simply due to a general increase of spike densities across the sleep states, since REM spike rate did not change significantly.

Discussion. The reorganization of sleep-waking profile with reduced total sleep time was in favor of REM sleep, thus confirming the data reported by KARADŽIĆ[6] and by FERGUSON[9]. The effects of reduced sleep time on the occurrence of LGN spiking appear to be similar to the effects of PCPA, reserpine and LSD. In cat, those drugs increase the number of LGN spikes which occur outside of REM sleep as well as reduce the time spent in SWS and REM sleep.

The build-up of the endogenous electrical activity of LGN brought about by partial sleep deprivation, was also shown as a consequence of selective REM sleep deprivation[10]. It was shown by quantitative analysis of LGN spikes that REM deprivation leads to higher density of LGN spikes during REM sleep and also during SWS which preceded it.

The increase in LGN spike rate in SWS and the reduction in the total amount of REM sleep time supports the view of DEMENT et al.[11] that the number of spikes to be discharged importantly determines the amount of REM sleep that occurs. The results of their 'spike deprivation' experiment suggest that the postdeprivation increase in REM time might be regarded as a response to the loss of spiking activity along the visual system rather than to the loss of REM time per se. Conversely, the occurrence of spikes outside of REM sleep periods could reduce the time spent in REM sleep and reduce or eliminate a REM sleep rebound. Moreover, in the instances of reduced opportunity to sleep, the loss of REM sleep is compensated for not only by maintaining the higher proportion of REM sleep state, but also by increasing the discharge of spiking activity in other sleep state, thus subserving the homeostatic regulatory function, the role of which is still unknown.

Résumé. Chez le rat adulte on a étudié l'effet de la réduction de la durée du sommeil sur la succession de ses différents stades. On a trouvé que la réduction de la durée totale du sommeil avait provoqué la réorganisation du profil veille-sommeil et de même l'augmentation des pointes au niveau des noyaux géniculés latéraux au cours du sommeil paradoxal aussi bien qu'en dehors de ce stade.

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Interpretation Problems of Intestinal Iron Absorption from Isotopically Labelled Meat*

Retention measurements of ^{59}Fe or ^{55}Fe labelled meat can be performed routinely by whole body or blood counting techniques[1,2]. However, it is less certain whether these data will reflect true iron uptake, since knowledge on intestinal absorption and specific radioactivity (^{59}Fe or ^{55}Fe/Fe) of the single iron-containing meat compounds is still insufficient.

Neglecting potential, as yet unknown, interfering factors, the total radioiron retention R and the total food iron retention F of a meat sample can be described by the equations

$$\sum a_i r_i/\mathrm{A} = \mathrm{R} \qquad \text{and} \qquad \sum m_i r_i/\mathrm{M} = \mathrm{F},$$

where a_i stands for the partial and A for the total radioiron activity, m_i for the partial and M for the total iron mass, and r_i for the partial retention coefficient of a single iron-containing compound $i = 1, 2, \ldots . n$. It can be shown that the total iron retention coefficients R and F get equalized (R = F) if all the partial retention coefficients become identical: $r_1 = r_2 = \ldots . = r_n$, or if all the iron-containing compounds indicate the same specific radioactivity: $a_1/m_1 = a_2/m_2 = \ldots . = a_n/m_n$, which also means: $a_1/\mathrm{A} = m_1/M$; $a_2/A = m_2/\mathrm{M}$; $\ldots . a_n/\mathrm{A} = m/_n\mathrm{M}$, i.e. that the relative distributions of active and inactive iron within the meat are the same.

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Iron and radioiron in various fractions of fillet from a 85 kg pig injected i.v. 5 mCi ^{59}Fe 4 weeks prior to slaughter

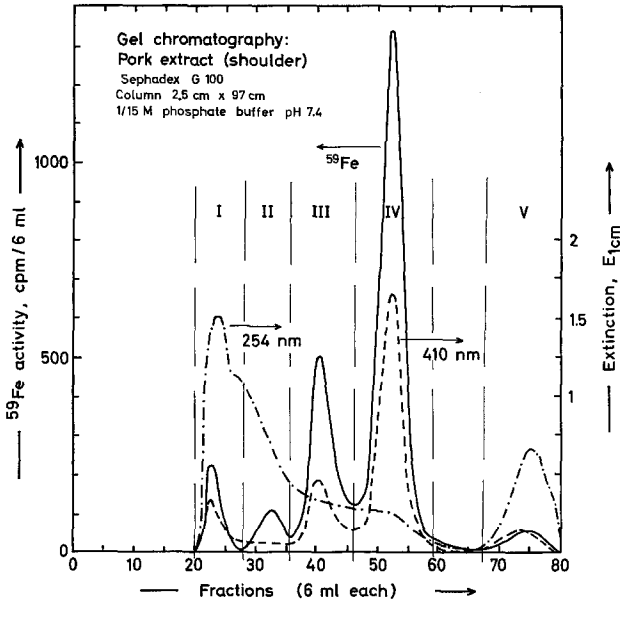
	Total	Insoluble	Column chromatography				Total groups
			I	II	III	IV	
Fe (μg/g)	13.7	2.8	1.5	0.9	2.7	5.6	13.5
^{59}Fe (nCi/g)	20.7	2.7	2.7	0.9	2.7	9.4	18.4
^{59}Fe/Fe (nCi/μg)	1.5	1.0	1.8	1.0	1.0	1.7	1.4
Fe (%)	100	20.2	11.2	6.7	19.3	40.5	97.9
^{59}Fe (%)	100	12.9	13.1	4.5	13.3	45.2	89.0

Pork radioactivity refers to time of dosing.

Studies with increasing amounts of ^{59}Fe labelled pork, hog-liver and -haemoglobin both in person with normal and depleted iron stores[3] as well as with haemoglobin and ferritin[2,4], have revealed that the identity of all the partial retention coefficients $r_1, r_2, \ldots r_n$ seems to be unlikely, so that in consequence total retention coefficients R and F would differ ($R \neq F$). Therefore, an experiment has been designed to find whether the second premises, i.e. the constancy of the specific activity at least of the major iron-containing compounds, holds true.

Various edible portions, obtained from in vivo ^{59}Fe labelled pigs[5], were homogenized with phosphate buffer, and after centrifugation, the supernates were fractionated by chromatography on a Sephadex G100 column. The radioactivities of the fractions were determined by an automatic sample changer in a NaI well-type crystal, and the inactive iron contents were measured colorimetrically (reaction with bathophenanthroline disulfonic acid disodium salt) after the fractions within the radioactive peaks had been pooled and concentrated.

The gel chromatography of various muscles resulted in the separation of 5 radioactive fractions I to V (Figure). The absorption spectroscopy revealed that the fractions I, III and IV mainly consist of ferritin, haemoglobin and myoglobin. The nature of fractions II and V, having molecular weights of about 160,000 and 1,300 respectively, was not established. In speculating, fraction II was assumed to be haptoglobin. The extinction peaks at 410 nm of fractions I and V in the Figure were not typical for haem compounds because no Soret-band could be registered in the absorption spectrum. The extinction curve at 254 nm was similar to those at 280 nm published recently[6].



^{59}Fe activity and extinctions at 254 nm and 410 nm of fractions after gel chromatography of the supernates from 6 g muscle homogenates of a 100 kg pig injected i.v. 10 mCi ^{59}Fe 5 weeks prior to slaughter. The radioactivity (cpm) refers to the 6th week post mortem.

Neglecting fractionV, which did not show ^{59}Fe radioactivity in all cases (contamination ?), and considering the insoluble iron of the muscle homogenates as part of the balance, about 60% of total ^{59}Fe or Fe was found in the haem fractions (Table). A comparison of the $^{59}Fe/Fe$ ratios indicated that at least the specific activities of the insoluble iron and fractions II and III on the one hand and of fractions I and IV on the other hand should differ (Table). Even if these values need not be typical in other experiments because biological; physical or analytical factors might vary the results, it can be concluded that the second premises will not be generally valid. Therefore, total retention coefficients R and F should disagree in such cases ($R \neq F$).

It does not seem unlikely that partial retention coefficients r_i, partial radioactivity a_i, partial iron mass m_i and other interfering factors will link together so that total retention coefficients R and F become approximately identical ($R \approx F$). However, as long as these supplementary data are not available, retention studies with ^{59}Fe or ^{55}Fe labelled meat should be interpreted with some caution[6] and better be considered in terms of radioiron uptake only.

Zusammenfassung. Die Untersuchung von Schweinefleisch, markiert mit ^{59}Fe in vivo, ergab unterschiedliche $^{59}Fe/Fe$-Werte in den Fe-haltigen Fraktionen, so dass von der extern messbaren ^{59}Fe-Retention nicht direkt auf die resorbierbare Fe-Menge des Fleisches geschlossen werden kann.

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Composition of the Dorsocutaneous Nerve in *Rana pipiens*

One of the first demonstrations of cutaneous sensory electrophysiology came from the frog nerve-skin preparation[1]. Following that demonstration, recordings from this preparation have contributed toward the understanding of receptor encoding in mechanoreceptors[2–5], nocioceptors[6–8], and temperature receptors[9]. In addition, this preparation has been used to study effects of drugs[10–13] and thermal acclimation[14] on sensory receptors and the specificity of neuronal connections[15]. This preparation consists of the dorsal skin of anuran amphibians of the genus *Rana* (species *pipiens, esculenta, grylio, catesbiana, clamitans, temporaria* have been used) with its accompanying dorsal cutaneous nerves (rami cutanei dorsi mediales). The frog dorsum is innervated by 4–8 pairs of these dorsal cutaneous nerves with receptive fields which overlap with respect to various sensory modalities[2,16].