

· 综述 ·

中西医结合治疗脊柱侧凸的研究进展[△]周璇^a, 马飞^b, 李颖娴^a, 杜青^{a*}

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摘要: 脊柱侧凸是一种常见的脊柱三维畸形, 治疗不及时会对患者的功能、活动和生活质量产生严重影响。脊柱侧凸的常用治疗方法有脊柱侧凸特定运动疗法、支具治疗和手术治疗。近年来, 传统中医疗法被较多地联合用于脊柱侧凸的治疗。本文对传统功法训练结合康复治疗、推拿结合康复治疗、针灸结合康复治疗、中药结合康复治疗研究现状进行综述, 以为脊柱侧凸的临床治疗方案的选择和今后临床研究的开展提供参考。

关键词: 脊柱侧凸, 中西医结合, 治疗

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Research progress in integrated treatment of traditional Chinese and western medicine for scoliosis // ZHOU Xuan^a, MA Fei^b, LI Ying-xian^a, DU Qing^a. a. Department of Rehabilitation Medicine; b. Outpatient and Emergency Department, Xin Hua Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai 200092, China

Abstract: Scoliosis is a common three-dimensional deformity of the spine, which can cause serious effects on function, mobility, and quality of life if treatment is delayed. Common treatments for scoliosis include physiotherapy, specific exercise, brace therapy, and surgery. In recent years, traditional Chinese medicine has been used in combination with western medicine for scoliosis. This article reviewed traditional exercise training combined with rehabilitation treatment, Tuina combined with rehabilitation treatment, acupuncture combined with rehabilitation treatment, and Chinese medicine combined with rehabilitation treatment, in order to provide an reference for the selection of clinical treatment and future clinical research.

Key word: scoliosis, integration of traditional Chinese and western medicine, treatment

脊柱侧凸是一种常见的脊柱三维畸形, 患病率为2%~3%^[1, 2], 可导致患者背部外观畸形、功能活动受限、腰背痛、生活质量下降, 严重影响患者的身心健康^[3-5]。10%的侧凸会有进展, 应积极治疗^[6]。脊柱侧凸的进展与生长发育程度有关, 在骨骼成熟前畸形进展较快, 且角度越大进展风险越高^[7]。目前, 较为常用的脊柱侧凸治疗方法包括脊柱侧凸特定运动疗法、支具和手术治疗^[8]。虽然, 上述方法都有其各自的适用范围, 但也有研究将其综合运用于侧凸的治疗中^[9, 10]。近年来, 不少学者在常规治疗基础上加入中医疗法, 为脊柱侧凸的治疗提供新路径, 探索更多可能。本文对脊柱侧凸中西医结合治疗方法的研究现状进行综述, 以为该病治疗方案的选择和临床研究的开展提供依据。

1 传统功法训练结合康复治疗

传统功法是一种以主动运动为特点的综合训练方法, 具有“调身、调息、调心”的特点。该训练以中医脏腑经络理论为指导, 将意念与特定动作相结合, 同时辅以呼吸吐纳调节, 以达到放松身心、神形合一的目的^[11]。传统功法有改善血液循环、提升心肺耐力、缓解关节疼痛等作用, 因此被广泛应用于脑血管疾病和肌肉骨骼疾病的预防与治疗^[11, 12]。近年来, 部分学者将八段锦、五禽戏、易筋经等传统功法训练运用于脊柱侧凸的治疗中, 以探索上述疗法对侧凸患者的增益。

八段锦被改良用于青少年特发性脊柱侧凸患者的

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治疗,有助于降低其脊柱畸形角度,提升肺功能和腰椎功能。八段锦可直接锻炼脊柱,其中的第1式“双手托天理三焦”可牵伸脊柱,增强腰背肌肌力,扩张胸廓,提高脏腑机能,第5式“摇头摆尾去心火”可增加脊柱灵活性,同时锻炼脊柱肌群的肌力^[13]。考虑到八段锦招式繁多且动作复杂,陈元奎等^[14]创造出Q版八段锦,并探究了其在青少年特发性脊柱侧凸治疗中的短期疗效。该研究中对照组进行支具治疗结合腰背肌锻炼,试验组则在对照组的干预基础上增加Q版八段锦,干预4个月后,结果显示与对照组相比,试验组的Cobb角降低更显著,且肺通气功能和腰椎功能也有所改善。

五禽戏、改良易筋经结合呼吸训练治疗脊柱侧凸患者的疗效显著。五禽戏是以脊柱运动为主的气功干预疗法,通过以脊柱为中心向各个方向进行屈伸和旋转的对称性运动来锻炼椎旁肌和腰背肌肌力,调节脊柱曲度和柔韧性^[15]。朱安琪等^[16]将五禽戏与旋转式呼吸训练相结合,对青少年特发性脊柱侧凸患者进行为期12周的治疗。该研究结果发现,与仅进行腰背肌锻炼的对照组相比,结合治疗组的畸形角度减小更显著,且在维持脊柱稳定性和改善背部畸形的作用上效果更优。易筋经作为古代中医导引术以一些特定姿势结合呼吸诱导为主,可通过脊柱的旋转屈伸运动带动四肢、内脏的运动,从而达到伸筋拔骨、强筋健骨的作用^[17]。在有脊柱问题的青少年中进行易筋经治疗,发现该功法可通过胸廓扩张来调节呼吸运动以增加呼吸肌肌力,通过拉伸椎旁肌和背部肌群以增加脊柱柔韧性和灵活性,保持脊柱稳定^[18]。有案例报道采用改良版易筋经联合呼吸训练治疗脊柱侧凸患者,发现联合治疗可以增强椎旁肌肌力,改善膈肌功能,缓解腰部肌群僵硬、提高肺通气功能^[19]。

传统功法训练通过刚柔并济,顺应人体脊柱、软组织的活动,再配合特定的呼吸吐纳,可起到以形导气、导引松肌、柔筋正骨等功效,有利于矫正脊柱、增强稳定肌群、维持和保护脊柱功能。将传统功法训练与康复治疗结合用于脊柱侧凸的治疗,可增加治疗效果,提高患者肺通气、腰椎功能水平。

2 推拿结合康复治疗

推拿是常用的中医外治法,可采用不同方式的手法来刺激人体的经络穴位或特定部位,以达到治理疾病的目的。推拿治疗脊柱侧凸侧重于对软组织的调整,缓解椎体周围肌肉粘连、调整肌力平衡,治疗的

关键在于改善脊柱筋骨失和状态、恢复脊柱力学平衡^[20]。推拿治疗时要综合考虑患者的侧凸方向和畸形程度,行手法补泻治疗,以凸侧为实,凹侧为虚,补虚泻实,以达到“筋骨和合”的状态,重建脊柱平衡,改善背部形态及侧凸程度^[21]。目前,常用于治疗脊柱侧凸的推拿治疗方法有理筋整复手法、杠杆定位手法、平衡整脊手法、卧位牵顿手法等。推拿联合康复治疗对特发性脊柱侧凸患者的疗效优于单一疗法。田俊松等^[22]将脊柱推拿手法与改良Schroth体操相结合,对30例青少年特发性脊柱侧凸患者进行为期6个月的干预。结果显示,与仅进行改良Schroth体操的对照组相比,联合治疗组的Cobb角降低更显著,脊柱畸形矫正的效果更明显。卢跃伦等^[23]对20例青少年特发性脊柱侧凸患者进行6个月的推拿联合Schroth疗法,发现与单纯进行推拿治疗的对照组相比,联合治疗组能有效改善侧凸患者的Cobb角和躯干旋转角。刘李文姬等^[24]还将推拿联合牵引治疗50例特发性脊柱侧凸,并在干预1、3个月分别进行随访。研究发现,与仅进行牵引和对症治疗的对照组相比,联合治疗组在干预后的两次随访中均观察到Cobb角的显著下降和疼痛症状的明显改善。陈玉华等^[25]采用倒悬推拿联合运动康复治疗特发性脊柱侧凸,通过倒悬牵引使软组织和脊柱充分放松,同时配合复位推拿治疗和运动训练。该研究将患者分为低年龄组(10~14岁)和高年龄组(16~22岁)分别进行60d干预。结果表明,此联合方法能有效矫正脊柱畸形,恢复肌力,且低年龄组的疗效优于高年龄组。

推拿治疗脊柱侧凸主要根据其病程、病征,通过揉、按、点、推等多种手法治疗病变软组织,同时对颈胸腰骶椎进行整复,起到“骨合缝、筋入槽”之妙用。推拿治疗简便易操作,安全可靠,患者依从性高,因此将推拿与康复治疗结合,两种疗法,相得益彰,对脊柱侧凸患者而言不失为一种良策。

3 针灸结合康复治疗

针灸是针法和灸法的总称,是中国传统医学的重要组成部分。针灸疗法因其操作便捷、安全有效,被广泛应用于各专科疾病的临床诊疗中。该疗法可疏通经络、活血化瘀、缓解疲劳^[26]。中医理论认为,脊柱属水,与膀胱密切相关,且膀胱经穴位分居脊柱两侧,故脊柱侧凸针灸治疗中常选用此处穴位进行刺激^[27, 28]。由于针灸治疗方法的特殊性,其疗效受到操作者经验和技能的影响较大。已有不少研究证实了

针灸联合康复治疗青少年脊柱侧凸、成人退行性和特发性脊柱侧凸的疗效,可有效改善脊柱形态和功能,缓解疼痛,提高生活质量和治疗依从性。谭志等^[29]对36例青少年特发性脊柱侧凸患者进行42d的“通督五线”针法联合Schroth疗法,结果发现,与仅进行针刺组和仅进行训练组相比,联合组对脊柱影像学形态、躯干外观形态以及脊柱的整体功能的改善更明显。李红等^[30]采用针灸联合呼吸训练治疗青少年特发性脊柱侧凸,发现能明显改善患者的疼痛,减少镇痛药物的使用,并能提升患者生理功能和社会功能。吴靖国^[31]对32例脊柱侧凸患者进行针刺和扳推法治疗,先运用扳推法纠正脊柱畸形,再针刺双夹脊穴、凹侧大肠俞穴、双委中穴等,治疗1个月后患者Cobb角明显降低。对于成人脊柱侧凸患者而言,针灸治疗有利于缓解疼痛症状。1例成人退行性脊柱侧凸患者在术后接受三焦俞、肾俞、气海俞针刺联合常规康复治疗,治疗6周后患者下背部疼痛显著改善^[32]。此外,研究还发现,赤凤迎源针法有助于降低成人特发性脊柱侧凸患者的疼痛程度评分、提高生活质量^[33]。一项纳入120例青少年脊柱侧凸的随机对照试验显示,与单纯支具治疗相比,联合应用脊柱牵引和针刀治疗的青少年脊柱侧凸患者在治疗24个月后其Cobb角改善率较高,且双侧椎旁肌肌电信号趋于平衡。此外,脊柱牵引联合针刀组患儿脱落率仅为3%,显著低于支具治疗组,表明联合治疗可有效提高侧凸患者的治疗依从性^[34]。针刀治疗是在传统针灸基础上改进而成的一种新型治疗手段,该技术将中医针刺与西医微创手术理念相结合,通过较小的创口对脊柱周围挛缩的软组织进行松解剥离,起到针刺、切割双重作用,消除脊柱受到的不对称牵拉,重建脊柱力学平衡^[35]。

针灸和康复治疗结合可以缓解脊柱侧凸患者的疼痛,维持脊柱平衡,提高生活质量。针刀治疗还能通过微创手段来矫治脊柱畸形,提高患者依从性。两种治疗方法的联合可以为脊柱侧凸患者带来较大增益。

4 中药结合康复治疗

中药对各种疾病的预防和治疗都发挥着重要作用,具有悠久的历史传统。目前已有研究对脊柱侧凸患者联合应用中药治疗的疗效进行报道。中药治疗脊柱侧凸的原则主要为滋补肝肾、强筋壮骨、调和气血、舒筋通络^[36]。中医康复临床实践指南将脊柱侧凸分为肝肾阳虚、肝肾阴虚以及其他证型,并根据不

同辩证分型来选择不同的中药,治疗方法分为中药内治和中药外治^[37]。

中药内服联合康复治疗可增强脊柱侧凸患者免疫功能,延缓畸形进展,改善术后疼痛和功能活动。陈庆贺等^[38]将血藤芫鹿伸脊丸与支具、牵引、推拿、针刺疗法等相结合,对89例9~17岁轻中度青少年特发性脊柱侧凸患者进行共8周治疗,结果显示,血藤芫鹿伸脊丸能增强患者免疫功能,调节肾上腺皮质激素水平,进而修复发生病理改变的筋膜和韧带,有效延缓侧凸进展。进行手术治疗的脊柱侧凸患者常应用右美托咪定、羟考酮等提高术后镇痛、镇静效果^[39]。近年来中药也被用于脊柱侧凸术后镇痛治疗,闵甦^[40]对退变性脊柱侧凸融合内固定术后患者应用杜仲腰痛丸,术后患者疼痛和功能障碍有效改善,可促进患者快速康复。

中药外治联合康复治疗同样可降低脊柱侧凸患者疼痛及脊柱畸形程度,改善生活质量。目前用于治疗脊柱侧凸患者的中药外治方法有中药熏蒸和中药酊剂。王淑梅等^[41]对62例脊柱侧凸患者进行中药熏蒸结合康复训练12周,研究发现,该疗法可有效降低患者疼痛程度,改善生活质量。谢锐填等^[42]对60例接受施罗特疗法的青少年特发性脊柱侧凸患者联合使用中药酊剂,与仅接受施罗特疗法相比,联合治疗能显著降低患者的侧凸角度,延缓病情进展。

5 小结

中西医结合治疗已在脊柱侧凸的治疗中表现出了较好的治疗潜力,且具有安全、经济、依从性好等优点,是未来脊柱侧凸诊疗领域中值得进一步探究的方向。目前中西医结合治疗脊柱侧凸的临床研究样本量相对较小,研究随访时间普遍较短,未来需要更多的多中心、大样本、长期随访的临床研究来进一步验证中西医结合治疗的疗效。

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作者贡献声明 周璇:采集分析和解释数据、起草论文;马飞:采集分析和解释数据、论文审阅、指导;李颖娴:采集分析和解释数据、起草论文;杜青:采集分析和解释数据、论文审阅、指导

参考文献

- [1] Yilmaz H, Zateri C, Kusvuran Ozkan A, et al. Prevalence of adolescent idiopathic scoliosis in Turkey: an epidemiological study [J]. Spine J, 2020, 20 (6): 947-955. DOI: 10.1016/j.spinee.2020.01.008.
- [2] Adamczewska K, Wiernicka M, Malchrowicz-Moško E, et al. The

- angle of trunk rotation in school children: a study from an idiopathic scoliosis screening. Prevalence and optimal age screening value [J]. *Int J Environ Res Public Health*, 2019, 16 (18) : 3426. DOI: 10.3390/ijerph16183426.
- [3] 崔学锋, 梁文杰, 刘德斌, 等. 青少年特发性脊柱侧凸胸椎形态学 MRI 临床价值 [J]. *中国矫形外科杂志*, 2019, 27 (18) : 1706-1709. DOI: 10.3977/j.issn.1005-8478.2019.18.16.
- Cui XF, Liang WJ, Liu DB, et al. Clinical value of thoracic vertebra morphological MRI in adolescent idiopathic scoliosis [J]. *Orthopedic Journal of China*, 2019, 27 (18) : 1706-1709. DOI: 10.3977/j.issn.1005-8478.2019.18.16.
- [4] 陈绍丰, 李雄飞, 李博, 等. 青少年特发性脊柱侧凸术后女性妊娠相关问题 [J]. *中国矫形外科杂志*, 2022, 30 (4) : 333-336. DOI: 10.3977/j.issn.1005-8478.2022.04.10.
- Chen SF, Li XF, Li B, et al. Pregnancy related problems in women secondary to surgical correction for adolescent idiopathic scoliosis [J]. *Orthopedic Journal of China*, 2022, 30 (4) : 333-336. DOI: 10.3977/j.issn.1005-8478.2022.04.10.
- [5] 谭焜月, 刘春霞, 赵正凯, 等. 先天性脊柱侧弯胸弯对心肺功能的影响 [J]. *中国矫形外科杂志*, 2022, 30 (15) : 1361-1365. DOI: 10.3977/j.issn.1005-8478.2022.15.04.
- Tan KY, Liu CX, Zhao ZK, et al. Effect of thoracic curve on cardiopulmonary function in congenital scoliosis [J]. *Orthopedic Journal of China*, 2022, 30 (15) : 1361-1365. DOI: 10.3977/j.issn.1005-8478.2022.15.04.
- [6] Tambe AD, Panikkar SJ, Millner PA, et al. Current concepts in the surgical management of adolescent idiopathic scoliosis [J]. *Bone Joint J*, 2018, 100-b (4) : 415-424. DOI: 10.1302/0301-620X.100B4.BJJ-2017-0846.R2.
- [7] 王纯, 夏楠, 王莉, 等. 青少年特发性脊柱侧凸的自然发展过程再认识 [J]. *中国康复*, 2021, 36 (5) : 305-308. DOI: 10.3870/zgkf.2021.05.011.
- Wang C, Xia N, Wang L, et al. Reunderstanding the natural development process of idiopathic scoliosis in adolescents [J]. *Chinese Journal of Rehabilitation*, 2021, 36 (5) : 305-308. DOI: 10.3870/zgkf.2021.05.011.
- [8] Negrini S, Donzelli S, Aulisa AG, et al. 2016 SOSORT guidelines: orthopaedic and rehabilitation treatment of idiopathic scoliosis during growth [J]. *Scoliosis Spinal Disord*, 2018, 13: 3. DOI: 10.1186/s13013-017-0145-8.
- [9] Fang MQ, Huang XL, Wang W, et al. The efficacy of Schroth exercises combined with the Chêneau brace for the treatment of adolescent idiopathic scoliosis: a retrospective controlled study [J]. *Disabil Rehabil*, 2022, 44 (18) : 5060-5068. DOI: 10.1080/09638288.2021.1922521.
- [10] Rożek K, Jasiewicz B. Effect of preoperative SpineCor® treatment on surgical outcome in idiopathic scoliosis: an observational study [J]. *Med Sci Monit*, 2019, 25: 754-759. DOI: 10.12659/MSM.912228.
- [11] 姜林鸿, 陆兴华, 赵莉娟, 等. 传统功法训练对卒中后运动功能障碍影响的研究进展 [J]. *按摩与康复医学*, 2021, 12 (13) : 63-66. DOI: 10.19787/j.issn.1008-1879.2021.13.020.
- Jiang LH, Lu XH, Zhao LJ, et al. Advance research on influence of traditional method training on motor dysfunction after stroke [J]. *Chinese Manipulation and Rehabilitation Medicine*, 2021, 12 (13) : 63-66. DOI: 10.19787/j.issn.1008-1879.2021.13.020.
- [12] 胡泊. 中医推拿联合功法训练治疗颈椎病颈痛的疗效分析 [J]. *颈腰痛杂志*, 2019, 40 (5) : 700-701. DOI: 10.3969/j.issn.1005-7234.2019.05.043.
- Hu B. Analysis of curative effect of traditional Chinese massage combined with exercise training on cervical spondylosis and neck pain [J]. *The Journal of Cervicodynia and Lumbodynia*, 2019, 40 (5) : 700-701. DOI: 10.3969/j.issn.1005-7234.2019.05.043.
- [13] 王建月, 徐梅, 刘国华, 等. 中医传统疗法干预运动员腰肌劳损的疗效分析 [J]. *兰州文理学院学报(自然科学版)*, 2017, 31 (6) : 103-107.
- Wang JY, Xu M, Liu GH, et al. Analysis on the curative effect of traditional Chinese medicine therapy on athletes' lumbar muscle strain [J]. *Journal of Lanzhou University of Arts and Science (Natural Sciences)*, 2017, 31 (6) : 103-107.
- [14] 陈元奎. Q 版八段锦治疗青少年特发性脊柱侧弯的短期临床疗效观察 [D]. 福州: 福建中医药大学, 2022.
- Chen YK. Short-term clinical efficacy of Q version of BaDuanJin in the treatment of adolescent idiopathic scoliosis [D]. Fuzhou: Fujian University of Traditional Chinese Medicine, 2022.
- [15] 张琳, 张佳蕾, 郭郁, 等. 基于 Cobb 角测量法分析五禽戏调节脊柱曲度及柔韧性研究 [J]. *辽宁中医药大学学报*, 2018, 20 (4) : 94-97. DOI: 10.13194/j.issn.1673-842x.2018.04.025.
- Zhang L, Zhang JL, Guo Y, et al. Analysis of spine curvature and flexibility effect of five-animal exercises based on Cobb angle measurement [J]. *Journal of Liaoning University of TCM*, 2018, 20 (4) : 94-97. DOI: 10.13194/j.issn.1673-842x.2018.04.025.
- [16] 朱安琪. 五禽戏结合旋转式呼吸训练治疗青少年特发性脊柱侧弯的疗效观察 [D]. 上海: 上海中医药大学, 2020. DOI: 10.27320/d.cnki.gszyu.2020.000264.
- Zhu AQ. Therapeutic effect of Wuqinxi exercise combined with rotational breathing training on adolescent idiopathic scoliosis [D]. Shanghai: Shanghai University of Traditional Chinese Medicine, 2020. DOI: 10.27320/d.cnki.gszyu.2020.000264.
- [17] 付士芳, 李跃彤, 任凤蛟, 等. 中医传统功法易筋经在骨伤科疾病康复中的研究进展 [J]. *天津中医药*, 2022, 39 (5) : 675-680. DOI: 10.11656/j.issn.1672-1519.2022.05.26.
- Fu SF, Li YT, Ren FJ, et al. Research progress of Yi Jin Jing, a traditional Chinese medicine exercise, in rehabilitation of orthopedic diseases [J]. *Tianjin Journal of Traditional Chinese Medicine*, 2022, 39 (5) : 675-680. DOI: 10.11656/j.issn.1672-1519.2022.05.26.
- [18] 房庆华, 房宇轩. “健身气功·易筋经”对青少年脊柱康复干预研究 [J]. *武术研究*, 2018, 3 (1) : 112-114, 131. DOI: 10.3969/j.issn.1004-5643.2018.01.033.
- Fang QH, Fang YX. The study of "fitness Qigong YiJinJing" on adolescent spine rehabilitation [J]. *Wushu Research*, 2018, 3 (1) :

- 112-114, 131. DOI: 10.3969/j.issn.1004-5643.2018.01.033.
- [19] 龚夏莉, 贾超. 改良版易筋经结合呼吸训练治疗脊柱侧弯 1 例 [J]. 中医药导报, 2019, 25 (17): 130-132. DOI: 10.13862/j.cnki.cn43-1446/r.2019.17.035.
- Gong XL, Jia C. A case of scoliosis treated by modified Yijinjing combined with breathing training [J]. Guiding Journal of Traditional Chinese Medicine and Pharmacology, 2019, 25 (17): 130-132. DOI: 10.13862/j.cnki.cn43-1446/r.2019.17.035.
- [20] 王瑀, 林自立, 梁英业, 等. 中医外治法治疗青少年特发性脊柱侧弯的研究进展 [J]. 按摩与康复医学, 2023, 14 (3): 41-44, 49. DOI: 10.19787/j.issn.1008-1879.2023.03.012.
- Wang Y, Lin ZL, Liang YY. Research progress in the treatment of idiopathic scoliosis in adolescents by external treatment of traditional Chinese medicine [J]. Chinese Manipulation and Rehabilitation Medicine, 2023, 14 (3): 41-44, 49. DOI: 10.19787/j.issn.1008-1879.2023.03.012.
- [21] 王媛媛, 詹红生. 中医手法治疗青少年特发性脊柱侧凸的思考 [J]. 上海中医药杂志, 2023, 57 (6): 56-58. DOI: 10.16305/j.1007-1334.2023.2303029.
- Wang YY, Zhan HS. Reflections on treatment of adolescent idiopathic scoliosis with traditional Chinese medicine manipulation [J]. Shanghai Journal of Traditional Chinese Medicine, 2023, 57 (6): 56-58. DOI: 10.16305/j.1007-1334.2023.2303029.
- [22] 田俊松, 应晓明, 叶鑫. “分节段式” 脊柱推拿手法联合改良 Schroth 体操治疗青少年特发性脊柱侧凸的临床研究 [J]. 中医正骨, 2021, 33 (7): 23-27. DOI: 10.3969/j.issn.1001-6015.2021.07.005.
- Tian JS, Ying XM, Ye X. A clinical study of segmental spinal manipulation combined with modified Schroth gymnastics for treatment of adolescent idiopathic scoliosis [J]. The Journal of Traditional Chinese Orthopedics and Traumatology, 2021, 33 (7): 23-27. DOI: 10.3969/j.issn.1001-6015.2021.07.005.
- [23] 卢跃伦, 骆国钢, 谢海风, 等. 施罗斯疗法联合正骨推拿在青少年特发性脊柱侧弯康复中的疗效研究 [J]. 中国全科医学, 2022, 25 (32): 4059-4064. DOI: 10.12114/j.issn.1007-9572.2022.0386.
- Lu YL, Luo GG, Xie HF, et al. Rehabilitative effects of Schroth therapy with bonesetting massage for adolescent idiopathic scoliosis [J]. Chinese General Practice, 2022, 25 (32): 4059-4064. DOI: 10.12114/j.issn.1007-9572.2022.0386.
- [24] 刘李文姬. 脊柱正骨推拿联合牵引法治疗特发性脊柱侧弯疗效观察 [J]. 北京中医药, 2020, 39 (1): 72-74. DOI: 10.16025/j.1674-1307.2020.01.022.
- Liu LWJ. Clinical effect of spinal orthopedic massage combined with traction on the treatment of idiopathic scoliosis [J]. Beijing Journal of Traditional Chinese Medicine, 2020, 39 (1): 72-74. DOI: 10.16025/j.1674-1307.2020.01.022.
- [25] 陈玉华, 景绘涛, 卢松. 倒悬推拿配合运动康复治疗特发性脊柱侧弯的临床研究 [J]. 时珍国医国药, 2020, 31 (3): 638-639. DOI: 10.3969/j.issn.1008-0805.2020.03.040.
- Chen YH, Jing HT, Lu S. A clinical study on the treatment of idiopathic scoliosis with inverted massage combined with exercise rehabilitation [J]. Lishizhen Medicine and Materia Medica Research, 2020, 31 (3): 638-639. DOI: 10.3969/j.issn.1008-0805.2020.03.040.
- [26] 吴云军, 王华军, 郑小飞, 等. 针灸治疗脊柱相关疾病的研究进展 [J]. 中华针灸电子杂志, 2020, 9 (3): 105-108. DOI: 10.3877/cma.j.issn.2095-3240.2020.03.007.
- Wu YJ, Wang HJ, Zheng XF, et al. Research progress of acupuncture and moxibustion on spinal diseases [J]. Chinese Journal of Diagnostics (Electronic Edition), 2020, 9 (3): 105-108. DOI: 10.3877/cma.j.issn.2095-3240.2020.03.007.
- [27] 魏娅楠. 支具矫正联合针灸治疗脾肾阳虚型青少年特发性脊柱侧弯的疗效观察 [D]. 承德: 承德医学院, 2023.
- Wei YN. Observation of therapeutic effect of brace correction combined with acupuncture on adolescent idiopathic scoliosis with deficiency of spleen-yang and kidney-yang [D]. Chengde: Chengde Medical College, 2023.
- [28] Weiss HR, Bohr S, Jahnke A, et al. Acupuncture in the treatment of scoliosis - a single blind controlled pilot study [J]. Scoliosis, 2008, 3: 4. DOI: 10.1186/1748-7161-3-4.
- [29] 谭志, 陈俊伟, 余伯亮, 等. “通督五线” 针法配合 Schroth 训练治疗青少年特发性脊柱侧弯临床观察 [J]. 上海针灸杂志, 2021, 40 (5): 611-615. DOI: 10.13460/j.issn.1005-0957.2021.05.0611.
- Tan Z, Chen JW, Yu BL, et al. Clinical observations on five-line Du-unblocking acupuncture plus Schroth training for adolescent idiopathic scoliosis [J]. Shanghai Journal of Acupuncture and Moxibustion, 2021, 40 (5): 611-615. DOI: 10.13460/j.issn.1005-0957.2021.05.0611.
- [30] 李红, 王春南. 针灸联合呼吸训练对青少年脊柱侧弯的疗效分析 [J]. 中国实用医药, 2022, 17 (12): 179-181. DOI: 10.14163/j.cnki.11-5547/r.2022.12.062.
- Li H, Wang NC. Analysis of curative effect of acupuncture combined with breathing training on adolescent scoliosis [J]. Chinese Practical Medicine, 2022, 17 (12): 179-181. DOI: 10.14163/j.cnki.11-5547/r.2022.12.062.
- [31] 吴靖国. 针刺配合扳推法治疗脊柱侧弯的临床观察 [D]. 广州: 南方医科大学, 2008. DOI: 10.7666/d.y1395405.
- Wu JG. A clinical observation on treating scoliosis by acupuncture and pulling manipulation (Banfa) [D]. Guangzhou: Southern Medical University, 2008. DOI: 10.7666/d.y1395405.
- [32] Liu CT, Chen KC, Chiu EH. Adult degenerative scoliosis treated by acupuncture [J]. J Altern Complement Med, 2009, 15 (8): 935-937. DOI: 10.1089/acm.2008.0515.
- [33] 朱博文, 孔令军, 吴志伟, 等. 赤凤迎源针法治疗成年特发性脊柱侧弯腰背疼痛 26 例 [J]. 中国针灸, 2024, 44 (2): 163-165. DOI: 10.13703/j.0255-2930.20230602-0001.
- Zhu BW, Kong LJ, Wu ZW, et al. Chifeng Yingyuan acupuncture for 26 cases of adult idiopathic scoliosis with low back pain [J]. Chinese Acupuncture and Moxibustion, 2024, 44 (2): 163-165. DOI: 10.13703/j.0255-2930.20230602-0001.

- [34] 沈嘉平, 李海龙. 中医综合疗法对青少年特发性脊柱侧凸患者肺功能及表面平均肌电比值的影响 [J]. 解放军医学杂志, 2016, 41 (8): 668-672. DOI: 10.11855/j.issn.0577-7402.2016.08.11.
- Shen JP, Li HL. Influences of combined therapies with traditional Chinese medicine on pulmonary function and surface average electromyogram ratio in adolescent idiopathic scoliosis patients [J]. Medical Journal of Chinese People's Liberation Army, 2016, 41 (8): 668-672. DOI: 10.11855/j.issn.0577-7402.2016.08.11.
- [35] 屈庆, 周翔, 罗华送, 等. 超微针刀联合平衡复位正骨推拿法治疗青少年特发性脊柱侧凸 33 例观察 [J]. 浙江中医杂志, 2021, 56 (12): 910-911. DOI: 10.3969/j.issn.0411-8421.2021.12.034.
- Qu Q, Zhou X, Luo HS, et al. Observation of 33 cases of adolescent idiopathic scoliosis treated by ultramicro-acupotomy combined with balanced reduction and bone-setting massage [J]. Zhejiang Journal of Traditional Chinese Medicine, 2021, 56 (12): 910-911. DOI: 10.3969/j.issn.0411-8421.2021.12.034.
- [36] 苟甜, 鄢卫平, 马德睿, 等. 青少年特发性脊柱侧凸的中医治疗进展 [J]. 中医临床研究, 2022, 14 (4): 126-129. DOI: 10.3969/j.issn.1674-7860.2022.04.035.
- Gou T, Yan WP, Ma DR, et al. A review on treating adolescent idiopathic scoliosis in TCM [J]. Clinical Journal of Chinese Medicine, 2022, 14 (4): 126-129. DOI: 10.3969/j.issn.1674-7860.2022.04.035.
- [37] 李丽, 于少泓, 周霞, 等. 中医康复临床实践指南·儿童青少年特发性脊柱侧弯 [J]. 康复学报, 2023, 33 (4): 295-302. DOI: 10.3724/SP.J.1329.2023.04002.
- Li L, Yu SH, Zhou X, et al. Clinical practice guidelines of traditional Chinese medicine rehabilitation for idiopathic scoliosis in children and adolescents [J]. Rehabilitation Medicine, 2023, 33 (4): 295-302. DOI: 10.3724/SP.J.1329.2023.04002.
- [38] 陈庆贺, 李乃民, 王仑, 等. 血藤芎鹿伸脊丸加针刺推拿治疗特发性脊柱侧凸的体会 [J]. 黑龙江医学, 2013, 37 (3): 217-219. DOI: 10.3969/j.issn.1004-5775.2013.03.027.
- Chen QH, Li NM, Wang L, et al. Clinical observation of idiopathic scoliosis treated with XTJLSJW [J]. Heilongjiang Medical Journal, 2013, 37 (3): 217-219. DOI: 10.3969/j.issn.1004-5775.2013.03.027.
- [39] 刘倩, 祖翠华. 右美托咪定联合羟考酮多模式镇痛在脊柱侧弯矫形术中的应用价值 [J]. 现代中西医结合杂志, 2019, 28 (35): 3956-3959. DOI: 10.3969/j.issn.1008-8849.2019.35.021.
- Liu Q, Zu CH. Application value of dexmedetomidine combined with oxycodone multimodal analgesia in orthopedics for scoliosis [J]. Modern Journal of Integrated Traditional Chinese and Western Medicine, 2019, 28 (35): 3956-3959. DOI: 10.3969/j.issn.1008-8849.2019.35.021.
- [40] 闵甦. 经后路开窗减压矫形融合内固定术联合杜仲腰痛丸治疗退行性脊柱侧凸的临床研究 [D]. 兰州: 甘肃中医药大学, 2021.
- Min S. Clinical study on degenerative scoliosis treated by posterior fenestration decompression and orthopedics combined with internal fixation combined with Duzhong Yaotong Pills [D]. Lanzhou: Gansu University of Chinese Medicine, 2021.
- [41] 王淑梅, 郭金惠, 李莹莹. 中药熏蒸联合康复训练护理对青少年特发性脊柱侧弯恢复和生活质量的影响 [J]. 实用中医内科杂志, 2023, 37 (11): 98-101. DOI: 10.13729/j.issn.1671-7813.Z20222145.
- Wang SM, Guo JH, Li YY. Effect of traditional Chinese medicine fumigation combined with rehabilitation training and nursing on recovery of scoliosis and quality of life [J]. Journal of Practical Traditional Chinese Internal Medicine, 2023, 37 (11): 98-101. DOI: 10.13729/j.issn.1671-7813.Z20222145.
- [42] 谢锐填, 魏伟明, 黄济嘉, 等. 中药酊剂联合施罗特疗法治疗青少年特发性脊柱侧弯效果 [J]. 中外医学研究, 2020, 18 (9): 35-37. DOI: 10.14033/j.cnki.cfmr.2020.09.013.
- Xie RT, Wei WM, Huang JJ, et al. Effect of Chinese medicine tincture combined with Schrott therapy on adolescent idiopathic scoliosis [J]. Chinese and Foreign Medical Research, 2020, 18 (9): 35-37. DOI: 10.14033/j.cnki.cfmr.2020.09.013.

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