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Complete List of Authors:	Ambrosino, Nicolino; Istituti Clinici Maugeri, IRCCS Montescano Polastri, Massimiliano; Sant'Orsola Malpighi Hospital, Medical Department of Continuity of Care and Disability, Physical Medicine and Rehabilitation Vitacca, Michele; Istituti Clinici Maugeri, IRCCS Lumezzane Nava, Stefano; University of Bologna, Diagnostic and Experimental Medicine (DIMES); University of Bologna and University Hospital St. Orsola-Malpighi Clini, Enrico; University of Modena and Reggio Emilia, Medical and Surgical Sciences; University Hospital of Modena Policlinico
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Tai Chi recreational exercise is not rehabilitation

Nicolino Ambrosino, MD FERS[1]; Massimiliano Polastri MSc[2]; Michele Vitacca, MD FERS[3]; Stefano Nava, MD FERS[4]; Enrico Clini, MD FERS[5]

[1] Istituti Clinici Scientifici Maugeri, Respiratory Unit, IRCCS Montescano (Pavia) - (I)

[2] Medical Department of Continuity of Care and Disability, Physical Medicine and Rehabilitation, University Hospital St. Orsola-Malpighi, Bologna - (I)

[3] Istituti Clinici Scientifici Maugeri, Respiratory Unit, IRCCS Lumezzane (Brescia) - (I)

[4] Dpt. of Specialistic, Diagnostic and Experimental Medicine (DIMES), University of Bologna and University Hospital St. Orsola-Malpighi, Bologna - (I)

[5] Dpt. of Medical and Surgical Sciences, University of Modena Reggio Emilia and University Hospital of Modena Policlinico - (I)

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Conflict of Interest

Authors declare that they have no conflicts with the present manuscript

Corresponding author

Prof. Enrico M.Clini, MD FERS
University of Modena & Reggio Emilia
Chair of Respiratory Medicine
Director Post-doctoral School in Respiratory Medicine
Azienda Ospedaliera-Universitaria di Modena, Policlinico
Director, Pneumology Unit

☎ Office +39 059 4222918
☎ Secretary +39 059 4222198
✉ enrico.clini@unimore.it

To the Editor:

We read with interest the study by Polkey and coworkers [1] showing the effectiveness of Tai Chi recreational exercise in a group of 120 COPD patients screened from a wide population. Two weeks after starting inhaled indacaterol 150 mcg *uid*, naive COPD patients were randomized to receive either a standard pulmonary rehabilitation course (PR) or Tai Chi (TC) for 12 weeks. The primary end point was score change in the disease-specific Saint George Respiratory Questionnaire (SGRQ), with measurements taken from pre-post interventions and also 12 weeks later on. Authors found that TC was equivalent to PR for improving SGRQ in these patients. Moreover, a clinically significant difference in SGRQ emerged favouring TC 12-week after exercise cessation, thus suggesting that "*Tai Chi is an appropriate substitute for PR*".

On the basis of our current insights, the American Thoracic Society (ATS) and the European Respiratory Society (ERS) adopted in recent years a new and more structured definition of PR as *"… a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies, which include, but are not limited to, exercise training, education, and behaviour change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence of health-enhancing behaviours"* [2]. This underlies two most important aspect of PR as a non-pharmacological intervention, namely the team-based work (multidisciplinary) and the individually tailored intervention with multiple activities. This recalls to our attention what is "pulmonary rehabilitation", which is not any form of single physiotherapy intervention or leisure activity (including TC) where patients are asked to exercise irrespective of any physiological principles and (sometimes) outside the ideal setting.

Overall, moderate to high levels of regular physical activity are associated with reduced lung function decline and exacerbation rates in patients with COPD [3] and may lower the risk of developing COPD among adult smokers [4]. The actual debate around the best and preferred form of exercise to be adopted to keep a

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patient with COPD as active as possible, should not distract attention from which is the goal of PR as a sophisticated form of therapy. As a matter of fact, the study by Polkey et al. [1] indicates that patients in the PR group performed a mix of exercise training modalities rather than a formal course with multiple goals. For instance, the body mass index of the patients included was around 20-21 which claims for additional and structured forms of intervention (like nutritional support/advice) within a PR programme. Therefore, this study only seems to compare TC with exercise, but not with PR. Finally, no information on whether the exercise sessions in the two groups were attended was included in the paper, so that a potential Hawthorne effect [5] cannot be excluded, especially if referred to those patients performing TC.

The population in the study (as in Table 1) indicates that the COPD included were of medium to high ~~level of~~ functional severity but with an apparently narrow range of dyspnea MRC-score and a good physical activity level (daily step count). This is consistent with the low existing relationship between lung function and physical performance status, which claims the priority to immediate bronchodilation in symptomatic subjects before and over the possible and potential benefit of exercise, which is no alternative but an accessory to medication(s) [6].

Since the COPD population in the study was naïve to medication, the lack of a control arm using indacaterol alone may be criticized. Indeed, it is possible that improvements in SGRQ score were more likely to be induced by drug therapy thus leading to a "ceiling effect" which covered any difference between TC and PR. Rather interestingly introduction of indacaterol to naïve patients did not result in any significant improvement in lung function (e.g. FEV1), which might have been the case in moderate to severe patients [7], even more probable in individuals naïve to bronchodilators and/or unaware of their disease.

With their conclusion ("*Tai Chi is an appropriate substitute for PR*") authors essentially speculate that any recreational activity, like Tai Chi, may have the potential of a low-cost initial therapy among COPD. We entirely catch the point

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that every (potentially) useful intervention may be better than nothing, especially in those countries with difficult and inhomogeneous conditions like in China, with a 8.6% prevalence of COPD in an adult population of more than 1400 million people [8]. Clearly there is a role for alternative interventions to help patients with their disability in the long-term. In addition, it is very likely that Tai Chi can be learned easily by Chinese patients thanks to its diffusion in East Asia world region, thus making the technique more appealing both for patients and for clinicians in this geographical area. However, we suggest authors to be cautious when giving messages potentially able to neglect the relevance of medical therapy [6], which otherwise should be delivered to all symptomatic patients.

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