

# The Role of Medical Research in Reducing Health Disparities (July 2022)



For more information about the enquiry please visit: <https://www.amrc.org.uk/news/call-to-evidence-have-your-say-on-the-role-of-medical-research-in-reducing-health-disparities>

## Background:

The Physiological Society (The Society) is Europe's largest network of physiologists, at the forefront of science for 146 years. Physiology is the science of life, and research in physiology helps us to understand how the body works in health, what goes wrong in disease, and how it responds and adapts to the challenges of everyday life. The Society's membership is made up of researchers in all of these areas, from neuroscience through to endocrinology, nutrition and sport and exercise science with the science ranging from the mechanistic to the applied, from molecular to whole body.

The All-Party Parliamentary Group on Medical Research conducted an inquiry into 'Health Disparities: why medical research is a crucial tool for health equity.' The pandemic has exposed ever increasing health disparities across the UK. People's health outcomes are increasingly unduly determined by their ethnicity, age, and socio-economic background. Research has already shown that those living in the most deprived areas of England and Wales are twice as likely to die after contracting COVID-19, whilst their overall life expectancy is over seven years lower than those in the least deprived areas. Medical research has a key role in alleviating health disparities and it is Government's upcoming plans to reduce health disparities, including the Health Disparities White paper, acknowledge and support the vital role it has to play.

Physiological research is vital to tackling inequalities. Physiologists are directly involved with reducing health disparities by working with patients in hospital clinics, helping with the diagnosis and management of disease.

## Consultation response:

### **In your view, what role does medical research have in addressing health disparities?**

Medical research has a significant role in addressing health disparities, both in terms of understanding the balance and interaction between physiological and socioeconomic determinants of poorer outcomes and personalising interventions to improve outcomes for all.

Physiology, as the science of life, helps us to understand how the body works in health, what goes wrong in disease, and how it responds and adapts to the challenges of everyday life. Thus, it underpins translational and clinical medicine. It also provides the interface between the physical sciences and the life sciences.

Physiologists study every aspect of the way human bodies work. Some physiologists investigate the behaviour of individual proteins in single cells. Others are researching the interaction of cells in tissues, organs and systems, or study the integration of these systems to control the whole complex organism. This work provides the foundation for many biological and clinical sciences, including medicine.

Physiologists are also directly involved with reducing health disparities by working with patients in hospital clinics, helping with the diagnosis and management of disease. They work alongside elite athletes, helping to improve their performance and avoid injury, or they investigate how the body adapts to extreme environmental challenges, such as climate-change driven heat waves and flowing as well as deep sea diving or prolonged space

flight<sup>1</sup>. Furthermore, occupational physiologists work with individuals to keep them fit, safe, and productive at work. While these areas of research have a direct impact on elite performance, they also have an important role in highlighting how we can tailor exercise and nutrition regimes to reduce health disparities in other groups such as older people.

Additionally, physiological understanding is being translated into public engagement on physical activity, health and wellbeing with disadvantaged communities. In the UK, female healthy life expectancy at birth in the most deprived areas was 19.3 years less than in the least deprived areas in 2018 to 2020, according to the Office for National Statistics (ONS). For males it was 18.6 years less<sup>2</sup>. Remedying this disparity requires both a 'whole Government' approach, by joining up services and initiatives, and a 'whole body' approach to medical research, which can only be achieved through an understanding of physiology.

The Physiological Society's 2019 report, *Sport & Exercise Science Education: Impact on the UK Economy*, includes case studies which demonstrates the contribution of Abertay students to the health and wellbeing of economically disadvantaged communities in Dundee by offering 20 hours per year of coaching work through agencies like Active Schools to help Dundee residents make beneficial choices about health and exercise and address lower life expectancies and high rates of premature death<sup>3</sup>.

### **What challenges and barriers exist in putting research into practice to tackle health inequalities?**

A number of challenges and barriers exist to tackling health inequalities across both the funding for, and development of, studies and how research findings are translated into clinical and public health guidance.

Challenges and barriers related to funding opportunities include a lack of available funding for human studies related to human ageing and disease. The technology exists to allow researchers to conduct and collect deep and thorough data on differences in outcomes between individuals, but these research projects are long-term and expensive compared to using animal models for research.

Historically, a barrier to tackling health inequalities was that clinical trials focused predominantly on young healthy white men so it is difficult to know how applicable the results from these studies are to women or those in other ethnic or age groups, or with existing co-morbidities. This lack of relevant data is being, and should continue to be addressed.

Finally, tackling health inequalities is hampered by a lack of understanding of how an individual's physiology can lead to different outcomes when following public health or clinical guidance. For example, our recent *Physiology News* special edition focusing on diversity noted a difference in the interaction between salt and blood pressure between black African and white trial participants as a consequence of genetic variations which are more prevalent in black Africans, and which led to the retention of more salt by the kidneys<sup>4</sup>. Similarly, physiologists

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<sup>1</sup> The Physiological Society. *What is physiology?*. Available from: <https://www.physoc.org/explore-physiology/what-is-physiology/> [Accessed 10 August 2022]

<sup>2</sup> The Guardian. *Growing gap in healthy life expectancy between poorest and richest in England*. Available from: <https://amp.theguardian.com/society/2022/apr/25/growing-gap-in-healthy-life-expectancy-between-poorest-and-richest-in-england> [Accessed 10 August 2022]

<sup>3</sup> The Physiological Society. *Sport & Exercise Science Education: Impact on the UK Economy*. Available from: <https://www.physoc.org/policy/higher-education/sport-exercise-science-education-impact-on-the-uk-economy/> [Accessed 10 August 2022]

<sup>4</sup> Sofola, O. Salt and blood pressure in Africans. *Physiology News*. 2019 (115). Available from: <https://doi.org/10.36866/pn.115.42>

have worked on research which suggests that poorer outcomes in people of colour during the COVID pandemic may have been in part due to the guidance issued for oximeters not being appropriate for darker skin.

**Please provide a summary of your activity on health disparities (impactful research examples, examples of good practice, organisational priorities etc.)**

As noted in the response above, The Physiological Society has promoted the need for greater research into the drivers of health inequalities through the promotion of member research in our journals such as *Physiology News* and demonstrated the value of equity, diversity and inclusion (EDI) in furthering discussions on these issues.

Additionally, our policy projects endeavour to promote members' research where it has an impact on reducing health inequalities. For example, our recent project on physiology's impact on knowledge exchange included case studies of members research in areas such as the impact of dehydration on older people; developing training courses to help support elite athletes living with disordered eating conditions and working with industry to develop exercise and nutrition plans bespoke to an individual's body, cultural and lifestyle preferences<sup>5</sup>.

**Related reading**

[Sport & Exercise Science Education: Impact on the UK Economy](#)

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<sup>5</sup> The Physiological Society and the National Centre for Universities and Business. *Translating UK Knowledge and Research into Impact*. Available from: <https://www.physoc.org/policy/knowledge-exchange/translating-knowledge-research-into-impact/> [Accessed 10 August 2022]