discuss the different types of amblyopia in the discussion.

The term, 'critical period' became widely used after Wiesel and Hubel[1] presented their experiments on monocular deprivation and discussed the critical period for changes in the ocular dominance of the cells in the primary visual cortex of a cat, as a result of a monocular deprivation of eye opening for several months. Nowadays, different critical periods for different visual functions are used during the development of the visual system.[2] As he mentioned, 'critical period' is sometimes used for amblyopia with a convergent strabismus, but it is also used for anisometropic deprivation[3,4] as well as a congenital cataract,[5] etc.

I cannot completely agree with his opinion in that 'this article could induce nonspecialists to continue an occlusion on children with convergent strabismus longer than the period for which positive results might be obtained, with the risk of creating irreversible psychological damage.' Of course, amblyopes related with esotropia showed a worse prognosis to occlusion therapy than the amblyopes related to anisometropia. However, some compliant amblyopes of 11–15 years of age due to a strabismus showed an improvement with a full-time occlusion.[6] Occlusion treatment is not simple to implement and is often associated with some degree of distress. Despite this, the negative psychosocial effect might be less than expected.[7,8] Besides, amblyopia by itself has a significant effect on the patients' psychosocial functioning.[9] We cannot ignore the psychosocial difficulties related to an amblyopia affecting the individuals' self-image, work, school, and relationships.[9]

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Sir,

Calculated tumour volume as a prognostic parameter for survival in choroidal melanomas

Richtig and associates raised the question, whether calculated tumour volume would be a better prognostic indicator of survival of patients with choroidal melanoma than the largest basal tumour diameter (LBD) and height.[1] They answered in the positive and also suggested that tumour volume be calculated in daily routine.

We tested their hypothesis with independent, consecutive, clinically unselected, and population-based data of 289 patients with choroidal and ciliary body melanoma with long-term follow-up.[2] A Cox regression multivariate model that combined LBD (mean 13 mm, range 3–25) and tumour height (mean 7.8 mm, range 1–20), fitted to survival data significantly better ($P = 0.0031$, difference between models; Table 1) than a model based on tumour volume as calculated by Richtig *et al*.[1] Of models that included only one size parameter (LBD, height, and volume), the one based on LBD fitted to the survival data best and was superior to the one based on volume ($P = 0.020$, Table 1).

The model that combined LBD and height was somewhat more strongly associated with survival than the model based on LBD alone ($P = 0.045$).

The range of tumour dimensions in Richtig's study was more limited (mean LBD 10.4 mm, range 4.1–18.9, and mean height 5.7 mm, range 1.7–14.9). We consequently delimited our data to correspond to their LBD and tumour height limits (mean 12.5 mm, range 6–

Table 1 Comparison of Cox proportional hazards regression models, based on tumour dimensions and volume, as predictors of survival of patients with choroidal and ciliary body melanoma[a]

Variables on the model	*−2 log likelihood*	*Compared to the tumour volume model*		
		Difference in log likelihood	*Degree of freedom*	*P*[b]
All tumours (n = 289)				
Volume[c,d]	1228.0	—	—	—
LBD[e]	1222.7	−5.3	1	0.020[g]
Height[e]	1290.7	62.7	1	<0.0001[f]
LBD and height[e]	1216.5	−11.5	2	0.0031[g]
Tumours of the same size as in Richtig's study (n = 237)				
Volume[c,d]	1024.0	—	—	—
LBD[e]	1015.1	−8.9	1	0.0028[g]
Height[e]	1031.0	7.0	1	0.0080[f]
LBD and height[e]	1014.6	−9.4	2	0.0094[g]

[a]The smaller the log likelihood, the better the model.[3]
[b]Partial likelihood ratio test, χ^2 distribution.[3]
[c]Calculated as $(\frac{3}{4}\pi a^2 b) : 2$, where a is the tumour diameter divided by 2 and b the tumour height.[1]
[d]Continuous variable, per mm^3.
[e]Continuous variable, per mm; LBD, largest basal tumour diameter.
[f]In favour of the tumour volume model.
[g]In favour of the alternative model.

18 and mean 7.3 mm, range 2–14 mm, respectively). The statistical associations among this subset of 237 patients did not change (LBD plus height *vs* volume, $P = 0.0094$; LBD *vs* volume $P = 0.0028$, Table 1). The model which combined LBD and height, however, no longer differed statistically from that based on LBD alone ($P = 0.81$).

Our unselected data set, which was larger than Richtig's (145 *vs* seven tumour deaths), showed that replacing tumour LBD as a prognostic indicator with tumour volume probably is not worth the effort in daily practice. A caveat in Richtig's study is that when multivariate analyses are applied to small samples—and the sample size in survival analysis is the number of events, not the number of patients who enter the study—a model which cannot be generalised is easily obtained. All equations used for calculating tumour volume so far are rough approximations.[1,4–6] If true tumour volumes will be reliably obtained by imaging in the future, our conclusion should be reassessed.

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Sir,

Reply to E Kujala and P Toivonen

Malignant melanoma had always an unpredictable course. Even in the same entities clinical outcome varies largely as seen between Lentigo maligna melanoma and acral-lentiginous melanoma in cutaneous melanoma and between choroidal melanoma and ciliary body melanoma in uveal melanoma.

Despite the fact that largest tumour diameter is one prognostic indicator for choroidal melanoma, several authors have tried tumour volume calculation models, as the direct measurement of volume has not found the way into daily routine because of the necessity of special ultrasonic equipment.

The formula used in our calculation model was the half volume of a rotation ellipsoid, rotated around the y-axis, with $\frac{4}{3}\pi a^2 b$, limited to patients with choroidal melanoma, excluding ciliary body melanoma.

In our study, the thus calculated volume turned out to be superior as prognostic indicator than tumour diameter and tumour height.

As mentioned in the discussion, calculated volumes are only theoretical volumes and might be of value to