In the zone

By Keith Cartmale and Ellen Beckers

'Wow, that was f****** brilliant!'. 'We managed to cope with everything that was thrown at us, and more!' 'You're not kidding, it was hellishly busy, but we were cooking on gas! I thought we could have been in trouble when the TRA was opened at short notice, especially with that Guppy doing his usual thing, requesting a level he can never achieve, then taking half a year to reach the level we knew was realistic' 'You're right, it could have been a problem, but I was anticipating it, I kinda just knew it was going to happen, so had a plan B… I'm sure it was because we were working so well together'.

This is an exaggerated example of a conversation controllers could have when they have just put in one of those special shifts, one where everything went well, where they were able to anticipate and manage those quirks and issues that often appear: the pilot who is slow to respond; the pilots that you have to keep repeating messages to; the frequency outage/interference; the high traffic levels followed by dips then rapid increases again; the emergency descent, the colleague(s) who is not quite with it.

In sports circles, this kind of skill and being able to apply it is known as being "In the Zone". It's about being able to do the right things, at the right time, with consummate ease, whilst being ultra efficient yet superbly effective.

So, why is it that it's not possible to be 'In the Zone' on every occasion when you really need it? Why is it that on another day, faced with similar issues, you are unable to cope the way you did when you were 'In the Zone'? There are many factors which can influence your performance: your colleagues and their performance, your own personal circumstances, age, role, health, what is happening at home or professionally, and, of course, fatigue. Fatigue is not just an issue that can impact performance during higher traffic/higher concentration levels. It also comes into play during the dreaded graveyard shifts, when traffic is low, boredom sets in, and your natural circadian rhythms start messing with your body and mind, and hence your performance.

It is clear from our own incidents database that fatigue is not a major contributing factor to incidents. It is cited under 'personal factors' as being contributory in less than 5% of our incidents. Hence, I don't see fatigue as being top of the hit list from a purely safety perspective based on previous incident data alone.

Hence, I have to conclude that, due to the natural limitations of incident investigations, fatigue may be more of a safety issue than we currently think it is.

I can recall one particular occasion when one of our controllers reported being fatigued after returning to work following maternity leave after the birth of her first child. She stated that her child was not sleeping well, which meant she was arriving at work feeling tired. Despite taking power naps in her breaks to mitigate the effects of her tiredness, she had a loss of separation which she is convinced was down to the fatigue she felt on that day. However, this is a very rare event, and investigation techniques, no matter how advanced, have to draw a line somewhere. For example, does an ANSP have the resources and expertise available to investigate the physiological effects of fatigue, or hormone changes, and draw concrete conclusions as to their contribution as a causal factor to an incident? I don't think so. Most ANSPs are limited to speculating that it may have contributed.

Likewise, when investigating incidents, if a controller reports that he/she was feeling tired at or around the time of the incident, can we then ask penetrating questions about their sleep patterns, circadian rhythms, eating patterns, what they were doing professionally or privately for the last 24/48 hours? If we did, would this enable us to then draw a meaningful conclusion that fatigue was definitely a causal factor? It is very difficult to conclude that fatigue is a direct causal factor in incidents given that there are so many other factors which contribute, and can be identified more easily.

Hence, I have to conclude that, due to the natural limitations of incident investigations, fatigue may be more of a safety issue than we currently think it is. This could be the case especially amongst the high-performance ANSPs where there is more pressure on controllers to handle higher traffic levels for longer periods of time, and who are therefore subject to the effects that higher concentration induces on the body and mind.

And this is where things get interesting from a safety perspective. Whilst most ANSP data suggests fatigue is not a safety issue of immediate concern, high pressure is being applied by our stakeholders (European Commission, states & airlines) and hence ANSP management, to increase performance and throughput whilst reducing costs.

This pressure has to be felt at the sharp end. There is a need for controllers and engineers to do more with less. To do this safely, fatigue should be appearing on the safety manager's radar screen. It may be time for the higher-performing ANSPs to put in place strategies designed to prevent fatigue, e.g. revisions of shift patterns, and personal strategies designed to enable controllers and engineers to

In the zone (cont'd)

understand and apply methods that will help them to personally prevent fatigue, or when they detect it, to be able to cope with it.

The benefits of such strategies would not only be realised through improvements to safety, but also through reduced sickness rates, improved staff morale, etc.

At MUAC, we have a controller working in our training section who has been personally affected by the effects of long-term fatigue. As a result, she has taken coaching, and has studied this area, in order to help herself and her colleagues understand this subject, and learn for the future. She now coordinates the delivery of internal training to staff on energy management, which is a voluntary course designed to teach staff how their bodies work, and how they need to work with their bodies in order to achieve optimum performance. It's about managing your energy in order to be more effective throughout the day and night.

These studies were based on the excellent work of Koen Gonnissen & Alain Goudsmet in their book – The Corporate Athlete (ISBN 9789013077162). Gonnissen & Goudsmet have drawn on their qualifications and experience as coaches to top athletes, and have assembled further training and coaching for employees and managers who are also faced with pressure to perform. Their book gives an "insight into the mechanisms to sustain high performance, and provides practical tips to help break through the daily grind of stress to achieve excellence without wasting energy". We have no doubt that these methods are equally applicable to controllers, engineers, and managers working in the ATM community.

In addition to our voluntary energy management course, we are also rolling out a training module on fatigue/stress management, which will be delivered during our 2011/2012 team & resource management campaign. This module is designed to make all controllers aware of fatigue and stress, and the simple steps they can take to prevent it.

Keith Cartmale is the Safety Manager at Maastricht UAC. Having led the development of the MUAC Safety Management System, He is keen to ensure that a human centred approach is taken to managing the safety issues that arise, and to further understand how to utilise human performance to improve safety. Keith is a Chartered Engineer who has worked in the ATM domain since leaving school, and has a masters degree in Safety Critical Systems engineering.

Ellen Beckers works in the training section at Maastricht UAC where she has implemented the Competency Based Assessment Scheme. Ellen is an active Team & Resource Management facilitator, and a Critical Incident Stress Management peer. A controller for over 19 years, she is now utilising her experience and background to support students with mental coaching and stress management.

There is not enough room in this article to provide the training here. We plan to work with the EUROCONTROL Safety and Human Performance Task Force to develop a best practice in this area. However, a taster of what is to come is provided, which will hopefully suitably whet your appetites:

1. Is looking after your health a priority for you?
2. How much time do you devote to looking after your health?
3. How do you recover after working?
4. Do you have conscious rituals for dealing with emotion, stress, sleeping, etc?
5. Are you aware of the effects of adrenaline, hormones, caffeine, etc. on your body?
6. Do you know how to utilise antidotes to compensate for the effects of adrenaline, hormones and caffeine?
7. Do you know how to balance sleep with private and professional calls on your energy, in order to ensure your batteries are well charged?
8. Do you understand the interaction between the mental, emotional and physical batteries that exist in all of us?
9. Do you understand what drains your batteries, and how you can recharge and strengthen them?
10. Do you understand the signals that indicate you may be under pressure?

To summarise, whilst fatigue is not a top-priority safety issue according to incident statistics, it should appear on safety managers' radars as an issue to be addressed in order to cope with the pressures that are anticipated as a result of the drive for increased ANSP performance. It may be timely to look at improving investigation techniques to help identify when fatigue is a factor, and what can be done about it. For those ANSPs whose performance is already high, they should be considering, or already have implemented, systematic programmes to help staff understand and deal with the effects of fatigue (both short and long-term fatigue), through learning from the professionals. If you start thinking of your staff as corporate athletes, and train them accordingly in these softer issues, you should find that they will be far more able to step into the zone when needed, and hence overall performance, health and morale will benefit.