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# Epilepsy in Hildegard of Bingen's writings: A comprehensive overview

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ABSTRACT

Hildegard of Bingen (1098–1179 AD) is one of the most relevant figures of the Middle Ages. She wrote two medical books, *Physica* (Natural history) and *Causae et curae* (Causes and remedies). Our aim was to provide a comprehensive account of Hildegard of Bingen's conception of epilepsy, of the remedies proposed to treat it, and of the medical and physiological theories behind their use. We searched Hildegard of Bingen's entire body of writings to identify any possible reference to epilepsy or epileptic seizures. We reported the identified passages referring to epilepsy and discussed their content in light of medieval medical and physiological theories. Most references to epilepsy were found in *Physica* and *Causae et curae*. The suggested remedies against epilepsy range from herbal preparations to animal remedies and jewel therapy. Hildegard's conception of epilepsy gives the impression of an original revisitation of the traditional theory of humors, and carries strong moral connotations. Hildegard of Bingen's conception of epilepsy appears strongly rooted in medieval thinking and less in physiological theories. However, it differs in many respects to the traditional medieval beliefs and is a further proof of her unique personality. As living testimony of the past, Hildegard's writings enable us to shed a fascinating light on the beliefs concerning epilepsy in the middle ages.



## 1. Introduction

Hildegard of Bingen (German: Hildegard von Bingen; Latin: *Hildegardis Bingensis*) (c. 1098–1179 AD), also known as Saint Hildegard or "Sibyl of the Rhine", was a Benedictine abbess, visionary, healer, composer, and writer [1–4].

At the age of eight, Hildegard was destined to a religious life and given into the care of an anchoress, the noblewoman Jutta of Sponheim (also referred to as Spanheim), in the Benedictine monastery of Disibodenberg. In 1136, Hildegard was elected abbess, and in 1151, she moved with some nuns to establish a new convent on the Rupertsberg (a second convent was founded at Ebingen in 1165). In 1158, she undertook the first of her four preaching tours throughout Germany. She died in 1179 and was canonized by Pope Benedict XVI in 2012. Interestingly, Saint Hildegard was proclaimed saint with the procedure of "equipollent" or "equivalent" canonization, i.e., without executing the ordinary judicial process of canonization, which requires – among others – a documentary account of miracles due to intersession to the saint. Such equivalent canonization acknowledged the ancient *cultus* devoted to Hildegard and her uninterrupted fame as a virtuous woman and worker of miracles [5].

She was one of the very few female writers of the medieval age, and her interests ranged from medicine, natural history, and cosmology, to theology, philosophy, and music. Hildegard's medical writings were collected in the *Liber subtilitatum diversarum naturarum creaturarum* (The Book of the Subtleties of the Diverse Natures of Creatures) (c. 1152–c. 1163 AD) [6,7]. The term "subtleties" used in the title refers to the healing powers hidden in nature for the use of humans that have been revealed by God [6]. This book was further divided into two works: the *Liber simplicis medicinae* (Book of Simple Medicine), also named *Physica* (Natural History), and the *Liber*

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*compositae medicinae* (Book of Compound Medicine), also known as *Causae et curae* (Causes and Remedies). *Physica* is a collection of nine books in which Hildegard provides an inventory of natural therapies and describes the healing properties of various plants and trees, elements, stones, animals, and metals. In *Causae et curae*, Hildegard deals with the human body, its connections to the natural world, and the causes and remedies of various diseases.

In recent years, her medical treatises have received great attention from scholarship. Lynn Thorndike in his book "History of Magic and Experimental Science during the first Thirteen Centuries of our Era" devoted an entire chapter to Hildegard [8], and from the 1970s onwards, several scientific articles on her medical writings have been published. This surge of interest after that date was probably kindled by the appearance of Oliver Sacks' book on migraine (published in 1970 [9]), in which the neurologist – referring to previous studies by Charles Singer – suggests that Hildegard's visions were likely due to migraine aura [2,10].

As far as we know, the conception of epilepsy and the remedies against it proposed by Hildegard of Bingen have been investigated in some details only by Owsei Temkin in his seminal monography devoted to the history of "The Falling Sickness from antiquity to the beginnings of modern neurology" [11]. However, in his book, Temkin describes briefly Hildegard's view on epilepsy and, in doing so, he refers only to *Causae et curae*, not mentioning any of the several remedies against epilepsy proposed in *Physica*.

The aim of this study was to provide a comprehensive account of Hildegard of Bingen's conception of epilepsy, of the remedies proposed to treat it, and of the medical and physiological theories behind their use, based on her entire body of writings.

## 2. Methods

We thoroughly read Hildegard of Bingen's *Physica* and *Causae et curae* in Latin original, as well as Italian, English, and German translations [6,7,12–19] to identify any possible reference to epilepsy or epileptic seizures.

We also downloaded the digitalized writings of Hildegard collected in the *Patrologia Latina* (Latin Patrology) [12] and the digitalized 1903 edition by Paul Kaiser of *Causae et curae* [13] (text not included in the Latin Patrology); subsequently, we automatically searched these texts for all instances of the following Latin words: *caducus morbus*, *morbus caducus*, *morbus*, and *epilepsia* conjugated in different cases. The list of Hildegard's writings included in the Latin Patrology is reported as supplementary material (Supplementary material 1). We also consulted the 1533 edition of *Physica* appeared in Strasbourg by Johannes Schott [14] and the recently published critical editions of *Physica* [15]. The 1533 edition of *Physica* is based on a manuscript which was lost [Hildegard, Campanini], whereas the *Liber simplicis medicinae* appearing in the *Patrologia Latina* bases on a manuscript from 15th century [16]. Conversely, the 1903 edition of *Causae et curae* bases on a manuscript from 13th century [16].

We reported the passages referring to epilepsy or epileptic seizures that we had identified in the *Physica*, following the critical edition of Hildebrandt and Gloning [15] and the passages from *Causae et curae* as reported in the 1903 edition [16], as the critical edition of this last work has not yet been published. If not otherwise specified, the excerpts are provided in the English translation made by Francesco Brigo. In her writings, Hildegard uses the term *homo* to indicate a "human person" without further specifying the gender, reserving the gendered terms *vir* or *femina* to specifically refer to a man or woman, respectively. As a convention, in English translations the male-gendered singular form was adopted.

We discussed the content of any identified extract on epilepsy focusing mostly on the medical and physiological theories behind the use of any suggested remedy. Remedies were listed according to their appearance in the *Physica*. In this work, the arrangement of the books follows the order of creation reported in the Genesis (*Genesis I, 1–25*). This explains why, for instance, birds are discussed in a book distinct from that of other animals.

We summarized and discussed Hildegard's medical and physiological theories and their relationship with the traditional medieval beliefs on epilepsy.

## 3. Results

The literary passages referring to epilepsy or epileptic seizures identified in Hildegard of Bingen's writings are reported in full as supplementary materials (Supplementary material 2).

Most references to epilepsy are found in *Physica* (in 9 chapters) and *Causae et curae* (in 2 chapters), and in the *Liber divinorum operum*. In her letters, she refers to epilepsy only once, whereas she never mentions it in the remaining writings.

### *3.1. Medical and physiological theories behind Hildegard's conception of epilepsy*

#### *3.1.1. The theory of humors*

In her writings, Hildegard of Bingen never explicitly refers to the medical theories behind her view on epilepsy. However, it clearly relies on the traditional theory of the four humors (humoralism, German: *Humoralpathologie* or *Krasenlehre*), which was central to the teachings of Hippocrates (c. 460–c. 370 BC) and Galen of Pergamon (129–c.200/c.216 AD), remaining popular until several centuries later [20]. According to this theory, four liquids (or "humors") were present in the human body: blood, phlegm, black bile (melancholy), and yellow bile (choler). These liquids inside the body were linked with four elementary qualities (hot, cold, moist, and dry) present in different proportion or composition (Crasis, Greek: κρᾶσις, mixing, blending) in every creature of the natural world. The dominant quality was responsible for the characteristics of a given thing. Humors were also linked with other natural elements, which were grouped by four: elements (air, water, earth, and fire), seasons, and ages of mankind (childhood, youth, adulthood, elderly). According to this theory, a disease was considered the consequence of an imbalance between the four elementary qualities and their corresponding humors (dyscrasias). Any excess of a certain humor was thought to lead to a disease, and a deep knowledge of the elementary qualities of various remedies was, therefore, required to restore the altered balance of humors in the individual [1]. This explains why Hildegard describes in detail the elementary qualities of each proposed remedy. However, she often reports only whether a given remedy is hot or cold, as she considered these two basic qualities as the most relevant for medical practice [6]. Interestingly, these elementary qualities are reported not only for plants and trees, but also for stones and animals.

A passage from the prolog to the book on plant is exemplary of the opposition between cold and hot:

> *"Each plant is either hot or cold, and so it grows, since the heat of herbs is their spirit, and the cold is their body. According to their nature, the herbs flourish and abound in heat or cold. If all plants were hot and none of them cold, they would be useless. If all plants were cold, and none of them hot, they would lead to an imbalance, since hot opposes cold, and cold opposes hot."*
>
> (Physica I)

> *[Omnis autem herba aut calida aut frigida est, et sic crescit, qui calor herbarum animam significat et frigus corpus: et in hiis secundum genus uum vigent, cum aut in calore, aut in frigore habundent. Si enim herbe omnes calide essent et nulle frigide, contrarietatem utentibus facerent. Si autem omnes frigide essent et nulle caldide, item hominibus inequalitatem pararent, quia calide frigori et frigide calori hominis resistunt.]*

Although her writings greatly rely on the traditional theory of humors, Hildegard's account differs both for the terminology used and