Temperature Research Programme in Portsmouth

"Clarify how much your child sweats and find the best methods for cooling"

In July we were fortunate to take part in a fantastic research programme at Portsmouth University, assessing thermoregulation in children with a diagnosis of Ectodermal Dysplasia. Professor Mike Tipton, who is a member of the board of directors of the ED Society, is running this programme in the Extreme Environments Lab in the Department of Sports Science, led by Dr Heather Massey.

Our son was diagnosed with ED about 7 years ago and since then we have taken great care not to expose him to high temperatures and we have restricted exercise in warm conditions. As many members know, it is not easy to monitor a small boy's activity all of the time and it is stressful both for the child and the parents to have to always consider the risk of overheating.

Discovering that Professor Tipton is an expert in thermoregulation, I contacted him in the spring to enquire about how much water our son should drink when exercising or in warm climates. Professor Tipton told me about the research and he kindly invited us to take part in the programme.

We had a fantastic experience in the lab in Portsmouth. Dr Heather Massey and her team were utterly wonderful in every way. They welcomed us so warmly and made what could have been an uncomfortable experience actually very enjoyable!

Our son was fitted with monitoring devices and then exercised for 30 minutes on a walking machine in a room that was kept at 30 degrees. His heart rate and sweat response were monitored and a thermo-sensitive camera was used to identify areas of skin which were cooler than others. The testing took about 4 hours in all and was carried out over two days, so we stayed overnight in Portsmouth and enjoyed the sights, including visiting the Mary Rose (which we highly recommend!) On the second day, the same monitors were fitted, and our son exercised a little more intensely. Then he immersed his hands in a tank of cold water and his reactions to this cooling method were recorded.

We were fortunate to be one of the families who received wonderful news due to Heather's testing. We discovered that our son does sweat and is able to regulate his deep body temperature himself. We also learnt that hand immersion did not work for him because it caused his sweating response to diminish, so we now know not to use this particular method of cooling for him.

Heather explained that she can help to identify the most appropriate cooling methods for each child, even if the child does not sweat adequately, as was the case for most of the children assessed so far. She has found that most children do have at least small areas that sweat, for example the feet, and she can advise on how to help cool each child according to their own profile.

We found that the best way for our son to effectively cool down is to take a break from exercise. Heather also explained to us that frequent exercise regularly increasing deep body temperature, for those who are able to sweat, forms part of the process of heat acclimatisation (adapting to being warm), which will mean that our son should develop more sweating and start to sweat sooner after his body temperature starts to increase. That way he should become better able to maintain a cooler deep body temperature and exercise in warmer environments for longer or at higher intensities without overheating.

I also found it very helpful to be able to ask Heather several practical questions, e.g. how much water he should drink if exercising over long periods or in a hot climate.

Supporting a normal lifestyle