

Attempts of forest therapy at Nishino Hospital in Kita-Kyushu city, Japan

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Abstract : An aging society is currently a feature of our country, and health promotion for the elderly has also become an issue. Many elderly people suffer from some kind of disease or poor physical condition, feel anxious about their health, and it is not uncommon for elderly people to spend the rest of their lives in social welfare facilities. Under these circumstances, this report shows a case in which a local hospital and social welfare facility have several hectares of forest on their premises, and are using it for health and respite for patients and users.

Keywords: local hospital, social welfare facility, health promotion

北九州市の西野病院における森林療法の取り組み

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要旨

現在、我が国は高齢化社会を迎えており、高齢者の健康増進も課題となっている。多くの高齢者が何らかの病気や体調不良を患い、健康に不安を抱え、社会福祉施設で余生を送るケースも珍しくない。本報では、地元の病院や社会福祉施設が敷地内に数ヘクタールの森林を所有し、患者や利用者の健康と憩いの場として活用した事例を報告する。

キーワード：地域病院、社会福祉施設、健康増進

1 . Medical Corporation Furate Association, Social Welfare Corporation Furate Welfare Association

Furate Medical Corporation Nishino Hospital (Director: Kenji Nishino) and Social Welfare Corporation Furate Fukushi Association (Director: Keiko Nishino) are regional hospitals and social welfare facilities located on the outskirts of Yawata Ward, Kitakyushu City. Nishino Hospital was opened in 1950 (Showa 25), and its ward was constructed at its current location in 1995 (Heisei 7). It is a general hospital with departments of internal medicine, neurology, pulmonology, cardiology, gastroenterology, pediatrics, orthopedics, rehabilitation, and radiology. In 2003, a social welfare corporation was established on the same premises, and various elderly care facilities were opened, allowing medical care and welfare to coexist (Fig.1).

The philosophy of Furatekai Medical Corporation and the three pillars are:

- ① Lifelong health support: disease prevention and management according to age and condition
- ② Continuous involvement in nursing and rehabilitation from the recovery period to home and facilities
- ③ Lifestyle support that allows you to live with peace of mind: Setting up an environment where you can have peace of mind

and increase your will to live



Figure 1. Patients and users at Nishino Hospital (March 2023)

図1. 西野病院での患者さん、利用者さんの様子
(2023年3月)

A distinctive feature of Nishino Hospital and social welfare facilities is their location. The hospital owns 9 hectares of forest adjacent to the ward. The mountain forest consists of deciduous broad-leaved trees, mainly Fagaceae such as *Quercus serrata*, *Castanea crenata*, mixed with *Acer palmatum*, *Morus australis*, *Neolitsea sericea*, *Quercus phillyreoides*, *Nandina*

domestica, *Eurya japonica*, *Cleyera japonica*, and *Smilax china*. It is a remnant of a typical satoyama forest in the Kyushu region, consisting of evergreen broad-leaved trees such as cypress and cedar, as well as evergreen coniferous trees such as Japanese cypress and cedar. Director Kenji Nishino built a hospital on this site with the idea of using these location conditions as a medical environment. *Cerasus* cherry trees, *Ginkgo biloba*, *Metasequoia glyptostroboides*, and other trees have been planted near the grounds of hospital wards and welfare facilities, forming a grove of trees. Visitors can be seen taking walks under the grove of trees throughout the year (Fig. 2 to Fig.4) .



Figure 2. The forest owned by Nishino Hospital is adjacent to the hospital. It is a Satoyama forest with a mixture of evergreen and deciduous broadleaf trees.

図2. 西野病院に隣接する所有林。常緑、落葉広葉樹の混交する里山林である

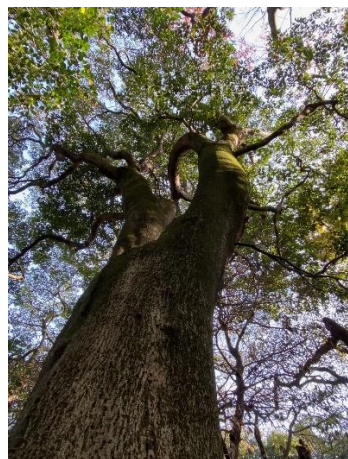
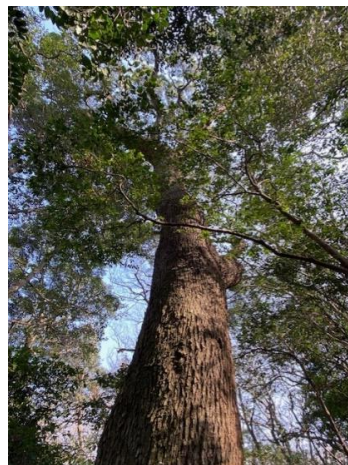


Figure 3. Tall trees seen in the forest.

From top to bottom, *Quercus serrata*, *Cinnamomum camphora*, and *Machilus thunbergii*

図3. 林内にみられる高木。上から、コナラ、クスノキ、タブノキ



Figure 4. Condition of the canopy, which is made up of evergreen broad-leaved trees, mainly *Cinnamomum camphora* and *Machilus thunbergii*. During the war, this area was home to a naval munitions depot, and the trees were not cut down to shield it, and remnants of this can still be seen today.

図4. クスノキ、タブノキを主とした常緑広葉樹から成る林冠の状況。当地は戦争中、海軍の弾薬庫があり、その遮蔽のために樹木を伐採せず、その名残りが現在みられる。

The name "Frate-kai," which is a mutual association between medical corporations and social welfare corporations, comes from the English word fraternity. Both corporations share a common emphasis on natural therapy, which is defined as "utilizing nature and its workings to address and improve human physical and mental problems." It is defined as. Natural treatments also target medical causes such as functional impairment, dementia, and Alzheimer's disease, as well as socially related illnesses such as depression and trauma. Categories of natural therapy include farm therapy, horticultural therapy, outdoor activity therapy, landscape therapy, and so forth. (Figure 5 to 12)



Figure 5. Flowers and vegetables are grown throughout the year.
図5. 四季を通じて、草花や野菜が育てられている



Figure 6. Examples of vegetables and horticultural plants grown by users on the premises.

図6. 敷地内で利用者さんが育てている野菜、園芸植物の栽培例。



Figure 7. Vegetable fields and farmland owned by a corporation. Organic farming is practiced.

図7. 法人所有の野菜畑と圃場。有機栽培がおこなわれている。



Figure 8. The cultivated agricultural products are also sold as they are.

図8. 育成した農産物はそのまま販売もされている。



Figure 9. The agricultural products grown are also served in the cafeteria (Director Nishino is on the left)
 図9. 育てた農産物は、カフェテリアでも提供される (左は、西野院長)



Figure 12. Visitors strolling through the trees and forest edge on the premises

図12. 敷地内の木立、林縁を散策する利用者の様子

2. Surveying and understanding the forest environment (implemented in December 2022)

I attempted forest survey in several times from December of 2022 to May of 2023.

The forest is a typical Satoyama found in the Kitakyushu region. It is clear that it was once a firewood and charcoal forest, and there are many regenerating trees scattered throughout the forest. The tall tree layer of the forest is mainly composed of three tree species: evergreen broad-leaved trees such as *Cinnamum camphora* and *Machilus thunbergii*, and deciduous broad-leaved tree *Quercus serrata*, while the medium tree layer is dominated by pine tree, and the shrub layer is dominated by *Dendropanax trifidus*, *Aucuba japonica*, and a member of the Lauraceae family, *Cinnamomum yabunikkei* and *Neolitsea sericea* were seen.

The A layer (surface layer) of the forest soil has a granular structure due to fallen leaves. At the forest boundary, there are also signposts from when the land was once used by the army (Figure13 to 15).

Illuminance in the forest was low, estimated to be 5-10% relative illuminance.



Figure 10. Patients and users engage in occupational therapy-related handicrafts throughout the year.

図10. 患者さん、利用者さんの作業療法による手工芸は年間を通しておこなわれている。



Figure 11. Horticultural therapy carried out outdoors

図11. 屋外での園芸療法の実施



Figure 13 Vegetation survey in 2m mesh.

(Middle) Seedlings of *Machilus thunbergii*

(Bottom) Seedlings of *Dendropanax trifidus*

図 13. 2mメッシュでの植生調査

(中)タブノキの実生

(下) カクレミノの実生

Figure 14. Examples of sprouting regeneration commonly seen in forests (such as *Ilex integra*)

図 14. 林内でよく見られる萌芽更新の例 (モチノキなど)



Figure 15: forest floor of surveyed site
 (Top) Soil layer A has a granular structure.
 (Middle) Oak wilt is also visible.
 (Bottom) A signpost on the former army site.

図 15. 調査地の林床の状況
 (上) 土壌の A 層は団粒状構造
 (中) 林間に見られるナラ枯れ
 (右) 旧陸軍用地の標柱

3. Conducting training sessions and on-site workshops for hospital and social welfare facility staff

Based on the characteristics of the environment of Nishino Hospital and social welfare facilities, the corporation specifically requested the use of the forest adjacent to the building. Therefore, in December 2022, I conducted a forest environment survey and a training session using the trees, in March 2023, I also conducted a forest environment measurement, survey of forest floor vegetation, and a forest workshop, and in May of the same year, I conducted a forest environment survey and workshop using the trees. held a workshop aimed at patients and users.

After the forest surveys, a forest therapy training session was held for medical staff (nurses, occupational therapists, physical therapists, speech therapists, and so forth.).

Requests made by medical staff at the training session were as follows ;

- ① We would like you to conduct a vegetation survey to find out what kind of trees are in the forest, and attach name tags to the trees.
- ② We would like you to create a sample rest area.
- ③ We would like the walking path to be redeveloped.
- ④ We would like you to think of some type of occupational therapy that is related to trees.

In response to these, regarding ①, identification tape was attached to representative trees in the forest and the names of the trees were clearly written. Later, it was replaced with a license plate with the name of the tree (Figure 16 to 22) .



Figure 16. Identifying tree names, attaching identification tags, and introducing the branches and leaves of trees in the forest
図 16. 樹木名の明記と鑑札の取り付けや林内樹木の枝葉の紹介



Figure 17. Trial of creating a rest space.
The top is before construction, the bottom is after construction.
図 17. 休養空間づくりの試行. 上は整備前, 下は整備後.



Figure 18. Dead oak trees were used to create the rest area.
Euonymus japonicus branches were used as bench stoppers.
図 18. 休養空間づくりには、コナラの枯損木を活用した。
ベンチのストッパーには、ヒサカキの枝を利用した。



Figure 19. Wood from forest management was used for firewood and pottery.

図 19. 林内整備の除伐材は薪や陶芸にも利用された

Regarding ②, I considered walking with several staff members and using their foot pressure to pave the path and lay chips. I also considered creating regular walking days and making the walking paths more stable.



Figure 20. Consideration of redevelopment of walking paths

図 20. 散策路の再整備の検討

Regarding ③, I considered collecting trees and fruits that can be used for occupational therapy, and using them for activities such as sowing seeds and cuttings. Additionally, at the training session, participants considered making aromatic perfumes from tree branches and leaves collected in the forest and using them for future occupational therapy.



Figure 21. Demonstration of making aromatic perfume from the branches and leaves of *Neolitsea sericea*, *Machilus thunbergii*, and so forth, collected in the forest.

図 21. 林内で採集したシロダモ、タブノキなどの枝葉からの芳香水製作の実演



Figure 22. A training session with Director Nishino, nurses, and therapists.

図 22. 西野院長はじめ、看護師や各療法士の方々の研修会の様子

At a workshop for forest staff (held in March 2023), The use, treatment, and rehabilitation of patients at Nishino Hospital and users of social welfare facilities were considered. This time, for the purpose of recreational use, I invited all of the medical staff and nursing care staff to actually enter the forest and conduct a hands-on workshop (Figure 23 to 27).



Figure 24. Workshop in the forest
Discussion on vegetation and therapeutic uses

図 24. 林地でのワークショップ
植生や療法的な利用についてディスカッションをおこなった



Figure 25. Walking through the forest with users in mind

図 25. 利用者さんの利用を想定しての林内散策



Figure 23. Forest site inspection and forest learning

図 23. 林地での実地検分と森林の学習

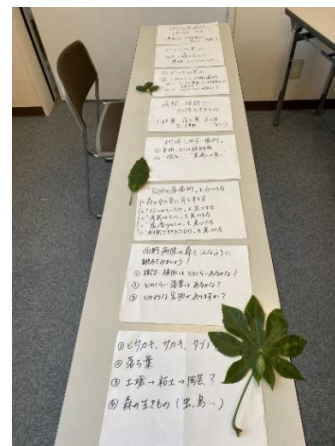


Figure 26. Programs devised through workshops

図 26. ワークショップを通して考案した各プログラム



Figure 27. Searching for edible plants
 図 27. 食用になる植物さがし

After completing this workshop, we devised the following 18 programs together with the staff. These are professionals who care for patients and users on a daily basis, so many unique programs were quickly created.

- ① Pottery using forest clay
- ② Making a basket using forest vines
- ③ Bird watching by setting up nest boxes and feeding areas in the forest
- ④ Install log chairs using fallen trees
- ⑤ Make coasters, trivets, and name tags from fallen trees
- ⑥ Collect and sell *Eurya japonica* from the forest floor
- ⑦ Pick up acorns and make crafts
- ⑧ Make an acorn cultivation set
- ⑨ Make leaf mulch with fallen leaves
- ⑩ Collect fallen leaves and collect insects
- ⑪ Make hand bath salts from the leaves of the japonica
- ⑫ Make aroma water from forest branches and leaves
- ⑬ Cultivating shiitake mushrooms using Quercus wood
- ⑭ Make a fire with dead branches, bake bread, and make tea.
- ⑮ Rehabilitation using slopes and stairs in the forest
- ⑯ Search for nostalgic things and places in the forest
- ⑰ Spend some quiet time in the forest
- ⑱ Make a photo album of forest plants, birds, and insects.

4. Implementation of forest experience program for patients and users (May 2023)

After two training sessions and workshops in December 2022 and March 2023, I finally started a forest experience program for users of social welfare facilities from May

2023. On the day, 16 users were cared for almost one-on-one by care workers.

The contents of the program included walking, guided tours of trees, the scent and texture of tree leaves, experiencing the air in the forest, reminiscence techniques, and the creation of aroma water. (Figure 28 to



Figure 28. Implementation of forest experience programs for actual users (May 2023)

図 28. 実際の利用者さんを対象とした森林体験プログラムの実施 (2023年5月)

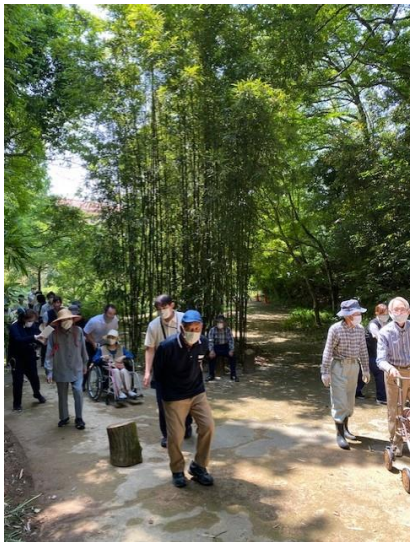
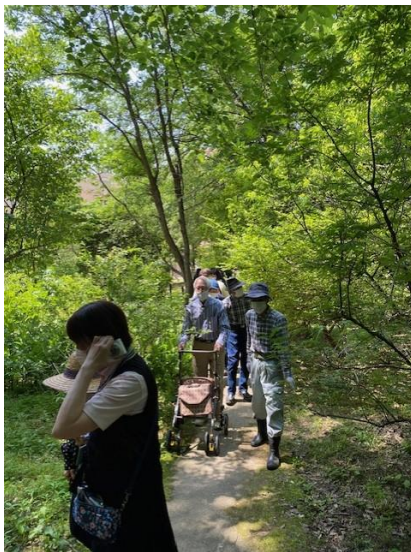


図 29. 車いすや歩行器も利用しての散策
Figure 29. Walking around using a wheelchair or walker

Figure 30. While walking, participants experienced the scent and temperature, and also participated in the reminiscence method. Many participants picked up seeds and fruits (top: *Acer palmatum*, bottom: *Cerasus*) and had past memories come back to them.

図 30. 散策をおこないながら、香りや気温の体感、回想法などもおこなった。種子、果実(上:イロハモミジ 下:サクラ)を手に取り、過去の思い出がよみがえった参加者が多く見られた。



Figure 31. Reviewing collected branches and leaves and learning from picture books. Many users have a strong intellectual curiosity and actively learn the names of trees.

図 31. 採集した枝葉の復習と絵本での学習
樹木名を積極的に覚えるなど、知的な好奇心も高い利用者さんも多い

Figure 32. Aromatic water was made from the branches and leaves collected on the day's walk.

図 32. この日の散策で集めた枝葉からアロマ・ウォーターを製作した



Figure 33. Appreciating aromatic water.

The fragrance of trees is so popular.

図 33. アロマ・ウォーターを鑑賞
樹木の香りは人気がある

5. Try it in practice

Through practicing forest therapy at Nishino Hospital, I realized the following:

① Utilizing the diversity of the environment and materials

In order to stimulate and affect the five organs of the target vehicle, it is important to ensure the diversity of the environment and materials. The forest environment contains many of these elements and has sufficient potential as an activity environment. This time, the subjects were elderly people, but there were enough elements in the forest surrounding the hospital to appeal to the intellectual interests and sensibilities of each subject.

② Securing human resources to provide assistance, support, and guidance

Human resources are needed who can sense the wishes, intentions, and needs of the target audience and provide appropriate environment settings and programs on a case-by-case basis. For this purpose, medical and welfare-related professionals who deal with the target population on a regular basis are considered to be ideal candidates. These people participated in this project, and they were perfectly suited for their roles. This case study shows that even people in the medical and welfare fields can fully enjoy forests and practice forest therapy, even if they are not familiar with forests or trees, by providing support and coordination from people involved in the forestry industry.

② There are large individual differences between users.

Regardless of disability, disease, aging, etc., individual

differences among clients are large and diverse. In order to deal with the diversity of individual differences, it is also necessary to ensure the diversity of both the environment and human resources that can accommodate these differences. At the same time as setting up a wide range of environments, it is desirable to involve a variety of human resources without relying on people in specific areas.

③ Providing a comfortable place to spend time

The basic idea is to provide the target participants with a place that is basically quiet and where they can experience the scenic effects of nature and forests throughout the four seasons. This year's case study site, the forest environment around Nishino Hospital, was the perfect place.

It is also desirable to have a place where you can relieve daily stress and recover from fatigue. There is no doubt that the places of daily life in hospital wards and institutional buildings are also places that bring about some kind of stress. Being able to do things that are not possible in everyday life, being able to relax in safety and security, and being able to go easily.

It is significant to provide these points in a forest environment.

6. Summary and possibility of this case

To summarize the above, it can be said that the barrier-free and universal design use of forests has been shown once again to ensure the human environment at the same time as ensuring the forest environment. Also, after implementing a program for the elderly,

I realized once again that everyone has a strong intellectual curiosity. There are many elements in forests that arouse intellectual curiosity. This is true even if it is not a specially created forest, but a forest in an ordinary area. This point is also the basis for the universal significance of forest therapy.

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