Closed-circuit Anesthesia Made Easier

To the Editor:—Closed-circuit anesthesia, or low-flow anesthesia, has become increasingly popular in our center because it permits a better understanding of the mechanisms of absorption of anesthetic agents.

In closed-circuit anesthesia the fresh gas flow is equal to oxygen uptake ($V_{O_2}$) plus anesthetic uptake. Brody's equation\(^1\) is a convenient way to calculate $V_{O_2}$ by multiplying kg\(^{3/4}\) by 10.

Many anesthesiologists find this equation impractical;

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>$10 \times 10^{0.008}$</th>
<th>$10 \times (0.5 \times 10^{0.008} + 3)$</th>
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<td>10</td>
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<td>100</td>
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<td>330</td>
</tr>
</tbody>
</table>

Ultimately, this may limit their use of closed-circuit anesthesia. We propose a simplified way to calculate $V_{O_2}$ by substituting 0.3 kg + 3 for kg\(^{3/4}\) in Brody's equation (table 1).

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REFERENCE

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Pharmacokinetics and Physiognomy

To the Editor:—My attention was called to the term “physiognomy” appearing in the ASA Annual Refresher Course Lectures, 1985.\(^*\)† Both lectures reproduce a table in which item 8 reads, “Pharmacokinetics are unaltered by altered physiognomy.” The same term appears in the lecture, “Reasons to preferentially select general anesthesia,”‡ published in the International Anesthesia Research Society 1986 Review Course Lectures.

As far as I know these are the first three instances in which this unusual term, “physiognomy,” appears in the anesthesiology literature. The concept is stated as follows: “Time course of anesthetic effect should be relatively unaffected by altered body habitus.”\(^*\) and “Thus, anesthetic requirements in terms of the MAC of an inhalation anesthetic is similar for thin, fat or muscular individuals.”\(^†\)

I fear an inappropriate word may take hold. The following comments are an attempt to suggest we should not use the term “physiognomy” to denote “body habitus.”

A most interesting book called La Physiognomie ou L’Art de Connaître les Hommes d’après les Traits de leur Physiognomie\(^1\) (Physiognomy or the Art of Knowing People According to their Facial Features) was written in the 18th century by Johann Kasper Lavater, a Swiss theologian who was born in Zurich on November 11\(^2\) or 15,\(^1\) 1741, and died in the same city on January 2, 1801. Lavater is considered as the founder of the “science” of physiognomics,\(^2\) physiognomy being “the systematic relation of psychological characteristics to facial features or body structure. Since many efforts to specify such relationships have been discredit, the term, physiognomy, commonly connotes pseudoscience or charlatanry on the level of fortune-telling or palmistry.”\(^3\)

Webster\textsuperscript{4} defines physiognomy as follows: "From the Greek physiognomonia, physis, nature, and gnomon, one who knows. 1) the practice of trying to judge character and mental qualities by observation of bodily, specially facial, features; 2) the face; facial features and expression, specially as supposedly indicative of character; 3) apparent characteristics; outward features or appearance."

\textit{Stedman's Medical Dictionary}\textsuperscript{5} thus defines physiognomy: "1) The countenance, especially regarded as an indication of the character; 2) the estimation of one's character and mental qualities by a study of the face and general bodily carriage."

Clearly, physiognomics refers to the interpretation of character and personality by examination of the individual's external aspects, particularly the facial expression, and not to "body habitus" \textit{per se}.

Physiognomy rests in the 18th century philosophers' world, has Lombrosian overtones, and is reminiscent of phrenology. Perhaps it would be preferable to use terms with a direct connotation, such as somatotypes,\textsuperscript{4-9} to refer to different "body types." In the Brazilian medical literature the term "biotypology" has been used for decades in reference to the study and classification of different "body types."\textsuperscript{6}

As long as I am offering criticisms, perhaps I should offer suggestions. For instance, different somatotypes could be classified as normosomatic, leptosomatic, and pachysomatic. The Greek prefixes "lepto" (slender) and "pachy" (thick)\textsuperscript{5} were used by Bovet in 1951 to divide neuromuscular blocking agents into leptoacurares (the slender depolarizer molecules) and pachycurares (the bulky nondepolarizer molecules).\textsuperscript{10}

The concepts could then be restated as: "Time course of anesthetic effect should be relatively unaffected by different somatotypes," and "Thus, anesthetic requirements in terms of the MAC of an inhalation anesthetic is similar for normosomatic, leptosomatic, or pachysomatic individuals."

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The author is grateful to Prof. J. M. Andrews (Plastic Surgeon, Escola Paulista de Medicina, São Paulo, SP, Brazil), who made available his personal copy of the French translation of Johann Kaspar Lavater's book.\textsuperscript{1}

\section*{REFERENCES}


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\textit{In reply:—It is a pleasure to be corrected in so erudite a fashion. My apologies to Lavater, Britannica, and Stedman’s.}

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