

# Etiology and Pathogenesis of Sweat Syndrome: A Discussion from the Perspective of Traditional Chinese Medicine

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**Abstract:** *Sweat syndrome is a common clinical disorder characterized by abnormal sweating in traditional Chinese medicine (TCM), covering spontaneous sweating, night sweating and other subtypes, which also includes hyperhidrosis described in modern medicine. Successive TCM physicians have enriched its theoretical system from the aspects of concept, diagnosis, etiology, pathogenesis, syndrome differentiation and treatment principles. Nevertheless, interpretations of its etiology and pathogenesis vary among ancient literatures. This paper reviews relevant records in classical TCM works and explores the pathogenesis of sweat syndrome from five dimensions: yin-yang imbalance, qi-blood disorder, disharmony between nutrient qi and defensive qi, zang-fu organ dysfunction, and internal injury by interior pathogens. It aims to summarize academic viewpoints of ancient physicians and provide new ideas and references for clinical treatment of sweat syndrome.*

**Keywords:** Sweat, Sweat syndrome, Etiology, Pathogenesis, Syndrome differentiation.

## 1. Introduction

Modern medicine holds that the pathogenesis of primary hyperhidrosis is largely associated with over-activity of the sympathetic nervous system, although its exact etiology remains unclear. Endoscopic surgical resection of the corresponding sympathetic chain constitutes a common therapeutic intervention. With advances in research, this procedure currently yields favourable postoperative outcomes and prominent clinical efficacy [1]. Traditional Chinese Medicine (TCM) contains extensive discourses regarding the etiology and pathogenesis of sweat syndrome. Synthesised viewpoints from various physicians generally centre on disorders of yin-yang, qi-blood, and zang-fu organs.

## 2. Definition of Sweat Syndrome

Sweat represents one category of human body fluid; body fluid excreted through sweat pores is defined as sweat. *Yizong Jinjian* states: "Sweat originates from human body fluid; that stored in yang is jin, that stored in yin is ye, and that excreted outward is sweat". Physiological sweating performs critical functions including detoxification [2], thermoregulation, respiratory modulation, body-fluid homeostasis, skin nourishment, and defence against pathogenic factors [3]. Sweat syndrome refers to a clinical condition characterised by pathological, excessive sweating without obvious external triggers. As documented in *Yifa Yuantong*: "Profuse sweating in summer, absence of sweating in winter, heavy sweating following exertion, and no sweating at rest reflect normal physiological states rather than pathological conditions". Spontaneous sweating [4] and night sweating are two prevalent subtypes of sweat syndrome. Spontaneous sweating presents as diaphoresis during daytime exacerbated by physical activity, whereas night sweating [5] manifests as profuse sweating during sleep that resolves upon awakening. *Jingyue Quanshu* notes: "Patients with spontaneous sweating sweat persistently, with worsening sweating upon movement;

patients with night sweating experience generalised sweating during sleep that gradually subsides after awakening". Apart from these two common patterns, other manifestations such as po-han [6], red sweat, and yellow sweat [7] are not the primary focus of this paper and will not be further elaborated below.

## 3. Etiology and Pathogenesis

Ancient physicians interpreted the production and distribution of sweat mainly based on the mechanisms of yin-yang, qi-blood, and the five zang-organs, from which diverse explanations for the etiology and pathogenesis of sweat syndrome were derived. *Yizong Jinjian* posits that jin pertains to yang and ye pertains to yin, and their outward effusion generates sweat; accordingly, pathological sweating without external stimuli arises from relative preponderance of yin or yang. *Xuezheng Lun* proposes that "Sweat is water within the qi division, originating from the urinary bladder", and further explains: "Spontaneous sweating due to yang collapse results from the desertion of primordial yang within the kidney and urinary bladder [8], which enables unrestrained effusion of yin-water qi". *Yixue Zhengzhuan* integrates the doctrine recorded in *Huangdi Neijing* that "Sweat is the fluid of the heart" with Li Gao's theory that sweat derives from spleen-earth [9], and concludes that the heart together with the spleen-stomach govern damp-heat-provoked sweating [10]. The following sections elaborate specific pathogenesis supported by citations from ancient texts.

### 3.1 Yin-yang

Yin-yang forms the foundation of all human physiological activities within TCM, and sweating is regulated by yin-yang interactions. As early as *Neijing*, it is recorded that "Yang superimposed upon yin generates sweat", which illustrates the mechanism of physiological sweating: yin provides the material substrate for sweat, while yang-qi drives sweat

excretion. Regarding pathological sweating, *Neijing* states: “When yin is deficient, yang will assail it”. Severe yin-yang dissociation is described in the Meridians Chapter of *Neijing*: “When the six yang-qi are exhausted, yin and yang become separated; separation opens the interstitial spaces and triggers the discharge of jue-han, which appears like strings of pearls that do not flow. This indicates preceding exhaustion of qi, and death may occur within half a day”. The yin-yang-related theories of sweating and sweat syndrome in *Neijing* laid the theoretical foundation for later physicians to interpret sweat syndrome induced by yin-yang imbalance.

**Yin deficiency:** Night sweating is frequently attributed to yin deficiency. Lingtai Xu of the Qing-dynasty defined night sweating as a yin-deficiency-related disorder in *Yilue Liushu*, wherein yang steams the yin division and forces body fluid to leak outward. Isolated yin deficiency rarely produces abnormal sweating; most cases of sweat syndrome result from yin deficiency assailed by yang. *Neijing* first documents pathological sweating caused by “yin deficiency assailed by yang”. Subsequently, *Sanyin Ji-yi Bingzheng Fanglun* mentions that yin deficiency assailed by yang gives rise to fever and spontaneous sweating that surges like running water [11]. *Jingyue Quanshu* explicitly records: “Under yin-deficient conditions, yang invades yin; thus yang steams the yin division and induces blood-heat, which compels fluid to leak outward and manifests as night sweating”. These quotations represent extended interpretations of the theory “yin deficiency assailed by yang”.

**Yang deficiency:** Spontaneous sweating commonly stems from yang deficiency that fails to consolidate the body surface. In this context, “yang deficiency” encompasses multiple mechanisms: impaired heart-yang that loses the capacity to govern and contain fluid, deficient spleen-stomach yang that cannot constrain circulating blood, declined liver-kidney yang that fails to secure blood, and deficient defensive yang that cannot consolidate skin and interstitial spaces. Therefore, *Yifa Yuantong* summarises that yang deficiency in the upper, middle, or lower jiao can all induce sweating, which can be generalised under the pathogenesis of yang deficiency. Beyond simple yang deficiency, *Sanyin Ji-yi Bingzheng Fanglun* describes an alternative pattern: yang deficiency complicated by yin preponderance, manifested as “cold limbs and unrestrained gushing spontaneous sweating”. Severe exhaustion of yang-qi may trigger acute sweating. One subtype arises abruptly following severe fright or terror, as documented in *Jingyue Quanshu*, caused by sudden dissipation of yang-qi and loss of primordial vitality. The other subtype is termed yang-collapse syndrome, a critical sweat syndrome secondary to extreme yang deficiency.

Although spontaneous sweating is commonly associated with yang deficiency and night sweating with yin deficiency, *Jingyue Quanshu* points out that spontaneous sweating can occur under yin-deficient conditions and night sweating may also present in yang-deficient states. Accordingly, it proposes a core therapeutic principle for sweat syndrome: distinguish the presence or absence of heat prior to differentiating yin or yang patterns.

### 3.2 Qi-blood

Qi deficiency generally causes spontaneous sweating, whereas heat within the blood division frequently triggers night sweating. Within the pathogenesis of sweat syndrome, qi is considered responsible for securing sweat; qi dysfunction therefore often manifests as uncontrolled outward effusion of sweat. Nevertheless, *Xuezheng Lun* offers a more comprehensive explanation of qi-blood-related pathogenesis for sweat syndrome. It interprets the origin of sweat: “Qi is transformed from water; water constitutes qi, and sweat is a form of water”. The text proposes that collapse of qi may provoke sweat effusion, and adds that “Although sweat originates from the qi division, it maintains close connections with the blood division”. Accordingly, heat in the blood division can also steam fluids within the qi division and produce sweat syndrome. Tang Zonghai’s viewpoints originate from the Nutrient-Defensive Qi Circulation chapter of *Huangdi Neijing*: “Severe blood loss eliminates sweat; severe sweat loss eliminates blood”, which implies the doctrine that sweat and blood share a common origin. Tang Zonghai further extends this classical quotation to interpret red sweat, a condition in which body fluid fails to excrete as sweat and instead leaks outward in the form of blood.

### 3.3 Five Zang-Organs

Numerous physicians hold that sweat originates from the heart. *Neijing* first records that “Sweat derives from the heart”. *Nanjing* also notes: “The heart corresponds to the red colour, scorched odour, bitter flavour, vocal speech, and its fluid is sweat” [12]. On this basis, *Yifang Jijie* states: “Sweat is the fluid of the heart. When the heart lacks adequate nourishment and cannot govern blood, fluid effuses outward as sweat”, which further develops the pathogenesis of sweat syndrome [13] derived from the theory “sweat is the fluid of the heart”. Cardiac dysfunction mostly produces spontaneous sweating rather than night sweating. *Bianzheng Lu* writes: “Spontaneous sweating emerges when the heart loses self-regulation; during night sweating, the heart still retains partial regulatory capacity” [14]. Heart-heat represents a major trigger for sweating. *Suwen Xuanji Yuanbing Shi* directly indicates: “Heart-heat generates sweating” [15]. In *Linzheng Zhinan Yi'an*, Lingtai Xu comments on sweat-syndrome cases: “Sweating is mostly induced by restless heart-fire; heat-predominant patterns occur far more frequently than cold-predominant ones”, suggesting that therapeutic strategies for sweat syndrome should prioritise heat-related pathogenic factors associated with the heart [16]. *Yifang Jijie* puts forward another interpretation: body fluid is generated where heart-yang resides and is discharged as sweat where heart-fire becomes disturbed. Hence it concludes that “All sweat originates from the heart”. For this reason, heart-yang deficiency can also induce abnormal sweating. Tianshi Ye records in *Linzheng Zhinan Yi'an* that overstrain injuring heart-spirit constitutes the primary cause of five-centre sweating, and heart-yang deficiency fails to defend and consolidate the exterior, consequently producing spontaneous sweating. In sweat syndrome resulting from cardiac dysfunction, sweat may originate from all zang-fu organs. As described in *Bianzheng Lu*, sweating localised over the precordial region without limb sweating arises from excessive rumination that induces cardiac deficiency with insufficient blood nourishment. Subsequent heart-heat draws body fluid from all zang-fu organs to replenish the heart;

however, extreme internal heat prevents fluid retention within the heart and drives unrestrained fluid effusion as sweat. In addition, heart-spirit governs blood circulation and modulates sweat excretion. Many mental disorders are accompanied by abnormal sweating [17], which can be interpreted as uncontrolled diaphoresis caused by spirit disturbance.

The spleen-stomach constitute another major source of sweat. *Neijing* states: “Human sweating derives from grain-derived food, and grain-derived food generates essence”. Consequently, dysfunction of the spleen-stomach, which undertake food reception and fluid transformation, represents one etiology of sweat syndrome. Dampness accumulating in the spleen-stomach may provoke sweat syndrome. *Nanjing* poses the question: “How can one identify damp-disease? Answer: it manifests as persistent profuse sweating”. *Jingyue Quanshu* records: “Dampness invading the spleen can also induce sweating”. *Suwen Xuanji Yuanbing Shi* concludes: “Fire-heat steaming dampness within the stomach produces sweating”. Stomach-yin deficiency represents another causative factor. *Linzheng Zhinan Yi'an* particularly emphasises that sweating secondary to stomach-yin deficiency frequently onsets during chou-shi (01:00–03:00). *Bianzheng Lu* describes post-prandial facial and cephalic sweating, which superficially appears to arise from stomach-fire yet is essentially rooted in pericardium-fire and requires careful differential diagnosis. *Neijing* also documents sweat syndrome triggered by improper diet, physical overstrain and intemperance: profuse sweating originating from the stomach induced by overeating; sweating originating from the spleen induced by alcohol excess combined with sexual activity; sweating originating from the spleen induced by physical exhaustion.

Lung disorders produce relatively unitary pathogenesis and mostly cause spontaneous sweating. *Dantai Yu'an* writes: “Lung-qi failing to constrain the exterior generates spontaneous sweating”. This clinical presentation is commonly observed following severe illness or in elderly debilitated patients [18], in whom the defensive exterior is unconsolidated and qi fails to secure body fluid, so sweat leaks alongside dissipation of qi [19].

Kidney dysfunction frequently leads to night sweating, in contrast to cardiac disorders which are more often associated with spontaneous sweating. *Linzheng Zhinan Yi'an* notes: “Kidney-yin deficiency fails to nourish and store internally, giving rise to internal injury and night sweating”. Nevertheless, night sweating seldom originates solely from kidney-yin deficiency; it usually involves combined pathogenesis of heart-fire and heart-yang. *Yifang Jijie* illustrates the mechanism underlying night sweating: “Sweat pertains to heart-yang, sleep pertains to kidney-yin. In yin-deficient patients during sleep, defensive-yang invades the yin division due to deficiency, the exterior loses consolidation, and profuse sweating occurs; upon awakening, yang-qi returns and sweating ceases”. The kidney governs water metabolism; kidney-yang deficiency impairs water regulation and may also cause fluid leakage manifesting as sweat [20].

The liver governs the free flow of qi, and unobstructed qi movement guarantees normal circulation of qi and blood [21].

Liver dysfunction disrupts fluid transportation and consequently induces sweat syndrome. *Neijing* states: “Sweat derives from the liver under conditions of rapid running and fright”, indicating that sweating related to emotional disturbance is associated with the liver.

### 3.4 Other Pathogenic Factors

Beyond the etiologies mentioned above, *Yifang Jijie* enumerates multiple disorders capable of producing sweating: common cold, damp-damage, summer-heat stroke, wind-warm disease, rigid convulsion, qi deficiency, blood deficiency, spleen deficiency, stomach-heat, yang collapse, phlegm-fluid retention, fright, over-labour, sexual intemperance, carbuncle-abscess, and puerperal disorders, among others. Furthermore, Wang Qingren's theory that blood-stasis induces sweating merits attention. Long-standing qi deficiency or yin-deficient fire-heat can generate blood-stasis, and such cases of sweat syndrome are generally more complex and refractory compared with ordinary presentations [22].

## 4. Treatment

*Jingyue Quanshu* highlights the regulatory role of nutrient-defensive qi in sweating and proposes therapeutic principles for harmonising yin-yang and regulating defensive-qi [23]. Therapy for sweat syndrome should not merely target sweat suppression; therapeutic principles must be formulated according to specific etiology and pathogenesis to prescribe syndrome-adapted herbal formulas. Certain formulas appear frequently in ancient and modern clinical case records for managing sweat syndrome. For instance, *Shengmai Yin* can relieve symptoms irrespective of sweat subtypes [24]. *Shenfu Tang* or *Dajianzhong Tang* are frequently administered for yang deficiency. *Danggui Liuhuang Tang* serves as the primary prescription for night sweating caused by yin deficiency with fire-heat; *Yixue Zhengzhuan* even regards it as the optimal remedy for this pattern. For mild qi deficiency without yang decline, *Renshen Jianzhong Tang* is indicated; for defensive-qi exhaustion, *Yupingfeng San* is commonly applied. Severe concurrent decline of qi and yang-fire requires *Dabuyuan Jian*. *Chaihu Jia Longgu Muli Tang* is suitable for sweat syndrome induced by qi stagnation [25]. In other clinical scenarios, etiology and pathogenesis should be carefully differentiated prior to establishing therapeutic principles and composing prescriptions.

## 5. Conclusion

In summary, this paper elaborates the etiology and pathogenesis of sweat syndrome from the perspectives of yin-yang, qi-blood, and zang-fu organs, and reviews academic insights from ancient physicians. The complex nature of pathogenesis underlying sweat syndrome is demonstrated. Therefore, clinical treatment should not be confined to a single analytical perspective. Clinicians should take yin-yang as the foundational framework, regulate excess and deficiency within qi-blood, and attach importance to intricate pathogenic interactions among zang-fu organs [26]. It should also be noted that miscellaneous diseases can also trigger sweating. *Sanyin Ji-yi Bingzheng Fanglun* advises regarding sweating

secondary to miscellaneous diseases: "Treatment must trace the root pathogenic cause and avoid confused management". Improper dietary habits and emotional disturbance constitute key factors contributing to the chronic course and high recurrence rate of this disorder [27]. Accordingly, therapeutic regimens should be explored based on primary etiology and pathogenesis. Meanwhile, adequate attention should be paid to post-treatment care to prevent disease relapse.

## References

- [1] XU Gang; HU Chaoyue; CHEN Cong; et al. The feasibility of using high-definition thoracoscopy to identify sympathetic ganglia during thoracic sympathicotomy for primary palmar hyperhidrosis [J]. Chinese Journal of Clinical Thoracic and Cardiovascular Surgery, 2026, 33(4):578-583.
- [2] ZHAO Qijie; WANG Xianqing. Wang Xianqing's Experience in Treating Huang Han Disease Based on the Theory of "Disharmony between the Defensive and Nutritive Qi" through the Gallbladder, Lung, and Kidney Meridians [J]. Traditional Chinese Medicine, 2025, 14(10):4279-4285.
- [3] SUN Zhaorun. A Discussion on the Understanding of Sweat in Traditional Chinese Medicine [J]. Traditional Chinese Medicinal Research, 2021, 34(10):8-11.
- [4] QIU Yuping. Exploration on "Spontaneous Sweating" Syndrome in Treatise on Spleen and Stomach: "Initially Heat in the Middle" and "Ultimately Cold in the Middle" [J]. Journal of Shandong University of Traditional Chinese Medicine, 2025, 49(4):441-445.
- [5] ZHANG Bingfang; LI Zhongnan; WANG Sihai; et al. Experience of famous traditional Chinese medicine doctor LI Zhongnan in treating night sweat based on the "five-dimensional stereoscopic" pathogenesis and the characteristics of "general-purpose medicines" [J]. Shaanxi Journal of Traditional Chinese Medicine, 2026, 47(7):971-974979.
- [6] JIAO Yalin; HE Juan. Investigation into the "Corporeal Soul(Po)Sweat" in the Yellow Emperor's Inner Classic [J]. Modern Chinese Clinical Medicine, 2023, 30(02): 82-85.
- [7] WEN Jiayu; YAN Jilan. Research on the name of 'abnormal sweating' [J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2018, 33(02):481-483.
- [8] HUANG Yanxia. Inspiration on Sweat inducing Method by 'striae and interstitial space and vellus hair corresponding to Sanjiao and gallbladder'[J]. World Chinese Medicine, 2012, 7(1):9-10.
- [9] LIU Chu; PENG Yu; YUE Zhixia; et al. The Experience in Treating Childhood Hidrosis from Heart, Lung and Spleen [J]. Chinese Journal of Ethnomedicine and Ethnopharmacy, 2018, 27(8):67-69.
- [10] GU Yimeng; TANG Ziwei; WANG Rumeng; et al. Examples of Treating Sweat Syndrome in Patients with Coronary Heart Disease Based on Wuzang Theory [J]. JOURNAL OF BASIC CHINESE MEDICINE, 2023, 29(5):829-832.
- [11] LIU Yaqi, WANG Yixiao, ZHENG Chenghong. Treating Refractory Hidrosis by Regulating Liver-Yang and Tonifying Spleen-Yin [J]. Global Traditional Chinese Medicine, 2021, 14(2):313-315.
- [12] DONG Ye; ZHANG Li; YANG Mingqian; et al. Explain of heart xiang [J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2022, 37(1):84-86.
- [13] HUANG Xing, KOU Guanjun, FAN Lihua; et al. Theoretical Exploration of the Theory "Sweat is the Fluid of the Heart" [J]. Traditional Chinese Medicinal Research, 2025, 38(1):8-12.
- [14] HOU Pihua, WANG Ruiyin, ZHANG Jin; et al. New discussion in perspiration syndrome [J]. World Chinese Medicine, 2017, 12(4):947-950.
- [15] GAO Qiang; ZHAO Jiaqi; DU Juan; et al. Thoughts on Pathogenesis and Treatment of Various Syndromes before and after Menopause [J]. Jiangsu Journal of Traditional Chinese Medicine, 2020, 52(11):11-13.
- [16] YU Hongjuan, XIA Guicheng. Experience of XIA Gui-cheng on menopausal syndrome [J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2012, 27(10): 2573-2575.
- [17] FU Hui, NIU Yunfei, FANG Yuan; et al. Treatment of Hidrosis from the Heart Perspective: Representative Clinical Case Reports [J]. Chinese Journal of Ethnomedicine and Ethnopharmacy, 2022, 31(01): 100-102.
- [18] LIN Ying; JIANG Ying; JIANG Mingjin; et al. Effect of Du Moxibustion Combined with Oral Antiperspirant Formula on Anxiety and Quality of Life in Middle-aged and Elderly Patients with Lung Spleen Qi Deficiency and Spontaneous Sweating [J]. Chinese Journal of Microcirculation, 2025, 35(3):15-20.
- [19] PENG Yunhui; YUAN Tao; XIE Xinzhu; et al. Professor Xie Jian's Experience in Differentiating and Treating Senile Sweat Syndrome Based on the Theory of Five Zang Organs [J]. Chinese Journal of Ethnomedicine and Ethnopharmacy, 2022, 31(02):99-101.
- [20] QIAN Feng-e, ZHANG Xiaolin, HE Jinglin; et al. Professor Zhang Xiaolin's Experience in Treating Hidrosis of Spleen-Kidney Yang-Deficiency Pattern [J]. Journal of Yunnan University of Chinese Medicine, 2023, 46(03): 39-41. DOI:10.19288/j.cnki.issn.1000-2723.2023.03.007.
- [21] WANG Mengzhen; LUO Yue; LIU Ziyu; et al. Treating hyperhidrosis from liver and spleen [J]. Journal of Beijing University of Traditional Chinese Medicine, 2024, 47(04):490-495.
- [22] MAO Xiangqian, LUO Kaitao. Insights into the Treatment of Hidrosis from the Blood-Stasis Perspective [J]. Zhejiang Journal of Traditional Chinese Medicine, 2023, 58(03): 216. DOI:10.13633/j.cnki.zjtem.2023.03.013.
- [23] TAN Weili; BAI Xiaoxu; LI Zhipeng; et al. Discussion on Relationship between Defensive Qi and Sweat Syndrome Based on Jing Yue Quan Shu [J]. Journal of Hebei Traditional Chinese Medicine and Pharmacology, 2023, 38(02): 6-9+14. DOI:10.16370/j.cnki.13-1214/r.2023.02.004.
- [24] MENG Lu; WANG Bing; CHEN Bin; et al. Treating sweating disease from the syndrome differentiation of zang-fu viscera [J]. Journal of Changchun University of Chinese Medicine, 2022, 38(01): 31-34. DOI:10.13463/j.cnki.czzy.2022.01.008.
- [25] HUANG Qiaoyi, WU Susu, ZHANG Zhen; et al. Li Hao's Experience in Treating Hidrosis Based on Yin-Yang Imbalance and Disharmony between

- Nutrient-Defense [J]. Jiangsu Journal of Traditional Chinese Medicine, 2024, 56(05): 12-16. DOI:10.19844/j.cnki.1672-397X.2024.05.004.
- [26] LIU Mengjun; WU Xuanzhen; FAN Qunli; et al. The Method of Regulating the Heart in Differentiating and Treating Sweating Syndrome Based on “Sweat is the Liquid of the Heart” [J]. Jiangsu Journal of Traditional Chinese Medicine, 2022, 54(10): 16-19. DOI:10.19844/j.cnki.1672-397X.2022.10.007.
- [27] Zhang Chunqin; Liu Fuming. Professor Li Qiyi’s Experience in Treating Perspiration Syndrome from the Perspective of “Intense Heat of Yang Ming” [J]. Asia-Pacific Traditional Medicine, 2022, 18(04):125-128.