

A New Exploration of Cultivating Clinical Thinking in Rehabilitation Therapy from the Perspective of Integrating Chinese and Western Medicine

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Abstract: Amid population aging and shifting rehabilitation concepts, society increasingly demands multidisciplinary rehabilitation professionals. Under national policies promoting integrated Chinese and Western medicine (ICWM), rehabilitation therapy education must shift from a “Chinese-Western divide” to an “integrated cultivation” model. The Rehabilitation Therapy program at Nanjing University of Chinese Medicine, a National First-Class Undergraduate Program, faces bottlenecks such as fragmented curricula, unidirectional teaching, disconnection from practice, and unitary assessment. Guided by “boundary-breaking” and “integration,” we systematically construct a six-dimensional ICWM rehabilitation teaching system covering philosophy, curriculum, instruction, practice, faculty, and assessment. By reshaping an integration-oriented training plan, innovating diversified teaching models, bridging stepwise clinical practice, fostering interdisciplinary faculty, and reforming competency-driven assessment, this system enhances students’ integrated clinical reasoning and practical skills. It provides a systematic, actionable pathway for educational reform in rehabilitation therapy.

Keywords: Integrated Chinese and Western medicine; Rehabilitation therapy; Clinical thinking; Teaching system; Talent training

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1. Connotation and characteristics of rehabilitation clinical thinking guided by integrated Chinese and Western medicine

Integrated Chinese and Western medicine (ICWM)-guided rehabilitation clinical thinking takes “breaking

boundaries” as its premise and “integration” as its goal, forming a cognitive model characterized by holistic synthesis, syndrome-disease differentiation, synergistic linkage, and innovative development ^[1,2]. “Breaking boundaries” dismantles theoretical barriers between TCM’s holistic syndrome differentiation and modern rehabilitation’s function-oriented biomechanical analysis, and also removes the tendency toward fragmented knowledge in teaching and practice. “Integration” organically combines the cognitive resources and techniques of both systems, centering on the patient’s specific problems and functional goals, to formulate systematic and individualized rehabilitation plans. This synergy operates at theoretical, technical, and methodological levels. For example, in post-stroke hemiplegic spasticity rehabilitation, modern assessments are used alongside TCM four-diagnosis methods to identify syndromes such as “liver wind stirring internally” or “qi deficiency with blood stasis,” then interventions integrate Bobath techniques, Tuina, Daoyin, and external therapies, achieving disease-syndrome combination and synergistic efficacy. This thinking adheres to a holistic view, addresses multidimensional physical-psychological-social-spiritual needs, integrates syndrome and disease differentiation, emphasizes synergy, and continuously explores new rehabilitation pathways. Importantly, our “integration” differs from traditional “combination”—the latter is simple addition, while the former represents deep organic synthesis and internalized unification in cognition, theory, and practice, forming a new clinical decision-making model.

2. Major bottlenecks in implementing integrative education

Current rehabilitation therapy education in TCM universities faces multiple challenges across curriculum, content, teaching methods, practice, and evaluation ^[3–5]. Curriculum structure shows a “dual-track parallel” pattern: TCM courses and modern rehabilitation courses lack synergy, leading to fragmented knowledge and difficulty in establishing internal connections. Teaching content exhibits “unidirectional knowledge stacking”: most textbooks adopt traditional discipline-oriented approaches, lacking thorough integration points; classroom instruction similarly neglects interdisciplinary integration, e.g., subacromial impingement syndrome teaching often overlooks joint analysis of TCM “shoulder Bi” syndrome and modern techniques. Insufficient diversified teaching methods—such as interdisciplinary case discussions, PBL, and CBL—limit development of critical thinking and comprehensive problem-solving. Our preliminary survey showed only about 35% of PBL-adopted courses involved interdisciplinary content, and most were superficial. Practice components are isolated and inadequately supervised: students lack ICWM practice opportunities during rotations, and clinical instructors often lack integration competence. In a questionnaire survey of our 2019–2021 cohorts, only 28.6% of students reported receiving joint TCM-Western medicine guidance during internships. The evaluation mechanism remains one-dimensional, emphasizing fragmented knowledge memorization and individual skill assessment, failing to include ICWM knowledge integration as a core dimension. Formative assessment accounts for only 20–30% of the total grade, weakly guiding students’ active construction of integrative thinking.

3. Construction of a six-dimensional integrated ICWM rehabilitation teaching system

To address these bottlenecks, guided by “boundary-breaking” and “integration,” our team systematically constructed a “six-dimensional integrated” teaching system covering cultivation objectives, curriculum,

teaching mode, practice, faculty, and evaluation. The system is led by integrative talent objectives, carried by a modular curriculum, driven by diversified teaching, situated within stepped practice, supported by interdisciplinary faculty, and guaranteed by competency-based evaluation. The six dimensions are interconnected and synergistic, forming a closed-loop cultivation chain.

3.1. Reshaping the talent cultivation plan: Establishing an integration-oriented direction

3.1.1. Defining integrative talent objectives

Integrative rehabilitation professionals should possess: a profound foundation in both TCM theory and modern rehabilitation knowledge, able to synthesize both in philosophy, methodology, and practice; proficiency in comprehensive operational skills including TCM Tuina, acupuncture, Daoyin, and modern assessment, therapeutic exercise, and occupational therapy; strong competence in knowledge integration and clinical decision-making to formulate individualized optimal ICWM plans; and sound professionalism with a mindset of continuous innovation.

3.1.2. Constructing an integrative modular curriculum system

Breaking away from mechanical juxtaposition, we build a modular system following “horizontal interconnection and vertical progression.” Horizontally, the curriculum is divided into basic modules (anatomy, physiology, pathology, emphasizing intrinsic links with TCM and rehabilitation), core modules (organized by disease system or functional domain, e.g., neurorehabilitation, musculoskeletal rehabilitation, cardiopulmonary rehabilitation; each integrates TCM and modern knowledge to achieve “disease–syndrome–function–rehabilitation” unity), and expansion modules (rehabilitation ethics, psychology, engineering, broadening knowledge). Vertically, the sequence follows “foundation–integration–innovation”: junior years focus on basic modules to build a dual-track framework; middle years enter core modules for disease-context integration; senior years complete comprehensive ability through expansion modules and integrative capstone courses (e.g., ICWM Rehabilitation Strategies and Practice).

3.1.3. Optimizing integrative course content design

We deeply explore integration points in each module to achieve organic coherence and mutual elucidation, and compile integrative textbooks or teaching guidelines to systematize content.

3.2. Innovating Classroom Teaching Modes to Drive Thinking Integration

3.2.1. Developing integrative teaching resources

Centered on real clinical problems, we develop resources incorporating “disease–syndrome–function–rehabilitation.” Using the case repository of our affiliated hospital’s National Regional Diagnosis and Treatment Center, we compile ICWM rehabilitation cases covering various diseases, with detailed history, TCM syndrome differentiation, assessment results, integrated treatment plans, and outcome evaluations. We also produce integrative courseware, video resources, and an online learning platform with discussion forums and Q&A to support self-directed and collaborative learning.

3.2.2. Promoting diversified teaching methods

We abandon single lecture-based teaching and vigorously promote active inquiry methods. Interdisciplinary case teaching uses typical clinical cases for group discussions, where students formulate integrated plans

after performing both TCM and Western assessments, then present and receive feedback [6–8]. PBL guides students to independently search literature and solve real rehabilitation problems, naturally integrating both knowledge systems. Flipped classroom places basic knowledge acquisition before class via online videos, freeing class time for case analysis, group discussions, and hands-on practice, markedly improving thinking depth.

3.2.3. Strengthening thinking training design

We emphasize cultivating students' ICWM integrative thinking. Students are guided to compare differences and complementarities between TCM and modern rehabilitation in theory, reasoning, assessment, and techniques. They are encouraged to integrate strengths for specific clinical problems and design synergistic plans, while also developing critical thinking by reflecting on and optimizing existing integrated methods.

3.3. Connecting clinical practice components: Creating an immersive integration field

Cultivating ICWM thinking must be rooted in clinical practice; therefore, we construct an immersive teaching system bridging academic education and clinical internship. On campus, we establish a dedicated ICWM simulation training center equipped with modern devices and TCM diagnostic instruments, using standardized patients and virtual case technologies to create realistic scenarios. In this safe environment, students conduct integrated diagnostic analysis, plan formulation, and operational training, repeatedly practicing clinical decision-making. Based on this, we design stepped practice teaching according to ability development stages.

In the clinical practice phase at our affiliated hospital and other sites, we implement the “TCM–Western medicine dual-mentor system.” Each student is jointly supervised by a TCM mentor and a Western rehabilitation mentor, participating in the entire patient care process in outpatient and ward settings. The dual mentors guide students to analyze the same case from different perspectives, compare characteristics and complementarities, and demonstrate how to organically integrate the two systems to optimize outcomes. This facilitates students' transformation of theoretical knowledge into clinical competence, achieving genuine systematic integration and deepening of thinking through solving real-world problems.

3.4. Cultivating interdisciplinary teaching teams: Achieving faculty symbiosis

To deepen ICWM education, we break disciplinary barriers and establish an interdisciplinary collaboration mechanism characterized by “co-preparation, co-research, and co-teaching.” We build joint teaching teams of TCM and Western rehabilitation faculty who together undertake integrated curriculum tasks. Both sides prepare lessons together, unify teaching plans, jointly research innovative models, and adopt “dual-instructor co-teaching” in the classroom to guide students in forming integrative thinking. Concurrently, faculty training is strengthened through expert lectures, specialized workshops, short-term clinical rotations, and participation in academic research, systematically enhancing teachers' ICWM competence and teaching practice abilities ^[9].

3.5. Reforming the teaching evaluation system: Focusing on competency development

We reform the existing evaluation system by strengthening formative assessment and moving away from sole reliance on summative examinations. Formative assessment employs diverse methods such as mind maps, rehabilitation plan design, reflective logs, and classroom performance to comprehensively evaluate students' integrative thinking, clinical analysis, and collaboration abilities. Summative assessment focuses

on evaluating students' competence in applying ICWM knowledge to solve practical problems through case analysis and comprehensive skill assessments. Furthermore, we establish a developmental tracking mechanism to longitudinally monitor graduates' career development, professional application, and employer feedback, using results to continuously optimize teaching, forming a closed loop of “cultivation–practice–evaluation–optimization” that dynamically aligns talent cultivation with professional demands ^[10].

4. Conclusion

This paper analyzes developmental bottlenecks in current ICWM rehabilitation education and identifies “collaborative inertia”—arising from conceptual barriers, institutional walls, and resource dispersion—as the core constraining factor. To address this, we construct a “six-dimensional integrated” synergistic development system comprising philosophy, curriculum, instruction, practice, faculty, and evaluation, resolving the crux through top-level planning, stepwise pilot implementation, and cultivation of an integration culture. This system, with its closed-loop interconnected mechanism running through the entire cultivation process, aims to systematically nurture the high-quality versatile rehabilitation professionals demanded by the field, providing a workable theoretical framework and practical pathway reference for educational and teaching reforms in relevant institutions.

5. Limitations and future prospects

The “sixdimensional integrated” system, while systematic, underexplores the integration of emerging technologies—a limitation. Intelligent technologies (e.g., big data, AI, virtual reality) offer opportunities for personalized teaching and immersive clinical simulations, which can address traditional practice resource constraints. Future work should focus on developing intelligent integrative teaching resource databases and virtual simulation platforms for clinical thinking training, thereby further reducing collaborative inertia and refining the ICWM rehabilitation education paradigm.

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Disclosure statement

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