Medical Xpress

Can cell phone exposure cause bone weakening?

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Electromagnetic radiation from cellular phones may adversely affect bone strength, suggests a study in the March *Journal of Craniofacial Surgery*.

Men who routinely wear their cell phone on their belt on the right side have reduced bone mineral content (BMC) and bone mineral density (BMD) in the right hip, according to the study by Dr. Fernando D. Sravi of National University of Cuyo, Mendoza, Argentina. He writes, "The different patterns of right-left asymmetry in femoral bone mineral found in mobile cell phone users and nonusers are consistent with a nonthermal effect of electromagnetic radiofrequency waves not previously described."

Dr. Sravi measured BMC and BMD at the left and right hip in two groups of healthy men: 24 men who did not use cell phones and 24 men who carried their cell phone in a belt pouch, on the right side, for at least one year. Measured using a test called dual-energy x-ray absorptiometry, BMC and BMD are standard markers of bone strength.

Average hip BMC and BMD measurements were not significantly different between groups. However, men who did not use cell phones had higher BMC in the right femoral neck (near the top of the thigh bone): a normal left-right difference that was absent in cell phone users. Thus men who wore their cell phones on the right side had a relative reduction in femoral neck BMC in that hip.

The cell phone users also had reduced BMD and BMC at the right trochanter—an area at the outside top of the thigh bone, close to where the phone would be worn on the belt. The difference between the left and right trochanters was significantly related to the estimated total hours spent carrying a cell phone.

There are concerns about several potential harmful effects of cellular phones. However, few studies have looked at whether electromagnetic fields emitted by cell phones could affect bone mineralization. With the rapid growth in cell phone use, any significant effect on BMD could have a substantial effect on the osteoporosis rate in the population.

Although small, the new study raises the possibility that long-term exposure to electromagnetic radiation from cell phones could adversely affect bone mineralization. Larger follow-up studies will be needed to confirm or disprove this hypothesis, according to Dr Sravi. He suggests that studies may be warranted in women, who have higher rates of osteoporosis; and children, who would have longer expected lifetime exposure to cell phones.

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