

Introduction

Kozo Nakamura¹

Published online: 1 June 2016

© Springer Science+Business Media New York 2016

The importance of exercise for preventing diseases that affect life expectancy, such as hypertension and diabetes, has long been established. However, little attention has been given to the locomotive organs, which enable the performance of exercise. With increases in life expectancy, quality of life (QOL) is becoming an important issue as part of survival prognosis, and locomotive organ health is receiving more attention.

Locomotive organs include not only the muscles and bones, but also the body parts responsible for motion and shock absorption, such as the joints and intervertebral discs. Movements occur when all these parts work in concert. While insufficient exercise, underloading, and emaciation are risk factors for disorders of the bones and muscles, excessive exercise, overloading, and obesity are risk factors for damage to the joints and intervertebral discs. Furthermore, in middle-aged and elderly people, disorders of the bones, muscles, joints, and intervertebral discs may act synergistically to reduce mobility, including standing and walking. The recent rapid increase in life expectancy in our society has led to this phenomenon becoming, for the first time, a serious problem.

Locomotive syndrome is a concept that was proposed along with solutions to manage this situation. In the following articles, we survey this concept and its disease status primarily from the standpoints of gait disorders and activities of daily living (ADL).

Nakamura and Ogata discussed the concept of locomotive syndrome, its evaluation methods, specific

countermeasures, and results. In Japan, Yoshimura and Nakamura described the epidemiology of osteoarthritis (OA) and osteoporosis, which are related to locomotive syndrome, and knee and lumbar pain, which are common symptoms. Endo discussed osteoporosis and fragility fractures as the main diseases of locomotive organs, focusing in particular on hip fractures, risk for subsequent fractures, and reduced QOL after fractures. Iijima and colleagues reviewed the impact of hip OA and knee OA on the lives of elderly people. Makino and colleagues reviewed spinal disorders such as low back pain (LBP), neck pain, lumbar spinal stenosis (LSS), degenerative cervical myelopathy, and degenerative spinal deformity. Akune performed a review of sarcopenia. Finally, Akai and colleagues surveyed the indications for exercise intervention in multiple locomotive organ involvement based on the existing literature, and analyzed a self-reported numerical questionnaire, the Geriatric Locomotive Function Scale (Locomo-25), which is 1 of the 3 methods used to evaluate the severity of the locomotive syndrome.

In these articles, we see that the locomotive organs are not necessarily healthy throughout life in populations with a higher life expectancy. Moreover, since the ways that locomotive organs are used can increase the risk of disease, it is possible to take preventative measures. The concept of locomotive syndrome will become even more vital in terms of extending healthy life expectancy as the elderly population increases.

Acceptance of this concept in Japan is growing, and “increasing awareness of locomotive syndrome” is set as a target in the government’s Health Japan 21 health policy for 2013–2022. Awareness of the concept among adults has grown from 17.3 % initially in 2012 to 47.3 % in April 2016. Going forward, we also expect this concept to spread to other countries.

✉ Kozo Nakamura
kozo-nakamura-62@jcom.home.ne.jp

¹ National Rehabilitation Center for Persons with Disabilities, Tokorozawa, Saitama Prefecture, Japan