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SMOKING AFFECTS WOMENS' SEX HORMONE–REGULATED BODY FORM

Saarni et al.[1] recently published an interesting study using Finnish twins to examine the association between adolescent smoking and adult abdominal obesity and overweight. They found that smoking was a risk for abdominal obesity in females.[1] Unfortunately, they were unable to provide any explanation for the phenomenon, and did not realize that this probably affects the attractiveness of the female body.[2] Here we propose why smoking may increase abdominal obesity in women and reduce attractiveness.

The study by Saarni et al.[1] is consistent with previous studies that have found that smoking females have a significantly higher waist-to-hip ratio.[3] It is well known that the waist-to-hip ratio is regulated by sex hormones. Previous studies have also shown that females with a lower waist-to-hip ratio and larger breasts have higher 17-β-oestradiol levels than females with a higher waist-to-hip ratio and smaller breasts.[4] Likewise, women with higher testosterone levels have a higher waist-to-hip ratio,[5] because testosterone causes the accumulation of fat cells around the waist and the inhibition of fat cells in the hip region.[6] The effect of estrogen is the opposite.

Women who smoke have more circulating testosterone[5] and lower free estradiol levels than do women who do not smoke.[7] Higher testosterone levels in women have been suggested to lead to an increased risk of smoking.[8] Thus, the higher testosterone levels of women who smoke probably cause the accumulation of fat cells around the waist and the inhibition of fat cells in the hip region,[6] and may explain the observed pattern of increased abdominal obesity in women who smoke.[3]

On the other hand, it seems possible that smoking per se increases testosterone levels and reduces estrogen levels, although experimental studies on humans are lacking in this area. Saarni et al.'s study gives elegant support to this interpretation, because they found that the smoking twin was more likely to be abdominally obese.[1] The change in sex hormone levels as a result of smoking probably affects females' body fat distribution, causing it to become more tubular.

In western cultures, a low waist-to-hip ratio is considered sexually more attractive in women.[2] It can thus be concluded that smoking reduces the sexual attractiveness of the female body. This should be highlighted in publicizing the negative effects of smoking, especially among young women who smoke, or those who are considering starting. ■

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INDOOR RESIDUAL SPRAYING OF DDT FOR MALARIA CONTROL

We wish to comment on O'Shaughnessy's article[1] on the use of DDT to control malaria from our years of malaria eradication experience.[2]

From 1948 to 1958, H.H.C. participated in Taiwan's malaria program. In 1950, there were 1.2 million cases of malaria out of a population of 7.5 million.[3,4] After a period of DDT indoor residual spraying from 1953 to 1957,[3,5–7] the number of cases dropped to 533. Subsequent surveillance, case detection, treatment, and focal indoor residual spraying resulted in only 19 cases in 1965 (out of a population of 12.4 million) and the World Health Organization (WHO) declared that malaria has been eradicated on the island. Remarkably, the total program cost per capita from 1953 to 1957 was NT $3 (US $0.10 at the current exchange rate).[6]

The story of parachuting cats into malaria-infested areas to counteract the increasing rodent populations after the DDT spraying program killed the native cats is cited as a parable of ecosystem meddling and has become an urban legend. In Taiwan, we knew indoor residual spraying killed cats and other animals, so we asked villagers to keep them out of the house for several days after the spraying. Surveillance of 682 houses sprayed (264 with cats) found that 43 cats died, along with many mice and chickens.[3] Some animals died in a day, suggesting that direct toxicity was the issue, not biomagnification.

We are skeptical about the validity of the reports of cats being parachuted into Sarawak in 1960. An airdrop of DDT supplies in 1954 during the pilot project is mentioned in another source,[8] but supplies were always transported via speedboats during H.H.C.'s tenure as the malaria advisory team leader in Sarawak from 1962 to 1968. Colbourne et al. never mentioned parachuting cats to us or in their article, which focused on the Sarawak malaria epidemic from 1955 to 1958.[9] Similarly, we heard no mention of