

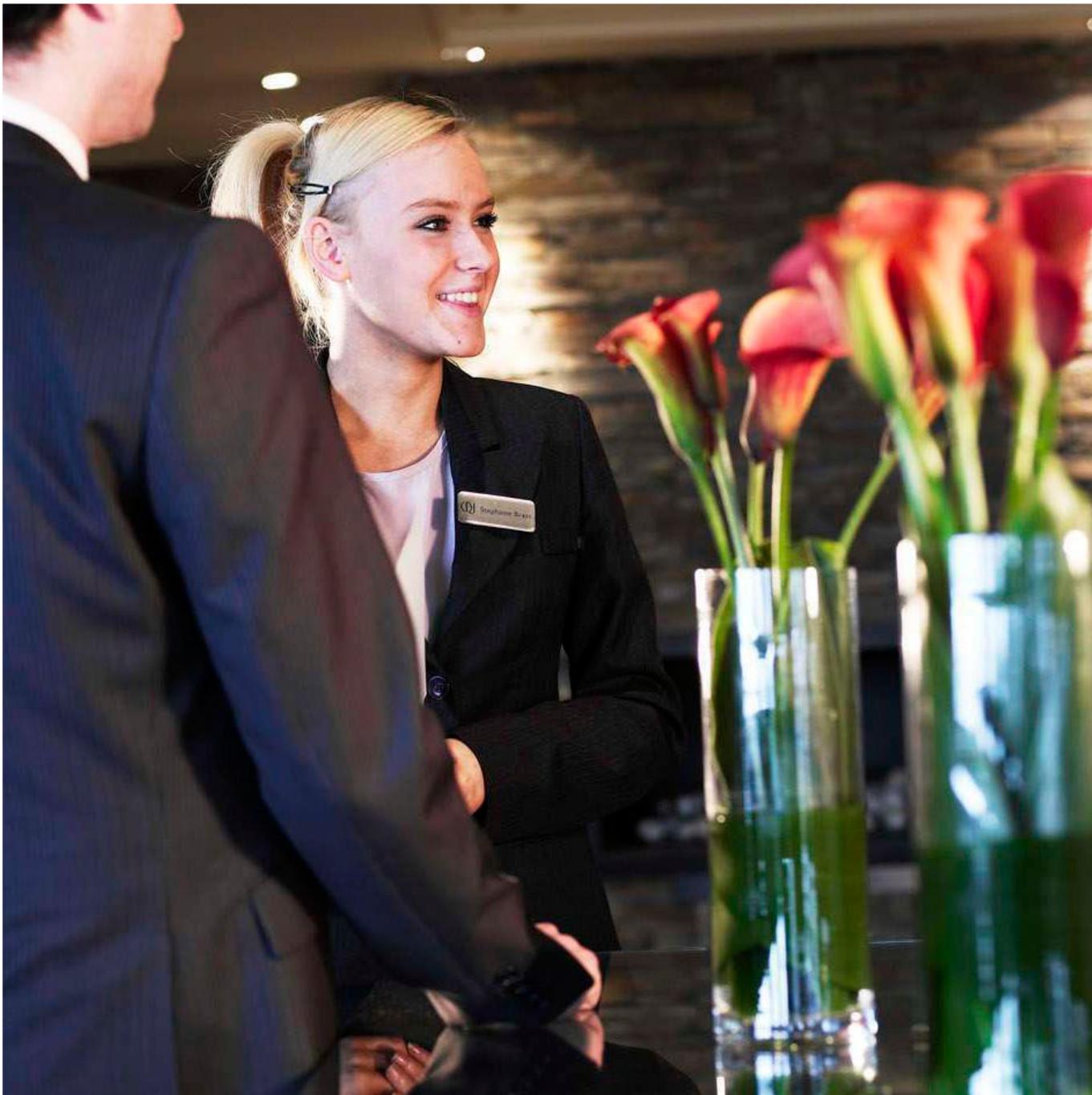
QHOTELS

INSPIRED  
BY YOU

# THE BRAINWAVES REPORT

VET *Dynamic*  
VISION AND





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## EXECUTIVE SUMMARY

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- Experiments were conducted across QHotels conference and event venues in summer 2015.
- EEG technology headsets were used to record the brainwaves of conference organisers, speakers and delegates.
- Software tracked gamma, beta, alpha, theta and delta brainwaves of each participant.
- Participants were immediately interviewed to find out how their feelings matched the data.
- The key findings were analysed.
- QHotels' operations team are now using these key findings to shape their conference and events service.
- Event organisers hosting an event at QHotels who are interested in exploring ways to make maximum impact with their next event are invited to discuss the possibility of carrying out their own Brainwaves study with their Event Organiser.



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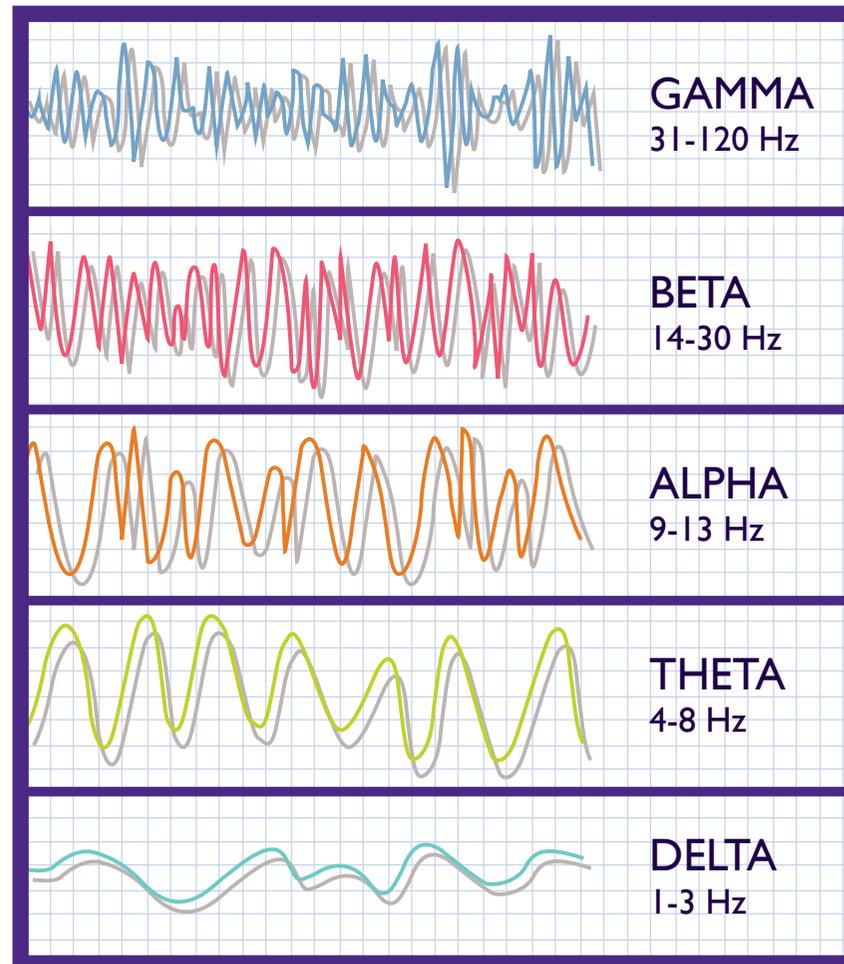
## UNDERSTANDING BRAINWAVES

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Our thoughts, emotions and behaviours are based on communication between the neurons in our brains. Brainwaves are essentially the electrical pulses from neurons communicating with each other.

The sophisticated headsets used in the Brainwaves study use sensors on the scalp that can capture all the key types of human brainwave activity:

- Gamma – indicates information processing, attention and happiness. Too much gamma can suggest anxiety and stress.
- Beta – indicates alertness and being inspired or engaged. Can also indicate hunger.
- Alpha – indicates relaxed alertness, restfulness and a meditative state.
- Theta - indicates daydreaming or loss of attention.
- Delta - indicates sleep, tiredness and restfulness. Conversely it also indicates excitement or agitation when delta waves are suppressed.



Analysing the brainwave patterns of each test participant enabled us to pinpoint and identify emotional changes.

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## KEY FINDINGS

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- Stress levels among

### CONFERENCE ORGANISERS

were at their highest 32 minutes\*, before the event began.

- Conference organisers showed high levels of brain activity related to a specific combination of calmness, alertness and strong problem-solving skills.



- **SPEAKERS** felt the most nerves on average two minutes\* before they started to present.

- Concerns about technical issues (particularly with AV equipment) were reported as a key source of stress and anxiety.



- After three and a half minutes\* of a presentation, a **DELEGATE'S** concentration levels began to fade.

- The majority of delegates who took notes, photos or used social media during the event, processed information more fluently and remained engaged for longer than those who didn't.
- Delegates' concentration levels dropped on average 26 minutes before they expected the lunch break.
- Delegates began to focus on their hunger pangs, on average, 12 minutes before they were expecting lunch.
- Delegates were most enthusiastic when learning new information, and switched off if they were already familiar with the content, regardless of the performance of the speaker.





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## OUR FINDINGS IN MORE DETAIL: CONFERENCE ORGANISERS

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No matter how smoothly an event may appear to be running, our research suggests that the brainwaves inside an event organiser's head are bouncing rapidly from gamma to delta and from alpha to theta – in other words, they're likely to be experiencing

**HUGE EMOTIONAL CHANGES** in a short space of time. A sure sign of stress!

In fact, the brainwave data we captured allowed us to pinpoint the very moment organisers felt the most nervous and stressed: on average, this was **32 MINUTES** before the conference began.

But we weren't just measuring stress levels. The brainwave data also allowed us to explore the personality traits experienced conference organisers demonstrated.



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## CONFERENCE ORGANISERS (CONTINUED)

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The conference organisers we monitored all registered high levels of alpha brainwave activity, which is related to calmness and alertness, as well as being linked to having

strong **ATTENTION TO DETAIL**. Added to that, we saw large 'spikes' of beta waves in each of them, which can be attributed to strong

**PROBLEM-SOLVING SKILLS** and focused mental activity.



### **Organisers shouldn't work alone**

Conference organisers who are supported by a colleague are less likely to experience energy-sapping and anxiety-inducing brainwaves, particularly in the critical early part of the day.



The conference organisers in our study also had tendencies to produce significant levels of high frequency beta waves. This is evidence of the high stress levels they need to cope with. Beta waves can induce high anxiety and sap energy if not controlled. Stimulants including caffeine and nicotine are recognised as increasing the production of beta waves, suggesting that the morning cups of coffee our conference organisers were consuming may not have been the best choice of beverage.

### **Conference organisers respond positively to the opportunity to spend ample time preparing prior to the arrival of delegates**

We found that when conferences started later in the morning, conference organisers recorded lower stress levels. This was because they had more time to prepare before delegates arrived. This may mean them arriving at the venue the night before or having access to the venue's key event staff at an early point in the day.

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## OUR FINDINGS IN MORE DETAIL: CONFERENCE SPEAKERS

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By monitoring our conference speakers' brainwave activity, we were able to identify the most stressful point of their speech-making. Surprisingly, perhaps, it's not when they first

stand up and face the audience, but on average **TWO MINUTES** before that – either when they are being introduced or when they become aware their slot is imminent. That's when the anxiety-inducing gamma waves are spiking in the brain.

It won't come as any surprise that a stress-free environment is key for speakers if they are to keep their gamma brainwave levels under control. Our speakers reported that worries about unfamiliar

**AV EQUIPMENT** were among the main causes of stress and anxiety ahead of their speech.



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## CONFERENCE SPEAKERS (CONTINUED)

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What speakers want to experience, as they prepare, is high levels of alpha brainwaves, which are associated with peak performance in professional sports people and performers, and also with creativity.

### Speakers' stress levels can be decreased with access to the venue's AV experts

Often the event organiser will manage this relationship but given the stresses that keynote speakers suffer, due to worries about their presentation, it is important to plan in time for an AV run through ahead of the conference. This will help alleviate anxieties by reassuring speakers that the technical elements of their presentation will run smoothly, allowing speakers to move more readily into the brainwaves which are conducive to delivering a powerful presentation.

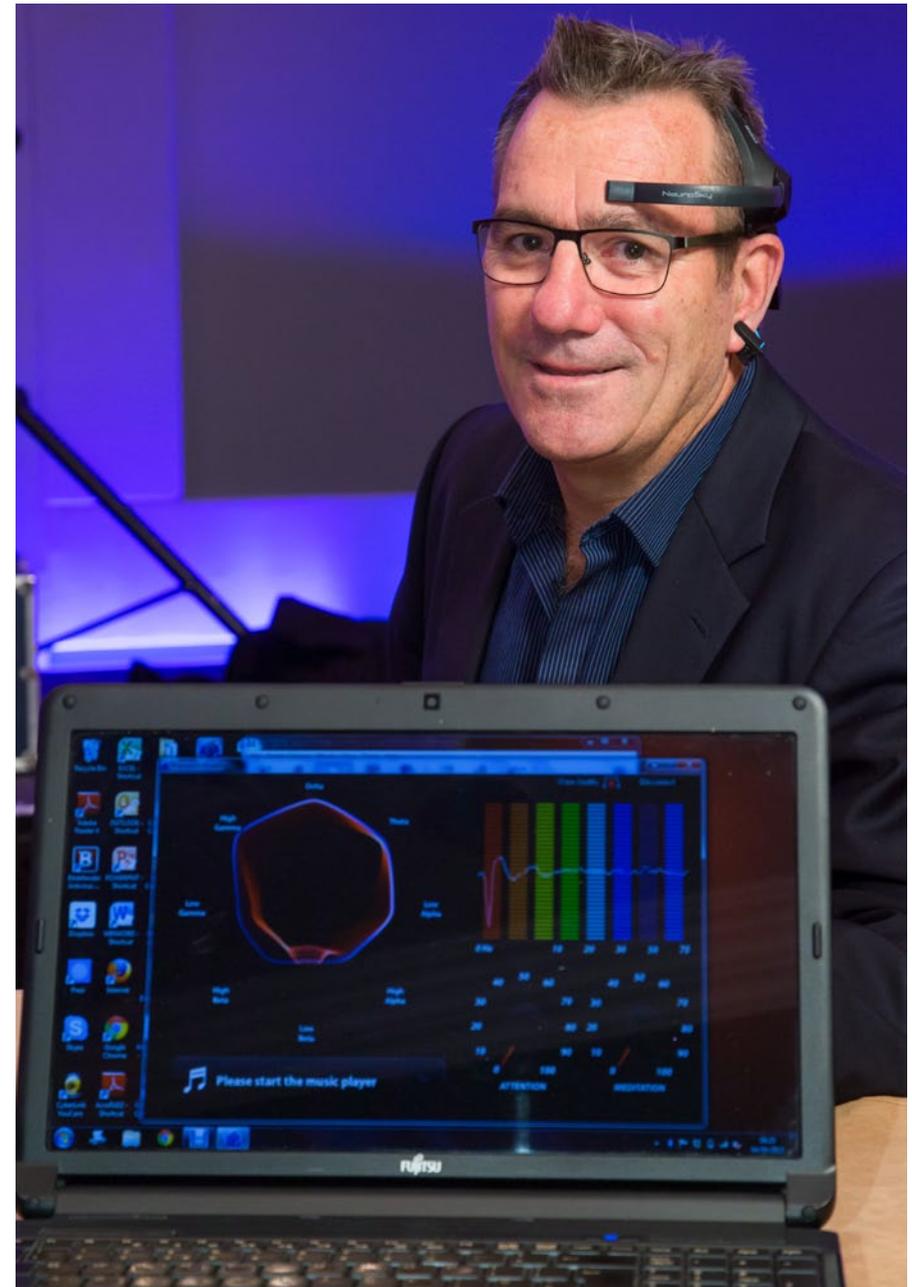
### Organise a 'Green Room'.

In our study, one of the causes of stress amongst organisers was dealing with delegates arriving while the conference room was still being set up.

Having a **DEDICATED ROOM FOR SPEAKERS** to go to on arrival would

be a potential solution, as would clear communication regarding the access times for conference rooms. Our study also found that a green room for a conference speaker would be valuable too. Consider removing them to a

**CALM AND PEACEFUL** area where they can perhaps listen to Mozart (whose music is particularly good at inducing alpha waves in the brain of listeners), which can inspire a relaxed alertness and calmness.



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## OUR FINDINGS IN MORE DETAIL: DELEGATES

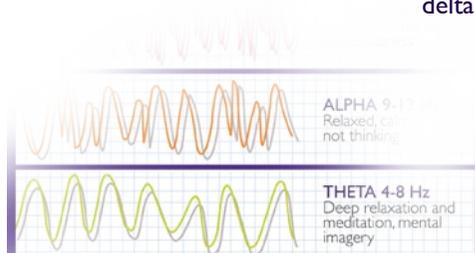
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Along with the mid-afternoon 'graveyard' session, the late morning is well known as a time of delegates' plummeting concentration levels at conferences. Our study highlighted that the thought of a tasty lunch can distract even the most attentive delegate, no matter how engaging the content being presented.

Among our volunteers we were able to pinpoint when those pre-lunch attention levels start to dip: on average, across our delegates, this happened a massive

**26 MINUTES** before they were anticipating breaking for lunch. We found that this is the point at which engagement with the pre-lunch conference session will be at its lowest.

Additionally, analysing the delegates' changes and spikes in beta waves allowed us to identify when delegates started to experience hunger: on average 12 minutes before lunch. From this point, alpha waves remained low until lunch was served, meaning a further lapse in concentration and engagement levels. The delegates studied were aware of the timing of the lunch break.



## SO HOW LONG CAN YOU EXPECT A DELEGATE TO CONCENTRATE FOR DURING A SESSION?

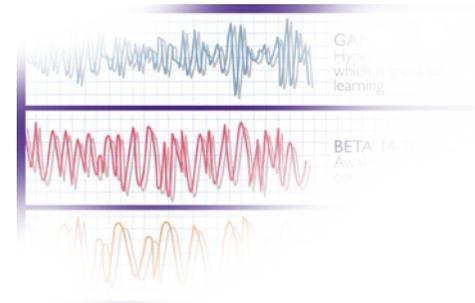
Our research suggested that despite delegates reporting being highly involved with the subject of the seminar, their interest began to wander after

just **THREE AND A  
HALF MINUTES**

on average. The longest continuous attention span recorded in our study was a mere four minutes.

For those first 210 seconds of attentiveness, the beta brainwave is the most dominant, indicating a high mental focus. However, from that point the brain's activity starts to move towards theta waves (where we start to daydream) and then onto delta waves, which are commonly associated with meditation. But this didn't mean that delegates had switched off for the rest of the session.

We found that the delegates' brainwaves worked in cycles during the seminar, recording high levels of beta waves throughout sessions, indicating alertness and focus, intertwined with large spikes in theta and delta waves on average every four minutes.



Our research found that events that encouraged delegates to participate

in **PHYSICAL  
ACTIVITY** at the beginning of the event, such as standing or throwing a ball, stimulated delegates' alpha brainwaves, helping delegates to concentrate for longer periods of time. QHotels is using this finding, together with team building partner Team Spirit, to offer guidance on quick 'energisers' designed to maximise concentration time.

### Increase delegate concentration

High energy and physical activity works very well, stimulating alpha brainwave activity and helping delegates concentrate, so incorporating some form of activity at the beginning of the conference can help to increase delegate concentration.

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## DELEGATES (CONTINUED)

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Our study found that a great 'performance' doesn't necessarily mean an engaged audience. Exciting and energetic speakers are less important to

a delegate than the **SPEECH CONTENT**. In fact, a dull presentation that has strong and relevant content can often go down better with an audience than a presentation that's peppered with jokes but is perceived to be less relevant.

Beta waves are most closely associated with focused mental activity. We asked one delegate to explain why his beta wave levels were high during a particularly technical presentation; he replied that the content was so interesting that the 'dry' delivery made no difference to his level of engagement.

The data also found that the majority of delegates who **TOOK NOTES** on what the speaker was presenting, or **TWEETED** about interesting nuggets of information from the seminar remained alert for longer, recording high levels of gamma, and processed the information more fluently than those that didn't.

## HOW TO HELP DELEGATES BE MORE ENGAGED

### Encourage attendees to use

**social media.** Our research found that those delegates tweeting or posting on Instagram about the conference or what the speaker was saying were more attentive, better at processing information and maintained concentration levels for longer. So set up a hashtag and encourage guests to tweet about what you're doing during the conference.

**Encourage note-taking.** Our research found that those who recorded notes processed information more efficiently and their brain activity indicated they were more engaged than those who simply listened. Providing delegates with activity sheets and encouraging them to take notes could be a great way to engage them.

**Good quality, filling food on arrival or during a morning break can be a game changer** in ensuring that hunger pangs don't cause late morning distraction.

### Get delegates to drink more.

No, we don't mean alcohol! Delegates who had hot drinks or drank water at regular intervals during seminars or presentations demonstrated greater engagement and concentration levels and were less likely to experience high levels of theta waves (which would indicate inattentiveness). So encourage delegates to take a bottle of water or a hot drink into the conference room to help stimulate beta brainwaves and inspire mental focus.

### Bring lunch forward by 30 minutes...but don't tell them!

To avoid delegates switching off and thinking about lunch, bring the break forward so they go to the break with concentration levels still high.

### Introduce brief exercise breaks

It may be worth exploring whether regular, strategically placed exercise breaks to get delegates' blood moving could encourage greater engagement with the conference content, without breaking up the continuity of the day's events.



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# BRAINWAVES STUDY BACKGROUND AND METHODOLOGY

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We conducted a ground-breaking piece of research that used the latest EEG technology to measure, analyse and interpret brainwave activity during key moments of a conference.

Studies were undertaken at:

- Oulton Hall, – Institute of Asphalt Technology Conference.
- Hellidon Lakes Golf & Spa Hotel – CrestCom Bullet Proof Management Training
- The Cheltenham Chase Hotel – Vet Dynamics Conference.
- The Westerwood Hotel & Golf Resort - National Information Security Conference.

We worked with conference organisers to identify relevant participants, who were invited to wear a special EEG (electroencephalogram) headset that would capture (and allow us to record) their brainwaves.

The innovative headsets record the electrical activity of the brain, measured from a series of 'pressure pads', or biosensors on the skull and earlobes. These biosensors enabled us to understand the biometric algorithms of each participant.

The raw EEG data was transmitted to software hosted on laptops and tablets, which could then also be recorded and analysed.

By shadowing our volunteers, and evaluating the EEG data as it was being recorded, we were able to pinpoint the exact moment our participants experienced certain emotions – and identify what caused those changes in brainwave behaviour. The data showed us the strength of those brainwave patterns, so we could determine the range of emotions being experienced at any time.

Each study participant was also interviewed, so we could get a better understanding of what had triggered the changes in brainwave patterns.

For each conference that the experiment was carried out at, we focused on:

**Conference organisers** – prior to, and during the early stages of each conference, we captured the brain activity of the organisers to analyse their changing stress levels and identify the causes behind any significant changes.

**Conference speakers** – before and during their speeches, we monitored the brainwaves of speakers so we could identify the precise moments when they felt the most nervous, excited or stressed and, conversely, when they began to relax.

**Delegates** – we monitored delegates over various one-hour periods, to understand how their engagement with the conference changed at different parts of the day, or event.

The results, while only representative, raise fascinating questions about how venues could assist their customers in planning more effective events. The trends that we've been able to identify will challenge some long-held assumptions about how to structure a conference or event to ensure maximum engagement, as well as also revealing new insights into the characteristics of a successful event organiser.

Our research explored the real-time experiences of organisers, delegates and speakers at a range of events at QHotels venues across the UK, including conferences and training events.

For more information on this study or to enquire about holding an event or conference at QHotels, please email [marketing@qhotels.co.uk](mailto:marketing@qhotels.co.uk)