the first day, but never really climbing back up the order.

In Portugal, Ogier claimed the win that has been coming and it was a good one. Ogier is now Loeb's main competition, unless Hirvonen's confidence can improve and Latvala can be more consistent.

One final note: Phil Mills, Petter Solberg's long time navigator, has suddenly quit the WRC trail, leaving Solberg to find a replacement before Bulgaria. It's not clear what precipitated the decision, but there appears to be no team issues.

1. Sebastien Loeb 126	5. Petter Solberg 63	9. Henning Solberg 24
2. Sebastien Ogier 88	6. Dani Sordo 49	10. Kimi Raikonen 15
3. Mikko Hirvonen 76	7. Matthew Wilson 38	11. Mads Ostberg 10
4. Jari-Matti Latvala 72	8. Federico Villagra 26	12. Xevi Pons 6

Next event: Number 7 of 13 – Rally Bulgaria, 9th – 11th July 2010

V8 Supercars

Fourteen races contended.

1. James Courtney 1698	6. Garth Tander1242	12. Jason Richards 912
	7. Rick Kelly1226	13. Jonathon Webb 870
2. Jamie Whincup1641	8. Lee Holdsworth1218	14. Russell Ingall 869
3. Craig Lowndes 1452	9. Michael Caruso1139	15. Tony D'Alberto 849
4. Shane van Gisbergen 1412	10. Steven Johnson 1040	16. Tim Slade 813
5. Mark Winterbottom1344	11. Paul Dumbrell 933	

Next round: Townsville 400, Townsville, 9th – 11th July.

MotoGP

With Rossi still nursing a fractured leg, Jorge Lorenzo is powering into the lead, with four wins and several poles to his credit.

1. Jorge Lorenzo - Fiat Yamaha Team 140 2. Dani Pedrosa - Repsol Honda Team 3. Andrea Dovizioso - Repsol Honda Team 89 4. 93Valentino Rossi - Fiat Yamaha Team 61 =. Nicky Hayden - Ducati Marlboro Team 61	6. Randy de Puniet - LCR Honda 56 7. Casey Stoner - Ducati Marlboro Team 51 8. Ben Spies - Monster Yamaha Tech 3 49 9. Marco Simoncelli - San Carlo Honda Gresini 39 10. Colin Edwards - Monster Yamaha Tech 3 34	11. Marco Melandri - San Carlo Honda Gresini 32 12. Hector Barbera - Aspar Racing Team 28 13. Alex Espargaro, Pramac Racing Team 28 14. Mika Kallio - Pramac Racing Team 20 15. Hiroshi Aoyama - Interwetten Honda MotoGP 18

Next round: Catalunya, Jul 2nd – 4th 2010.

Intercontinental Rally Challenge

After six rounds

1. Juho Hanninen 42 2. Jan Kopecky 39 3. Guy Wilks 25 4. Bruno Magalhaes 20 5. Kris Meeke 15	6 Thierry Neuville 11 7 Freddy Loix 10 8 Mikko Hirvonen 10 9. Paolo Andreucci 8 10 Nicolas Vouilloz 6	11. Stéphane Sarrazin 5 12. Gabriel Pozzo 5 13. Bernd Casier 5 14. Federico Villagra 4 15. Andreas Mikkelsen 4

Next event: Sata Rally Açores, Portugal, 15th - 17th July

Worldwide motorsport update

- Audi have put an end to rumours of an F1 deal to supply engines to the marque
- F1 mogul Bernie Ecclestone has made a deal that will see F1 travel to Austin, Texas in 2012. However, there are funding concerns that may see the whole thing come apart. Watch this space.
- Simona deSilvestra, a lady driver for the Team Stargate Worlds / HMV Indy car racing team, endured half a minute of sitting in a flaming cockpit on lap 99 of the Firestone 550K night race, on the 5th of June. The first fire truck arrived 25 seconds after the impact, but the crew could not get the on-board hose to work and eventually resorted to hand-held extinguishers. A second truck arrived and put out the fire, but by then deSilvestra had already been pulled out, after her head restraint was removed. It was subsequently found that the hose had not been packed properly and hence failed to deploy when needed.

- NASCAR broadcasters are going to climb aboard the 3D train this weekend. They plan to air the Coke Zero 400 Sprint Cup event at Daytona in 3D. More information at http://www.nascar.com/promos/racebuddy/3D/

Caught by the cameras

This month's "Caught by the cameras" has to be Mark Webber's terrifying crash at Valencia. He has dubbed the car "lucky chassis number 4" and it's no wonder … several inches in any direction other than the ones taken could have led to a very bad outcome. If you want to see the whole sequence, follow this link: http://www.abc.net.au/news/video/2010/06/28/2938384.htm

Webber clips Kovaleinen's rear wheel

Houston, we are go!

That'll cause a headache

A bad view from an F1 cockpit