

Dying for a seat – part 4

Chris Langham goes deeper into the science behind the physical dangers posed by sitting in a conventional chair

THE national press has got onto the “dangers at your desk” bandwagon, and well it should. One of the most sedentary activities to draw a salary is journalism as the press deadline looms, and warnings about something we all do that genuinely shortens our lives create attention-grabbing headlines.

John Naish, in a recent edition of the *Daily Mail*, warned that “sitting down can send you to an early grave”. In October 2012, Louisa Dillner asked from the pages of *The Guardian*, “Is sitting bad for you?” Short answer, yes.

Such coverage has become a regular feature in the western world’s press and research into this subject has thrown up a number of disturbing facts.

In the last issue I discussed how sitting in a conventional chair has been proven to be a contributing factor in the epidemic of obesity and type two diabetes that is financially

crippling the NHS.

Passive sitting is a low-energy activity, and the results published by the University of Leicester of studies involving hundreds of thousands of people demonstrate why we should be concerned.

Sitting fools our bodies into thinking we are in “energy storage mode”, which reduces our production of insulin, raises the levels of glucose in the blood and increases the levels of bad cholesterol.

The lipase enzymes responsible for breaking down lipids and triglycerides, or removing fat from the bloodstream, are also compromised, meaning that good cholesterol levels fall.

Television viewing is thought to be the ultimate passive activity, and according to an Australian study that looked at more than 9,000 subjects: “Age, sex, education, smoking, hypertension, waist circumference, body-mass index, glucose tolerance

status and leisure-time exercise did not significantly modify the associations between television viewing and all cause...mortality.”

So if your lifestyle sees you in the passive, conventional sitting mode for long parts of the day, you might as well light up that cigarette and chow down on that double order of fries because the prognosis is poor.

Stand up for a longer life

Excessive sitting has its own pathology. A 14-year study of 123,000 Americans by the American Cancer Society found that men who spent six hours or more of their daily leisure time sitting were 20 per cent more likely to die prematurely than those who spent three hours or less in a chair. The same study reported that the increased likelihood of early fatality in sedentary women was 40 per cent.

Louisa Dillner’s article concluded with this line, lifted from *The British Journal of Sports Medicine*: “Each hour of television watched after the age of 25 reduces life expectancy by 21.8 minutes.”

Dr James Levine, an obesity specialist in the USA, has been signalling the dangers of passive sitting for a number of years. In 2005 he said to *Science Magazine*: “What fascinates me is that humans evolved over 1.5 million entirely on the ability to walk and move. And literally 150 years ago 90 per cent of human endeavour was agricultural. In a tiny speck of time we’ve become chair-sentenced.” Putting it bluntly, Dr Levine said: “Excessive sitting is a lethal activity.”

Robust science

These are not scare tactics and sound bites – the underlying science is very robust. Excessive sitting in a conventional chair or sofa, whether you are doing it at work or at home (or most likely both) affects the way your body behaves at a systemic level, and the most fundamental effect is that “energy storage mode” I mentioned earlier.

Because passive sitting uses four times less energy than walking, even bending down to tie a shoelace causes a spike in calorie use for a passively seated person; activity levels of lipases plummet.

Lipase is an enzyme that catalyses the formation or hydrolysis of lipids (dietary fats). Human pancreatic lipase (HPL) is the main enzyme that breaks down dietary fats in the digestive system. It breaks triglycerides – a type of fat found in ingested oils – down into easily digestible monoglycerides and fatty acids.

Lipase has been found performing the essential function of metabolising and transporting dietary lipids in every type of living creature, even some viruses.

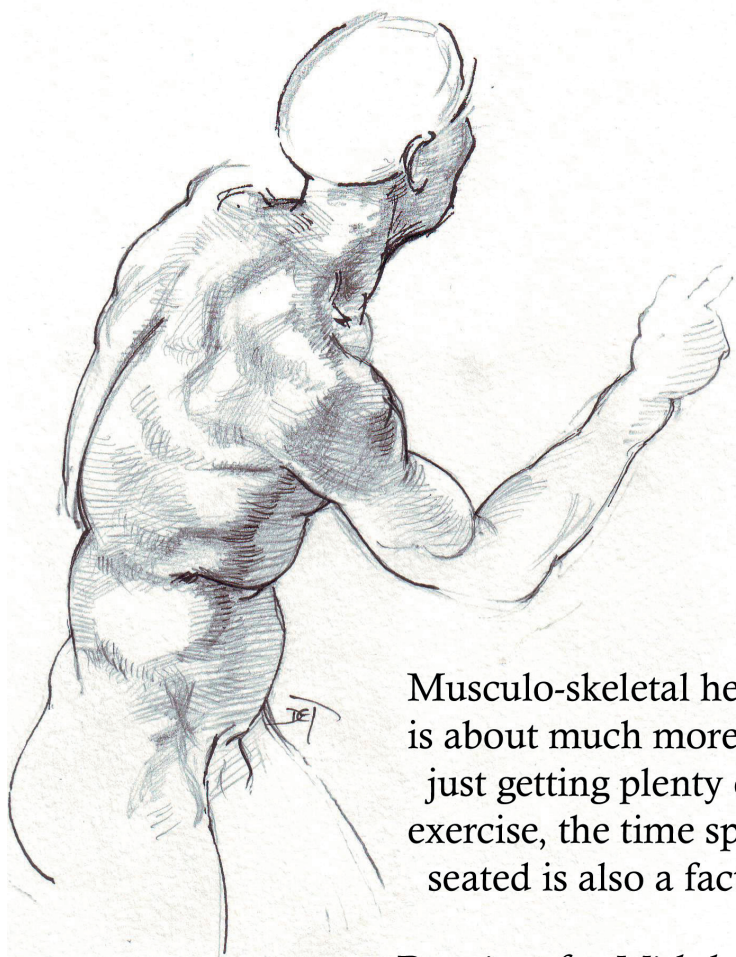
Studies in rats show that their leg muscles only produce lipases when they are being flexed. Humans are no different. By taking a passive seat we compromise lipase activity, compromising metabolism and digestion and the removal of fat from the bloodstream. Our bodies are designed to be on the move and excessive passivity is unnatural and deadly.

Combine this with lowering levels of insulin production and you have what Marc Hamilton, a microbiologist and inactivity researcher from the Department of Biomedical Sciences in the University of Missouri-Columbia, describes as a cascade of harmful effects.

Hamilton theorises that a passive muscle has no call for electrical or enzyme activity. He equates the muscles of a seated person to those of a “dead horse” and the negative effects of passivity can happen very fast.

He recruited 14 young, fit and slender volunteers to spend 24 hours passively seated and found a resultant 40 per cent reduction in his subjects’ insulin effectiveness, raising the levels of blood glucose to a dangerous level within just one day.

The risks of cardiovascular disease bloom as well – we come back to our old friend the television viewer. A study published in the American Heart Association’s journal *Circulation* showed that each extra



Musculo-skeletal health is about much more than just getting plenty of exercise, the time spent seated is also a factor.

Drawing after Michelangelo

Dentist struck off for doctoring patient records

A SOFTWARE specialist who examined a dentist's computer records was able to determine that entries had been made retrospectively, a GDC professional misconduct hearing was told.

Jagdev Singh Wasu, with practices in Surbiton and Southampton, was ordered to be struck off after being found guilty of professional misconduct.

The hearing was told that between 2008 and 2011 Wasu failed to correctly diagnose patients' medical problems and failed to give the correct treatment.

Evidence was also given that he failed to keep adequate appointment records, medical histories or details of clinical treatment.

In order to cover his tracks, Wasu made retrospective entries into the records of at least two of his patients.

The hearing heard how he carried out bridgework different to that agreed with one patient, then forged her signature on the agreement letter and retrospectively changed her records.

The committee said in their

findings that they were "concerned with the inconsistency between your assertion that detailed notes existed for Patient A and your admission that handwritten notes and/or typed up notes did not exist for other patients. There were clear and substantial differences and discrepancies in the clinical records submitted as original records to the Investigating Committee of the GDC and the contemporaneous records

available to this committee.

"The committee did not regard it as credible that alterations such as deletions and additions would have been made by either a practice manager or typist transferring data as you suggested. Although much of the evidence relating to computers concerned matters that may have occurred at the end of January and beginning of February 2013, the committee was satisfied

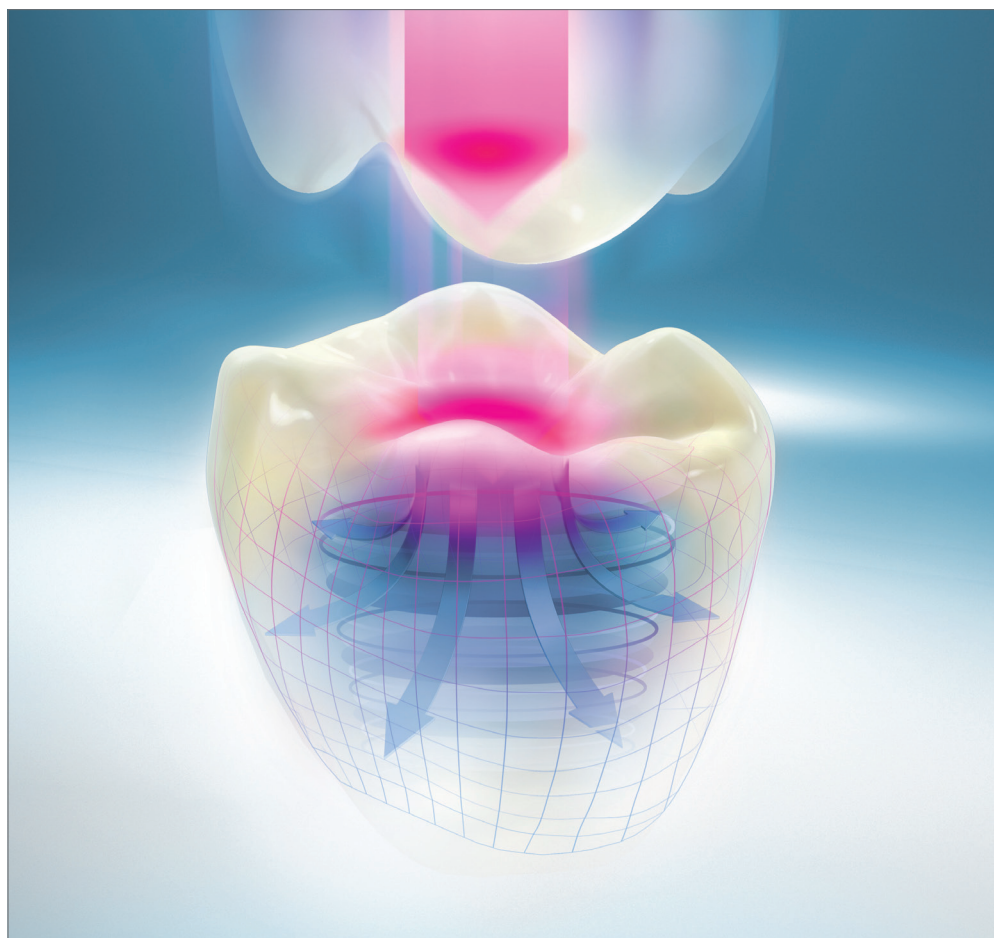
that the clock relating to the laptop computer which you produced could not be relied upon as a safe guide to the actual date upon which records were created."

In mitigation it was said that Wasu was aware of his professional deficiencies and was trying to remedy them. It was added that he had over-reached himself when he had taken on the second practice in Southampton.

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hour of television viewing was associated with an 18 per cent increase in the risk of death from heart disease and an 11 per cent increase in overall mortality.

People who sat and watched TV for four hours or more a day proved 80 per cent more likely to die from cardiovascular disease than those who watched for just two hours or less, and 40 per cent more likely to die prematurely from any cause.

These astonishing test results have no other apparent cause than the pathology of inactivity in a conventional seat; subjects who spent more time standing or even lying down, both natural activities, were unaffected.

So the problem is not just in inactivity, it is in the conventional seat and its chronic effects on human physiology. Next month I'll be looking at posture and start asking: what can we do to overcome this problem?

Chris Langham is a specialist in ergonomic seating technology and the MD of Bambach Saddle Seat (Europe) Ltd. For more information visit www.bambach.co.uk

