



## **Importance of body heat management in sports performance**

*Intuitive temperature management technology helps regulate body heat during physical exercise in hot conditions*

Herzogenaurach, Germany, 4 February 2015 - As spring turns into summer, and as temperatures rise; athletes of all levels face similar heat induced challenges whilst working out and in competition. Keeping performance levels up becomes progressively more demanding; increased sweat production and elevated core body temperatures are direct responses of the body to physical activity in hot weather conditions, which in cases decrease the ability to sustain intensity levels, and thus decrease athletic performance.

For those who require more sophisticated solutions in order to regulate body temperature and remain cool in adverse conditions, wearing sports apparel that is specifically designed to provide intuitive temperature management is the right choice to ensure optimum performance.

The adidas Climachill apparel range, which welcomes its new black training t-shirt on 1 April, has been key in advancing active cooling technology within the industry, due to its uniquely engineered design profile: industry-first 3D aluminum-cooling spheres provide an instant cooling sensation on contact. A micro fiber fabric transports excess moisture away from your skin. Flat yarn maximizes surface contact with skin, transferring more heat away from the body – which all combined ensure maximum cooling. Enabling athletes to train harder, run longer, stay focused and compete at the highest level.

**Dr. Maarten Hupperets, Director Future Sport Science at adidas** described how the body works, why regulating body temperature is vital to athletes at any level, and explained how Climachill products help achieve such regulation:

**Q. Tell us more about how the body works/reacts when one is training in hot weather conditions?**

**A.** Activity in high ambient temperatures offers a particular challenge to the human thermoregulatory system. Humans strive to maintain a stable body core temperature of about 37°C. In response to exercise, as metabolic demand and heat production increases, the body core temperature can increase up to 3°C in warm ambient conditions. To maintain a stable body core temperature, the human body will make efforts to lose excess heat.

**Q. Why is it important to manage body heat during sports in general?**

**A.** Elevations of body core temperature may result in impaired physiological function, like for example muscular control, muscle activation, and nerve conduction velocity, and ultimately performance.

**Q.** What are the possible ways for body cooling?

**A.** Body heat is lost from environmental interaction by four processes; conduction, convection, evaporation, and radiation. Conduction is the transfer of heat from the body to another object with which it is in direct contact. Convection is the transfer of heat to or from air. Evaporation is an extremely efficient and effective way of removing heat from the body. Finally, heat can be lost as a consequence of electromagnetic waves, which is known as radiation.

**Q.** Can you elaborate on the development of Climachill products?

**A.** With Climachill, our goal was to create a desirable and accessible warm weather product that delivers a measurable cooling benefit without compromising comfort or design. We wanted to utilize as many of the body's cooling mechanism as possible in one tee. After many rounds of material engineering, development, testing, and design, with one material we were able to maximize three methods of cooling: evaporative cooling, conductive cooling, and convective cooling. During product development you normally have to pick one property and compromise on others; uniquely we had balanced all three at a level we had not reached before.

**Q:** Could you please summarize how the different body areas perform during intense workouts?

**A:** As shown on the attached heat maps, the high heat production areas are located on the upper body where the body is trying to loose heat. The colder spots, especially on the stomach, around the chest, and the lower back are parts were sweat production is occurring. There are also gender specifics we had to take into consideration when we developed the product range. Men generally show greatest heat production along the shoulders, sternum, sides of torso, front shins, fore arms and back of thigh and produce least heat at the lumbar region of the back. Women on the other hand typically produce greatest heat in the channel along the center of the back and on the back of the calves and least at the back of the upper arms and about tummy area.

*Gender differences in heat production:*





Male body heat production map

Female body heat production map

**Realizing that when it comes to performance, every degree matters, the new Climachill product range makes sure athletes can perform at their best regardless of heat, through new age design and material selection for maximum cooling. The cooling revolution truly continues – in black.**

**For more information visit [adidas.com/climachill](https://adidas.com/climachill), and follow the conversation on Twitter and Instagram with [#climachill](#) & [#uncontrolyourself](#) and [@adidas](#) – as of April 1  
*(Utilize local twitter/instagram handles as required)***

**- Ends -**

**For questions or more information please contact:**

**Bernadett Nagy**  
**Sr. Communications & PR Manager**  
**adidas Global Brand Marketing**  
**email: [bernadett.nagy@adidas.com](mailto:bernadett.nagy@adidas.com)**  
**t: +49 (0)9132 84-3468**

**Notes to the Editors:**

**About adidas:**

**adidas is a global designer, developer and marketer of athletic footwear, apparel and accessories with the mission to be the leading sports brand in the world. Brand adidas is**



part of the adidas Group, a corporation that includes brands such as Reebok, TaylorMade and Rockport.

**adidas Sport Performance:**

The guiding principle of adidas Sport Performance is 'Play to Win'. Inspired by the motivation of founder Adi Dassler, Sport Performance brings passion for great products to athletes in all sports, allowing them to be faster, stronger, smarter, cooler and natural. The main focus of adidas Sport Performance is on five key categories: football, running, basketball, training and outdoor.