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PRESS RELEASE

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How Dangerous is Boxing for the Brain?

The “Heidelberg Boxing Study” does not find any clear risks from amateur boxing / Publication in “American Journal of Neuroradiology”

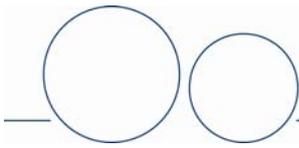
Boxing is possibly less dangerous for the brain than previously feared – at least for amateurs. However, conclusive statements on the level of danger are not yet possible. Whether professional boxers such as Muhammad Ali contracted their later brain conditions – in his case Parkinson’s disease at the age of 40 – presumably from boxing, remains unclear. The all-clear cannot be given until more extensive studies of both amateur and professional boxers tell us more about the risks for the brain from boxing.

This was the conclusion reached in the “Heidelberg Boxing Study”, in which high-resolution MRI data were used to search for tiny changes in the brains of amateur boxers and a comparison group of non-boxers. These changes are most likely precursors for later severe brain damage such as Parkinson’s disease or dementia.

The study by the Department of Neurology, University of Heidelberg Medical Center has now been published in the *American Journal of Neuroradiology*. In three of the 42 boxers, microhemorrhages were found, while in the comparison group of 37 non-boxers there were no such changes; however the difference was not statistically significant. The study was carried out jointly with National Training Center for Boxing in Heidelberg and the Department of Sport Medicine at the University of Heidelberg Medical Center (Medical Director: Professor Dr. Peter Bärtisch).

Press and Public Relations
Department
University Hospital Heidelberg
and Medical Faculty of the
University of Heidelberg
Im Neuenheimer Feld 672
69120 Heidelberg
Fon +49 (0)6 221 56 45 36
Fax +49 (0)6 221 56 45 44
annette.tuffs(at)
med.uni-heidelberg.de

[www.klinikum.uni-heidelberg.de/
presse](http://www.klinikum.uni-heidelberg.de/presse)



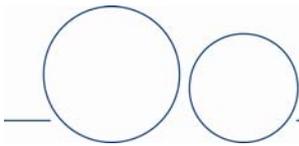
Microhemorrhages could be precursors to Parkinson's disease and dementia

In boxing, the head is hit at a high speed and with great force. This can lead to shear movement between different brain tissues, resulting in microhemorrhages. "Injuries of this kind can be detected with the help of a modern MR imaging device with a field strength of 3 Tesla such as is available in Heidelberg," explained Professor Dr. Stefan Hähnel, chief consultant at the Division of Neuroradiology, Department of Neurology, University of Heidelberg Medical Center, who conducted the study with Professor Dr. Uta Meyding-Lamadé, then chief consultant at the Department of Neurology, University of Heidelberg Medical Center, now Medical Director at Krankenhaus Nordwest in Frankfurt.

It is not known how often the microhemorrhages occur in boxers. They may eventually lead to the destruction of brain cells and deficits such as dementia and Parkinson's disease. This hypothesis is shared by some working groups. The three boxers in whom changes were found typically had the changes in the frontal or temporal lobes, where the shear forces of blows are strongest.

A follow-up study will compare amateur boxers with professionals

One disadvantage of the "Heidelberg Boxing Study" was the great range in duration and intensity of amateur boxing. Duration ranged from one to 25 years and intensity from one to 375 bouts with 0 to 12 knockouts. A follow-up study is planned to include professional boxers, in order to assess intensive exposure to blows. The Heidelberg researchers are currently looking for funding for this study.



References:

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(The original article may be requested from the press office of the University of Heidelberg Medical Center at contact@med.uni-heidelberg.de.)

Additional material:

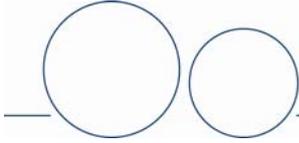
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Contact persons

Professor Dr. Stefan Hähnel
Senior Consultant, Div. of Neuroradiology
Department of Radiology, University of Heidelberg Medical Center
Tel.: 06221 / 56 39 608
E-mail: stefan.haehnel@med.uni-heidelberg.de

Professor Dr. Uta Meyding-Lamadé
Krankenhaus Nordwest
Steinbacher Hohl 2 - 26
60488 Frankfurt am Main
E-Mail: meyding-lamade.uta@khnw.de



Requests by journalists:

Dr. Annette Tuffs
Head of Public Relations and Press Department
University Hospital of Heidelberg and
Medical Faculty of Heidelberg
Im Neuenheimer Feld 672
D-69120 Heidelberg
Germany
phone: +49 6221 / 56 45 36
fax: +49 6221 / 56 45 44
e-mail: [annette.tuffs\(at\)med.uni-heidelberg.de](mailto:annette.tuffs(at)med.uni-heidelberg.de)

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Dr. Annette Tuffs
Head of Public Relations and Press Department
University Hospital of Heidelberg and Medical Faculty of Heidelberg