MedicalSimulator
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Three Models of the Brain after Prof. Dr. Dr. Med. J. W. Rohen

Fifteen-part dismantable brain model and transparent version

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The BS 25 dismantable model developed by Prof. Rohen in close cooperation with Dr. Lindner-Funk is an ideal aid for all biologists, neurologists and doctors who lecture to students of medicine, biology and paramedical professions on neuroanatomy.

The further models, BS 25/1 and BS 25/T, supplement the series and on the one hand show the brain centres and the cytoarchitectonic cortical fields in colour and, on the other hand, the quality of the spatial relationship of the different parts of the brain in a unique transparent form.

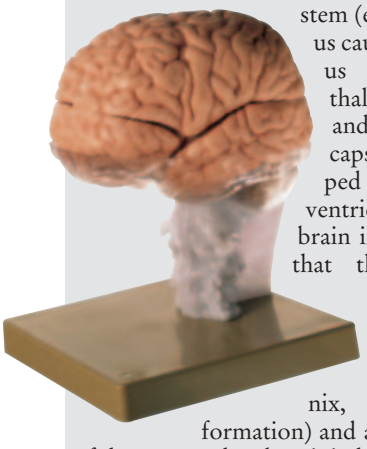
The models are excellent for self-study but also for students of human and dental medicine, biology and communication. The normal relationship in size has been taken as the basis for the production of all models.

The Architecture of the Human Brain

BS 25
Model of the Brain in 15 parts

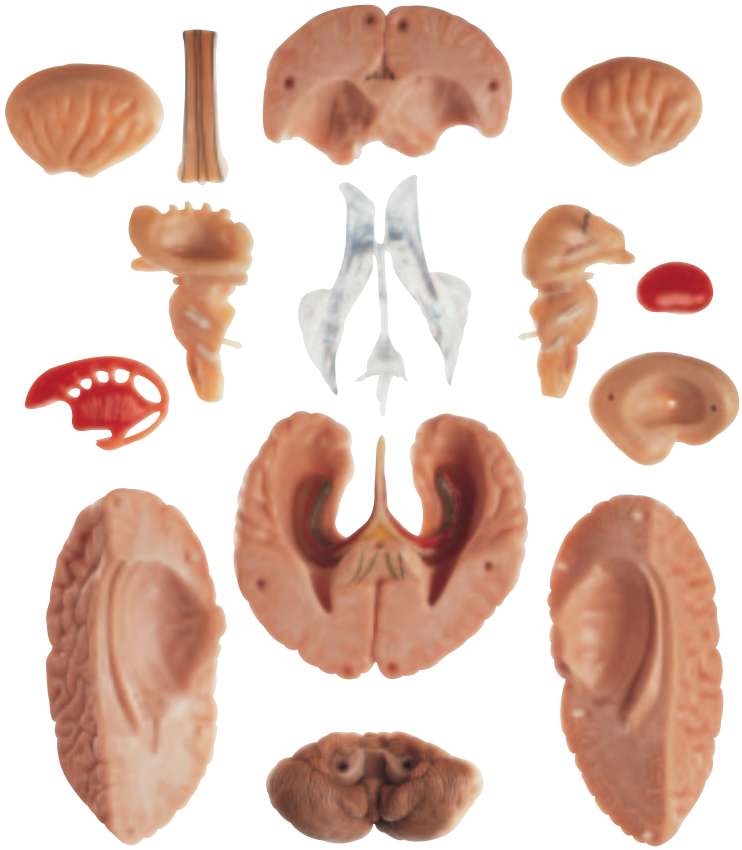
Natural size, in SOMSO-Plast. After Prof. Dr. Dr. J. W. Rohen, Departement of Anatomy of the University of Erlangen.

This model is based on a life-size cast of the ventricles of the brain. The large subcortical nuclei of the brain stem (e.g. the nucleus caudatus, nucleus lentiformis, thalamus etc.), and the internal capsule are grouped around the ventricles of the brain in such a way that the complete brainstem can be seen. The limbic system (fornix, hippocampal formation) and adjacent parts of the temporal and occipital lobes are then attached to the brain stem, and the model is completed by the addition of the corpus callosum and cerebral cortex. The whole structure is supported by a cast of the base of the skull which also allows the natural position of the brain within the head to be studied.

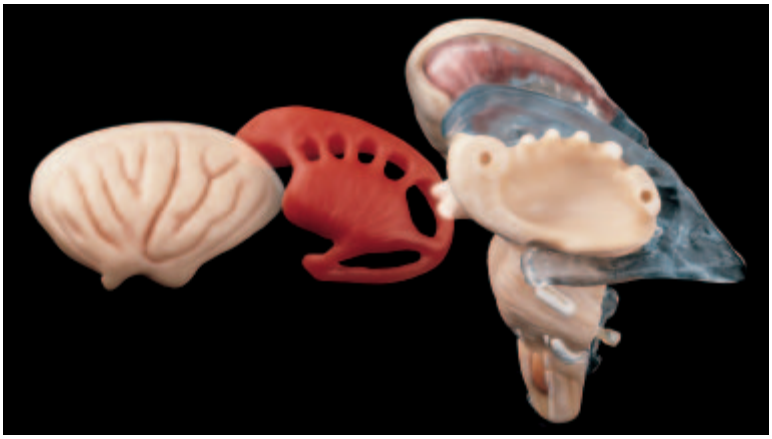


The model separates into 15 parts as follows: cerebral hemisphere (2), temporal and occipital lobes with limbic system, cerebellum, frontal lobe, corpus callosum, brainstem (2), corpus striatum, insula (2), nucleus lentiformis (left), internal capsule (right), ventricles of the brain, base of the skull as base.

Height 23 cm, width 15 cm, depth 18 cm, weight 1.8 kg.



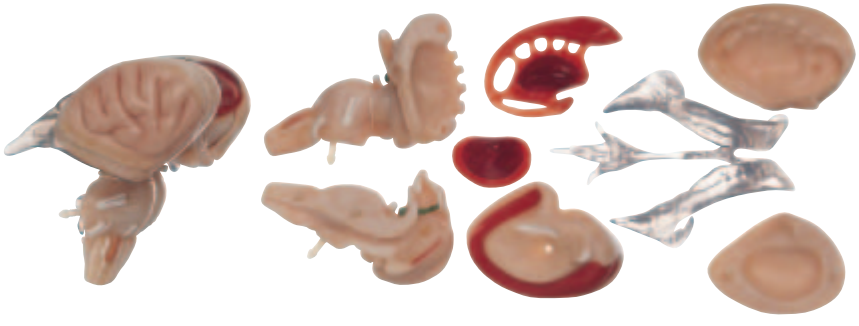
BS 25 disassembled in 15 parts



BS 25/2 Brain stem with ventricles of the brain taken apart stepwise

BS 25/2
Model of Brain Stem in 8 parts

Natural size, in SOMSO-Plast. After Prof. Dr. Dr. J. W. Rohen, Department of Anatomy of the University of Erlangen. Separates altogether into 8 parts as follows: brainstem (2), corpus striatum, insula (2), nucleus lentiformis (left), internal capsule (right) and ventricles of the brain. On a stand with base. Height: 16 cm., width: 12 cm., depth: 12 cm., weight: 380 g.



BS 25/2 complete and disassembled in 8 parts

The exact Location through Shape and Colour

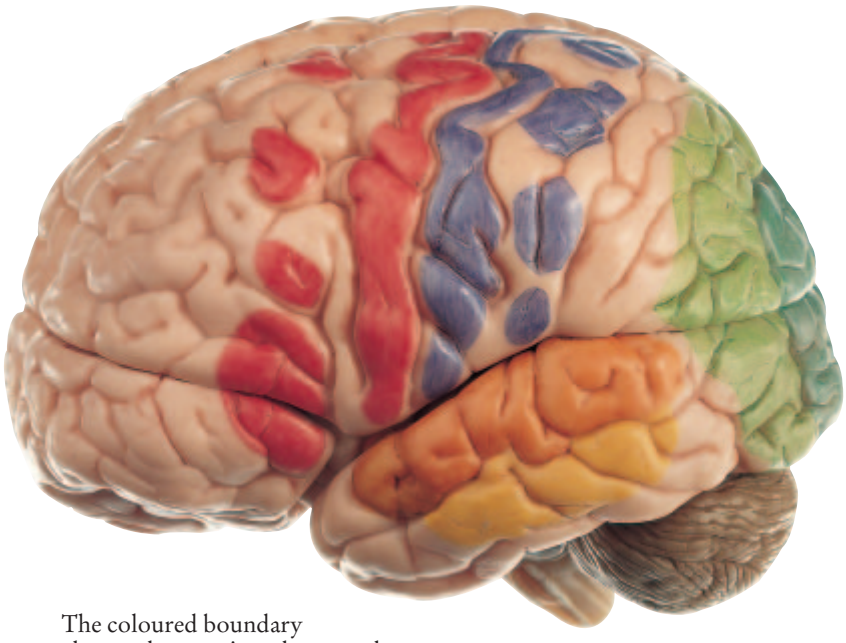
BS 25/1
Model of Brain with indicated cytoarchitectural Areas

Natural size, in SOMSO-Plast, after Prof. Dr. Dr. J. W. Rohen, Department of Anatomy of the University of Erlangen. Separates altogether into 15 parts as follows: cerebral hemisphere (2), temporal and occipital

lobes with limbic system, cerebellum, frontal lobe, corpus callosum, brain stem (2), corpus striatum, insula (2), nucleus lentiformis (left), internal capsule (right), ventricles of the brain, base of the skull as base.

This extended form of the new SOMSO brain model shows the position of the most important centers of the cerebral cortex, which have been marked in colour on the left hemisphere and provided with the official numbers of Brodmann's cytoarchitectural map of the human cerebral cortex. The primary and secondary motor (red) and sensory (blue) cortical fields, the different speech centers, auditory cortical fields and the visual cortical fields as well as the structures of the limbic system (fornix, cingulum, hippocampus etc.) are especially indicated. The threedimensional structure of the brain and the interrelationship of the different cerebral areas become evident when the model is gradually dismantled. However, one must bear in mind that the "centers" of the cerebral cortex are not centers in the true sense of the word but rather areas with a predominant function which can not be sharply demarcated from their surrounding structures. The higher centers of the frontal lobe responsible for the general motivation of movements and motor activity as the higher centers of the temporal lobe, responsible mainly for memory and sensory integration are not marked in colour.

Height 23 cm., width 15 cm., depth 18 cm., weight 1.8 kg.



The coloured boundary always characterizes the central functional zone of a so-called "brain centre". The regions responsible for the higher motor intentions of the frontal lobes and the important regions of the memory and storage functions of the temporal lobes have not been marked in colour.

BS 25/1 disassembled in 15 parts

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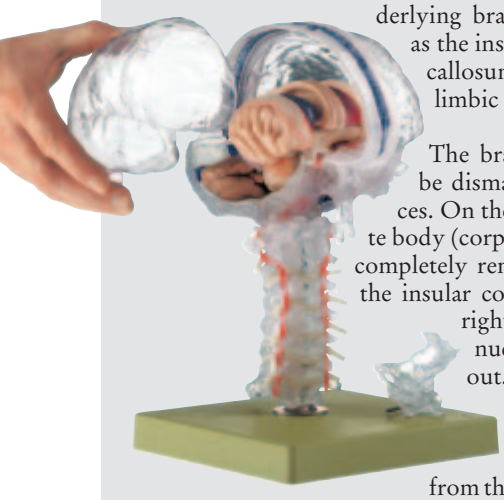
The authentic Geometry of the Brain

BS 25/T
The transparent Brain

This new type of brain model, which can be easily disassembled into 15 parts, includes cortical hemispheres, made out of transparent plastic. This novel approach allows the internal brain structures (subcortical structures and nuclei) to be easily visualized in relation to the cortical surface. This is particularly instructive since the essential structures and the cerebral cortex, such as the central sulcus (sulcus centralis) and lateral sulcus (sulcus lateralis or Sylvius' fissure), are readily identifiable on the transparent cortex. As a result, points of reference are naturally provided between the features of the cortical surface and the underlying brain structures such as the insular cortex, corpus callosum, fornix, and the limbic system.



The brain stem itself can be dismantled into 12 pieces. On the left side the striate body (corpus striatum) can be completely removed from under the insular cortex, while on the right side the lenticular nucleus can be taken out. In addition, the complete ventricular system can also be released from the brain stem, and it can then be built together with the left half of the brain stem into the transparent brainmodel as a single part as to illustrate the topographic relationship between different portions of the ventricles and the cortical structures.

The brain stem and cerebellum are fastened to the posterior portion of the base of the skull (posterior cranial fossa of the occipital bone) and the sphenoid bone including the sella turcica where the pituitary body lies. The complete brain model is connected to the cervical vertebral column, which also shows the vertebral artery (A. vertebralis).

The middle portion of the dura mater with the opened superior sagittal sinus has been constructed so that it stabilizes the transparent hemispheres of the model. Thus, the right half of the transparent cortex can be removed to provide access to the interior of the brain. Another innovation incorporated in this model is the representation of the limbic system. It is shown in its entirety (fornix, indusium griseum and temporal hippocampus with gyrus dentatus, etc.) and can be removed from the rest of the model in one piece.

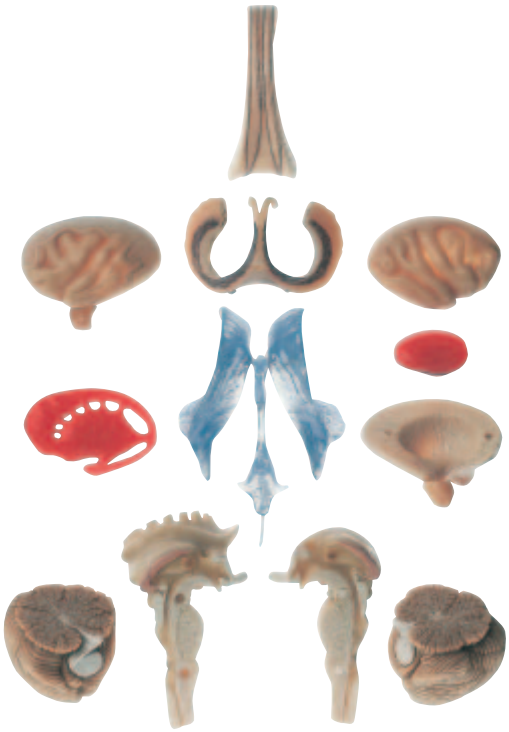
The plexus and the taenia of the choroidal plexus are marked in color.

The exit of the cranial nerves can be easily recognised on the base of the brain stem, so that relationship between the cranial nerves, the base of the skull, and the cervical vertebral column is easily demonstrated.

Height 30 cm., width 18 cm., depth 20 cm., weight 1.1 kg.

BS 25/T Sideview

BS 25/T Brain stem disassambled in 12 pieces



The complete Brain and its Parts in a whole Host of Combinations

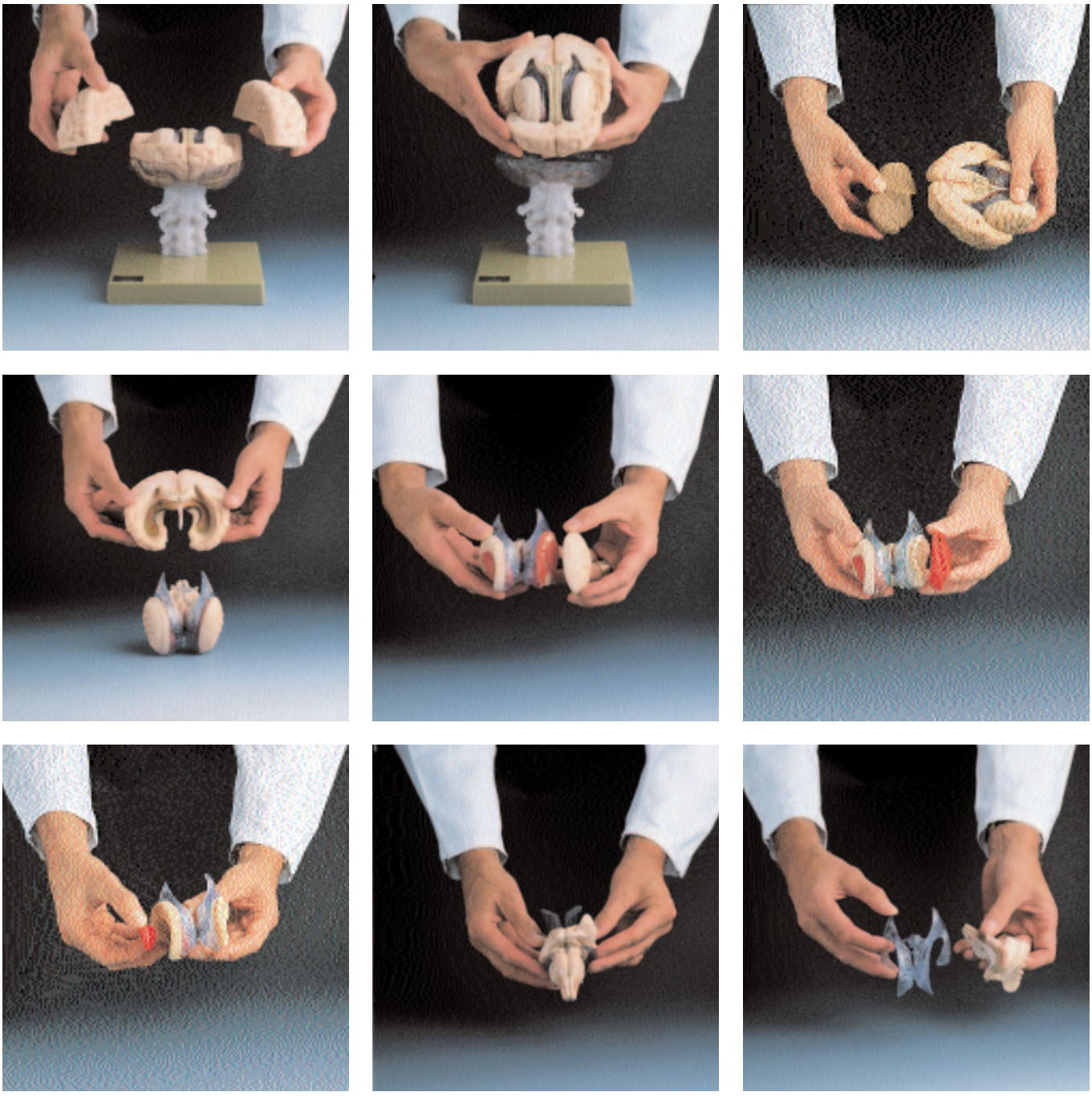


Figure 1 - 9 : Demonstration of Model disassembly

The upper sections of the cerebral cortex can be removed so that the ventricles of the brain and the basal ganglia with the insula can be seen (figures 1 and 2). If the cerebellum is then taken out backwards (figure 3) the complete brain stem with the ventricles of the brain can be removed from the remainder of the cerebrum (mainly the two temporal lobes) (figure 4). The insula and the subcortical nuclei (striatum, nucleus lentiformis) can, on each side individually, be taken apart from the brain stem (figures 5,6 and 7). The remaining brain stem can then be separated in the median plane, leaving the entire ventricular system (figures 8 and 9).

With the compliments of:

Marcus Sommer — Somso Modelle

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