

# South Asians need more exercise than white Europeans to reduce diabetes risk, say scientists

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South Asians (from India, Pakistan, Bangladesh) may have to exercise more than white Europeans to achieve the same levels of fitness and reduce their risk of diabetes.

Researchers at the University of Glasgow have found that lower [fitness levels](#) in middle-aged men of South Asian origin are contributing to higher [blood sugar levels](#) and increased diabetes risk compared with white men.

The research, published in *Diabetologia*, the journal of the European Association for the Study of Diabetes (EASD), suggests that [physical activity](#) guidelines may need to be changed to take ethnicity into account.

Diabetes develops when there is too much sugar in the blood either because the body does not produce enough of the [hormone insulin](#) – which normally keeps [blood sugar](#) levels down by helping cells use it for energy – or else the insulin that is produced does not exert its usual effects on tissues, known as [insulin resistance](#).

It is already known that people of South Asian ethnicity living in the United Kingdom have a 3.5 fold increased prevalence of [type 2 diabetes](#), and develop the disease around a decade earlier and at a lower [body mass index](#) (BMI), compared with white Europeans.

Even non-diabetic South Asians have higher blood sugar levels than Europeans, and while the cause of this is not fully understood, an increased resistance of body cells to the effects of insulin is strongly implicated.

Carrying too much fat, a low level of fitness and low physical activity levels are key factors influencing insulin resistance, blood sugar levels and diabetes risk.

In this study, the researchers aimed to determine the extent to which increased insulin resistance and blood sugar levels in South Asian men, compared with white European men, living in the UK, was due to lower fitness and physical activity levels.

They studied 100 South Asian and 100 European men aged 40-70 years living in Scotland without diagnosed diabetes and measured their blood sugar levels, insulin resistance and other risk factors. The men also undertook a treadmill exercise test to determine how much oxygen their bodies were able to use during intense exercise – a key measure of physical fitness, wore accelerometers for a week to assess their physical activity levels, and had a detailed assessment of their body size and composition.

Statistical modelling was then used to determine the extent to which body size and composition, fitness and physical activity variables explained differences in insulin resistance and blood sugar between South Asians and Europeans.

The results suggested that lower fitness, together with greater body fat in South Asians, explained over 80 per cent of their increased insulin resistance compared to white men.

Dr Nazim Ghouri, of the Institute of Cardiovascular and Medical

Sciences who led the study with Dr Jason Gill and Prof Naveed Sattar, said: "Low fitness is the single most important factor associated with the increased insulin resistance and blood sugar levels in middle-aged South Asian compared with European men living in the UK."

Importantly, the data also showed that while fitness improves with increasing physical activity, South Asians' lower fitness values could not be explained simply by their lower activity levels. South Asians had lower fitness levels than Europeans at all levels of physical activity, suggesting inherent differences in body make-up.

Dr Gill added: "The fact that South Asians' increased insulin resistance and blood sugar levels are strongly associated with their lower fitness levels, and that increasing physical activity is the only way to increase fitness, suggests that South Asians may need to engage in greater levels of physical activity than Europeans to achieve the same levels of [fitness](#) and minimise their diabetes risk."

Prof Sattar concluded: "This has potential implications for physical activity guidance, which, at present, does not take ethnicity into account.

"A number of leading doctors and scientists have already recommended that the BMI threshold for obesity in South Asian populations should be lowered from 30 kg/m<sup>2</sup> to 25 kg/m<sup>2</sup>, in recognition of the fact that substantially lower BMIs are needed in South Asians to confer equivalent [diabetes risk](#) to those observed in populations of white European origin.

"The present data suggest that differential physical activity guidance for South Asians may also be needed."

**More information:** *Diabetologia* [DOI 10.1007/s00125-013-2969-y](https://doi.org/10.1007/s00125-013-2969-y)

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