

addition to new house officers 3 days into first post, following an ACLS-type induction course.

Particular attention was paid to the 1989 changes in the Resuscitation Council (UK) guidelines. The results demonstrated a tailing-off of skills with time following qualification. This was not related to experience at arrests, nor to specialty. In particular, the Resuscitation Council guideline changes were not fully appreciated by more senior colleagues.

Greater than 95% of our respondents supported compulsory ACLS qualification before starting the first House Officer post. These findings would appear to support the need for regular CPR refresher courses at all levels of junior medical staff.

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Familial precocious puberty in girls

I read with interest the article by Rangasami and Grant (August 1992 *JRSM*, p 497) reporting two sisters with apparent familial precocious puberty. Unfortunately the authors do not give any indication of thyroid function status of the cases; in particular results of thyroid function tests as a screen for hypothyroidism.

Hypothyroidism in young children usually results in a delay of sexual maturation but in some cases may result in precocious puberty^{1,2}. Such an association having been first described by Kendle³ in 1905. The clinical features in girls include breast development, oestrogenization of the vaginal mucosa and vaginal bleeding. In boys testicular and penile enlargement occur. Development of pubic hair can be relatively delayed². Serum concentrations of gonadotrophin are increased probably due to the feedback mechanism of thyroxine at the pituitary or hypothalamic level. Administration of thyroxine may reverse many of the above changes.

Familial predisposition to thyroid disease is well established and although it is unlikely the two reported sisters had familial hypothyroidism presenting as precocious puberty in is recommended by the author that all cases of precocious puberty undergo thyroid function screening.

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References

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- 2 Barnes ND, Hayles AB, Ryan RJ. Sexual maturation in juvenile hypothyroidism. *Mayo Clin Proc* 1973;48:849-55
- 3 Kendle FW. Case of precocious puberty in a female cretin. *BMJ* 1905;1:246

The strange case of Ms Elizabeth Trevers

I wish to thank Dr McHarg (July 1992 *JRSM*, p 432) for drawing to my attention my lapsus calami in ascribing the date of publication of Harvey's 'Exercitatio anatomica de motu cordis et sanguinis in animalibus' to 1618 when it should have been 1628. I also thank him for bringing to my notice the fact that Harvey had previously delivered 'visceral lectures' at the Royal College of Physicians.

In this case I believe that Dr McHarg has nodded, too, as Harvey's lectures commenced in April 1616, not 1618. As a matter of interest, this year saw the deaths of Shakespeare and Cervantes.

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Reference

- 1 Leake CD. *Exercitatio Anatomica De Motu Cordis et Sanguinis in Animalibus* by William Harvey (English Translation) Springfield, Illinois: Charles C Thomas, 1931:139

Dental enamel growth

Dr Hillson's paper on dental enamel growth, perikymata and hypoplasia in ancient tooth crowns (August 1992 *JRSM*, p 460) reflects a similar situation in modern tooth crowns. Minor and major surface defects are commonly present on human enamel surfaces¹. The minor incremental markings, or cross striations, represent daily increments of enamel formation and reflect a circadian rhythm, as with von Ebner lines in dentine². Similarly, the striae of Retzius, in enamel, are major incremental markings analogous to the contour lines of Owen in dentine.

Bands of enamel between striae of Retzius are commonly 7-8 cross-striations, each 4 μm wide, apart, suggesting a periodicity of approximately 8 days. In dentine, von Ebner's lines, Owen's lines and peri-radicular bands appear to correspond to cross striations, striae of Retzius and perikymata in enamel.

While such features may affect the properties of their respective tissues, they may simply reflect periodicities during tissue formation, common to all mineralized tissues, including bone and cementum. The sudden change in structure at the stria may be explained by a model in which an endogenous, free-running circadian rhythm of cell activity is imperfectly synchronized to the more precisely 24-h exogenous body rhythm. For a period of days these two rhythms would be expected to stay sufficiently in step to give normal daily increments of deposition. When their separation became too great, however, an incremental deposit would be delayed for the remainder of the cycle, possibly up to one day, until synchrony was restored. A stria would result. In summary, in addition to helping with identification and ageing of dental specimens, incremental markings may yet prove to be a major guide to biological rhythms in relation to tissue development and physiology, of more significance than as mere structural features of interest.

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References

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- 2 Yilmaz S, Newman HN, Poole DFG. Diurnal periodicity of von Ebner growth lines in pig dentine. *Arch Oral Biol* 1977;22:511-13